



Exam : 070-548

Title : Designing and Developing Windows-Based  
Applications by Using the Microsoft .NET Framework

Ver : 02-04-2009

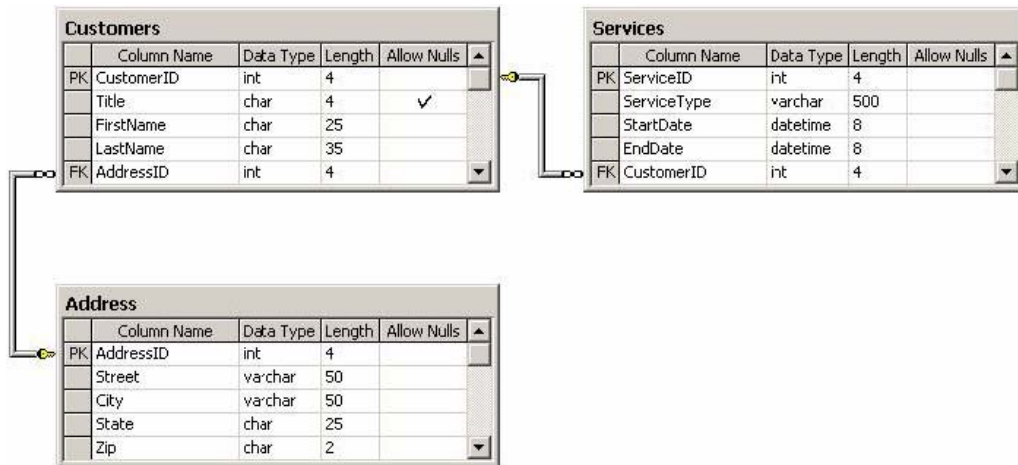
## VB, Envisioning and Designing an Application (11 Questions)

### 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 company that provides cable television, Digital Subscriber Line (DSL) as well as telephone services.

One factor that should be kept in mind is that only one customer per household may sign up for services from Certkiller .com. However, a customer is allowed to sign up for multiple services. The exhibit below illustrates the logical database design.

Exhibit:



You need to make a decision as to whether the design offers the best performance possible.

What conclusion can you draw?

- A. The design offers the best performance.
- B. The design does not offer the best performance. You need to normalize the Services and Address tables.
- C. The design does not offer the best performance. You need to de-normalize the Customers and Address tables.
- D. The design does not offer the best performance. You need to de-normalize the Customers and Services tables.

Answer: C

Explanation: It shows that the address can be associated with only one customer, thus you should place the address information as close as possible to the customer information as it will enhance the speed of data loads when both the customer and address information is required. This means that you should de-normalize the Customer and Address tables.

Incorrect answers:

A: This is incorrect since the performance can still be improved by de-normalizing the Customers and Address tables.

B: This is incorrect since these tables are already normalized and does not result in the best performance under the circumstances.

D: You should not de-normalize the Customers and Services tables. It is mentioned in the question that a customer may be associated with multiple services and this option suggests an excessive duplication of data to exist in either the Customers table or the Services table. Duplicate data results in a degrading of performance in the event of searches being performed.

---

## **QUESTION 2**

You work as the 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 configuration and customization of Web Service applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an information centre for the California Property Title Deeds Office. You are currently busy developing a Microsoft Windows Forms application. This application is intended to allow the California Property Title Deeds Office to perform property deed verifications and renewals for the state of California. The application will be installed at all the California Property Title Deeds Office locations all round California. The application must meet the following requirements:

1. It must negate the possibility of malicious tampering of Property Title deeds data.
2. Users of the application must be authenticated.

The logical design includes the following aspects:

1. Host driver data are to be located on a central server at the California Property Title Deeds Head Quarters.
2. Extensible Markup Language (XML) Web services will be used to access the Property Title data.
3. A Symmetric key will be used to encrypt and decrypt Property Title Deed data at the Web service.
4. A Custom role-based security mechanism will be used to grant access to the application.

You now need to make a decision as to whether the design meets the security requirements.

What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements. You should grant access to the application using Active Directory.
- C. The design does not meet the requirements. You should encrypt and decrypt data at the application and the Web service.
- D. The design does not meet the requirements. You should encrypt and decrypt data at the Web service using asymmetric keys.

