



Exam : 070-549

Title : Designing and Developing Enterprise Applications
by Using the Microsoft .NET Framework

Ver : 09-20-07

QUESTION 1

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a financial institution.

You have been asked to make a recommendation in terms of the technological design to meet the Certkiller .com requirements. The plan is to develop a component for Certkiller .com. And this component is to provide the business logic for the management of customer accounts. The component should meet certain technical requirements to serve the Certkiller .com needs. Following is a list of these requirements:

1. Instantiated classes must be reused by multiple threads.
2. Method calls must be rolled back in the event of a failure occurring.
3. Only certain users must have the ability to call certain methods.

In your recommendation you should mention the appropriate technology that will meet these technological requirements.

What should you do?

- A. Recommend the use of Microsoft .NET Enterprise Services.
- B. Recommend the use of Message Queuing.
- C. Recommend the use of Extensible Markup Language (XML) Web services.
- D. Recommend the use of Microsoft .NET Remoting.

Answer: A

Explanation: Microsoft .NET Enterprise Services will allow you to build applications and components that make use of COM+ services. It further allows you to develop components able of supporting transactions, just-in-time (JIT) activation. Object pooling, as well as role-based security. One of the requirements that should be met includes a roll-back method call in the event of failure. Object pooling will allow you to reuse class instances. And role-based security allows you to restrict method calls to specific users.

Incorrect answers:

B: Message Queuing will not work under these circumstances since though it will allow you to support component-to-component communication through messages; it does not support role-based security to restrict method calls to certain users.

C: You should not recommend the use of Extensible Markup Language (XML) Web services because although it allows one to support communication across different platforms by means of using open Internet Protocols. However, it does not support object pooling to reuse class instances. And this is one of the requirements that should be met.

D: .NET Remoting allows you to support communication across application domain boundaries by means of using remote method invocations; it does not provide transaction support to roll back in case of failure.

QUESTION 2

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as the local municipal traffic authority in Miami.

You have been instructed to develop an enterprise application for Certkiller .com. Following is a list of all the requirements that you should keep in mind when you develop the application:

1. Speeding fine calculations should be:

In the event of a driver exceeding the speed limit by more than 10 and less than 20 kilometers per hour (KPH) - the corresponding fine should be \$100 with an additional amount of \$10 for each KPH over the limit.

In the event of a driver exceeding the speed limit by 20 or more KPH, the corresponding fine should be \$250 with an additional \$25 for each KPH over the limit.

To this end you write the following pseudo-code to address the requirements:

DECLARE speedLimit INTEGER

DECLARE speed INTEGER

DECLARE fine INTEGER

Now you need to complete the pseudo-code.

What should you do? (Choose the correct code segment.)

A. IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

B. IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

C. IF speed - speed limit > 20 THEN

fine = 250 + 25 * (speed - speed limit)

ELSE IF speed - speed limit > 10 THEN

fine = 100 + 10 * (speed - speed limit)

D. IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

ELSE IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

Answer: C

Explanation: You should make use of

IF speed - speed limit > 20 THEN

fine = 250 + 25 * (speed - speed limit)

ELSE IF speed - speed limit > 10 THEN

fine = 100 + 10 * (speed - speed limit)

as the code segment. As this is written the code first determines whether the speed exceeds the speed limit by 20 or more KPH. If so, then the fine will be set at \$250 + \$25 times the number of KPH exceeding the limit.

If not, the code will determine whether the speed exceeds the limit by more than 10 KPH, if so the fine is set to \$100 + \$10 time the number of KPH exceeding the limit.

Incorrect answer:

A: If you make use of

IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

it will determine whether the speed is greater than 10KPH or whether it is 20 KPH or more instead of calculating the difference between the speed and the speed limit.

B: If you make use of

IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

it will a fine to be set to \$100 + \$10 for each KPH over the limit even if the driver's speed exceeds 20 KPH or more.

D: If you make use of

IF speed > 10 THEN

fine = 100 + 10 * (speed - speed limit)

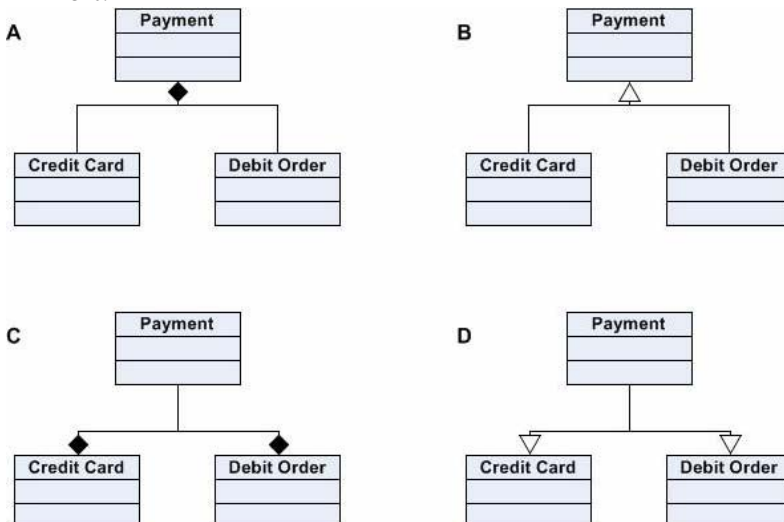
ELSE IF speed > 20 THEN

fine = 250 + 25 * (speed - speed limit)

it will determine whether the speed is greater than 10 KPH or whether 20 KPH or more, instead of calculating the difference between the speed and the speed limit.

QUESTION 3

Exhibit:



You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named

Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .COM operates as an insurance company.

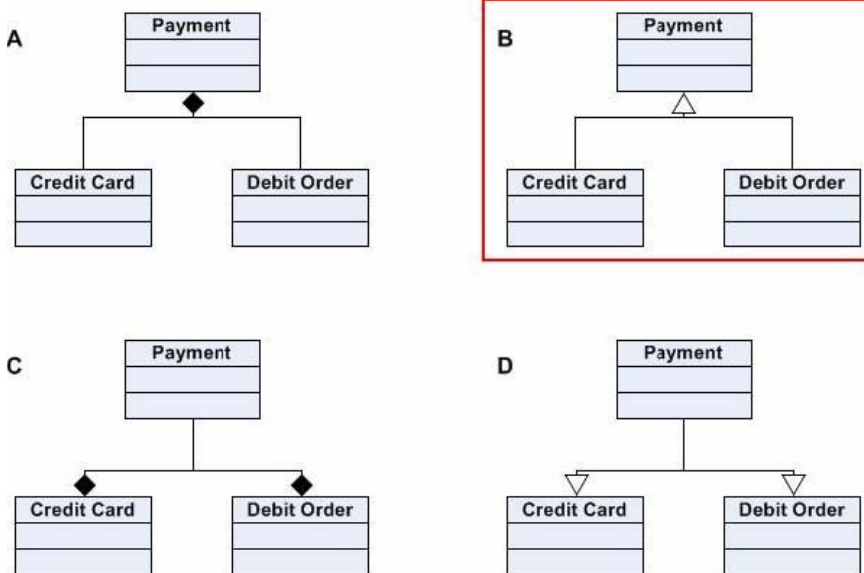
You are currently developing an enterprise application that is destined to allow the Certkiller .com customer to pay their premiums for the insurance services rendered to them. The Certkiller .com customers have a choice in payment options: credit card or debit order. In your development of this application you took a decision to model the requirements on a class diagram. You now need to choose the appropriate class diagram.

What should you do? (To answer, choose on the correct class diagram.)

- A. Diagram A
- B. Diagram B
- C. Diagram C
- D. Diagram D

Answer: B

Explanation:



The particular diagram models generalization. Taking into account the requirements, a customer may pay his/her premiums via credit card or debit order. This means that the payment class can be specialized through Credit Card and Debit Order classes. In a class diagram that models generalization, the triangle points to the general element.

Incorrect answers:

A: This particular diagram models composition and indicates that a payment of premiums has a credit card and a debit order, which is not the case.

C: This particular diagram models composition and indicates that a credit card and a debit order has a payment, which is not the case.

D : This particular diagram also models generalization, however, it is depicted in the wrong direction. This will indicate that a payment of premiums is both by credit card and debit

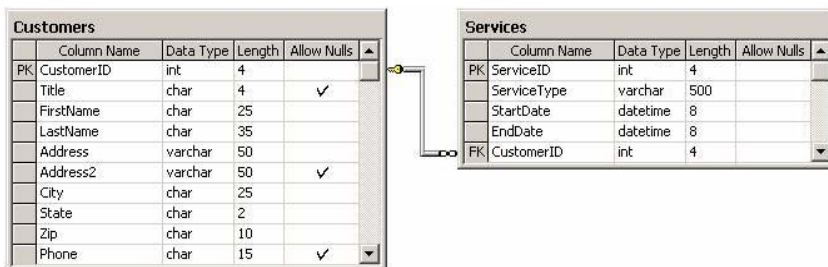
order, which is not correct. The payment of premiums is either one of the two, but not both.

QUESTION 4

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an Internet Service Provider (ISP).

You are currently developing an enterprise application for Certkiller .com. Certkiller .com currently offers its customers three services: Web site hosting, Internet connectivity and voice over Internet Protocol (VoIP). The choice of purchasing one or more of these services is up to each customer. Furthermore, multiple customers can purchase the same services. In the event of a customer purchasing a service, a service commencement date, as well as service termination data is set for that customer. The exhibit below illustrates the logical database design for the application.

Exhibit:



You now need to normalize the database.

What should you do?

- A. Move all columns from the Services table to the Customers table except the CustomerID column.
Change the primary key on the Customers table to include the ServiceID column.
Delete the Services table.
- B. Move all columns from the Customers table to the Services table except the CustomerID column.
Change the primary key on the Services table to include the CustomerID column.
Delete the Customers table.
- C. Add a table named CustomerServices.
Add a Foreign Key to the CustomerServices table that references the CustomerID column of the Customer table.
Add a Foreign Key to the CustomerServices table that references the ServiceID column in the Services table.
- D. Add a table named ServiceType and add two columns named ServiceTypeID and Description respectively.
Add a foreign key to the Services table that references the ServiceTypeID column of the ServiceType table.
Remove the ServiceType column from the Services table.

Answer: D

Explanation: When you normalize a database, you in essence separate the data into multiple tables to reduce duplicate data. In this case, the Services table contains data related to customer services which includes the service commencement date, the service termination data as well as the service type. Say 2000 customer purchase a service named VoIP, it will result in the VoIP value being duplicated in 2000 rows. Thus to eliminate this duplication of data, you should create a third table named ServiceType to store the service type information. Then you should add a foreign key to the Services table that references the primary key in the ServiceType table.

Incorrect answers:

A, B: Combining columns into one table will result in de-normalizing.

C: Adding an extra table with two foreign keys that references the appropriate columns in other tables should only be done in many-to-many relationships. An intersection table joins two entities that are involved in many-to-many relationships. In this scenario there is a one-to-many relationship between customers and purchased services, a many-to-many relationship between customers and service types, thus you should rather add a ServiceType table that can be used as the intersection table between customers and service types.

QUESTION 5

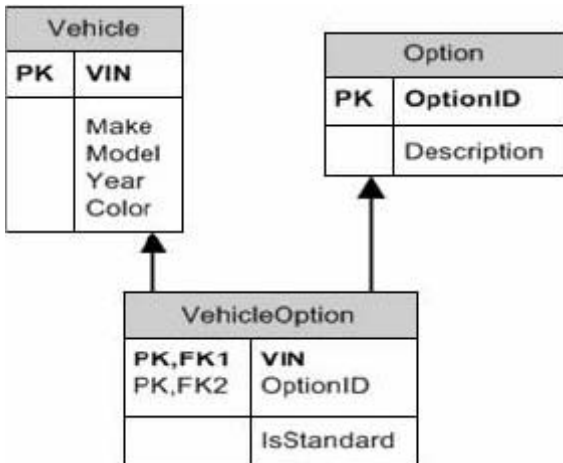
You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a vehicle tracking organization in the vehicle insurance industry.

You are currently developing a vehicle inventory management solution for Certkiller .com. Following are the existing facts:

1. A vehicle is identified by its vehicle identification number (VIN).
2. A vehicle has one or more options.
3. Different vehicles may have the same options.
4. Each option can be standard or nonstandard.

The exhibit below illustrates the logical database design.

Exhibit:



You have been tasked to assess the Certkiller .com design in terms of data integrity. What conclusion can you draw?

- A. The design is correct.
- B. The design is incorrect. Option table should have a foreign key that references the VIN column in the Vehicle table.
- C. The design is incorrect. VehicleOption table should not have the OptionID column.
- D. The design is incorrect. Vehicle table should have a foreign key that references the OptionID column in the Option table.

Answer: A

Explanation: The Vehicle table has a primary key named VIN. This indicates that a VIN uniquely identifies a row in the Vehicle table.

An Option table contains rows that represent the possible options for all vehicles.

A VehicleOption table contains rows that identify options for particular vehicles. This is a necessary table since there is a many-to-many relationship that exists between vehicles and options.

Thus this design is correct in terms of data integrity.

Incorrect answers:

B: The Option table should not have a foreign key that references the VIN column in the Vehicle table. This would only be required in a case of a many-to-one relationship between vehicles and options.

C: The VehicleOption table should not be removed from the VehicleOption table as this will result in a disconnection in the relationship between vehicles and options.

D: The Vehicle table should not have a foreign key that references the OptionID column in the Option table as this would only be required in a case where there is a one-to-many relationship between vehicles and options.

QUESTION 6

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com

operates as a cosmetics company.

You are currently busy developing an enterprise application for Certkiller .com. This application must be able to support the ability to access chemical data. This chemical data are stored in five relational databases. The chemical makeup of each product is represented as a business entity. The business logic determines how the chemical makeup can be used in combinations to create new products.

You need to evaluate the design in terms of the best performance that it can offer. Following are the physical design aspects that you should take into account in your evaluation:

1. One assembly for all business entities.
2. One assembly to contain business logic.
3. An assembly per type of database.

What conclusion can you draw?

- A. This design will result in the best performance.
- B. This design will not yield the best performance.
You should create one assembly for each type of business entity.
- C. This design will not yield the best performance.
You should create an assembly for each type of chemical makeup combination.
- D. This design will not yield the best performance.
You should create one assembly for all databases.

Answer: A

Explanation: The fewer the assemblies the better the performance when it comes to a Microsoft ASP.NET Web application. When the common language runtime (CLR) loads an assembly, it performs certain functions. These functions are necessary and will definitely affect performance when a large number of assemblies are loaded. In this design, only one assembly is used to contain the business entities and only one assembly is used to contain the business logic. Due to a data access component having to correspond to a single data store, an assembly exists for each type of database; however, only one data access assembly will be loaded to access a particular database.

Incorrect answers:

- B: You should not create an assembly for each type of chemical makeup combination. This will require the application to load multiple assemblies when different entities are combined. The loading of multiple assemblies degrades performance. It is mentioned in the question that the chemical makeup of each product is represented as an entity.
- C: You should not create an assembly for each type of chemical makeup combination. This will require the application to load multiple assemblies when different entities are combined. The loading of multiple assemblies degrades performance. It is mentioned in the question that the chemical makeup of each product is represented as an entity.
- D: You should not create one assembly for all the databases. A data access component should correspond to only one single data store. In this case the data store is a database and because only one assembly will be loaded to access a particular database, multiple data access assemblies will not cause performance to degrade.

QUESTION 7

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .Com operates as a telecommunications company.

You are currently busy implementing a solution for Certkiller .com that will, when completed, consist of five Microsoft Windows Forms applications, two Microsoft ASP.NET Web applications, and twenty Extensible Markup Language (XML) Web services. The Web services will be used by the Windows Forms applications as well as the Web applications to access business functionality.

1. The Web services:

All the Web services have similar configuration requirements.

However, only five of the Web services will make use of Simple Object Access Protocol (SOAP) header authentication.

1. The two Microsoft ASP.NET Web applications:

Both of these applications have different configuration requirements.

However, both of them require integrated Windows authentication.

1. The five Microsoft Windows Forms applications:

All these applications makes use of integrated Windows authentication.

The Web applications and the Web services are destined to be hosted on a server that will be running Microsoft Internet Information Services (IIS) 6.0. Following is the design of the Microsoft Visual Studio 2005 project structure:

1. One project for each Windows Forms application.

2. One project for each Web application.

3. One project for each XML Web service.

You have been instructed to evaluate the design for maintainability and thus you need to draw a conclusion regarding the maintainability for the design.

What conclusion can you draw?

A. The design is easily maintainable.

B. The design is difficult to maintain.

Both Web applications should be placed in a single project.

C. The design is difficult to maintain.

All Web services should be placed in a single project.

D. The design is difficult to maintain.

All Windows Forms applications should be placed in a single project.

Answer: C

Explanation: Maintainability will be improved if all Web services are places in a single project as it will then allow you to make changes to the configuration in one place and have it reflected by all the Web services. Thus the conclusion should be the design is not maintainable - all Web services should be placed in a single project.

Incorrect answers:

A: This is incorrect since there are still some measures that can be taken to improve

maintainability.

B: Placing both Web applications in a single project is impractical. These two Web applications have different configuration requirements and that means that they need to be in separate projects.

D: Placing all Windows Forms applications in a single project is impractical since Windows Forms applications require an entry point, and only one point can exist per application.

QUESTION 8

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an information bureau for the supply of information to financial institutions such as banks.

You are currently busy implementing a solution for Certkiller .com that will, when completed, consist of three Microsoft ASP.NET Web applications. These applications will allow the Certkiller .com customer banks to manage credit-, investment- and current accounts. All three applications are destined to be hosted on a server that is configured with Microsoft Internet Information Services (IIS) 6.0.

Included in the Physical design is the following IIS directory structure:

1. Default Web Site (D:\Inet\wwwroot)
2. Credit Portal (D:\FinanceWeb\Credit)
3. Investment Portal (D:\FinanceWeb\Investment)
4. Current Portal (D:\FinanceWeb\Current)

In your solution you are required to display the application on pages. And images need to be reused across all three applications. To this end you need to select the best location to store these images to ensure that it can be used across all three applications.

What should you do?

- A. Use D:\FinanceWeb to store the images.
- B. Use D:\Images to store the images.
- C. Use D:\InetWeb\wwwroot\Images to store the images.
- D. Use D:\FinanceWeb\Images to store the images.

Answer: C

Explanation: The D:\Inet\wwwroot\Images is the only location amongst the available options that represents a subdirectory of the IIS virtual root directory. This will allow each of the three Web applications the ability to reference the images by means of a URL.

Incorrect answers:

A: D:\FinanceWeb does not correspond to the IIS virtual root directory and as such will not allow the web applications to reference the images using a URL.