Answer: C

Explanation: You should encrypt and decrypt the property title deed data at both the application and the Web service. If not you would not meet the requirement or negating the malicious tampering of data. The data needs to be transmitted in an unencrypted form when transmitted to and from the application (this provides a window for individuals to tamper with the data. You need to make use of Secure Sockets Layer (SSL) to provide confidentiality and data integrity. And this can be achieved by should encrypt and decrypt the property title deed data at both the application and the Web service. Thus the design does not meet the requirements.

Incorrect answers:

A: This is incorrect since you will still require encrypting and decrypting data at both the application and the Web Service.

B: There is no need to make use of Active Directory to grant access to the application. You can make use of whatever appropriate mechanism provided the credential store is secure.

D: The problem with this option is that the data is not encrypted or signed during transmission.

---

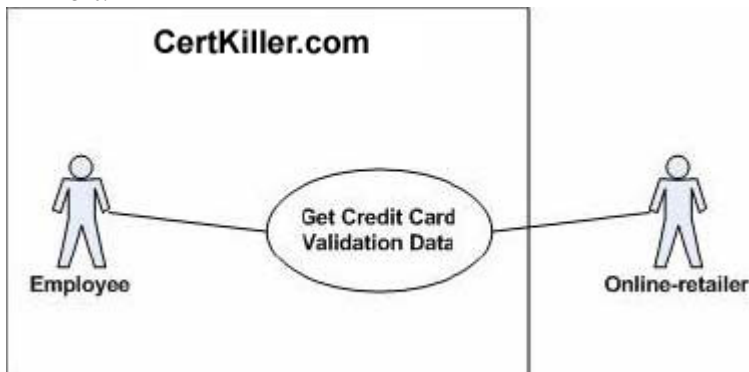
### QUESTION 3

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 company offering credit card validation services to online-retailers. You are currently developing a Microsoft Windows Forms application for Certkiller .com. When completed the application must meet the following requirements:

1. It must allow all Certkiller .com employees to access credit card validation data on behalf of the online-retailers.
2. It must allow the online-retailers to build applications that access credit card validation data on behalf of users.

The following exhibit illustrates the use case diagram that models the above-mentioned requirements:

Exhibit:



The following aspects are included in the design document.

1. Create an Extensible Markup Language (XML) Web service to access the Credit

Card Validation Data.

2. Create a Windows Forms application to be used by Certkiller .com employees.
3. Configure the Windows Forms application to access the Web service.
4. Deploy the Web service to a server at Certkiller .com.
5. Deploy the Windows Forms application to client computers at Certkiller .com.

You now need to make a decision as to whether the design will meet the requirements as represented by the use case.

What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements. You need to deploy the Windows Forms application to the online-retailers.
- C. The design does not meet the requirements. You need to configure the Web service to access the Windows Forms application.
- D. The design does not meet the requirements. You need to allow the online-retailers to host the Web service.

Answer: A

Explanation:

The use case diagram illustrates the roles and actions that can be taken. Both of the roles, Certkiller .com employee and online-retailer, have the ability to access the Credit Card validation data which represents the action. To allow the online-retailers the ability to build applications that access the credit card validation data, you should deploy a Web service with which the online-retailers can interact. This is in fact mentioned in the design.

Incorrect answers:

- B: You do not need to deploy Windows Forms application to the online-retailers. Though the online-retailers need to be able to build application that accesses the credit card validation data, they should not be restricted to using Windows Forms applications.
- C: The Web service should not be configured to access the Windows Forms application as it would tightly couple the Web service to a specific type of client application and the online-retailers should not be restricted to using Windows Forms applications.
- D: You should not allow the online-retailers to host the Web service because the Web service will access the Credit Card validation data which should be hosted by Certkiller .com.

---

#### **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 a financial institution.

You are planning to develop a Microsoft Windows Forms application for Certkiller .com. This application, when completed will access data in the Certkiller .com database which is a Microsoft SQL Server 2005 database. The logical

design has the following aspects:

1. Every Sunday, at 12:00 A.M. a full database backup must occur.
2. Every 60 minutes on the half hour a transaction log (incremental) backup must occur.
3. Every six hours on the hour a differential database backup must occur.
4. No more than seven tapes will be used to store each backup.

Each backup is expected to require only a single tape, and in the event of a failure there should not be a loss of more than 60 minutes worth of transactions.

It is up to you to ensure that the design will provide complete data recovery in the event of a failure.

What conclusion can you draw?

- A. The design makes provision for complete data recovery.
- B. The design does not make provision for complete data recovery. You should rather use only full backups and transaction log backups.
- C. The design does not make provision for complete data recovery. You should rather use only full backups.
- D. The design does not make provision for complete data recovery. You should rather use only transaction log backups.

Answer: A

Explanation: This design does indeed make adequate provision for complete data recovery. A full backup consists of complete backups; and a transaction log backup consists of transactions that occurred since the last transaction log backup. A differential backup consists of only the changes that occurred since the last full backup. If a full backup is made at 12:00 A.M. every Sunday, you will require one backup tape. Then you will also require a backup tape for each transaction log backup until 6:00 A.M. when the differential backup occurs. Once the differential backup is performed; you can throw away the previous transaction log backups. This way you will not require more than seven tapes.

Incorrect answers:

- B: Transaction log backups consist of only the transactions that occurred since the last transaction log backup. And then you would require a new tape every sixty minutes for a whole week. And since you are limited to only seven tapes per day, you cannot make use of only the full backups and transaction log backups.
- C: Using only full backups will not allow you to restore data if a failure occurs at any time other than every Sunday at 12:00 A.M. when a full backup is performed.
- D: Making use of only transaction log backups will require an infinite supply of tapes and you are only allowed seven tapes.

---

### **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 financial institution. As such they are obligated to comply with the legislation governing the financial institutions while protecting the assets of their customers.

One of these laws governing financial institutions and the rights of the customers involves the assurance that the risk of hackers tampering with information is negated. Another of these laws states that Certkiller .com must be able to submit data to the government in case of them auditing all transactions that involves amounts greater than \$10,000. You are currently developing an application for Certkiller .com. This application will allow Certkiller .com to submit relevant data to the government. This application must thus meet the following requirements:

1. It must prevent malicious users from interpreting the data.
2. It must prevent malicious users from tampering with the data.

Following are the aspects included in the design of the application:

1. Submit data to the government by accessing an Extensible Markup Language (XML) Web service.
2. Encrypt data before transmission by using the government's public key.

It is now up to you to make a decision as to whether the design will meet the data integrity requirement.

What conclusion can you draw?

- A. The design meets the data integrity requirement.
- B. The design does not meet the data integrity requirement. You should use the Certkiller .com private key to sign the data.
- C. The design does not meet the data integrity requirement. You should use the Certkiller .com public key to sign the data.
- D. The design does not meet the data integrity requirement. You should use the government's public key to sign the data.

Answer: B

Explanation:

The design should make provision for the signing of the data to prevent malicious tampering. When you sign data, you in essence hash the data and encrypt the hash with a private key that is only known to the signer. When the government receives the data, they will decrypt the hash by using the Certkiller .com public key, rehash the data, and comparing the hash with the decrypted hash. If the two hash values match, then you have proof that the data was not tampered with. Thus the data integrity requirement is not met in this scenario and you should make use of the Certkiller .com private key to sign the data.

Incorrect answers:

- A: This design does not meet with the data integrity requirements.
- C: You cannot use the Certkiller .com public key to sign the data. Encryption makes provision for confidentiality, not data integrity. Furthermore if you encrypt data using a public key, then only the corresponding private key can be used to decrypt the data. Because the Certkiller .com private key should only be available to Certkiller .com, the government will not be able to decrypt the data.

D: You cannot use the government public key to sign the data. Public keys are publicly available and will thus allow malicious users to tamper with the data and then resign it as if the data is still intact and not tampered with.

---

**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 offers financial and accounting services to their customers.

You are currently developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income taxes. The application will make use of fifty assemblies that will provide the business logic for state income taxes. These assemblies are for the exclusive use of the application, and each assembly will be signed with a strong name.