B: There is no IIS virtual directory that corresponds to any part of D:\Images and this option will thus not allow the Web applications to reference the images.

D: There is no IIS virtual directory that corresponds to any part of

D:\FinanceWeb\Images and as such this option will now allow the three Web applications to reference the images.

QUESTION 9

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com.

You are currently developing a Microsoft ASP.NET Web application that makes use of a data access component to access data in a Microsoft SQL Server 2005 database. This data access component makes use of Microsoft .NET Remoting to enable access over Transmission Control Protocol (TCP) port 9001. You must develop the Microsoft ASP.NET application to enable users to access data in the database via the Web application only. The following table illustrates the logical and physical design aspects that you should take into account when deciding whether the design meets with the security requirement:

Logical Design Aspects:	Physical Design Aspects:
<ul style="list-style-type: none"> The user interface is implemented in a Microsoft ASP.NET Web application. Data is stored in a Microsoft SQL Server 2005 database. A data access component accesses data in the database. The Web application connects to the data access component over an inter-process communication (IPC) channel. 	<ul style="list-style-type: none"> Host the Web application on a Web server on the perimeter network. Deploy the data access component to the web server. Place the database server on the intranet. Allow only Hypertext Transfer Protocol (HTTP) traffic to the Web server.

What conclusion can you draw?

A. The design meets the security requirement.

B. The design does not meet the security requirement.

The data access component should be deployed to an application server on the intranet.

C. The design does not meet the security requirement.

The data access component should be deployed to the database server on the intranet.

D. The design does not meet the security requirement.

The data access component should be deployed to an application server on the perimeter network.

Answer: A

Explanation: It is mentioned in the question that the Web server is placed in the perimeter network and that only HTTP traffic is allowed to the Web server. This means that users can only send HTTP requests to the Web server. Even though the data access component does exist on the Web server, it will still require access through an IPC channel and IPC supports communication on the same computer only. Thus the design currently meets the security requirement.

Incorrect answers:

B : There is no need to deploy the data access component to application server on the

intranet. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

C: There is no need to deploy the data access component to database server on the intranet. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

D: There is no need to deploy the data access component to application server on the perimeter network. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

QUESTION 10

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a financial institution.

You are currently developing an enterprise application for Certkiller .com.

Following are the aspects that should be taken into account in your design:

1. A Microsoft Windows Forms application that will allow all Certkiller .com employees to open accounts for customers.
2. A Microsoft ASP.NET Web application that will allow customers to open their own accounts.
3. A component named AccountOpenerProcess that manages the flow throughout both applications.

You thus need to decide on the appropriate layer in the design in which to implement these components.

What should you do?

- A. The Windows Forms, the Web application as well as the AccountOpenerProcess component must be placed in the business layer.
- B. The Windows Forms, the Web application as well as the AccountOpenerProcess component must be placed in the presentation layer.
- C. The Windows Forms and the Web application must be placed in the presentation layer.

The AccountOpenerProcess component must be placed in the data layer.

- D. The Windows Forms and the Web application must be placed in the presentation layer.

The AccountOpenerProcess component must be placed in the business layer.

Answer: B

Explanation: According to Microsoft best practices, the presentation layer should include the user interface components and user process components. The user interface components provide the interface with which users interact directly. This is what the Windows Forms application and the Web application is in this scenario. The user process components aid the flow of the application. If you separate the user process components from the user interface components, then you allow the workflow to be reused by

multiple user interfaces. Due to the AccountOpenerProcess component aiding the flow throughout the application, you should place this component in the presentation layer as well.

Incorrect answers:

A: None of these components should be placed in the business layer. The business layer should include the business workflows, business entities, business components and service interfaces.

C: This option is only partly correct. You should instead also be placing the AccountOpenerProcess component in the Presentation layer and not in the data layer.

D: This is only partly correct since the AccountOpenerProcess component should also be placed in the presentation layer.

QUESTION 11

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing a Microsoft Windows service that will form part of an enterprise solution for Certkiller .com. The service must be able to (1) Monitor a File Transfer Protocol (FTP) directory for incoming files, and (2) Extract data from the files and import them into a database.

Following are the requirements that should be met by this service:

1. It must run using a least privileged account.
2. It must be capable of processing 300 files per minute.
3. It must be able to recover from failures that cause it to stop functioning.

You thus need to identify the factor that is most important during the design of the application.

What should you do?

- A. You should identify factors pertaining to Maintainability.
- B. You should identify factors pertaining to Performance.
- C. You should identify factors pertaining to Security.
- D. You should identify factors pertaining to Usability.

Answer: B

Explanation: Performance should be identified as the most important factor under these circumstances. One of the requirements states that the service must be able to process 300 files per minute. This means that the service should perform at a rate of file files per second. This is this important and you need to decide how to design and implement the service to achieve this performance goal.

Incorrect answers:

A: Maintainability is easily attainable by configuring Windows services to automatically restart after it stops. Thus this is not a factor to take into consideration under these circumstances.

C: Security can easily be configured in a Windows service to run as a dedicated account

for file and database purposes after it is implemented.

D: Usability should not be the factor to take into consideration in this scenario. Windows services typically do not provide a user interface.

QUESTION 12

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a Geographic Positioning System service provider. You are currently developing a geographical mapping application. You must create a struct named Waypoint that models a waypoint. This waypoint is to consist of a set of latitude and longitude coordinates. In the event of a user passing a street address to the struct, it must perform a location lookup and set its coordinates appropriately.

To this end you need to define the Waypoint struct. You need to ensure that your application requires the least amount of code to set the coordinates from a street address.

What should you do? (Choose the correct code segment.)

A. public struct Waypoint

```
{  
    public double Latitude;  
    public double Longitude;  
    public Waypoint FromAddress(String address)  
    {  
        Waypoint waypoint = new Waypoint();  
        // Set the Latitude and Longitude fields based on the address.  
        return waypoint  
    }  
}
```

B. public struct Waypoint

```
{  
    public double Latitude;  
    public double Longitude;  
    public Waypoint(String address)  
    {  
        //Set the Latitude and Longitude fields based on the address.  
    }  
}
```

C. public struct Waypoint

```
{  
    public double Latitude;  
    public double Longitude;  
    public String address  
    {  
    }
```



```
set
{
//Set the Latitude and Longitude fields based on the address.
}
}
}
D. public struct Waypoint
{
public double Lattitude;
public double Longitude;
public void SetAddress(String address)
{
//Set the Latitude and Longitude fields based on the address.
}
}
```

Answer: B

Explanation: When the Waypoint struct is defined with a non-default constructor, it allows calling code to initialize the Latitude and Longitude fields of the Waypoint struct when it is instantiated. This solution only uses one code statement.

Incorrect answers:

A: You should not add a non-static method to return a Waypoint instance. As such it would require applications to first initialize the Waypoint struct by calling its constructor and only then can applications call methods on the structs. Furthermore this solution will require two code statements.

C: You should not add a non-static method to set the Latitude and Longitude fields of the Waypoint instance. This will require the application to first initialize the Waypoint struct by calling its constructor and only then will the application be able to call methods on the struct. Besides this solution will require two code statements.

D: You should not add a property to set the Longitude and Latitude fields of the Waypoint instance. This will require the application to first initialize the Waypoint struct by calling its constructor and only then will the application be able to call methods on the struct. Besides this solution will require two code statements.

QUESTION 13

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as the Emergency unit of the Traffic Department. You are currently busy implementing a Microsoft .NET Remoting component. This component will be used in the traffic control environment. The component will allow the traffic department to guide all traffic officers on duty to the available alternative routes during emergencies. As such the component must meet the following requirements:

1. A specific instance of the component must be allowed to control access to the navigational system on one traffic officer's vehicle.
 2. The component must be instantiated only once while the traffic officer's navigational system is being controlled.
 3. The component must be hosted on a server that is separate from the application.
- To this end the design suggests making use of single-call activation over Transmission Control Protocol (TCP). You are now required to decide whether or not the design meets the requirements.
- What conclusion can you draw?

- A. The design meets the requirements.
- B. The design is inadequate; it should make use of client activation.
- C. The design is inadequate; it should make use of Singleton activation.
- D. The design is inadequate; it should make use of inter-process communication (IPC).

Answer: B

Explanation: The requirements clearly indicate that the component should be stateful, being stateful means that the component can be instantiated once, and maintain its state throughout its lifetime. With client activation, the client maintains state for a remote object; also the object gets instantiated once for each client. Thus the design is inadequate and should also make use of client activation.

Incorrect answers:

- A: There are definitely some inadequacies and you will need client activation to meet the stated requirements.
- C: Singleton activation is when a single instance of an object is provided to multiple clients. This is not what is required in this scenario since you only need to use one object per client.
- D: IPC supports communication between different processes running on the same computer only. This is not the case in this scenario; instead the application needs to communicate with the component on a different computer.

QUESTION 14

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing a business logic component that is used in a line-of-business (LOB) application. The business logic component calls a Web method named SeeCustomer in an Extensible Markup Language (XML) Web service. The SeeCustomer Web method throws an exception of a type SoapExtension in the event of the specified customer being non-existent. Now, when this exception is thrown, you must call a Web method named NewCustomer. To this end you need to implement the appropriate exception handling mechanism to meet this requirement.

What should you do?

- A. Do nothing and leave the exception.
- B. First catch the exception and do not re-throw it.
- C. First catch the exception, then log it, and then re-throw it.
- D. First catch the exception, then wrap the exception, and then throw the wrapped exception.

Answer: B

Explanation: When an exception is caught, you prevent it from propagating up the call stack. This will then allow you to call the NewCustomer Web method. Thus you should catch the exception and not re-throw it.

Incorrect answers:

- A: Not doing anything about the exception will allow the exception to propagate up the call stack and prevent you from calling the NewCustomer Web method.
- C: Re-throwing the exception will result in the exception propagating up the call stack and will not afford you the opportunity to call the NewCustomer Web method.
- D: A Wrapped exception being thrown would result in a new exception up the call stack and will also prevent you from calling the NewCustomer Web method.

QUESTION 15

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a service provider in the security industry. You are currently developing a video surveillance application for Certkiller .com. You need to implement a class named Visuals. Visuals will be destined to control access to a video camera. A method named StartRecording must start a recording session of the camera if one is not already started. In the event of a recording session having started already when the method is called, you must interrupt the execution of the application. To this end you now need to define the Visuals class. What should you do? (Choose the correct code segment.)

```
A. public class Visuals
{
    private bool _recording = false;
    public event EventHandler Recording;
    public void StartRecording()
    {
        if(_recording == true && Recording != null)
        {
            Recording(this, EventArgs.Empty);
        }
        // Start recording
        _recording = true
    }
}
```

```
}  
}  
B. public delegate void RecordingStarted(String message);  
public class Visuals  
{  
    private bool _recording = false;  
    public RecordingStarted Recording;  
    public void StartRecording()  
    {  
        if (_recording == true)  
        {  
            Recording("A recording session is in progress.");  
        }  
        // Start recording  
        _recording = true;  
    }  
}  
C. public class Visuals  
{  
    private bool _recording = false;  
    public void StartRecording()  
    {  
        if (_recording == true)  
        {  
            throw new InvalidOperationException("A recording session is in progress.");  
        }  
        // Start recording  
        _recording = true;  
    }  
}  
D. public class Visuals  
{  
    private bool _recording = false;  
    public void StartRecording()  
    {  
        if (_recording == true)  
        {  
            MessageBox.Show("A recording session is in progress.");  
        }  
        // Start recording  
        _recording = true;  
    }  
}
```

Answer: C

Explanation: If the method is called when there is already a recording session in progress then you should throw an exception. This will allow you to interrupt the normal flow of an application.

Incorrect answers:

A: Raising an event will result in the application to subscribe to the event to receive notification regarding the status of recording sessions. Thus it will not interrupt the execution of the application.

B: Invoking a delegate is not the solution since it will result in the application to require associating with a method with the delegate to receive notification regarding recording session status and as such would not interrupt the execution of the application.

D: Displaying a message box does not interrupt the execution of an application; it would instead result in an interruption to the user.

QUESTION 16

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as an umbrella company for several recording houses in the music industry.

You are currently developing an enterprise application for Certkiller .com. you need to design the database schema for this application and following are the facts regarding record labels/recording house, albums, songs, and artists; pertaining to the company that you need to take into account in your design:

1. A label has one or more albums.
2. A label has one or more artists.
3. An artist records zero or more albums.
 1. An artist records one or more songs.
 2. An artist belongs to one label.
1. An album is recorded by one or more artists.
 2. An album has one or more songs.
 3. An album is owned by one label.
4. A song is recorded by one or more artists.
5. A song exists on one or more albums.

You need to normalize the database. To this end you need to decide on the amount of tables to use in the database.

What should you do?

- A. You require 2 tables.
- B. You require 4 tables.
- C. You require 5 tables.
- D. You require 7 tables.

Answer: D

Explanation: There are four main entities: namely Label, Artist, Album, Song. This

means that you need to create four tables to correspond to these entities. However, you also need to take into account the many-to-many relationships that has to be reflected in the database. The existing many-to-many relationships include relationships between: artists and albums, albums and songs, and artists and songs. Thus you need an additional three tables. Seven tables is thus the minimum number of tables required for normalization.

Incorrect answers:

- A: With two tables only, the database would not be normalized.
- B: With only 4 tables the database would not be normalized.
- C: With only 5 tables the database would not be normalized.

QUESTION 17

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing an Extensible Markup Language (XML) Web service that when completed will allow client applications the ability to download movie clips. One of the requirements that should be met is that all Web service clients must be able to use the Web service. You should also keep in mind that you should optimize the message transfer for some of the movie clips since fifty percent of the movie clips are quite large.

To this end you decide to make use of Microsoft Visual Studio 2005 and Web Services Enhancements (WSE) 3.0 to develop the Web service. Now you need to modify the Web.config file to meet the requirements.

What should you do? (Choose the correct configuration.)

- A. <configuration>
<microsoft.web.services3>
<mtom serverMode="optional"/>
</microsoft.web.services3>
</configuration>
- B. <configuration>
<microsoft.web.services3>
<mtom serverMode="always"/>
</microsoft.web.services3>
</configuration>
- C. <configuration>
<microsoft.web.services3>
<mtom clientMode="on"/>
</microsoft.web.services3>
</configuration>
- D. <configuration>
<microsoft.web.services3>
<mtom serverMode="never"/>
</microsoft.web.services3>

</configuration>

Answer: A

Explanation: WSE 3.0 allows one to make use of Message Transmission Optimization Mechanism (MTOM) to encode and transmit large amounts of binary data. MTOM allows one to transmit binary messages in binary form without the need to encode them in a text format. It is necessary that the client application support MTOM to be able to use it. You also set MTOM in a Web service by setting the serverMode attribute of the mtom element. This attribute supports three values: optional, never and always. However, if MTOM is used in this way, the message transfer is not optimized.

Incorrect answers:

B: The serverMode attribute should be set to optional, for if set to always, you need the Web service client to support MTOM and not all Web service clients supports MTOM.

C: The serverMode attribute should be set to optional, for if set to on, the attribute will determine whether MTOM is supported by the Web service client and in this scenario you are configuring the Web service.

D: The serverMode attribute should be set to optional, for if set to never, this attribute will indicate that MTOM should not be enabled for incoming Simple Object Access Protocol (SOAP) requests.

QUESTION 18

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a medical technological company that manufactures electronic scanning equipment for medical use.

You are currently developing a Microsoft Windows Forms application. This application is destined to allow doctors to perform computed Axial Tomography (CAT) scans on patients. When a CAT scan is carried out, it takes over 1,000 two-dimensional scans that are combined to create a three-dimensional image. It takes no more than two seconds to make a two-dimensional scan, however it also takes approximately 20 seconds to combine each image.

The Microsoft Windows Forms application that you are developing must allow doctors to take the two-dimensional scans without requiring the patients to wait for a long time. You thus need to choose the appropriate component to meet this requirement.

What should you do? (Choose the correct component.)

- A. Process
- B. Timer
- C. BackgroundWorker
- D. ImageList

Answer: C

Explanation: The BackgroundWorker component will allow one to implement asynchronous processing. In this particular case you can implement two-dimensional scanning and use BackgroundWorker component to combine the scans.

Incorrect answers:

A: The Process component allows one to execute a process. This is not what will reduce the waiting time for the patients.

B: The Timer component allows a Windows Forms application to respond to timed events. You rather need to make use of BackgroundWorker component to reduce the waiting time for patients.

D: The ImageList component allows one to manage a collection of images that can be used with the TreeView, ListView, and ToolStrip controls, not to reduce waiting time.

QUESTION 19

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks.

You are currently developing a Microsoft Windows Forms monitoring application for Certkiller .com. This application is destined to read data in a Microsoft SQL Server 2005 database and display it graphically on a form. All Certkiller .com users need to be able to:

1. choose the refresh rate for displaying data
2. choose an interval in multiples of one second

To this end you need to reuse a component to meet these requirements without requiring excessive coding.

What should you do?

A. You need to encapsulate a BackgroundWorker instance in a custom class by wrapping the BackgroundWorker component.

B. You need to encapsulate a Timer instance in a custom class by wrapping the Timer component.

C. You need to derive a class from BackgroundWorker by extending the BackgroundWorker component.

D. You need to derive a class from System.Windows.Forms.Timer by extending the Timer component.

Answer: D

Explanation: The Timer component needs to be extended in the System.Windows.Forms.Timer class. The Timer component raises a Tick event at intervals specified in the Interval property. If you derive a class from Timer, you in essence allow client applications to set the interval property to multiples of one second.

Incorrect answers:

A: The BackgroundWorker component allows for asynchronous code execution. It is

stated pertinently in the question that no excessive coding must be allowed.

B: Wrapping the Timer component is not the solution. It will require you to write code that exposes the functionality of the Timer component.

C: You should not extend the BackgroundWorker component as this component allows one to execute code asynchronously in a background thread and automatically notify the foreground thread when the asynchronous operation completes. However, this involves extra coding that is required.

QUESTION 20

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates in the security and surveillance environment. You are currently developing a video surveillance application for Certkiller .com. While executing your duties, you examine a third party component that implements a Camera class. This class allows you to connect to a physical camera and record video or capture images. The following exhibit illustrates the Camera class definition:

Exhibit:

```
public class Camera
{
    public virtual void CaptureImage()
    {
        //Capture a still image
    }
    public virtual void StartRecording()
    {
        //Start a recording session
    }
    public virtual void StopRecording()
    {
        //Stop a recording session
    }
}
```

You now need to define the custom class to achieve the following goals:

1. reuse the Camera class to implement a custom class
2. allow the application to capture still images
3. prevent the application from being able to use your class to start and stop a recording session

What should you go? (Choose the correct code segment.)