There is currently an existing design that suggests a deployment of the fifty assemblies to the application runtime directory. The new design suggests a deployment of the fifty assemblies to the global assembly cache (GAC).

You are now required to make a decision as to whether the new design will offer better performance.

What conclusion can you draw?

- A. The new design does offer better performance.
- B. The new design does not offer better performance. Only shared assemblies should be installed in the GAC.
- C. The new design does not offer better performance. The state income tax business logic should be exposed via Extensible Markup Language (XML) Web services.
- D. The new design does not offer better performance. Each assembly should be loaded into the application domain of a Microsoft .NET Remoting host application.

Answer: A

Explanation: When one installs strong-named assemblies in a GAC, then one eliminates the performance overhead required to verify strong-name signatures. Thus this option is correct.

Incorrect answers:

B: Even though the GAC is used mainly as a repository for shared assemblies, you are allowed to install non-shared assemblies that are signed with strong names into the GAC to improve performance.

C: The business logic should not be exposed via XML Web services. This will seriously degrade performance because then there would be a need to serialize and deserialize objects every time a Web service method is invoked.

D: There is no need to load each assembly into the application domain of a .NET Remoting host application as this would degrade performance as then there will be a requirement for marshalling between application domains.

---

**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 financial institution.

You are planning to develop the following three Microsoft Windows Forms applications for Certkiller .com:

1. CashManager
2. CreditManager
3. CustomerCarePro

Each of these applications will be designed to use business logic components, business entity components as well as data access components. Each component will further be specific to an application and each application will be maintained by a different development group. All three applications will be hosted in the same Microsoft Visual Safe database.

This design suggests make use of the following Microsoft Visual Studio 2005 projects:

1. Mex.BusinessLogic
2. Mex.BusinessEntity
3. Mex.DataAccess
4. Mex.CashManager
5. Mex.CreditManager
6. Mex.CustomerCarePro

You now need to make a decision as to whether these applications will be maintainable.

What conclusion can you draw?

- A. The three applications will be maintainable.
- B. The three applications will not be maintainable. The Mex.CashManager, Mex.CreditManager and Mex.CustomerCarePro projects should be consolidated into a single project.
- C. The three applications will not be maintainable. The Business logic, Business entities and data access logic should be separated into multiple projects.
- D. The three applications will not be maintainable. The Mex.BusinessLogic, Mex.BusinessEntity and Mex.DataAccess projects should be consolidated into a single project.

Answer: C

Explanation: The three applications do not lend itself to maintainability. The problem is due to the components that are applicable to one application are part of the same projects as components that are applicable to the other two application. This will require the three teams to work with the same projects which make maintenance difficult.

Incorrect answers:

A: This is incorrect since the maintainability requirement will need you to separate the

Business logic, Business entities and data access logic into multiple projects

B: The Mex.CashManager, Mex.CreditManager and Mex.CustomerCarePro projects should not be consolidated into a single project. This will require that the three teams will need to work with the same project.

D: The Mex.BusinessLogic, Mec.BusinessEntity and Mex.DataAccess projects should not be consolidated into a single project as this will require that the three teams need to work with the same project.

---

**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 offers financial and accounting services to their customers.

You are planning on developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income tax returns. The application must make provision for frequent updates to be made easily since the government revises the laws governing tax frequently and often security vulnerabilities are discovered that has to be addressed. Certkiller .com estimates that approximately 150 million users will make use of the application after it has run for three consecutive years. Currently the design suggests the use of ClickOnce technology that will provide automatic updates from a Web server.

You need to make a decision as to whether the design is scalable.

What conclusion can you draw?

- A. The design is scalable.
- B. The design is not scalable. Make use of Windows Installer technology instead.
- C. The design is not scalable. Create a Web application instead.
- D. The design is not scalable. Implement a Web service to provide the updates.

Answer: A

Explanation: The design does lend itself to scalability. The ClickOnce type of application allows you to implement horizontal scaling by deploying a Web farm which will also reduce the load on a single Web server.

Incorrect answers:

B: There is no need to make use of Windows Installer technology since the ClickOnce application is scalable. Besides applications using Windows Installer deployment is not able to take full advantage of automatic updates without custom implementation.

C: There is no requirement to create a Web application since the ClickOnce application is deployable to a Web farm, much the same as Web applications.

D: You should not implement a Web service to provide automatic updates because the ClickOnce application does provide scalable automatic updates.

---

**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. Certkiller .com operates as a department of the Federal Bureau of Investigation.

You are planning on developing a Microsoft Windows Forms application for Certkiller .com. This application will allow for the sharing of information for the FBI and will be deployed to 60 FBI offices nation-wide. The following aspects are included in the design of the application:

1. Making use of Microsoft .NET Remoting to facilitate inter-office communication.
2. Making use of asymmetric encryption to secure transmission messages.
3. Storing the public key in an ASCII text file in the application's runtime directory.
4. Storing the private key in an ASCII text file in the application's runtime directory.
5. Allowing only users of the application to access files that are used by the application.

You now need to change the design to enhance the security of the application. What should you do?

- A. Make use of Distributed Component Object Model (DCOM) and not .NET Remoting for inter-office communication.
- B. Store the private key in a binary file that is encrypted with a symmetric key.
- C. Store the private key in a key container of a cryptographic storage provider (CSP).
- D. Make use of Extensible Markup Language (XML) Web services and not .NET Remoting for inter-office communication.

Answer: C

Explanation: The private key should be protected and you can do this by storing the key in a key container of a CSP. The key container can be configured to allow only the application to access the private key. If the private key is not protected, then any application running under the same identity as the information sharing application will be able to access the private key in the text file.

Incorrect answers:

- A: You should not make use of DCOM to improve security since the problem is related to the physical location of the private key in this case.
- B: The private key should not be stored in a binary file that is encrypted with a symmetric key because then any application that runs under the same identity as the information sharing application will be able to access the private key in the text file.
- D: You should not make use of Extensible Markup Language (XML) Web services to improve security since the problem is related to the physical location of the private key in this case.

---

## **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. The design of

applications forms part of your responsibilities at Certkiller .com.

You are currently evaluating the physical design of a Microsoft Windows Forms application for Certkiller .com. This application was designed to access data from a Microsoft SQL Server 2005 database via an Extensible Markup Language (XML) Web service. The application also makes use of Microsoft .Net Remoting to access a digital image device. The physical design is as follows:

1. Host the application on a Terminal server computer named Certkiller -TS01.
2. Host the database on a server computer named Certkiller -DB01.
3. Host the Web service on a Web server computer named Certkiller -SR01.
4. Host the remote components on an application server named Certkiller -APP01.

You then decide to implement a redundant array of independent disks to provide recoverability in case of failure. To this end you need to make a decision as to where you should implement the RAID solution.

What should you do?

- A. Use the Certkiller -APP01 server to implement RAID.
- B. Use the Certkiller -SR01 server to implement RAID.
- C. Use the Certkiller -DB01 server to implement RAID.
- D. Use the Certkiller -TS01 server to implement RAID.

Answer: C

Explanation: Raid is implemented when multiple disks are used to provide fault tolerance. Thus, if one disk fails, the data can be accessed on other disks. Thus the RAIDS solution should be implemented on Certkiller -DB01.

Incorrect answers:

A: The RAID solution should not be implemented on Certkiller -APP01 because it does not store data; it only hosts the remote components that are used to access the digital image device.

B: The RAID solution should not be implemented on Certkiller -SR01 that is hosting the Web service, since there is no data stored on that server.

D: The Raid solution should not be implemented on Certkiller -TS01 since it does not store data; it only hosts the Windows Forms application.

---

### **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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a College of Education.

You are planning to develop a Microsoft Windows Forms application for Certkiller .com. This application will allow the Certkiller .com educational centers to manage transcripts. The plan is to make use of Microsoft SQL Server 2005 to store the transcripts for the application. The logical design of the application indicates a many-to-many relationship between candidates and examinations. The physical design suggests making use of three tables that are named Candidate, Examination,

and CandidateExamination, respectively. These three tables are to be stored in the same database.

Following is a list of the requirements that should be met by the design:

1. Referential integrity between the candidates and the examinations must be maintained by SQL Server.
2. There should be no excessive duplication of data in existence.