A. `public class StillImageCamera : Camera`
`{`
`public override void CaptureImage()`
`{`

```
base.CaptureImage();
}
}
B. public class StillImageCamera : Camera
{
public override sealed void StartRecording()
{
base.StartRecording();
}
public override sealed void StopRecording()
{
base.StopRecording();
}
}
C. public class StillImageCamera
{
private readonly Camera _camera = new Camera();
public virtual void CaptureImage()
{
_camera.CaptureImage();
}
}
D. public class StillImageCamera : Camera
{
public new void CaptureImage()
{
base.CaptureImage();
}
}
```

Answer: C

Explanation: To allow yourself to be able to control access to the functionality exposed by the Camera class, you should wrap the Camera class by encapsulating it within another class. When you implement only the method that captures still images, you can prevent the application from making use of your class to start or stop a recording session. Incorrect answers:

A, B, D: To derive a class from the Camera class as suggested in these options is not the solution. This will result in a solution that will allow the application to access all functionality exposed by the Camera class through polymorphism.

QUESTION 21

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application

frameworks. Certkiller .com operates in the Inland Revenue services department. You are currently developing an income tax preparation application. This application should calculate income tax on the following basis:

Income	Tax
Up to \$7,500	10%
Over \$7,500 and up to \$30,000	\$750 + 15% of the amount over \$7,500
Over \$30,000 and up to \$72,000	\$4,200 + 25% of the amount over \$30,000
	\$72,000
Over \$72,000	\$15,000 + 28% of the amount over \$72,000
	\$72,000

To this end you create two Double variables. These are named income and tax respectively. What is now required is to choose an appropriate decision flow structure to implement the business rules.

What should you do? (Choose the appropriate code segment.)

```
A. if (income < 7500)
{
    tax = 0.10 * income;
}
else if (income <= 30000)
{
    tax = 0.15 * (income - 7500) + 750;
}
else if (income <= 72000)
{
    tax = 0.25 * (income - 30000) + 4200;
}
else
{
    tax = 0.28 * (income - 72000) + 15000;
}

B. if (income <= 7500)
{
    tax = 0.10 * income;
    if (income <= 30000)
    {
```

```
tax = 0.15*(income - 7500 + 750;
if (income <= 72000)
{
tax = 0.25*(income - 30000) + 4200;
}
else
{
tax = 0.28*(income - 72000) + 15000;
}
}
}
C. switch ((int)income)
{
case 7500:
{
tax = 0.10*income;
break;
}
case 30000:
{
tax = 0.15*(income - 7400) + 750;
break;
}
case 72000:
{
tax = 0.25*(income - 30000) + 4200;
break;
}
default:
{
tax = 0.28*(income - 72000) + 15000;
break;
}
}
D. if (income <= 7500)
{
tax = 0.10*income;
}
if (income <= 30000)
{
tax = 0.15*(income - 7500) + 750;
}
if (income <= 72000)
{
tax = 0.25*(income - 30000) + 42000;
}
```

```
if (income > 72000)
{
tax = 0.28*(income - 72000) + 15000;
}
```

Answer: A

Explanation: When you make use of if-else statements then you control execution based on a single expression. In this case, if the income of an individual is less than or equal to \$7,500, the tax variable is set to 10% of the value of the income variable. Execution then leaves the entire if-else block. If not, then the code will determine whether the income is less than or equal to \$ 30,000. If so, then the tax variable is set to \$750 + 15% of the income over \$7,500 etc.

Incorrect answers:

B: You should not make use of nested if-statements because it will result in income less than \$7,500 to be taxed as 25%.

C: You should not make use of switch-case statements because each statement can be used to test a single value, but not a range of values. This will then result in income of less than \$ 7,500 to be taxed at 28%.

D: You should not make use of if statements as it will cause income of less than \$7,500 to be taxed at 25%.

QUESTION 22

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a financial institution.

You are currently developing a Microsoft Windows Forms application for Certkiller .com that is meant to allow bank tellers to manage account transactions for the Certkiller .com customers. In the United States of America is it government policy that all transactions to the value of \$10 000 or greater must be reported.

Certkiller .com need to comply with this policy. This policy also states that the government should be informed as to who made the large transaction.

The logical design suggests that in the event of a teller managing a transaction for a customer that is \$ 10,000 or greater in value logging of the following information should occur:

1. Date and time
2. Customer account number
3. Transaction amount
4. Transaction type

When subjected to government audit, Certkiller .com needs to have peace of mind that they are in compliance with the government policies. Thus you now need to decide whether or not the design meets the requirements for compliance.

What conclusion can you draw?

- A. The design is adequate. It meets all the requirements for compliance.
- B. The design is inadequate. You should not log the Certkiller .com customer's account number.
- C. The design is inadequate. You should not log the transaction amount.
- D. The design is inadequate. You should also log the name of the Certkiller .com teller managing the account.

Answer: A

Explanation: The design logs enough information to allow the government to determine which customer made the large transaction as well as the type of transaction that was made. They can even identify the customer through the account number. Thus the design meets the requirements.

Incorrect answers:

B: You will need the account number because it will allow the government to identify who made the transaction.

C: The transaction amount has to be logged because it will provide the proof that an amount of \$ 10,000 or more has been made.

D: The requirements do not indicate that the need to know which Certkiller .com teller managed the transaction for the customer has to be logged.

QUESTION 23

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a financial institution.

You are currently developing a Microsoft Windows Forms application for Certkiller .com that is meant to allow bank tellers to manage account transactions for the Certkiller .com customers. In the United States of America is it government policy that all transactions to the value of \$10 000 or greater must be reported.

Certkiller .com need to comply with this policy. This policy also states that the government should be informed as to who made the large transaction.

When subjected to government audit, Certkiller .com need to be able to easily search for transactions by account number, amount, or date. It is anticipated that 100,000 transactions per day will take place.

The logical design suggests that logging of the transactions should occur to an Extensible Markup Language (XML) file. You need to decide whether the design is feasible whilst ensuring that it is also scalable.

What conclusion can you draw?

- A. The design is feasible.
- B. The design is not feasible. Make use of an event log instead of an XML file.
- C. The design is not feasible. Make use of a database instead of an XML file.
- D. The design is not feasible. Make use of a binary file instead of an XML file.

Answer: C

Explanation: A database would be more suited to the scenario since you need to make provision for scalability by allowing multiple instances of the Windows Forms application to log transaction data at the same time.

Incorrect answers:

A: The design is clearly not feasible since you also need to make provision for scalability which is currently no provision has been made.

B: An event log would not allow you to search the event log by account number or amount.

D: A binary file will not suffice since it will only allow one application to write to a file at a time.

QUESTION 24

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates in the security and surveillance environment. You are currently developing a Microsoft Windows Forms security monitoring system. The application is destined to connect to fifty cameras to record as well as play video. A class named Camera interacts with a physical camera. You make use of the semaphore class to create a resource pool of five camera instances. The business is of such a nature that no more than three Camera instances will be in use at a time. To this end you implement a custom trace listener to send trace messages to a database. In the event of a fourth Camera instance is obtained from the resource pool, you will require to log a message that will read something like: Only one Camera instance remains in the resource pool. You now need to choose the most appropriate trace level for this message. What should you do?

- A. You should select the Verbose level.
- B. You should select the Error level.
- C. You should select the Warning level.
- D. You should select the Informational level.

Answer: C

Explanation: This type of message would be considered a warning message because it indicates that something out of the ordinary might happen if a problem is not addresses. In this case, a fourth Camera instance is not anticipated and if a fourth Camera instance is obtained from the resource pool, there would only be one Camera instance remaining. If the fifth Camera instance is obtained there would be none remaining.

Incorrect answers:

A: Verbose level is chosen for messages that do not provide a high level of technical

information. It is usually used in messages pertaining to control flows, component state changes, etc.

B: Error level messages are not appropriate in this scenario. This message does not indicate that something exceptional has happened.

D: Informational level messages simply provide information that indicates what is happening; not exceptional instances.

QUESTION 25

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks.

A developer names Clive Wilson is currently writing the following code for an Extensible Markup Language (XML) Web service:

```
01 TraceSwitch generalSwitch = new TraceSwitch("General", "General Switch");  
02 Trace.WriteLineIf(generalSwitch.TraceError, "Cannot access mainframe computer");  
03 Trace.WriteLineIf(generalSwitch.TraceInfo, "Creating a new data file");
```

(Please note: The line numbers are for reference purposes only.)

Unfortunately the Web service is experiencing problems in production. To this end you decide that both the error message and the informational message need to be written to a Microsoft SQL Server 2005 database. Thus a custom trace listener is configured in the Web.config file to write the trace information to the database.

Clive Wilson then sets the trace level to 1 (Error).

You need to make a decision as to whether the solution is correct or not.

What conclusion can you draw?

- A. The solution is correct.
- B. The solution is incorrect because Clive Wilson should set the trace level to 3(Info).
- C. The solution is incorrect because Clive Wilson should delete the code at line 02 and include the informational message with the error message.
- D. The solution is incorrect because Clive Wilson should delete the code at line 03 and include the informational message with the error message.

Answer: B

Explanation: This solution is incorrect since Clive Wilson should rather set the trace level to 3. This trace level only indicates that only error, warning, and informational messages should be logged. Trace level ranges from 1 through 4 and the higher the trace level, the more types of messages it can log.

Incorrect answers:

- A: There is definitely something wrong with the solution and thus this option is incorrect.
- C: Clive Wilson should not delete the code at line 02 and include the error message with the informational message. It is possible to write both messages if the trace level is set to 3.
- D: Clive Wilson should not delete the code at line 03 and include the error message with

the informational message. It is possible to write both messages if the trace level is set to 3.

QUESTION 26

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com is in the business of retailing music videos online.

Your team is currently busy developing a Microsoft ASP.NET Web application that is destined to allow users to purchase music videos online. A Microsoft SQL Server 2005 database is currently used to store the music video data. The Certkiller .com management wants the application to allow the users to search for music videos by title, artist, and genre. To this end you perform a code review for a page and then discovered the following SQL statement stored in a String variable:

```
SELECT * FROM Musicvideo WHERE Artist=@Artist
```

The code makes use of a query string value to create a SqlParameter instance that represents the @Artist parameter. The code then executes the query and displays the results in a GridView control. Now you need to make a decision as to whether the application is vulnerable to a SQL injection attack.

What conclusion can you draw?

- A. The application is not vulnerable to a SQL injection attack.
- B. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a table-direct call.
- C. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a stored procedure call.
- D. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a function call.

Answer: A

Explanation: SQL injection attacks can occur when an application constructs SQL queries dynamically. In this case this risk is negated by the use of parameterized queries.

Incorrect answers:

B: Replacing the SQL statement with a table-direct call is superfluous since the application makes use of parameterized queries.

C: Replacing the SQL statement with a stored procedure call is superfluous since the application makes use of parameterized queries.

D: Replacing the SQL statement with a function call is superfluous since the application makes use of parameterized queries.

QUESTION 27

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your

responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the Inland Revenue services department.

You are currently performing a code review for an income tax filing application. In the code review you examine the following code:

```
while (true)
{
    TaxForm form = taxForm.Instance;
    if (form == null)
        break;
    Schedule schedule = form.Schedule;
    if (schedule == null)
        break;
    Worksheet worksheet = schedule.Worksheet;
    if (worksheet == null)
        break;
    worksheet.Clear();
    break;
}
```

The code is meant to clear a worksheet. Now you need to check whether the code has any problems with its semantics.

What conclusion can you draw?

- A. The code has no problems.
- B. The code has problems as you need to pass the value false to the while expression.
- C. The code has problems as execution will occur in an infinite loop.
- D. The code review failed as the Clear method of the Worksheet class will never get called.

Answer: A

Explanation: A while true loop will prevent the need to make use of nested if statements. Thus this code does not have any problems. You simply need to ensure that you always break out of the loop after all conditions inside the loop have been tested.

Incorrect answers:

B: This is incorrect the condition would always fail and execution would never enter the loop.

C: There will not be an infinite loop because execution will break after the last break statement.

D: This is incorrect since as long as each if statement inside the while true loop fails, execution will reach the end of the loop and the Clear method will get called.

QUESTION 28

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications.

Certkiller .com operates in the security and surveillance environment.

You are currently developing a video surveillance application for Certkiller .com.

You perform a code review of the following class:

```
public class Camera
{
public Camera GetInstance()
{
return _null;
}
}
```

This class is supposed to make use of the Singleton design pattern to control access to a physical video camera. You need to modify the Camera class.

What should you do? (Choose the correct code segment.)

A. public class Camera

```
{
private static volatile Camera _instance;
public static Camera Instance
{
get
{
if (_instance == null)
{
lock(_instance)
{
if (_instance == null)
{
_instance = newCamera();
}
}
}
return _instance;
}
}
}
```

B. public class Camera

```
{
private Camera _instance;
public Camera Instance
{
get
{
if (_instance == null)
{
lock(_instance)
{

```

```
if (_instance == null)
{
_instance = new Camera();
}
}
}
return _instance;
}
}
}
C. public class Camera
{
public static Camera Instance
{
get
{
Camera instance = new Camera();
return instance;
}
}
}
D. public class Camera
{
private Camera _instance;
public Camera GetInstance()
{
_instance = new Camera();
return _instance;
}
}
```

Answer: A

Explanation: you need to define a static class member that returns a single instance of the class because the Singleton design pattern allows one instance of a class to be provided to multiple threads. The method must ensure that it creates an instance if there is not already an instance in existence and return the already existent instance if one does exist.

Incorrect answers:

B: This is incorrect you should be defining a static class member that returns a single instance of the class with the Singleton design pattern.

C: You should not implement a static property to always create a new instance of the class. You should rather return a single instance with the Singleton design pattern.

D: you should not be implementing a class member to return a non-static instance of the class. You need to return a static instance of the class with the Singleton design pattern.

QUESTION 29

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the Credit Card Services department of a financial institution.

You and your team are currently developing an Extensible Markup Language (XML) Web service. When completed this Web service will allow merchants to verify and charge a customer's credit card. A Web method named Verify accepts a String parameter that represents the customer's credit card number. Verify's main function will be to ensure that a credit card number is valid. Verify will be configured to throw an exception in the event of the card number being invalid. Following is the unit strategy testing as it will be implemented:

1. Use the automatically generated Microsoft ASP.NET Web page to test the Verify Web method.
2. Ensure that no exception is thrown when you pass a valid credit card number to the Web method.

What conclusion can you draw?

- A. The unit testing strategy is correct.
- B. The unit testing strategy is incorrect since you need to perform unit testing from a merchant's client application.
- C. The unit testing strategy is incorrect, since you need to ensure that an exception is thrown when an invalid credit card number is passed to the Web method.
- D. The unit testing strategy is incorrect since you only need to ensure that an exception is thrown when an invalid credit card number is passed to the Web method.

Answer: C

Explanation: This strategy is inadequate. When performing unit testing you essentially ensure that a method behaves in the way it is expected to behave. In this case the Verify Web method must throw an exception when an invalid credit card number is passed. You need to:

Call the Web method and pass a valid credit card number. Ensure that no exception is thrown.

Call the Web method. Ensure that the exception is thrown.

to complete the test and the test will only be passes if these two conditions pass.

Incorrect answers:

A: This option is incorrect since not all the conditions will be met.

B: This option is suggesting integration testing.

D: You also need to ensure that verification succeeds when a valid credit card number is passed to the Web method. An exception should not be thrown in the event of validation success.

QUESTION 30

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the international retail environment.

You are currently developing an order fulfillment solution for Certkiller .com. In this solution, the Certkiller .com customer's order is represented by the Order class. The Order class has a property named Status. It is possible to set Status to one of the following enumeration members:

1. Created - the order has been created.
2. BackOrdered - the order has been placed on backorder.
3. Scheduled - the order is scheduled for delivery.
4. Cancelled - the order has been cancelled.
5. Shipped - the order has been shipped.
6. Delivered - the order has been delivered.

Certkiller .com works in joint ventures with courier companies world-wide due to the nature of the business. A method named Ship is implemented to invoke a Web method of an Extensible Markup Language (XML) Web service at these courier companies. The courier companies are then responsible for the delivery of the order. When the Ship method is called, the Status property is set to Shipped. You are required to unit test the Ship method to ensure that the test passes.

What should you do?

- A. Carry out the unit test by calling the Ship method.
Then verify that the Status property is not changed to BackOrdered.
- B. Carry out the unit test by calling the Ship method.
Then verify that the Status property is not changed to Scheduled.
- C. Carry out the unit test by calling the Ship method.
Then verify that the Status property is changed to Ship prior to the delivery of the order.
- D. Carry out the unit test by calling the Ship method.
Then verify that the Status property is changed to Delivered after delivery of the order.

Answer: C

Explanation: During a unit test on a method, you should test the logical outcome of the method call. In this case you need to call the Ship method and verify the Status property is changed to Shipped.

Incorrect answers:

A: You should not verify that the Status is not changed to BackOrdered as this will not indicate that the Ship method is working as it should. This option will allow the unit test to pass even if the Ship method set the Status to Cancelled, Created, Scheduled or Delivered.

B: You should not verify that the Status is not changed to Scheduled as this will not indicate that the Ship method is working as it should. This option will allow the unit test to pass even if the Ship method set the Status to Cancelled, Created, BackOrdered or

Delivered.

D: In this scenario you are unit testing the Ship method, this means that you should only ensure that the Status property is set to Shipped.

QUESTION 31

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the international retail environment. Certkiller .com works in joint ventures with courier companies world-wide due to the nature of the business. These courier companies are responsible for the delivery of the order. A method named Ship is implemented to invoke a Web method of an Extensible Markup Language (XML) Web service at these courier companies. You are currently developing an order fulfillment solution for Certkiller .com. In this solution, the Certkiller .com customer's order is represented by the Order class. The Order class in turn has a Web method named Ship. The Ship method is designed as follows:

1. It accepts a DateTime instance that represents the earliest date that an order should be shipped.
2. It throws an exception if it is passed a data that is earlier than the current date.
3. It allows multiple threads to call it at the same time.
4. It invokes the Web method of the Web service asynchronously.

You are required to unit test and conclude that the previous design aspects are implemented correctly. To this end you need to perform an additional unit test so as to ensure that the Ship method will be functional under all production scenarios. What should you do?

- A. You should perform the Performance unit test.
- B. You should perform the Concurrency unit test.
- C. You should perform the Expected Exception unit test.
- D. You should perform the Boundary Condition unit test.