You need to make a decision as to whether the design meets these requirements.

What conclusion can you draw?

- A. The design does meet the requirements.
- B. The design does not meet the requirements. The data of the three tables should be consolidated into one table named Transcript in the same database.
- C. The design does not meet the requirements. The three tables should be placed in different databases on the same server.
- D. The design does not meet the requirements. The data of the three tables should be consolidated into two tables named Candidate and Examination in the same database.

Answer: A

Explanation: Since it is mentioned that there is a many-to-many relationship between two entities, there is a need for a junction table which only exists to hold data that is unique to the relationship. Because the three tables are located in the same database, you can allow SQL Server to enforce referential integrity between the tables.

Incorrect answers:

- B: The three tables should not be consolidated into a single table named Transcript in the same database. This will not prevent the excessive duplication of data.
- C: The three tables should not be placed in different databases on the same server. This way SQL Server cannot enforce referential integrity between data in different databases.
- D: Though this consolidation of the three tables into two tables named Candidate and Examination in the same database will allow SQL Server to enforce referential integrity, it does not prevent excessive duplication of data because either Examination data would need to be duplicated for each candidate who takes a particular examination, or Candidate data would need to be duplicated for each examination that the candidate takes.

---

## **VB, Designing and Developing a User Interface (7 Questions)**

### **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. All applications should be in a Microsoft Windows Forms environment. Certkiller .com operates as the Administration department for a College of Education.

You are currently designing the user interface for a form in a student management

application. The logical design indicates that the content is divided into sections. The number of sections depends on the identity of the logged-on user. However, this number ranges from one to ten. The main purpose of the form is to allow users to manage the following aspects of student applications.

1. Lecturer assignments
2. Educational history
3. Personal information
4. Religious and philosophical information
5. Courses
6. Bursaries

Now you need to implement the form by using the best mechanism to achieve fulfillment of the purpose of the form.  
What should you do?

A. Add a TabControl control to the form.

Dynamically add TabPage controls based on a user's identity.  
Map each TabPage control to a section in the logical design.

B. Add 10 GroupBox controls to the form.

Show or hide a GroupBox control based on a user's identity.  
Map each GroupBox control to a section in the logical design.

C. Add a FlowLayoutPanel control to the form.

Add input controls to the FlowLayoutPanel control based on the user's identity.  
Map a set of input controls to a section in the logical design.

D. Add 10 PropertyGrid controls to the form.

Show or hide a PropertyGrid control based on the user's identity.  
Map each PropertyGrid control to a section in the logical design.

Answer: A

Explanation: A TabControl visually resembles dividers in a notebook when one makes use of TabPage controls. The contents of only one TabPage can be visible at any one time. This makes the TabControl the ideal mechanism to display lots of information that can be grouped together.

Incorrect answers:

B: You should not be adding 10 GroupBox controls to the form. This will result in a situation that when a user is granted access to multiple sections, one would need to display multiple GroupBox controls on the form. This is an adverse effect on the usability of the application and its purpose.

C: When making use of a FlowLayoutPanel and a user is granted access to all section, one would then require displaying all input controls on a single form at the same time. This renders the application unusable.

D: You should not add 10 PropertyGrid controls to the form because this will result in a situation where a user when granted access to multiple sections, one would be compelled to display multiple PropertyGrid controls on the form. This affects the usability of the application negatively.

**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. All applications should be in a Microsoft Windows Forms environment. You are instructed to develop a consistent appearance for all the Windows Forms applications that were developed by Certkiller .com. Every form in an application must display a TreeView control and a WebBrowser control. The nodes in the TreeView control open Web pages in the WebBrowser control. But, due to each department within Certkiller .com performing different business activities, the TreeView control must be populated with nodes that are specific and applicable to a particular department. You need to develop a solution to meet these requirements. What should you do?