Answer: D

Explanation: A Boundary Condition test will allow you to evaluate whether the code responds in the proper fashion when out-of-bounds input values are entered. This will allow you to ensure that code fails gracefully if out-of-bounds input values are used at run time.

Incorrect answers:

- A: A Performance test will allow you to measure the speed at which the method executes. Nothing in this question suggests the need to a performance test.
- B: A Concurrency test is the type of test that has already been performed to ensure that multiple threads can call the method at the same time. This is not the appropriate solution since this test has been run already in this scenario.
- C: An Expected Exception test has already been run in this scenario to ensure that an

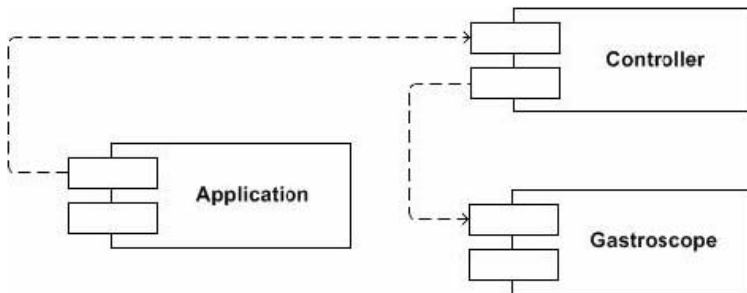
exception is thrown when a date earlier than the current date is passed to the Ship method.

QUESTION 32

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as a medical technological company that manufactures electronic scanning equipment for medical use.

You are currently planning the performance of integration testing on a Microsoft Windows Forms application. This application is designed to allow doctors to perform internal gastro scopes. This application makes use of a controller to operate the scanning device that is inserted into the patient via the oral cavity. The exhibit below illustrates a component diagram of the application.

Exhibit:



You now need to determine the component dependencies based on this design. What should you conclude?

- A. The application depends on the controller and the gastro scope.
- B. The application depends on the controller, and the controller depends on the gastro scope.
- C. The gastro scope depends on the controller, and the controller depends on the application.
- D. The gastro scope depends on the controller and the application.

Answer: B

Explanation: According to the diagram the direction of the arrow shows the dependency relationship. In this case the arrow is drawn from the Application component to the Controller component. This means that the application depends on the controller. And the other arrow is drawn from the Controller component to the Gastro Scope component which in turn means that the controller is dependent on the gastro scope.

Incorrect answers:

- A: This option would see the arrow drawn from the Application component to the Controller and Gastro Scope components.
- C: This option would see the one arrow drawn from the Gastro Scope component to the Controller component and another arrow from the Controller component to the Application component.

D: This option would see the arrow drawn from the Gastro Scope component to the Controller and Application components.

QUESTION 33

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. You and the development team is currently busy developing an enterprise resource planning solution for Certkiller .com. The logical design for this application consists of a Microsoft ASP.NET Web application, a Microsoft .NET Remoting component, and a Microsoft Windows service. The Microsoft Windows service hosts the .NET Remoting component which is a marshal-by-reference component. The purpose of this component is to read and update the performance counters. The Web application is designed to access the component via Transmission Control Protocol (TCP) channel. The Web application is hosted on a Web server and the .NET Remoting component is hosted on an application server.

A Developer named Mia Hamm has been instructed to perform the integration testing of the component. Following is the step-by step procedure that Mia Hamm followed during the integration testing:

1. Mia Hamm adds the component to an ASP.NET Web application project.
2. Mia Hamm does not configure Remoting in the Web application.
3. Mia Hamm accesses the Web application and invokes methods on the component.
4. The method calls fail.

You need to make a decision as to whether the test results can be considered valid. What conclusion can you draw?

- A. The test results are valid.
- B. The test results are invalid. Mia Hamm needs to make use of the inter-process communication (IPC) channel.
- C. The test results are invalid. Mia Hamm should configure Remoting in the Web application.
- D. The test results are invalid. Mia Hamm should not add the component to the Web application.

Answer: C

Explanation: These test results cannot be valid if .NET Remoting, marshal-by-reference components are executing at the server. If one does not configure .NET Remoting in an application that accesses a marshal-by-reference component, then the component will execute at the client. In this case the client is the Web application. This will then mean that performance counters will be updated on the Web server. To ensure valid results Mia Hamm must configure .NET Remoting in the Web application.

Incorrect answers:

A: The test results will not be valid since Mia Hamm still needs to configure .NET Remoting in the web application.

B: IPC supports communication between different processes on the same computer. In this scenario the Web application and the remote component are hosted on different computers.

D: Although adding the component is not a requirement, it does make provision for the developer to enforce compile-time type checking. Removing the component from the project will not affect the results of the test.

QUESTION 34

DRAG DROP

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as an airline company.

Another Certkiller .com tester named Rory Allen discovered a bug in the flight scheduling component. At present the component's code is checked into source control. You need to apply the appropriate actions to fix and deploy the bug. What should you do? To answer, select the appropriate actions and place them in the correct order in the work area.

Actions	Work Area
Reproduce the bug in the production environment.	Place first action here.
Reproduce the bug in the development environment.	Place second action here.
Fix the bug.	Place third action here.
Check the fix into source control.	Place fourth action here.
Check out the necessary code from source control.	Place fifth action here.
Deploy the fix to the production environment.	Place sixth action here.
Deploy the fix to the test environment.	Place seventh action here.

Answer:

Actions

Reproduce the bug in the production environment.

Work Area

Reproduce the bug in the development environment.
Check out the necessary code from source control.
Fix the bug.
Check the fix into source control.
Deploy the fix to the test environment.
Deploy the fix to the production environment.
Place seventh action here

Explanation:

- 1: The first action that you should take is to reproduce the bug in the development environment. - This will allow you to check if the bug exists only in production. If this is so, then it might require only a configuration change to resolve the bug. However, if the bug is also present in development, it might require a code change to resolve the bug.
- 2: Next step: -check out the necessary code from source control - this will allow you to keep a history of the component's change. If the component is fixed incorrectly, it will allow you to revert back to the previous version.
- 3: Next step: - fix the bug - this step includes performing unit testing to ensure that the fix is correct.
- 4: Next step: - check the fix into source control - this will ensure that the deployed component matches the latest version that is in source control.
- 5: Next step: - deploy the fix to the test environment - this step will allow the tester to ensure that the bug has been fixed. An integration test should be performed against the component if the fix results in a change in the interface.
- 6: Next step: - deploy the fix to the production environment - at this stage the component should be testes successfully and the fixed version is available in the development and testing environments.

Incorrect answer:

You should not reproduce the bug in the production environment. This should be done in the development department to determine whether a code change is needed or not.

QUESTION 35

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as a retailer.

You are currently developing a sales management application. You are making use of Microsoft ASP.NET Web and the application will be hosted on a Production Web server that runs Microsoft Internet Information Services (IIS) 6.0. Another Certkiller .com tester named Rory Allen discovered a bug and reported as follows:

If 25 users access the application simultaneously, an error page is displayed. At present this is unacceptable since Certkiller .com requirements state that the application should support up to 50 concurrent users. You are thus required to address the issue. To this end you need to reproduce and isolate the bug. What should your first step be?

- A. Create a test that simulates 25 users accessing the application simultaneously. Deploy a Debug build to your computer and run the test to debug the application using your development computer.
- B. Deploy a debug build of the application to reproduction and attach the Debugger to the IIS worker process. Instruct 25 users to access the application simultaneously.
- C. Deploy a Release build of the application to a staging environment and attach the Debugger to the IIS worker process. Instruct 25 users to access the application simultaneously.
- D. Load 25 browser instances on your development computer to access the application. Use your development computer to debug the application.

Answer: A

Explanation: A simulation test will simulate the production use while keeping the application in isolation. This type of test is also known as the load test. You should use a development computer to debug the application while the test is running.

Incorrect answers:

- B: Instructing 25 users to access the application will make it difficult to control the user environment while debugging is taking place. This is an impractical solution.
- C: This is an impractical solution to carry out since you will not be able to control the user environment when 25 users are accessing the application. You should rather debug the application while a load test is running. And you should debug the production application only if you are unable to reproduce the bug while debugging a load test.
- D: If you load 25 browser instances to access the application, you will find it a very impractical solution as it is difficult to manage. A better solution would be to debug the application while a load test is running.

QUESTION 36

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You completed the development of a Microsoft ASP.NET Web application using Microsoft Visual Studio 2005 Team Edition for Software Developers. You then deploy the Microsoft ASP.NET Web application to a production server. Then you discover that the central processing unit (CPU) usage on the Web server sometimes reaches 100%. You then assume that the Web application can be the cause of the sudden increase of CPU usage, but you have no idea of where in the application the problem can be. You now need to identify the reason why this performance spike occurs.

What should you do?

- A. You should create a Web test that consists of unit tests and run the application.
- B. You should create a Web test that consists of a load test and run the application.
- C. You should create a Performance test in Visual Studio and sample the application.
- D. You should create a Performance test in Visual Studio and instrument the application.

Answer: C

Explanation: Sampling periodically interrupts the application to collect performance data. This is extremely helpful in cases where you are unsure of where in an application there might be a bottleneck.

Incorrect answers:

A: You should not create a Web test to test a Web application's performance. You know that the application performs, what you need to do is to locate the performance bottleneck.

B: A Web test consisting of a load test will allow you to test whether the application performs as expected when a certain number of users are accessing the application. In this case it is known that the application does perform, what is not known is where the performance bottleneck exists.

D: Instrumentation presupposes the location of the performance bottleneck is known and in this case you are unsure of where in the application the performance bottleneck is occurring.

QUESTION 37

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. Certkiller .com operates as a credit bureau.

You are currently developing an Extensible Markup Language (XML) Web service that is destined to allow companies to retrieve credit reports from Certkiller .com.

You created a Performance Session in Microsoft Visual Studio 2005 Team Edition for Software Developers. Following are the measurements you obtained from a Web method named ObtainCreditReport:

1. When the Web method is called once:
execution time for the method is measured to be 8,340.211 milliseconds
memory consumption is measured to be 10,200 Kilobytes (K).

1. When the Web method is called twice:
total execution time for the method is measured to be 33,360.844 milliseconds
memory consumption is measured to be 10.296K.

1. When the Web method is called thrice:
total execution time for the method is measured to be 133,443.376 milliseconds
memory consumption is measured to be 10,264 K.

You need to analyze the performance trends.

What conclusion can you draw?

- A. There is a memory leak.
- B. There is a linear increase in memory consumption.
- C. There is an exponential increase in execution time.
- D. The Execution time stays constant.

Answer: C

Explanation

: The results clearly indicate the each time the method is called; the execution time is increased by a factor of four. Thus your conclusion should be that the execution time increases exponentially.

Incorrect answers:

A: If there is a memory leak, memory consumption must increase each time the method is called. However, in this scenario the memory consumption increases as well as decreases.

B: There is no linear increase in memory consumption as the memory consumption increases as well as decreases.

D: In the event of execution time staying constant, then the total execution time will need to increase linearly. Thus the total execution time for calling the method twice should be 16,680.422 and calling the method a third time should result in total execution time to be 25,020.633, which it isn't.

QUESTION 38

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. There is a Microsoft .NET Remoting component that configured to allow a total of five applications to access data in a C-tree database. All aspects seems to be functional however, you have discovered that whenever it happens that an application accesses data, the other four applications are blocked from accessing the data. To this end you monitor the Contention Rate / Sec performance counter in the .NET CLR LocksAndThreads category and measure it to be 50. You now need to analyze this result.

What conclusion can you draw?

- A. Excessive processor time is consumed.
- B. Excessive memory is consumed.
- C. There is a synchronization problem.
- D. There is a platform invocation problem.

Answer: C

Explanation: It is highly likely that the .NET Remoting component allows only one thread to access the database at a time. The Contention Rate / Sec performance counter measures the rate at which the threads are blocked from acquiring a lock.

Incorrect answers:

A: You cannot use performance counters in the .NET CLR LocksAndThreads category to assume that excessive processor time is being consumed.

B: You cannot use performance counters in the .NET CLR LocksAndThreads category to assume that excessive memory is being consumed.

D: You cannot use performance counters in the .NET CLR LocksAndThreads category to monitor platform invocation issues.

QUESTION 39

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. Certkiller .com operates as a company specializing in providing environmental and social impact assessments for civil engineering companies.

Certkiller .com currently offers an Extensible Markup Language (XML) Web service which allows civil engineering companies the ability to submit environmental impact results and the liability and indemnity coverage of projects to a government agency that deals with infrastructure and engineering. A Web method named AddEnvironmentalImpactTestResult is design to accept a String parameter that represents a specific geographical area (GEO); usually identified by means of its coordinates; and a Boolean parameter that indicates that the test was passed. The AddEnvironmentalImpactTestResult method then executes the following query: INSERT INTO EnvironmentalImpactResult (GEO, Passed) VALUES ('{0}', {1}) The {0} and {1} format placeholders are replaced with the values for the String and Boolean parameters, respectively. The results are stored in a SQL database.

An operations engineer named Rory Allen is responsible for the monitoring of the database. In carrying out his duties, Clive Wilson compares several liability and indemnity coverage records in the database with the paper results. However, Rory Allen found that there are some inconsistencies in the results. It thus appears that there were some unauthorized changes to data objects in the database. You suspect that an attack is the cause for these unauthorized changes.

What type of attack would result in these inconsistencies?

- A. Buffer overrun
- B. Cross-site scripting
- C. SQL injection
- D. Denial-of-service

Answer: C

Explanation: A SQL injection attack occurs when a malicious user injects SQL Statements into clauses that build SQL queries. In this case the queries are constructed dynamically. Thus it is possible that an attacker could modify the liability and indemnity coverage by calling the AddEnvironmentalImpactTestResult Web method. It is further possible that the attacker can be a developer for one of the civil engineering companies

who are authorized to call the AddEnvironmentalImpactTestResult Web method.

Incorrect answers:

A: A buffer overrun attack usually occurs in unmanaged code when an attacker can overflow the buffer in an attempt to execute malicious code. This is not what is happening in this scenario.

B: A cross-site scripting attack occurs when a Web application writes input data to the browser without encoding it. In this case a Web service and not a Web application is being attacked.

D: A denial-of-service attack occurs when an attacker attempts to overload a server with an excessive amount of requests, akin to flooding the server. This is not the case here.

QUESTION 40

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You are currently busy developing an enterprise solution for Certkiller .com. The Certkiller .com network contains two Web servers named Certkiller -WS01 and Certkiller -WS02, as well as a database server named Certkiller -DB01 which you intend to use in the deployment of the solution. The solution will consist of a Microsoft ASP.NET Web application, an Extensible Markup Language (XML) Web service, a Microsoft .NET Remoting component, and a Microsoft SQL Server 2005 database.

The Web application and the XML Web service use the inter-process communication (IPC) channel for connectivity to the .NET Remoting component which accesses data in the database.

Following is the deployment design:

1. Deploy the Microsoft ASP.NET Web application to Certkiller -WS01
2. Deploy the Extensible Markup Language (XML) Web service to Certkiller -W02
3. Deploy the database to Certkiller -DB01

Now you need to make a decision as to where the data access component should be deployed.

What should you do?

- A. Identify Certkiller -WS01 AND Certkiller -DB01.
- B. Identify Certkiller -WS02 AND Certkiller -DB01.
- C. Identify either Certkiller -WS01 OR Certkiller -WS02.
- D. Identify both Certkiller -WS01 AND Certkiller -WS02.

Answer: D

Explanation

: IPC is being used for connectivity purposes by the Web application and the Web service. This means that communication can occur between different application domains or processes on the same computer only. However, in this scenario the Web application is deployed to Certkiller-WS01 and the Web service is deployed to Certkiller-WS02,

thus you should deploy the Microsoft .NET Remoting component to Certkiller -WS01 and Certkiller -WS02.

Incorrect answers:

A: There is no need to deploy the Microsoft .NET Remoting component to Certkiller -DB01. The component will be able to access data from the Microsoft SQL Server 2005 database over the network.

B: There is no need to deploy the Microsoft .NET Remoting component to Certkiller -DB01. The component will be able to access data from the Microsoft SQL Server 2005 database over the network.

C: The Microsoft .NET Remoting component should not be deployed to either Certkiller -WS01 OR Certkiller -WS02. Rather you need to deploy it to both servers since both the Web service and the Web application must be allowed to connect to it via IPC channel.

QUESTION 41

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You are currently developing an enterprise customer relationship management (CRM) application for Certkiller .com. Upon completion this application will allow customers to submit invoices to their respective clients. The exhibit below illustrates the application flow diagram of the invoice submission process. A factor that should be kept in mind is that the process is subject to future alterations.

Exhibit:



You have been instructed to create a component to manage the invoice submission process.

What should you do?

- A. Make use of a Business workflow component.
- B. Make use of a User process component.
- C. Make use of a Service interface component.
- D. Make use of a Service agent component.

Answer: A

Explanation: A business workflow component manages business activities or workflows. With the implementation of a sequence of activities in a business workflow, you decouple the application flow logic from the business logic. And then it allows for the easy management of change in the sequence of activities in the future.

Incorrect answers:

B: A User process component will allow you to manage user or screen flow throughout an application. But in this scenario the activities clearly indicates a business workflow, not a user workflow.

C: Service interfaces expose an application's business logic to external systems and this is not what is required in this scenario.

D: A service agent hides the complexity of the process involved in calling multiple services to access external functionality. This is not what is required in this scenario.

QUESTION 42

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You are currently developing an enterprise solution that consists of a Microsoft ASP.NET Web application and a Microsoft .NET Remoting component. The Web application connects to the .NET Remoting component via inter-process communication (IPC) channel. A Web server named Certkiller -WS01 will be used for the deployment of the enterprise solution. The following exhibit illustrates the production Web.config file configuration:

Exhibit:

```
<configuration>
<system.web>
<customErrors mode="RemoteOnly"/>
</system.web>
</configuration>
```

One requirement that should be kept in mind is that one should not be able to view specific error messages when accessing the Web application from the network or the Internet. Following is a list of the aspects included in the deployment design:

1. Deploy Microsoft Internet Security and Administration (ISA) Server to Certkiller -WS01.
2. Deploy the Web application to Certkiller -WS01.
3. Configure ISA server with a Web publishing rule to redirect requests to staging.fi-print.com to 127.0.0.1.

You now need to make a decision as to whether the design meets the requirements. What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements since you need to deploy the .NET Remoting component to a separate computer.
- C. The design does not meet the requirements since you need to deploy ISA server to a separate computer.
- D. The design does not meet the requirements since you need to configure ISA server to redirect requests to Certkiller -WS01's name and not the IP address.

Answer: C

Explanation: ISA server should be deployed on a separate computer since the Web.config file is configured to display specific errors only for local requests. However, since the ISA server is currently configured to redirect requests to the local computer,

ASP.NET will interpret the requests as originating from the local computer and will thus result in users being able to view specific error over the network or Internet whereas they should not be able to.

Incorrect answers:

A: This option is incorrect since you need to deploy ISA server to a separate computer.

B: .NET Remoting should not be deployed on a separate computer. The Web application connects to this component via IPC channel and IPC allows communication between application domains or processes on the same computer only.

D: ISA server should not be configured to redirect requests to the Certkiller -WS01 name. This will result in the users still being able to view specific error over the network or the Internet.

QUESTION 43

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a financial institution.

You have been asked to make a recommendation in terms of the technological design to meet the Certkiller .com requirements. The plan is to develop a component for Certkiller .com. And this component is to provide the business logic for the management of customer accounts. The component should meet certain technical requirements to serve the Certkiller .com needs. Following is a list of these requirements:

1. Instantiated classes must be reused by multiple threads.
2. Method calls must be rolled back in the event of a failure occurring.
3. Only certain users must have the ability to call certain methods.

In your recommendation you should mention the appropriate technology that will meet these technological requirements.

What should you do?

- A. Recommend the use of Microsoft .NET Enterprise Services.
- B. Recommend the use of Message Queuing.
- C. Recommend the use of Extensible Markup Language (XML) Web services.
- D. Recommend the use of Microsoft .NET Remoting.

Answer: A

Explanation: Microsoft .NET Enterprise Services will allow you to build applications and components that make use of COM+ services. It further allows you to develop components able of supporting transactions, just-in-time (JIT) activation. Object pooling, as well as role-based security. One of the requirements that should be met includes a roll-back method call in the event of failure. Object pooling will allow you to reuse class instances. And role-based security allows you to restrict method calls to specific users.

Incorrect answers:

B: Message Queuing will not work under these circumstances since though it will allow

you to support component-to-component communication through messages; it does not support role-based security to restrict method calls to certain users.

C : You should not recommend the use of Extensible Markup Language (XML) Web services because although it allows one to support communication across different platforms by means of using open Internet Protocols. However, it does not support object pooling to reuse class instances. And this is one of the requirements that should be met.

D: .NET Remoting allows you to support communication across application domain boundaries by means of using remote method invocations; it does not provide transaction support to roll back in case of failure.

QUESTION 44

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a vehicle testing station that is affiliated to the Chicago Traffic Department.

You have been instructed to develop an enterprise solution for Certkiller .com. This solution is to meet the following requirements:

1. It must allow the Chicago Traffic department employees to register driver licenses for drivers.
2. It must allow the Chicago Traffic department employees to renew driver licenses for drivers.
3. It must allow other States' Traffic departments to access driver licenses statuses via the Internet.
4. It must allow other States' Traffic departments to build applications that integrate with your solution over open protocols.

To this end you propose that the solution should have the following aspects:

Deploy a Microsoft Windows Forms application to be used by Chicago Traffic Department employees.

Deploy a Microsoft ASP.NET 2.0 Web site to be used by other states' Traffic departments.

You now need to make a decision as to whether your proposal will meet the requirements.

What conclusion can you draw?

- A. The solution will meet the requirements.
- B. The solution will not meet the requirements. An Extensible Markup Language (XML) Web service for use of the other states' Traffic departments should be deployed.
- C. The solution will not meet the requirements. A Windows Forms application for use of the other states' Traffic departments should be deployed.
- D. The solution will not meet the requirements. A Microsoft .NET Remoting component for use by the Chicago Traffic department employees should be deployed.

Answer: B

Explanation: An XML Web service will allow the other states' Traffic departments to build applications that integrate with our solution as is mentioned in the requirements.

Incorrect answers:

A: There are some aspects omitted and as such not all the requirements are met. You still require an XML Web service to be deployed.

C: A Windows Forms application will not allow other states Traffic departments to build applications on this solution.

D: A Microsoft .NET Remoting component to be deployed is not a requirement because it will allow a client application to access a server application that is running in another application domain on the same computer or another computer.

QUESTION 45

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as the local municipal traffic authority in Miami.

You have been instructed to develop an enterprise application for Certkiller .com. Following is a list of all the requirements that you should keep in mind when you develop the application:

1. In the event of a driver exceeding the speed limit by more than 10 and less than 20 kilometers per hour (KPH) - the corresponding fine should be \$100 with an additional amount of \$10 for each KPH over the limit.
2. In the event of a driver exceeding the speed limit by 20 or more KPH, the corresponding fine should be \$250 with an additional \$25 for each KPH over the limit.

To this end you write the following pseudo-code to address the requirements:

DECLARE speedLimit INTEGER

DECLARE speed INTEGER

DECLARE fine INTEGER

Now you need to complete the pseudo-code.

What should you do? (Choose the correct code segment.)

- A. IF speed > 10 THEN
fine = 100 + 10 * (speed - speed limit)
IF speed > 20 THEN
fine = 250 + 25 * (speed - speed limit)
- B. IF speed > 20 THEN
fine = 250 + 25 * (speed - speed limit)
IF speed > 10 THEN
fine = 100 + 10 * (speed - speed limit)
- C. IF speed - speed limit > 20 THEN
fine = 250 + 25 * (speed - speed limit)
ELSE IF speed - speed limit > 10 THEN
fine = 100 + 10 * (speed - speed limit)
- D. IF speed > 10 THEN

```
fine = 100 + 10 * (speed - speed limit)
ELSE IF speed > 20 THEN
fine = 250 + 25 * (speed - speed limit)
```

Answer: C

Explanation: You should make use of

IF speed - speed limit > 20 THEN

```
fine = 250 + 25 * (speed - speed limit)
```

ELSE IF speed - speed limit > 10 THEN

```
fine = 100 + 10 * (speed - speed limit)
```

as the code segment. As this is written the code first determines whether the speed exceeds the speed limit by 20 or more KPH. If so, then the fine will be set at \$250 + \$25 times the number of KPH exceeding the limit.

If not, the code will determine whether the speed exceeds the limit by more than 10 KPH, if so the fine is set to \$100 + \$10 time the number of KPH exceeding the limit.

Incorrect answer:

A: If you make use of

IF speed > 10 THEN

```
fine = 100 + 10 * (speed - speed limit)
```

IF speed > 20 THEN

```
fine = 250 + 25 * (speed - speed limit)
```

it will determine whether the speed is greater than 10KPH or whether it is 20 KPH or more instead of calculating the difference between the speed and the speed limit.

B: If you make use of

IF speed > 20 THEN

```
fine = 250 + 25 * (speed - speed limit)
```

IF speed > 10 THEN

```
fine = 100 + 10 * (speed - speed limit)
```

it will a fine to be set to \$100 + \$10 for each KPH over the limit even if the driver's speed exceeds 20 KPH or more.

D: If you make use of

IF speed > 10 THEN

```
fine = 100 + 10 * (speed - speed limit)
```

ELSE IF speed > 20 THEN

```
fine = 250 + 25 * (speed - speed limit)
```

it will determine whether the speed is greater than 10 KPH or whether 20 KPH or more, instead of calculating the difference between the speed and the speed limit.

QUESTION 46

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an on-line retailer.

You are currently developing a distributed order fulfillment system. When

completed, this system must, when an order is placed, first invoke a method on one Web service to charge a customer's credit card. Then the system must continue and invoke methods on another Web service to ship the purchased product. Finally the system must update an internal accounting database.

You need to propose the appropriate component type and layer that must be used to meet the Certkiller .com requirements.

What should you do? (Each correct answer presents part of the solution. Choose two.)

- A. Create a business workflow component.
- B. Create a user process component.
- C. Place the component in the presentation layer
- D. Place the component in the business layer.

Answer: A, D

Explanation: According to Microsoft best practices, the business layer should include business workflow components, business entity component and business components. The business workflow components manage business workflows. This will allow one to separate business logic from business-to-business (B2B) interactions. And thus you will be able to easily change the business flow of the system. In this scenario you should create a business workflow component and place the component in the business layer.

Incorrect answers:

B: The user process component helps to facilitate the flow through an application. It allows you to reuse the user process in multiple user interfaces. This is not appropriate in this scenario.

C: The presentation layer should include user interface components and user process components. It is not appropriate in this scenario,

QUESTION 47

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a cosmetics company.

You are currently busy developing an enterprise application for Certkiller .com. This application must be able to support the ability to access chemical data. This chemical data are stored in five relational databases. The chemical makeup of each product is represented as a business entity. The business logic determines how the chemical makeup can be used in combinations to create new products.

You need to evaluate the design in terms of the best performance that it can offer. Following are the physical design aspects that you should take into account in your evaluation:

1. One assembly for all business entities.
2. One assembly to contain business logic.
3. An assembly per type of database.

What conclusion can you draw?

- A. This design will result in the best performance.
- B. This design will not yield the best performance.
You should create one assembly for each type of business entity.
- C. This design will not yield the best performance.
You should create an assembly for each type of chemical makeup combination.
- D. This design will not yield the best performance.
You should create one assembly for all databases.

Answer: A

Explanation: The fewer the assemblies the better the performance when it comes to a Microsoft ASP.NET Web application. When the common language runtime (CLR) loads an assembly, it performs certain functions. These functions are necessary and will definitely affect performance when a large number of assemblies are loaded. In this design, only one assembly is used to contain the business entities and only one assembly is used to contain the business logic. Due to a data access component having to correspond to a single data store, an assembly exists for each type of database; however, only one data access assembly will be loaded to access a particular database.

Incorrect answers:

- B: You should not create an assembly for each type of chemical makeup combination. This will require the application to load multiple assemblies when different entities are combines. The loading of multiple assemblies degrades performance. It is mentioned in the question that the chemical makeup of each product is represented as an entity.
- C : You should not create an assembly for each type of chemical makeup combination. This will require the application to load multiple assemblies when different entities are combines. The loading of multiple assemblies degrades performance. It is mentioned in the question that the chemical makeup of each product is represented as an entity.
- D: You should not create one assembly for all the databases. a data access component should correspond to only one single data store. In this case the data store is a database and because only one assembly will be loaded to access a particular database, multiple data access assemblies will not cause performance to degrade.

QUESTION 48

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .Com operates as a telecommunications company.

You are currently busy implementing a solution for Certkiller .com that will, when completed, consist of five Microsoft Windows Forms applications, two Microsoft ASP.NET Web applications, and twenty Extensible Markup Language (XML) Web services. The Web services will be used by the Windows Forms applications as well as the Web applications to access business functionality.

1. The Web services:

All the Web services have similar configuration requirements.
However, only five of the Web services will make use of Simple Object Access Protocol (SOAP) header authentication.

1. The two Microsoft ASP.NET Web applications:

Both of these applications have different configuration requirements.

However, both of them require integrated Windows authentication.

1. The five Microsoft Windows Forms applications:

All these applications make use of integrated Windows authentication.

The Web applications and the Web services are destined to be hosted on a server that will be running Microsoft Internet Information Services (IIS) 6.0. Following is the design of the Microsoft Visual Studio 2005 project structure:

1. One project for each Windows Forms application.

2. One project for each Web application.

3. One project for each XML Web service.

You have been instructed to evaluate the design for maintainability and thus you need to draw a conclusion regarding the maintainability for the design.

What conclusion can you draw?

A. The design is easily maintainable.

B. The design is difficult to maintain.

Both Web applications should be placed in a single project.

C. The design is difficult to maintain.

All Web services should be placed in a single project.

D. The design is difficult to maintain.

All Windows Forms applications should be placed in a single project.

Answer: C

Explanation: Maintainability will be improved if all Web services are placed in a single project as it will then allow you to make changes to the configuration in one place and have it reflected by all the Web services. Thus the conclusion should be the design is not maintainable - all Web services should be placed in a single project.

Incorrect answers:

A: This is incorrect since there are still some measures that can be taken to improve maintainability.

B: Placing both Web applications in a single project is impractical. These two Web applications have different configuration requirements and that means that they need to be in separate projects.

D: Placing all Windows Forms applications in a single project is impractical since Windows Forms applications require an entry point, and only one point can exist per application.

QUESTION 49

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of

applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an information bureau for the supply of information to financial institutions such as banks.

You are currently busy implementing a solution for Certkiller .com that will, when completed, consist of three Microsoft ASP.NET Web applications. These applications will allow the Certkiller .com customer banks to manage credit-, investment- and current accounts. All three applications are destined to be hosted on a server that is configured with Microsoft Internet Information Services (IIS) 6.0.

Included in the Physical design is the following IIS directory structure:

1. Default Web Site (D:\Inet\wwwroot)
2. Credit Portal (D:\FinanceWeb\Credit)
3. Investment Portal (D:\FinanceWeb\Investment)
4. Current Portal (D:\FinanceWeb\Current)

In your solution you are required to display the application on pages. And images need to be reused across all three applications. To this end you need to select the best location to store these images to ensure that it can be used across all three applications.

What should you do?

- A. Use D:\FinanceWeb to store the images.
- B. Use D:\Images to store the images.
- C. Use D:\InetWeb\wwwroot\Images to store the images.
- D. Use D:\FinanceWeb\Images to store the images.

Answer: C

Explanation: The D:\Inet\wwwroot\Images is the only location amongst the available options that represents a subdirectory of the IIS virtual root directory. This will allow each of the three Web applications the ability to reference the images by means of a URL.

Incorrect answers:

- A: D:\FinanceWeb does not correspond to the IIS virtual root directory and as such will not allow the web applications to reference the images using a URL.
- B: There is no IIS virtual directory that corresponds to any part of D:\Images and this option will thus not allow the Web applications to reference the images.
- D: There is no IIS virtual directory that corresponds to any part of D:\FinanceWeb\Images and as such this option will now allow the three Web applications to reference the images.

QUESTION 50

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. The design of applications forms part of your responsibilities at Certkiller .com.

You are currently developing a Microsoft ASP.NET Web application that makes

use of a data access component to access data in a Microsoft SQL Server 2005 database. This data access component makes use of Microsoft .NET Remoting to enable access over Transmission Control Protocol (TCP) port 9001. You must develop the Microsoft ASP.NET application to enable users to access data in the database via the Web application only. The following table illustrates the logical and physical design aspects that you should take into account when deciding whether the design meets with the security requirement:

Logical Design Aspects:	Physical Design Aspects:
1. The user interface is implemented in	1. Host the Web application on a Web
a Microsoft ASP.NET Web	server on the perimeter network.
application.	2. Deploy the data access component
2. Data is stored in a Microsoft SQL	to the web server.
Server 2005 database.	3. Place the database server on the
3. A data access component accesses	intranet.
data in the database.	
4. The Web application connects to the	1. Allow only Hypertext Transfer
data access component over an	Protocol (HTTP) traffic to the Web
inter-process communication (IPC)	server.
channel.	

What conclusion can you draw?

A. The design meets the security requirement.

B. The design does not meet the security requirement.

The data access component should be deployed to an application server on the intranet.

C. The design does not meet the security requirement.

The data access component should be deployed to the database server on the intranet.

D. The design does not meet the security requirement.

The data access component should be deployed to an application server on the perimeter network.

Answer: A

Explanation: It is mentioned in the question that the Web server is placed in the perimeter network and that only HTTP traffic is allowed to the Web server. This means that users can only send HTTP requests to the Web server. Even though the data access component does exist on the Web server, it will still require access through an IPC channel and IPC supports communication on the same computer only. Thus the design currently meets the security requirement.

Incorrect answers:

B: There is no need to deploy the data access component to application server on the intranet. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

C: There is no need to deploy the data access component to database server on the intranet. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

D: There is no need to deploy the data access component to application server on the perimeter network. The Web application connects to the data access component over IPC and IPC supports communication on the same computer only.

QUESTION 51

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a financial institution.

You are currently developing an enterprise application for Certkiller .com.

Following are the aspects that should be taken into account in your design:

1. A Microsoft Windows Forms application that will allow all Certkiller .com employees to open accounts for customers.
2. A Microsoft ASP.NET Web application that will allow customers to open their own accounts.
3. A component named OpenAccount that manages the flow throughout both applications.

You thus need to decide on the appropriate layer in the design in which to implement these components.

What should you do?

A. The Windows Forms, the Web application as well as the OpenAccount component must be placed in the business layer.

B. The Windows Forms, the Web application as well as the OpenAccount component must be placed in the presentation layer.

C. The Windows Forms and the Web application must be placed in the presentation layer.

The OpenAccount component must be placed in the data layer.

D. The Windows Forms and the Web application must be placed in the presentation layer.

The OpenAccount component must be placed in the business layer.

Answer: B

Explanation: According to Microsoft best practices, the presentation layer should include the user interface components and user process components. The user interface components provide the interface with which users interact directly. This is what the Windows Forms application and the Web application is in this scenario. The user process components aid the flow of the application. If you separate the user process components from the user interface components, then you allow the workflow to be reused by multiple user interfaces. Due to the OpenAccount component aiding the flow throughout the application, you should place this component in the presentation layer as well.

Incorrect answers:

A: None of these components should be placed in the business layer. The business layer should include the business workflows, business entities, business components and service interfaces.

C: This option is only partly correct. You should instead also be placing the OpenAccount component in the Presentation layer and not in the data layer.

D: This is only partly correct since the OpenAccount component should also be placed in the presentation layer.

QUESTION 52

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing a Microsoft Windows service that will form part of an enterprise solution for Certkiller .com. The service must be able to (1) Monitor a File Transfer Protocol (FTP) directory for incoming files, and (2) Extract data from the files and import them into a database.

Following are the requirements that should be met by this service:

1. It must run using a least privileged account.
2. It must be capable of processing 450 files per minute.
3. It must be able to recover from failures that cause it to stop functioning.

You thus need to identify the factor that is most important during the design of the application.

What should you do?

- A. You should identify factors pertaining to Maintainability.
- B. You should identify factors pertaining to Performance.
- C. You should identify factors pertaining to Security.
- D. You should identify factors pertaining to Usability.

Answer: B

Explanation: Performance should be identified as the most important factor under these circumstances. One of the requirements states that the service must be able to process

450 files per minute. This means that the service should perform at a rate of file files per second. This is this important and you need to decide how to design and implement the service to achieve this performance goal.

Incorrect answers:

A: Maintainability is easily attainable by configuring Windows services to automatically restart after it stops. Thus this is not a factor to take into consideration under these circumstances.

C: Security can easily be configured in a Windows service to run as a dedicated account for file and database purposes after it is implemented.

D : Usability should not be the factor to take into consideration in this scenario. Windows services typically do not provide a user interface.

QUESTION 53

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a Geographic Positioning System service provider. You are currently developing a geographical mapping application. You must create a struct named Waypoint that models a waypoint. This waypoint is to consist of a set of latitude and longitude coordinates. In the event of a user passing a street address to the struct, it must perform a location lookup and set its coordinates appropriately.