- A. You should create a company-wide base form.  
Then allow each department to create a specific base form that suits their type of job description.  
Then ensure that each department-specific base form references the corporate base form.
- B. You should create a department-specific base form for each Certkiller .com department.  
Then have each department place on their respective form a TreeView control and a WebBrowser control.
- C. You should create a base class that derives from TreeView.  
Then create a base class that derives from WebBrowser.  
Then allow each Certkiller .com department to create a base form and have each department place on each form the derived controls.
- D. You should create a base class that derives from TreeView.  
Then create a base class that derives from WebBrowser.  
Then allow each Certkiller .com department to ass the derived control classes to each form.

Answer: A

Explanation: By creating a company-wide base form you afford yourself the opportunity to define a consistent layout that can be used across the company. This will include the display of a TreeView control and a WebBrowser control. You can implements the base form with class members that each Certkiller .com department can use to populate the TreeView control and display the appropriate Web pages in the WebBrowser control.

Incorrect answers:

B: This option will allow each Certkiller .com department to have a different base form. This is not compelling the departments to adhere to a consistent appearance across all applications.

C: You cannot allow each Certkiller .com department to add derived TreeView and WebBrowser controls to applications. This option will not result in a consistent

appearance across all applications.

D: You cannot allow each Certkiller .com department to add derived TreeView and WebBrowser controls to applications. This option will not result in a consistent appearance across all applications.

---

**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. All applications should be in a Microsoft Windows Forms environment.

You are currently developing a Microsoft Windows Forms application. This application will be used in inventory management and will, upon completion, consist of in excess of seventy different forms. What's more, these forms are not all related or required.

You need to make provision for users to navigate the application without being forced to learn how to make use of the user interface. Instructions clearly stated that you need to ensure that your solution does not adversely affect the usability of the application.

What should you do?

- A. Add LinkLabel controls to each form in the application.  
Then configure each LinkLabel control with a link to a form.
- B. Add a TreeView control to each form in the application.  
Then configure each tree node with a link to a form.
- C. Configure a main menu for the application.  
Then configure each main menu item with a link to a form.
- D. Associate a context menu with each form in the application.  
Then configure each context menu with a link to a form.

Answer: A

Explanation: By adding a LinkLabel control to each form in the application and each form in turn should contain links to other related or required forms, will allow users the ability to navigate easily through the application without having to learn the user interface.

Incorrect answers:

B: You should not configure TreeView controls as this would require that the users will have to navigate a TreeView control to determine which form to open.

C: A main menu to provide links to the forms will require that the users knows which menu items pertains to specific forms.

D: A context menu item will require that the users manually invoke the context menu.

---

**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. All applications should be in a Microsoft Windows Forms environment. Certkiller .com offers financial and accounting services to their customers. You are currently developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income tax returns. The application must fulfill one requirement: it must provide users with questions that will assist them in making a choice in the types of tax forms that they need to file.

You need to develop a solution that will meet this requirement.  
What should you do?

- A. You should implement a multiple document interface (MDI) application. Display the appropriate forms based on selections from a context menu.
- B. You should implement an application that resembles a tax forms booklet. Display a question at the top of each form.
- C. You should implement a Wizard-like application. Use the Back and Next buttons to allow users to navigate to the appropriate forms based on user input.
- D. You should implement a single document interface (SDI) application. Display the appropriate forms based on selections from a main menu.

Answer: C

Explanation: With a Wizard-type application you can choose the forms to display based on user input or selections on a previous form. This will eliminate the need to have the user to figure out which tax forms to file.

Incorrect answers:

A: You should not display the appropriate forms in a context menu. This will result in the user being required to invoke the menu and make a menu selection. You cannot effectively pose questions in menu items and this solution would thus affect the usability of the application in a negative way.

B: Implementing an application that resembles a booklet of tax forms and displaying a question at the top of each form will require that the user must visit every form to decide and determine whether he/she is filing the correct tax forms and whether that particular tax form is indeed a requirement.

D: You should not display the appropriate forms in a main menu. This will result in the user being required to invoke the menu and make a menu selection. You cannot effectively ask questions in menu items and this solution would thus affect the usability of the application in a negative way.

---

### **QUESTION 16**

You work as the Enterprise application developer at Certkiller .com. Your responsibilities at Certkiller .com include the design and development of applications. All applications should be in a Microsoft Windows Forms environment. You are planning on developing a Microsoft Windows Forms application that, upon completion, must meet the following requirements:

1. It must have the ability to display different types of legal documents.
2. It must make allowance for users to toggle easily between legal documents and other applications' documents.
3. It must run on Microsoft Windows XP Professional computers.