To this end you need to define the Waypoint struct. You need to ensure that your application requires the least amount of code to set the coordinates from a street address.

What should you do? (Choose the correct code segment.)

A. Public Structure Waypoint

Public Latitude As Double

Public Longitude As Double

Public WriteOnly Property Address() As String

Set(ByVal value As String)

'Set the Latitude and Longitude field based on the address.

End Set

End Property

End Structure

B. Public Structure Waypoint

Public Latitude As Double

Public Longitude As Double

Public Sub New(ByVal address As String)

'Set the Latitude and Longitude fields based on the address.

End Sub

End Structure

C. Public Structure Waypoint

Public Latitude As Double

```
Public Longitude As Double
Public Function FromAddress(ByVal address As String) As Waypoint
Dim waypoint As Waypoint = New Waypoint()
'Set the Latitude and Longitude fields based on the address.
Return Waypoint
End Function
End Structure
D. Public Structure Waypoint
Public Latitude As Double
Public Longitude As Double
Public Sub SetAddress(ByVal address As String)
'Set the Latitude and Longitude fields based on the address.
End Sub
End Structure
```

Answer: B

Explanation: When the Waypoint struct is defined with a non-default constructor, it allows calling code to initialize the Latitude and Longitude fields of the Waypoint struct when it is instantiated. This solution only uses one code statement.

Incorrect answers:

A: You should not add a non-static method to return a Waypoint instance. As such it would require applications to first initialize the Waypoint struct by calling its constructor and only then can applications call methods on the structs. Furthermore this solution will require two code statements.

C: You should not add a non-static method to set the Latitude and Longitude fields of the Waypoint instance. This will require the application to first initialize the Waypoint struct by calling its constructor and only then will the application be able to call methods on the struct. Furthermore, this solution will require two code statements.

D: You should not add a property to set the Longitude and Latitude fields of the Waypoint instance. This will require the application to first initialize the Waypoint struct by calling its constructor and only then will the application be able to call methods on the struct. Furthermore, this solution will require two code statements.

QUESTION 54

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as the Emergency unit of the Traffic Department. You are currently busy implementing a Microsoft .NET Remoting component. This component will be used in the traffic control environment. The component will allow the traffic department to guide all traffic officers on duty to the available alternative routes during emergencies. As such the component must meet the following requirements:

1. A specific instance of the component must be allowed to control access to the

navigational system on one traffic officer's vehicle.

2. The component must be instantiated only once while the traffic officer's navigational system is being controlled.

3. The component must be hosted on a server that is separate from the application.

To this end the design suggests making use of single-call activation over Transmission Control Protocol (TCP). You are now required to decide whether or not the design meets the requirements.

What conclusion can you draw?

A. The design meets the requirements.

B. The design does not meet the requirements; it should make use of inter-process communication (IPC).

C. The design does not meet the requirements; it should make use of client activation.

D. The design does not meet the requirements; it should make use of Singleton activation.

Answer: C

Explanation: The requirements clearly indicate that the component should be stateful, being stateful means that the component can be instantiated once, and maintain its state throughout its lifetime. With client activation, the client maintains state for a remote object; also the object gets instantiated once for each client. Thus the design is inadequate and should also make use of client activation.

Incorrect answers:

A: IPC supports communication between different processes running on the same computer only. This is not the case in this scenario; instead the application needs to communicate with the component on a different computer.

B: There are definitely some inadequacies and you will need client activation to meet the stated requirements.

D: Singleton activation is when a single instance of an object is provided to multiple clients. This is not what is required in this scenario since you only need to use one object per client.

QUESTION 55

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as an airliner. You are stationed on one of the airports that the airliner operates from.

You are currently developing an enterprise air traffic control system for Certkiller .com. The plan is to make use of a Microsoft .NET Remoting component with Singleton activation to control the airplanes. An application server will be used to host the component. The air traffic controllers will make use of a Microsoft Windows Forms application that will be deployed to their workstations.

You now need to define the implementation details of the component to ensure that

is supports scalability.
What should you do?

- A. You should ensure that the component processes singular requests.
- B. You should ensure that the component is multithreaded.
- C. You should ensure that the component is stateful.
- D. You should ensure that the component uses the inter-process communication (IPC) channel.

Answer: B

Explanation: A Singleton object is accessible to multiple threads; you need to ensure that it behaves correctly when it is accessed in a multithreaded environment. If not it will affect scalability adversely.

Incorrect answers:

- A: Ensuring that the component processes singular processes will require a single thread and would affect scalability adversely.
- C: Stateful components are not scalable.
- D: IPC is meant to support communication between different processes that runs on the same computer only. This is not what will be occurring in this scenario because the air traffic controllers will be working from their own workstations.

QUESTION 56

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing a business logic component that is used in a line-of-business (LOB) application. The business logic component calls a Web method named SeeCustomer in an Extensible Markup Language (XML) Web service. The SeeCustomer Web method throws an exception of a type SoapExtension in the event of the specified customer being non-existent. Now, when this exception is thrown, you must call a Web method named NewCustomer. To this end you need to implement the appropriate exception handling mechanism to meet this requirement.
What should you do?

- A. Do nothing and leave the exception.
- B. First catch the exception and do not re-throw it.
- C. First catch the exception, then log it, and then re-throw it.
- D. First catch the exception, then wrap the exception, and then throw the wrapped exception.

Answer: B

Explanation: When an exception is caught, you prevent it from propagating up the call

stack. This will then allow you to call the NewCustomer Web method. Thus you should catch the exception and not re-throw it.

Incorrect answers:

A: Not doing anything about the exception will allow the exception to propagate up the call stack and prevent you from calling the NewCustomer Web method.

C: Re-throwing the exception will result in the exception propagating up the call stack and will not afford you the opportunity to call the NewCustomer Web method.

D: A Wrapped exception being thrown would result in a new exception up the call stack and will also prevent you from calling the NewCustomer Web method.

QUESTION 57

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as a service provider in the security industry.

You are currently developing a video surveillance application for Certkiller .com. You need to implement a class named Visuals. Visuals will be destined to control access to a video camera. A method named CommenceRecording must start a recording session of the camera if one is not already started. In the event of a recording session having started already when the method is called, you have to interrupt the execution of the application. To this end you now need to define the Visuals class.

What should you do? (Choose the correct code segment.)

A. Public Class Visuals

Private _recording As Boolean = False

Public Sub CommenceRecording()

If (_recording = True) Then

MessageBox.Show("A recording session is in progress.")

End If

'Start recording

_recording = True

End Sub

End Class

B. Public Class Visuals

Private _recording As Boolean = False

Public Event Recording As EventHandler

Public Sub CommenceRecording()

If (_recording = True)

RaiseEvent Recording(Me, EventArgs.Empty)

End If

'Start recording

_recording = True

End Sub

End Class

C. Public Class Visuals

```
Private _recording As Boolean = False
```

```
Private Sub CommenceRecording()
```

```
If (_recording = True) Then
```

```
Throw New InvalidOperationException("A recording session is in progress.")
```

```
End If
```

```
'Start recording
```

```
_recording = True
```

```
End Sub
```

```
End Class
```

D. Public Delegate Sub RecordingStarted(ByVal message As String)

Public Class Visuals

```
Private _recording As Boolean = False
```

```
Public Recording As RecordingStarted
```

```
Public Sub CommenceRecording()
```

```
If (_recording = True) Then
```

```
Recording("A recording session is in progress.")
```

```
End If
```

```
'Start Recording
```

```
_recording = True
```

```
End Sub
```

```
End Class
```

Answer C

Explanation: If the method is called when there is already a recording session in progress then you should throw an exception. This will allow you to interrupt the normal flow of an application.

Incorrect answers:

A: Displaying a message box does not interrupt the execution of an application; it would instead result in an interruption to the user.

B: Raising an event will result in the application to subscribe to the event to receive notification regarding the status of recording sessions. Thus it will not interrupt the execution of the application.

D: Invoking a delegate is not the solution since it will result in the application to require associating with a method with the delegate to receive notification regarding recording session status and as such would not interrupt the execution of the application.

QUESTION 58

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as an Independent Electoral Commission. You are currently developing a voter registration application for Certkiller .com. Following is a list of the facts that must be taken into account:

1. A voter is associated with one political party.

2. A voter has one mailing address.
3. A mailing address can belong to multiple voters.
4. It is estimated that on average each mailing address can be used by two voters.
5. A voter has two telephone contact numbers.
6. A contact phone number can belong to multiple voters.
7. It is estimated that on average each contact phone number can be used by two voters.

The plan is to design the database schema based on these facts. Now you need to decide on the minimum number of tables that will be required. In your solution you must ensure that it offers the best performance.

What should you do? (Choose the correct amount of tables required.)

- A. 1
- B. 2
- C. 3
- D. 4

Answer: A

Explanation: A single table will suffice in this scenario. You will be able to store all the voters' mailing addresses, political party affiliation and telephone contact numbers. It will however result in a renormalization of the database, but it will offer the best performance since it offers better performance than a normalized database. In a normalized database only an average of two voters are associated with the same addresses and telephone contact numbers.

Incorrect answers:

B, C, D: Creating more than one table will result in normalization of the database, but it would not offer the best performance.

QUESTION 59

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. Certkiller .com operates as an umbrella company for several recording houses in the music industry.

You are currently developing an enterprise application for Certkiller .com. you need to design the database schema for this application and following are the facts regarding record labels/recording house, albums, songs, and artists; pertaining to the company that you need to take into account in your design:

1. A label has one or more albums.
2. A label has one or more artists.
3. An artist records zero or more albums.
4. An artist records one or more songs.
5. An artist belongs to one label.
6. An album is recorded by one or more artists.

7. An album has one or more songs.
8. An album is owned by one label.
9. A song is recorded by one or more artists.
10. A song exists on one or more albums.

You need to normalize the database. To this end you need to decide on the amount of tables to use in the database.

What should you do?

- A. You require 2 tables.
- B. You require 4 tables.
- C. You require 5 tables.
- D. You require 7 tables.

Answer: D

Explanation: There are four main entities: namely Label, Artist, Album, Song. This means that you need to create four tables to correspond to these entities. However, you also need to take into account the many-to-many relationships that has to be reflected in the database. The existing many-to-many relationships include relationships between: artists and albums, albums and songs, and artists and songs. Thus you need an additional three tables. Seven tables is thus the minimum number of tables required for normalization.

Incorrect answers:

- A: With two tables only, the database would not be normalized.
- B: With only 4 tables the database would not be normalized.
- C: With only 5 tables the database would not be normalized.

QUESTION 60

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of applications. You are currently developing an Extensible Markup Language (XML) Web service that when completed will allow client applications the ability to download movie clips. One of the requirements that should be met is that all Web service clients must be able to use the Web service. You should also keep in mind that you should optimize the message transfer for some of the movie clips since fifty percent of the movie clips are quite large.

To this end you decide to make use of Microsoft Visual Studio 2005 and Web Services Enhancements (WSE) 3.0 to develop the Web service. Now you need to modify the Web.config file to meet the requirements.

What should you do? (Choose the correct configuration.)

- A. <configuration>
<configuration.web.services3>
<mtom serverMode="optional"/>

```
</microsoft.web.services3>
</configuration>
B. <configuration>
<configuration.web.services3>
<mtom serverMode="always"/>
</microsoft.web.services3>
</configuration>
C. <configuration>
<configuration.web.services3>
<mtom serverMode="on"/>
</microsoft.web.services3>
</configuration>
D. <configuration>
<configuration.web.services3>
<mtom serverMode="never"/>
</microsoft.web.services3>
</configuration>
```

Answer: A

Explanation: WSE 3.0 allows one to make use of Message Transmission Optimization Mechanism (MTOM) to encode and transmit large amounts of binary data. MTOM allows one to transmit binary messages in binary form without the need to encode them in a text format. It is necessary that the client application support MTOM to be able to use it. You also set MTOM in a Web service by setting the serverMode attribute of the mtom element. This attribute supports three values: optional, never and always. However, if MTOM is used in this way, the message transfer is not optimized, thus the attribute should be set to optional.

Incorrect answers:

B: The serverMode attribute should be set to optional, for if set to always, you need the Web service client to support MTOM and not all Web service clients supports MTOM.

C: The serverMode attribute should be set to optional, for if set to on, the attribute will determine whether MTOM is supported by the Web service client and in this scenario you are configuring the Web service.

D: The serverMode attribute should be set to optional, for if set to never, this attribute will indicate that MTOM should not be enabled for incoming Simple Object Access Protocol (SOAP) requests.

QUESTION 61

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a medical technological company that manufactures electronic scanning equipment for medical use.

You are currently developing a Microsoft Windows Forms application. This

application is destined to allow doctors to perform computed Axial Tomography (CAT) scans on patients. When a CAT scan is carried out, it takes over 1,000 two-dimensional scans that are combined to create a three-dimensional image. It takes no more than two seconds to make a two-dimensional scan, however it also takes approximately 20 seconds to combine each image.

The Microsoft Windows Forms application that you are developing must allow doctors to take the two-dimensional scans without requiring the patients to wait for a long time. You thus need to choose the appropriate component to meet this requirement.

What should you do? (Choose the correct component.)

- A. Process
- B. Timer
- C. BackgroundWorker
- D. ImageList

Answer: C

Explanation: The BackgroundWorker component will allow one to implement asynchronous processing. In this particular case you can implement two-dimensional scanning and use BackgroundWorker component to combine the scans.

Incorrect answers:

A: The Process component allows one to execute a process. This is not what will reduce the waiting time for the patients.

B: The Timer component allows a Windows Forms application to respond to timed events. You rather need to make use of BackgroundWorker component to reduce the waiting time for patients.

D: The ImageList component allows one to manage a collection of images that can be used with the TreeView, ListView, and ToolStrip controls, not to reduce waiting time.

QUESTION 62

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks.

You are currently developing a Microsoft Windows Forms monitoring application for Certkiller .com. This application is destined to read data in a Microsoft SQL Server 2005 database and display it graphically on a form. All Certkiller .com users need to be able to:

1. choose the refresh rate for displaying data
2. choose an interval in multiples of one second

To this end you need to reuse a component to meet these requirements without requiring excessive coding.

What should you do?

- A. You need to encapsulate a BackgroundWorker instance in a custom class by wrapping the BackgroundWorker component.
- B. You need to encapsulate a Timer instance in a custom class by wrapping the Timer component.
- C. You need to derive a class from BackgroundWorker by extending the BackgroundWorker component.
- D. You need to derive a class from System.Windows.Forms.Timer by extending the Timer component.

Answer: D

Explanation: The Timer component needs to be extended in the System.Windows.Forms.Timer class. The Timer component raises a Tick event at intervals specified in the Interval property. If you derive a class from Timer, you in essence allow client applications to set the interval property to multiples of one second.

Incorrect answers:

- A: The BackgroundWorker component allows for asynchronous code execution. It is stated pertinently in the question that no excessive coding must be allowed.
- B: Wrapping the Timer component is not the solution. It will require you to write code that exposes the functionality of the Timer component.
- C: You should not extend the BackgroundWorker component as this component allows one to execute code asynchronously in a background thread and automatically notify the foreground thread when the asynchronous operation completes. However, this involves extra coding is that is required.

QUESTION 63

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates in the security and surveillance environment. You are currently developing a video surveillance application for Certkiller .com. While executing your duties, you examine a third party component that implements a Camera class. This class allows you to connect to a physical camera and record video or capture images. The following exhibit illustrates the Camera class definition:

Exhibit:

```
Public Class Camera
Public Overridable Sub CaptureImage()
'Capture a still image
End Sub
Public Overridable Sub StartRecording()
'Start a recording session
End Sub
Public Overridable Sub StopRecording()
'Stop a recording session
```

End Sub

End Class

You now need to define the custom class to achieve the following goals:

1. reuse the Camera class to implement a custom class
2. allow the application to capture still images
3. prevent the application from being able to use your class to start and stop a recording session

What should you go? (Choose the correct code segment.)

A. Public Class StillImageCamera

Inherits Camera

Public Overrides Sub CaptureImage()

MyBase.CaptureImage()

End Sub

End Class

B. Public Class StillImageCamera

Inherits Camera

Public Overrides NotOverridable Sub StartRecording()

MyBase.StartRecording()

End Sub

Public Overrides NotOverridable Sub StopRecording()

MyBase.StopRecording()

End Sub

End Class

C. Public Class StillImageCamera

Private ReadOnly _camera As Camera = new Camera()

Public Overridable Sub CaptureImage()

_camera.CaptureImage()

End Sub

End Class

D. Public Class StillImageCamera

Inherits Camera

Public Shadows Sub CaptureImage()

MyBase.CaptureImage()

End Sub

End Class

Answer: C

Explanation: To allow yourself to be able to control access to the functionality exposed by the Camera class, you should wrap the Camera class by encapsulating it within another class. When you implement only the method that captures still images, you can prevent the application from making use of your class to start or stop a recording session. Incorrect answers:

A, B, D: To derive a class from the Camera class as suggested in these options is not the

solution. This will result in a solution that will allow the application to access all functionality exposed by the Camera class through polymorphism.

QUESTION 64

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates in the Inland Revenue services department. You are currently developing an income tax preparation application. This application should calculate income tax on the following basis:

Income	Tax
Up to \$7,500	10%
Over \$7,500 and up to \$30,000	\$750 + 15% of the amount over \$7,500
Over \$30,000 and up to \$72,000	\$4,200 + 25% of the amount over \$30,000
	\$72,000
Over \$72,000	\$15,000 + 28% of the amount over \$72,000
	\$15,000

To this end you create two Double variables. These are named income and tax respectively. What is now required is to choose an appropriate decision flow structure to implement the business rules.

What should you do? (Choose the appropriate code segment.)

```
A. If (income <= 7500) then
tax = 0.1 * income
ElseIf (income <= 30000) Then
tax = 0.15 * (income - 7500) + 750
ElseIf (income <= 72000) Then
tax = 0.25 * (income - 30000) + 4200
Else
tax = 0.28 * (income - 72000) + 15000
End If
B. If (income < + 7500) Then
tax = 0.1 * income
If (income < + 30000) Then
tax = 0.15 * (income - 7500) + 750
```

```
If (income <= 72000) Then
tax = 0.25 * (income - 30000) + 4200
Else
tax = 0.28 * (income - 72000) + 15000
End If
End If
End If
C. Select Case (CInt(income))
Case 7500
tax = 0.1 * income
Case 30000
tax = 0.15 * (income - 7500) + 750
Case 72000
tax = 0.25 * (income - 30000) + 4200
Case Else
tax = 0.28 * (income - 72000) + 15000
End Select
D. If (income < 7500) Then
tax = 0.1 * income
End if
If (income < 30000) Then
tax = 0.15 * (income - 7500) + 750
End if
If (income < 72000) Then
tax = 0.25 * (income - 30000) + 4200
End if
If (income > 72000) Then
tax = 0.28 * (income - 72000) + 15000
End if
```

Answer: A

Explanation: When you make use of if-else statements then you control execution based on a single expression. In this case, if the income of an individual is less than or equal to \$7,500, the tax variable is set to 10% of the value of the income variable. Execution then leaves the entire if-else block. If not, then the code will determine whether the income is less than or equal to \$ 30,000. If so, then the tax variable is set to \$750 + 15% of the income over \$7,500 etc.

Incorrect answers:

B: You should not make use of nested if-statements because it will result in income less than \$7,500 to be taxed as 25%.

C: You should not make use of switch-case statements because each statement can be used to test a single value, but not a range of values. This will then result in income of less than \$ 7,500 to be taxed at 28%.

D: You should not make use of if statements as it will cause income of less than \$7,500 to be taxed at 25%.

QUESTION 65

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a financial institution. You are currently developing a Microsoft Windows Forms application for Certkiller .com that is meant to allow bank tellers to manage account transactions for the Certkiller .com customers. In the United States of America is it government policy that all transactions to the value of \$10 000 or greater must be reported. Certkiller .com need to comply with this policy. This policy also states that the government should be informed as to who made the large transaction. The logical design suggests that in the event of a teller managing a transaction for a customer that is \$ 10,000 or greater in value logging of the following information should occur:

1. Date and time
2. Customer account number
3. Transaction amount
4. Transaction type

When subjected to government audit, Certkiller .com needs to have peace of mind that they are in compliance with the government policies. Thus you now need to decide whether or not the design meets the requirements for compliance. What conclusion can you draw?

- A. The design is adequate. It meets all the requirements for compliance.
- B. The design is inadequate. You should not log the Certkiller .com customer's account number.
- C. The design is inadequate. You should not log the transaction amount.
- D. The design is inadequate. You should also log the name of the Certkiller .com teller managing the account.

Answer: A

Explanation: The design logs enough information to allow the government to determine which customer made the large transaction as well as the type of transaction that was made. They can even identify the customer through the account number. Thus the design meets the requirements.

Incorrect answers:

- B: You will need the account number because it will allow the government to identify who made the transaction.
 - C: The transaction amount has to be logged because it will provide the proof that an amount of \$ 10,000 or more has been made.
 - D: The requirements do not indicate that the need to know which Certkiller .com teller managed the transaction for the customer has to be logged.
-

QUESTION 66

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates as a financial institution. You are currently developing a Microsoft Windows Forms application for Certkiller .com that is meant to allow bank tellers to manage account transactions for the Certkiller .com customers. In the United States of America is it government policy that all transactions to the value of \$10 000 or greater must be reported. Certkiller .com need to comply with this policy. This policy also states that the government should be informed as to who made the large transaction. When subjected to government audit, Certkiller .com need to be able to easily search for transactions by account number, amount, or date. It is anticipated that 100,000 transactions per day will take place. The logical design suggests that logging of the transactions should occur to an Extensible Markup Language (XML) file. You need to decide whether the design is feasible whilst ensuring that it is also scalable. What conclusion can you draw?

- A. The design is feasible.
- B. The design is not feasible. Make use of an event log instead of an XML file.
- C. The design is not feasible. Make use of a database instead of an XML file.
- D. The design is not feasible. Make use of a binary file instead of an XML file.

Answer: C

Explanation: A database would be more suited to the scenario since you need to make provision for scalability by allowing multiple instances of the Windows Forms application to log transaction data at the same time.

Incorrect answers:

- A: The design is clearly not feasible since you also need to make provision for scalability which is currently no provision has been made.
- B: An event log would not allow you to search the event log by account number or amount.
- D: A binary file will not suffice since it will only allow one application to write to a file at a time.

QUESTION 67

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. You are currently developing a Microsoft Windows Forms application. You used Microsoft Visual Studio 2005 Team Edition for Software Developers. This Windows

Forms application that you are developing, when completed will allow users to access data on the Certkiller .com mainframe. This data access will happen as follows: A Microsoft .NET Remoting component accesses the mainframe, and the application connects to the Remoting component via Transmission Control Protocol (TCP) channel.

You need to keep in mind that there is a performance requirement that the application should not perform excessive and unnecessary security checks. A performance monitoring solution that will be put in place will consist of measuring the Total Runtime Checks and Stack Walk Depth performance counters in the .NETCLR Security category.

You need to make a decision as to whether the monitoring solution is correct.

What conclusion can you draw?

- A. The monitoring solution will be correct.
- B. The monitoring solution will be inadequate. You need to use the Process component to query information from the application.
- C. The monitoring solution will be inadequate. You need to examine the Security event log.
- D. The monitoring solution will be inadequate. You need to create a Performance Session in Microsoft Visual Studio.

Answer: A

Explanation: The Stack Walk Depth performance counter measures the amount of stack frames that are used by a security demand to request permission to access a protected resource.

The Total RunTime Checks performance counter measures the amount of security checks that the common language runtime (CLR) makes since the application started. Thus these two performance counters will help you in eliminating the excessive and unnecessary security checks. This results in the monitoring solution to be adequate.

Incorrect answers:

- B: The Process component allows one to query information like threads, memory, modules, and handles, but it does not allow one to query security information.
- C: The Security event log contains the success and failure audits, it does not display CLR code access security checks information.
- D: The creation of a Performance Session in Visual Studio will now allow you to obtain CLR code access security information.

QUESTION 68

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks. Certkiller .com operates in the security and surveillance environment. You are currently developing a Microsoft Windows Forms security monitoring system. The application is destined to connect to fifty cameras to record as well as

play video. A class named Camera interacts with a physical camera. You make use of the semaphore class to create a resource pool of five camera instances. The business is of such a nature that no more than three Camera instances will be in use at a time. To this end you implement a custom trace listener to send trace messages to a database. In the event of a fourth Camera instance is obtained from the resource pool, you will require to log a message that will read something like: Only one Camera instance remains in the resource pool. You now need to choose the most appropriate trace level for this message. What should you do?

- A. You should select the Verbose level.
- B. You should select the Error level.
- C. You should select the Warning level.
- D. You should select the Informational level.

Answer: C

Explanation: This type of message would be considered a warning message because it indicates that something out of the ordinary might happen if a problem is not addresses. In this case, a fourth Camera instance is not anticipated and if a fourth Camera instance is obtained from the resource pool, there would only be one Camera instance remaining. If the fifth Camera instance is obtained there would be none remaining.

Incorrect answers:

- A: Verbose level is chosen for messages that do not provide a high level of technical information. It is usually used in messages pertaining to control flows, component state changes, etc.
- B: Error level messages are not appropriate in this scenario. This message does not indicate that something exceptional has happened.
- D: Informational level messages simply provide information that indicates what is happening; not exceptional instances.

QUESTION 69

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the design and development of application frameworks.

A developer named Clive Wilson is currently writing the following code for an Extensible Markup Language (XML) Web service:

```
01 TraceSwitch generalSwitch = new TraceSwitch("General", "General Switch");
02 Trace.WriteLineIf(generalSwitch.TraceError, "Cannot access mainframe computer");
03 Trace.WriteLineIf(generalSwitch.TraceInfo, "Creating a new data file");
```

(Please note: The line numbers are for reference purposes only.)

Unfortunately the Web service is experiencing problems in production. To this end you decide that both the error message and the informational message need to be written to a Microsoft SQL Server 2005 database. Thus a custom trace listener is

configured in the Web.config file to write the trace information to the database.

Clive Wilson then sets the trace level to 1 (Error).

You need to make a decision as to whether the solution is correct or not.

What conclusion can you draw?

- A. The solution is correct.
- B. The solution is incorrect because Clive Wilson should set the trace level to 3(Info).
- C. The solution is incorrect because Clive Wilson should delete the code at line 02 and include the informational message with the error message.
- D. The solution is incorrect because Clive Wilson should delete the code at line 03 and include the informational message with the error message.

Answer: B

Explanation: This solution is incorrect since Clive Wilson should rather set the trace level to 3. This trace level only indicates that only error, warning, and informational messages should be logged. Trace level ranges from 1 through 4 and the higher the trace level, the more types of messages it is capable of logging.

Incorrect answers:

- A: There is definitely something wrong with the solution and thus this option is incorrect.
- C: Clive Wilson should not delete the code at line 02 and include the error message with the informational message. It is possible to write both messages if the trace level is set to 3.
- D: Clive Wilson should not delete the code at line 03 and include the error message with the informational message. It is possible to write both messages if the trace level is set to 3.

QUESTION 70

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com is in the business of retailing music videos online.

Your team is currently busy developing a Microsoft ASP.NET Web application that is destined to allow users to purchase music videos online. A Microsoft SQL Server 2005 database is currently used to store the music video data. The Certkiller .com management wants the application to allow the users to search for music videos by title, artist, and genre. To this end you perform a code review for a page and then discovered the following SQL statement stored in a String variable:

```
SELECT * FROM Musicvideo WHERE Artist=@Artist
```

The code makes use of a query string value to create a SqlParameter instance that represents the @Artist parameter. The code then executes the query and displays the results in a GridView control. Now you need to make a decision as to whether the application is vulnerable to a SQL injection attack.

What conclusion can you draw?

- A. The application is not vulnerable to a SQL injection attack.

- B. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a function call.
- C. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a table-direct call.
- D. The application is vulnerable to a SQL injection attack. The SQL statement should be replaced with a stored procedure call.

Answer: A

Explanation: SQL injection attacks can occur when an application constructs SQL queries dynamically. In this case this risk is negated by the use of parameterized queries.

Incorrect answers:

B: Replacing the SQL statement with a function call is superfluous since the application makes use of parameterized queries.

C: Replacing the SQL statement with a table-direct call is superfluous since the application makes use of parameterized queries.

D: Replacing the SQL statement with a stored procedure call is superfluous since the application makes use of parameterized queries.

QUESTION 71

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the Inland Revenue services department. You are currently performing a code review for an income tax filing application. In the code review you examine the following code:

```
While (True)
Dim form As TaxForm = TaxForm.Instance
If (form Is Nothing) Then
Exit While
End If
Dim schedule As Schedule = form.schedule
If (schedule Is Nothing) Then
Exit While
End If
Dim worksheet As Worksheet = schedule.Worksheet
If (worksheet Is Nothing) Then
Exit While
End If
worksheet.Clear()
Exit While
End While
```

The code is meant to clear a worksheet. Now you need to check whether the code has any problems with its semantics.

What conclusion can you draw?

- A. The code has no problems.
- B. The code has problems as execution will occur in an infinite loop.
- C. The code has problems as you need to pass the value false to the while expression.
- D. The code review failed as the Clear method of the Worksheet class will never get called.

Answer: A

Explanation: A while true loop will prevent the need to make use of nested if statements. Thus this code does not have any problems. You simply need to ensure that you always break out of the loop after all conditions inside the loop have been tested.

Incorrect answers:

B: There will not be an infinite loop because execution will break after the last break statement.

C: This is incorrect the condition would always fail and execution would never enter the loop.

D: This is incorrect since as long as each if statement inside the while true loop fails, execution will reach the end of the loop and the Clear method will get called.

QUESTION 72

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the security and surveillance environment. You are currently developing a video surveillance application for Certkiller .com. You perform a code review of the following class:

```
Public Class Camera
Public Function GetInstance() As Camera
Return Nothing
End Function
End Class
```

This class is supposed to make use of the Singleton design pattern to control access to a physical video camera. You need to modify the Camera class. What should you do? (Choose the correct code segment.)

```
A. Public Class Camera
Private Shared _instance As Camera
Public Shared ReadOnly Property Instance() As Camera
Get
If (_instance Is Nothing) Then
SyncLock (_instance)
If (_instance Is Nothing) Then
_instance = New Camera()
End If
```



```
End SyncLock
End If
Return _instance
End Get
End Property
End Class
B. Public Class Camera
Private _instance As Camera
Public ReadOnly Property Instance() As Camera
Get
If (_instance Is Nothing) Then
SyncLock(_instance)
If (_instance Is Nothing) Then
_instance = New Camera()
End If
End SyncLock
End If
Return _instance
End Get
End Property
End Class
C. Public Class Camera
Public Shared ReadOnly Property Instance() As Camera
Get
Dim camera As Camera = New Camera()
Return camera
End Get
End Property
End Class
D. Public Class Camera
Private _instance As Camera
Public Function GetInstance() As Camera
_instance = New Camera()
Return _instance
End Function
End Class
```

Answer: A

Explanation: you need to define a static class member that returns a single instance of the class because the Singleton design pattern allows one instance of a class to be provided to multiple threads. The method must ensure that it creates an instance if there is not already an instance in existence and return the already existent instance if one does exist.

Incorrect answers:

B: This is incorrect you should be defining a static class member that returns a single

instance of the class with the Singleton design pattern.

C: You should not implement a static property to always create a new instance of the class. You should rather return a single instance with the Singleton design pattern.

D: you should not be implementing a class member to return a non-static instance of the class. You need to return a static instance of the class with the Singleton design pattern.

QUESTION 73

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the Credit Card Services department of a financial institution.

You and your team are currently developing an Extensible Markup Language (XML) Web service. When completed this Web service will allow merchants to verify and charge a customer's credit card. A Web method named Verify accepts a String parameter that represents the customer's credit card number. Verify's main function will be to ensure that a credit card number is valid. Verify will be configured to throw an exception in the event of the card number being invalid. Following is the unit strategy testing as it will be implemented:

1. Use the automatically generated Microsoft ASP.NET Web page to test the Verify Web method.
2. Ensure that no exception is thrown when you pass a valid credit card number to the Web method.

What conclusion can you draw?

- A. The unit testing strategy is correct.
- B. The unit testing strategy is incorrect, since you need to ensure that an exception is thrown when an invalid credit card number is passed to the Web method.
- C. The unit testing strategy is incorrect since you need to perform unit testing from a merchant's client application.
- D. The unit testing strategy is incorrect since you only need to ensure that an exception is thrown when an invalid credit card number is passed to the Web method.

Answer: B

Explanation

: This strategy is inadequate. When performing unit testing you essentially ensure that a method behaves in the way it is expected to behave. In this case the Verify Web method must throw an exception when an invalid credit card number is passed. You need to: Call the Web method and pass a valid credit card number. Ensure that no exception is thrown.

Call the Web method. Ensure that the exception is thrown.

to complete the test and the test will only pass if these two conditions pass.

Incorrect answers:

A: This option is incorrect since not all the conditions will be met.

C: This option is suggesting integration testing.

D: You also need to ensure that verification succeeds when a valid credit card number is passed to the Web method. An exception should not be thrown in the event of validation success.

B: Evaluate the integration testing strategy.

QUESTION 74

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as an airliner. You are stationed on one of the airports that the airliner operates from.

You are currently developing an air traffic control system. This system has a Microsoft .NET Remoting component that upon completion will allow air traffic controllers to help guide airplanes. There is a specific instance of the remote component that controls one airplane. A Microsoft Windows Forms application will provide the user interface which will be used by the air traffic controllers.

A test engineer named Amy Wilson created the following integration testing strategy:

1. Deploy the Windows Forms application to a client computer
2. Deploy the remote component to an application server
3. Launch a real airplane into the air with no passengers, on automatic pilot.
4. Attempt to control the airplane by means of the application

You now need to make a decision as to whether the integration test strategy will be feasible.

What conclusion can you draw?

- A. The integration testing strategy is feasible.
- B. The integration testing strategy is not feasible. Methods of the remote component should be called from a test application.
- C. The integration testing strategy is not feasible. Stub out the methods prior to calling them from the test application.
- D. The integration testing strategy is not feasible. Tests should not be carried out against a real airplane.

Answer: A

Explanation: When one performs integration testing, you essentially ensure that all the components of the application are working properly. The components should include all software and hardware components. In this case the components are the Windows Forms application, the remote components and the airplane and Amy Wilson covered all these in the integration testing strategy. Thus the strategy is feasible.

Incorrect answers:

B: This is not feasible as you should not call methods of the remote component from a test computer; instead you need to make use of the real application to ensure that it interacts in the proper fashion with the remote component.

C: You should not stub out the methods prior to calling them from the application. This way of testing represents a type of unit testing in which you are only to deal with the state of the software components and not a fully integrated testing strategy.

D: It is essential that a real airplane also be used in the integration test. With integration testing the objective is to ensure that all the components of an application functions properly and the airplane should be considered a component since its behavior is dependent on commands via the Windows Forms application.

QUESTION 75

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as a medical technological company that manufactures electronic scanning equipment for medical use.

You are currently developing a Microsoft Windows Forms application. This application is destined to allow doctors to perform computed Axial Tomography (CAT) scans on patients. When a CAT scan is carried out, it takes over 1,000 two-dimensional scans that are combined to create a three-dimensional image. There is the matter of performance requirements that the application need to comply with. This performance requirement states that the application must scan 10 images per second.

To this end the testing team deployed a debug build of the application to a staging environment to carry out performance testing. The result of the performance testing was that the application scans nine images per second. You now need to determine whether the performance testing strategy is feasible.

What conclusion can you draw?

- A. The strategy is feasible.
- B. The strategy is not feasible. The team has to test a debug build of the application in a production environment.
- C. The strategy is not feasible. The team has to test a release build of the application in a production environment.
- D. The strategy is not feasible. The team has to test a release build of the application in a staging environment.

Answer: D

Explanation: the debug build of the application scans nine out of ten images. You may attempt to guess that a release build of the application would meet the performance requirements. But it could be just an assumption and thus you should rather attempt to get accurate results and test a release build of the application.

Incorrect answers:

- A: The test yielded nine out of ten images and this means that it is not feasible.
- B: This is incorrect as the tests with the debug build yielded only nine out of ten images.
- C : You should not make use of the production environment to test the application. A

staging environment is better suited since you can exercise the proper control, and you can better isolate and analyze performance issues that are associated with the application.

QUESTION 76

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the international retail environment.

You are currently developing an order fulfillment solution for Certkiller .com. In this solution, the Certkiller .com customer's order is represented by the Order class. The Order class has a property named Status. It is possible to set Status to one of the following enumeration members:

1. Created - the order has been created.
2. BackOrdered - the order has been placed on backorder.
3. Scheduled - the order is scheduled for delivery.
4. Cancelled - the order has been cancelled.
5. Shipped - the order has been shipped.
6. Delivered - the order has been delivered.

Certkiller .com works in joint ventures with courier companies world-wide due to the nature of the business. A method named Ship is implemented to invoke a Web method of an Extensible Markup Language (XML) Web service at these courier companies. The courier companies are then responsible for the delivery of the order. When the Ship method is called, the Status property is set to Shipped. You are required to unit test the Ship method to ensure that the test passes.

What should you do?

- A. Carry out the unit test by calling the Ship method.
Then verify that the Status property is not changed to Scheduled.
- B. Carry out the unit test by calling the Ship method.
Then verify that the Status property is not changed to BackOrdered.
- C. Carry out the unit test by calling the Ship method.
Then verify that the Status property is changed to Ship prior to the delivery of the order.
- D. Carry out the unit test by calling the Ship method.
Then verify that the Status property is changed to Delivered after delivery of the order.

Answer: C

Explanation: During a unit test on a method, you should test the logical outcome of the method call. In this case you need to call the Ship method and verify the Status property is changed to Shipped.

Incorrect answers:

A: You should not verify that the Status is not changed to Scheduled as this will not indicate that the Ship method is working as it should. This option will allow the unit test to pass even if the Ship method set the Status to Cancelled, Created, BackOrdered or Delivered.

B: You should not verify that the Status is not changed to BackOrdered as this will not indicate that the Ship method is working as it should. This option will allow the unit test to pass even if the Ship method set the Status to Cancelled, Created, Scheduled or Delivered.

D: In this scenario you are unit testing the Ship method, this means that you should only ensure that the Status property is set to Shipped.

QUESTION 77

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates in the international retail environment. Certkiller .com works in joint ventures with courier companies world-wide due to the nature of the business. These courier companies are responsible for the delivery of the order. A method named Ship is implemented to invoke a Web method of an Extensible Markup Language (XML) Web service at these courier companies. You are currently developing an order fulfillment solution for Certkiller .com. In this solution, the Certkiller .com customer's order is represented by the Order class. The Order class in turn has a Web method named Ship. The Ship method is designed as follows:

1. It accepts a DateTime instance that represents the earliest date that an order should be shipped.
2. It throws an exception if it is passed a data that is earlier than the current date.
3. It allows multiple threads to call it at the same time.
4. It invokes the Web method of the Web service asynchronously.

You are required to unit test and conclude that the previous design aspects are implemented correctly. To this end you need to perform an additional unit test so as to ensure that the Ship method will be functional under all production scenarios. What should you do?

- A. You should perform the Performance unit test.
- B. You should perform the Expected Exception unit test.
- C. You should perform the Concurrency unit test.
- D. You should perform the Boundary Condition unit test.

Answer: D

Explanation: A Boundary Condition test will allow you to evaluate whether the code responds in the proper fashion when out-of-bounds input values are entered. This will allow you to ensure that code fails gracefully if out-of-bounds input values are used at run time.

Incorrect answers:

A: A Performance test will allow you to measure the speed at which the method executes. Nothing in this question suggests the need to a performance test.

B: An Expected Exception test has already been run in this scenario to ensure that an

exception is thrown when a date earlier than the current date is passed to the Ship method.

C : A Concurrency test is the type of test that has already been performed to ensure that multiple threads can call the method at the same time. This is not the appropriate solution since this test has been run already in this scenario.

QUESTION 78

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. You and the development team is currently busy developing an enterprise resource planning solution for Certkiller .com. The logical design for this application consists of a Microsoft ASP.NET Web application, a Microsoft .NET Remoting component, and a Microsoft Windows service. The Microsoft Windows service hosts the .NET Remoting component which is a marshal-by-reference component. The purpose of this component is to read and update the performance counters. The Web application is designed to access the component via Transmission Control Protocol (TCP) channel. The Web application is hosted on a Web server and the .NET Remoting component is hosted on an application server.

A Developer named Mia Hamm has been instructed to perform the integration testing of the component. Following is the step-by step procedure that Mia Hamm followed during the integration testing:

1. Mia Hamm adds the component to an ASP.NET Web application project.
2. Mia Hamm does not configure Remoting in the Web application.
3. Mia Hamm accesses the Web application and invokes methods on the component.
4. The method calls fail.

You need to make a decision as to whether the test results can be considered valid. What conclusion can you draw?

- A. The test results are valid.
- B. The test results are invalid. Mia Hamm should not add the component to the Web application.
- C. The test results are invalid. Mia Hamm should configure Remoting in the Web application.
- D. The test results are invalid. Mia Hamm needs to make use of the inter-process communication (IPC) channel.

Answer: C

Explanation: These test results cannot be valid if .NET Remoting, marshal-by-reference components are executing at the server. If one does not configure .NET Remoting in an application that accesses a marshal-by-reference component, then the component will execute at the client. In this case the client is the Web application. This will then mean that performance counters will be updated on the Web server. To ensure valid results Mia Hamm must configure .NET Remoting in the Web application.

Incorrect answers:

A: The test results will not be valid since Mia Hamm still needs to configure .NET Remoting in the web application.

B: Although adding the component is not a requirement, it does make provision for the developer to enforce compile-time type checking. Removing the component from the project will not affect the results of the test.

D: IPC supports communication between different processes on the same computer. In this scenario the Web application and the remote component are hosted on different computers.

QUESTION 79

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the testing and stabilization of applications. Certkiller .com operates as a retailer.

You are currently developing a sales management application. You are making use of Microsoft ASP.NET Web and the application will be hosted on a Production Web server that runs Microsoft Internet Information Services (IIS) 6.0. Another Certkiller .com tester named Rory Allen discovered a bug and reported as follows: If 30 users access the application simultaneously, an error page is displayed.

At present this is unacceptable since Certkiller .com requirements state that the application should support up to 60 concurrent users. You are thus required to address the issue. To this end you need to reproduce and isolate the bug. What should your first step be?

- A. Create a test that simulates 30 users accessing the application simultaneously. Deploy a Debug build to your computer and run the test to debug the application using your development computer.
- B. Deploy a debug build of the application to reproduction
Attach the Debugger to the IIS worker process. Instruct 30 users to access the application simultaneously.
- C. Deploy a Release build of the application to a staging environment
Attach the Debugger to the IIS worker process. Instruct 30 users to access the application simultaneously.
- D. Load 30 browser instances on your development computer to access the application.
Use your development computer to debug the application.

Answer: A

Explanation: A simulation test will simulate the production use while keeping the application in isolation. This type of test is also known as the load test. You should use a development computer to debug the application while the test is running.

Incorrect answers:

B: Instructing 30 users to access the application will make it difficult to control the user environment while debugging is taking place. This is an impractical solution.

C : This is an impractical solution to carry out since you will not be able to control the user environment when 30 users are accessing the application. You should rather debug the application while a load test is running. And you should debug the production application only if you are unable to reproduce the bug while debugging a load test.

D: If you load 30 browser instances to access the application, you will find it a very impractical solution as it is difficult to manage. A better solution would be to debug the application while a load test is running.

QUESTION 80

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You completed the development of a Microsoft ASP.NET Web application using Microsoft Visual Studio 2005 Team Edition for Software Developers. You then deploy the Microsoft ASP.NET Web application to a production server. Then you discover that the central processing unit (CPU) usage on the Web server sometimes reaches 100%. You then assume that the Web application can be the cause of the sudden increase of CPU usage, but you have no idea of where in the application the problem can be.

You now need to ascertain the reason why this performance spike occurs.

What should you do?

- A. You should create a Web test that consists of unit tests and run the application.
- B. You should create a Web test that consists of a load test and run the application.
- C. You should create a Performance test in Visual Studio and instrument the application.
- D. You should create a Performance test in Visual Studio and sample the application.

Answer: D

Explanation: Sampling periodically interrupts the application to collect performance data. This is extremely helpful in cases where you are unsure of where in an application there might be a bottleneck.

Incorrect answers:

A: You should not create a Web test to test a Web application's performance. You know that the application performs, what you need to do is to locate the performance bottleneck.

B: A Web test consisting of a load test will allow you to test whether the application performs as expected when a certain number of users are accessing the application. In this case it is known that the application does perform, what is not known is where the performance bottleneck exists.

C: Instrumentation presupposes the location of the performance bottleneck is known and in this case you are unsure of where in the application the performance bottleneck is occurring.

QUESTION 81

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. Certkiller .com operates as a credit bureau.

You are currently developing an Extensible Markup Language (XML) Web service that is destined to allow companies to retrieve credit reports from Certkiller .com.

You created a Performance Session in Microsoft Visual Studio 2005 Team Edition for Software Developers. Following are the measurements you obtained from a Web method named ObtainCreditReport:

1. When the Web method is called once:

execution time for the method is measured to be 8,340.211 milliseconds

memory consumption is measured to be 10,200 Kilobytes (K).

1. When the Web method is called twice:

total execution time for the method is measured to be 33,360.844 milliseconds

memory consumption is measured to be 10.296K.

1. When the Web method is called thrice:

total execution time for the method is measured to be 133,443.376 milliseconds

memory consumption is measured to be 10,264 K.

You need to analyze the performance trends.

What conclusion can you draw?

- A. There is a memory leak.
- B. There is a linear increase in memory consumption.
- C. The Execution time stays constant.
- D. There is an exponential increase in execution time.

Answer: D

Explanation: The results clearly indicate the each time the method is called; the execution time is increased by a factor of four. Thus your conclusion should be that the execution time increases exponentially.

Incorrect answers:

A: If there is a memory leak, memory consumption must increase each time the method is called. However, in this scenario the memory consumption increases as well as decreases.

B: There is no linear increase in memory consumption as the memory consumption increases as well as decreases.

C: In the event of execution time staying constant, then the total execution time will need to increase linearly. Thus the total execution time for calling the method twice should be 16,680.422 and calling the method a third time should result in total execution time to be 25,020.633, which it isn't.

QUESTION 82

You work as the Enterprise application developer at Certkiller .com. The

Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. There is a Microsoft .NET Remoting component that configured to allow a total of five applications to access data in a C-tree database. All aspects seems to be functional however, you have discovered that whenever it happens that an application accesses data, the other four applications are blocked from accessing the data. To this end you monitor the Contention Rate / Sec performance counter in the .NET CLR LocksAndThreads category and measure it to be 50. You now need to analyze this result.

What conclusion can you draw?

- A. Excessive memory is consumed.
- B. Excessive processor time is consumed.
- C. There is a synchronization problem.
- D. There is a platform invocation problem.

Answer: C

Explanation: It is highly likely that the .NET Remoting component allows only one thread to access the database at a time. The Contention Rate / Sec performance counter measures the rate at which the threads are blocked from acquiring a lock.

Incorrect answers:

- A: You cannot use performance counters in the .NET CLR LocksAndThreads category to assume that excessive memory is being consumed.
- B: You cannot use performance counters in the .NET CLR LocksAndThreads category to assume that excessive processor time is being consumed.
- D: You cannot use performance counters in the .NET CLR LocksAndThreads category to monitor platform invocation issues.

QUESTION 83

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. Certkiller .com operates as a company specializing in providing environmental and social impact assessments for civil engineering companies. Certkiller .com currently offers an Extensible Markup Language (XML) Web service which allows civil engineering companies the ability to submit environmental impact results and the liability and indemnity coverage of projects to a government agency that deals with infrastructure and engineering. A Web method named AddEnvironmentalImpactTestResult is design to accept a String parameter that represents a specific geographical area (GEO); usually identified by means of its coordinates; and a Boolean parameter that indicates that the test was passed. The AddEnvironmentalImpactTestResult method then executes the following query: INSERT INTO EnvironmentalImpactResult (GEO, Passed) VALUES ('{0}', {1})

The {0} and {1} format placeholders are replaced with the values for the String and Boolean parameters, respectively. The results are stored in a SQL database.

An operations engineer named Clive Wilson is responsible for the monitoring of the database. In carrying out his duties, Clive Wilson compares several liability and indemnity coverage records in the database with the paper results. However, Clive Wilson found that there are some inconsistencies in the results. It thus appears that there were some unauthorized changes to data objects in the database. The suspicion is that an attack must have occurred.

What type of attack would result in these inconsistencies?

- A. Cross-site scripting
- B. Buffer overrun
- C. SQL injection
- D. Denial-of-service

Answer: C

Explanation: A SQL injection attack occurs when a malicious user injects SQL Statements into clauses that build SQL queries. In this case the queries are constructed dynamically. Thus it is possible that an attacker could modify the liability and indemnity coverage by calling the AddEnvironmentalImpactTestResult Web method. It is further possible that the attacker can be a developer for one of the civil engineering companies who are authorized to call the AddEnvironmentalImpactTestResult Web method.

Incorrect answers:

A: A cross-site scripting attack occurs when a Web application writes input data to the browser without encoding it. In this case a Web service and not a Web application is being attacked.

B: A buffer overrun attack usually occurs in unmanaged code when an attacker can overflow the buffer in an attempt to execute malicious code. This is not what is happening in this scenario.

D: A denial-of-service attack occurs when an attacker attempts to overload a server with an excessive amount of requests, akin to flooding the server. This is not the case here.

QUESTION 84

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You are currently busy developing an enterprise solution for Certkiller .com. The Certkiller .com network contains amongst, others two Web servers named Certkiller -WS501 and Certkiller -WS502, as well as a database server named Certkiller -DB01 which you intend to use in the deployment of the solution. Upon completion the solution will consist of a Microsoft ASP.NET Web application, a Microsoft .NET Remoting component, an Extensible Markup Language (XML) Web service, as well as a Microsoft SQL Server 2005 database. The Microsoft ASP.NET Web application and the Extensible Markup Language

(XML) Web service make use of the inter-process communication (IPC) channel for connectivity to the .NET Remoting component. The .NET Remoting component in turn accesses data in the database.

Following is the deployment design:

1. Deploy the Microsoft ASP.NET Web application to Certkiller -WS501
2. Deploy the Extensible Markup Language (XML) Web service to Certkiller -W502
3. Deploy the database to Certkiller -DB01

Now you need to make a decision as to where the data access component should be deployed.

What should you do?

- A. Identify Certkiller -WS02 AND Certkiller -DB01 for data access component deployment.
- B. Identify Certkiller -WS01 AND Certkiller -DB01 for data access component deployment.
- C. Identify either Certkiller -WS01 OR Certkiller -WS502 for data access component deployment.
- D. Identify both Certkiller -WS01 AND Certkiller -WS502 for data access component deployment.

Answer: D

Explanation: IPC is being used for connectivity purposes by the Web application and the Web service. This means that communication can occur between different application domains or processes on the same computer only. However, in this scenario the Web application is deployed to Certkiller-WS501 and the Web service is deployed to Certkiller-W5S502, thus you should deploy the Microsoft .NET Remoting component to Certkiller -WS501 and Certkiller -WS502.

Incorrect answers:

A: There is no need to deploy the Microsoft .NET Remoting component to Certkiller -DB01. The component will be able to access data from the Microsoft SQL Server 2005 database over the network.

B : There is no need to deploy the Microsoft .NET Remoting component to Certkiller -DB01. The component will be able to access data from the Microsoft SQL Server 2005 database over the network.

C: The Microsoft .NET Remoting component should not be deployed to either Certkiller -WS501 OR Certkiller -WS502. Rather you need to deploy it to both servers since both the Web service and the Web application must be allowed to connect to it via IPC channel.

QUESTION 85

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications.

You are currently developing an enterprise order fulfillment application for Certkiller .com. Upon completion this application will allow customers to place orders for their respective chosen products that they intend to purchase. At present Certkiller .com handles its own payment processing. However, it is foreseen that as Certkiller .com grows, they will make use of a third party company in the future. The exhibit below illustrates the application flow diagram that represents the order process. A factor that should be kept in mind is that the process is subject to future alterations.

Exhibit:



You now need to create components to manage the order process. What should you do?

- A. Create one business entity component and four user process components.
- B. Create one business workflow component and four business components.
- C. Create two service agent components and two user process components.
- D. Create two service agent components and two service interface components.

Answer: B

Explanation: Business components encapsulate the business logic. Business workflow components manage business activities or workflows. Thus you should create four business components and one business workflow component. I.e. you create Order, Charge, Receipt, and Fulfillment business components as this will allow you to implement all business logic. By implementing a sequence of activities in a business workflow, you can decouple the application flow logic from the business logic which will allow you to accommodate changes to the sequence of activities in future in a very easy manner.

Incorrect answers:

- A: Service agents hide the complexity of calling multiple services to access external functionality. This is not what is required in this scenario.
- C: User Process components manage user or screen flow throughout an application. In this case the activities indicate a business workflow and not a user workflow. Thus this option is not the solution.
- D: There is no need to create service interfaces as this will expose an application's business logic to external systems.

QUESTION 86

You work as the Enterprise application developer at Certkiller .com. The Certkiller .com network consists of a single Active Directory domain named Certkiller .com. All servers in the domain run Windows Server 2003. Your responsibilities at Certkiller .com include the support and deployment of applications. You are currently developing an enterprise solution that consists of a Microsoft ASP.NET Web application and a Microsoft .NET Remoting component. The Web application connects to the .NET Remoting component via inter-process

communication (IPC) channel. A Web server named Certkiller -WS01 will be used for the deployment of the enterprise solution. The following exhibit illustrates the production Web.config file configuration:

Exhibit:

```
<configuration>
<system.web>
<customErrors mode="RemoteOnly"/>
</system.web>
</configuration>
```

One requirement that should be kept in mind is that one should not be able to view specific error messages when accessing the Web application from the network or the Internet. Following is a list of the aspects included in the deployment design:

1. Deploy Microsoft Internet Security and Administration (ISA) Server to Certkiller -WS01.
2. Deploy the Web application to Certkiller -WS01.
3. Configure ISA server with a Web publishing rule to redirect requests to staging.fi-print.com to 127.0.0.1.

You now need to make a decision as to whether the design meets the requirements. What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements since you need to configure ISA server to redirect requests to Certkiller -WS01's name and not the IP address.
- C. The design does not meet the requirements since you need to deploy ISA server to a separate computer.
- D. The design does not meet the requirements since you need to deploy the .NET Remoting component to a separate computer.

Answer: C

Explanation: ISA server should be deployed on a separate computer since the Web.config file is configured to display specific errors only for local requests. However, since the ISA server is currently configured to redirect requests to the local computer, ASP.NET will interpret the requests as originating from the local computer and will thus result in users being able to view specific error over the network or Internet whereas they should not be able to.

Incorrect answers:

- A: This option is incorrect since you need to deploy ISA server to a separate computer.
- B: ISA server should not be configured to redirect requests to the Certkiller -WS01 name. This will result in the users still being able to view specific error over the network or the Internet.
- D: .NET Remoting should not be deployed on a separate computer. The Web application connects to this component via IPC channel and IPC allows communication between application domains or processes on the same computer only.