The following aspects are included in the design:

1. Create a single document interface (SDI) application.
2. Allow users to toggle between documents by means of using the Alt + Tab keys.
3. Allow users to toggle between documents by means of using the Windows Task Bar.

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. You must implement a multiple document interface (MDI) application.
- C. The design does not meet the requirements. Users should be allowed to toggle between documents with the Ctrl + Esc keys.
- D. The design does not meet the requirements. Users should be allowed to toggle between documents with the Ctrl + Tab keys.

Answer: A

Explanation: This design adequately meets the requirements. An SDI application contains a Task Bar icon for each instance of the application that is running. This is a common design choice for Windows XP Professional applications. Users can navigate between different open documents using the Alt + Tab keys or the Windows Task Bar.

Incorrect answers:

B: A MDI application does not make for easy navigation of users between documents of different types of applications. The Windows Task Bar does not display documents in an MDO application as separate Task Bar buttons.

C: The Ctrl + Esc key combination is usually used to invoke the Windows Start menu and will thus not allow for easy navigation between documents.

D: The Ctrl + Tab key combination is typically used to toggle between documents in an MDO application. Not in this scenario.

---

### **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. All applications should be in a Microsoft Windows Forms environment.

Certkiller .com operates as a toy and specialty store.

Currently Certkiller .com stock, sells, and deals with toys in excess of 100,000 of more than 30 brands. You are currently developing an inventory management application for Certkiller .com. Following are the requirements that the application must meet:

1. It must allow sales personnel to search for toys by type.
  2. It must allow sales personnel to search for toys by brand.
  3. It must allow sales personnel to quickly find a toy by recognizing a toy's picture.
  4. It must allow all toys of a particular brand to be displayed in a grid-like representation.
  5. It must allow sales personnel to change how lists of toys are displayed.
  6. It must display toy descriptions and specifications in multiple columns.
- You now need to determine the most appropriate control to use to display the toy data.

What should you do?

- A. Use the ListBox control.
- B. Use the ComboBox control.
- C. Use the ListView control.
- D. Use the DataGridView control.

Answer: C

Explanation: The ListView control will allow one to choose between different views for displaying information. In addition it also inherently supports sorting, searching, and multiple column display.

Incorrect answers:

- A: The ListBox control supports only a single-column, single-view display.
- B: The ComboBox control supports only a single-column, single-view display.
- D: The DataGridView control supports sorting, searching, as multiple column display, but it does not allow you to choose between different views for displaying information.

---

### **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 applications. All applications should be in a Microsoft Windows Forms environment. Certkiller .com offers financial and accounting services to their customers. You are currently developing a Microsoft Windows-based application for Certkiller .com. This application will allow the Certkillercom employees to manage the customer accounts. The following exhibit illustrates the event handler which is called when a Certkiller .com employee attempts to withdraw funds from an account. Exhibit:

```
01 Private Sub Button_Click(ByVal sender As Object, ByVal e As EventArgs)
02 Try
03 Dim financeAccount As Account = New Account(_account TextBox.Text)
04 financeAccount.Withdraw(Double.Parse(_amountTextBox.Text))
05 Catch ex As AccountOverdraftException
06
07 End Try
```

08 End Sub

You need to notify the Certkiller .com employee if an account overdraft would occur. The Certkiller .com employee would then inform the customer and change the amount of the withdrawal if necessary. To this end you need to add code at line 10 to accomplish this goal. What should you do?

- A. Use the  
Throw New ApplicationException("An account overdraft would occur.", ex);  
code segment.
- B. Use the  
Throw New Exception("An account overdraft would occur.");  
code segment.
- C. Use the  
MessageBox.Show("An account overdraft would occur.");  
code segment.
- D. Use the  
MessageBox.Show(ex.ToString() + "An account overdraft would occur.");  
code segment.

Answer: C

Explanation: When you call the Show method of the MessageBox class to display a user-friendly message you will allow the Certkiller .com employee to change the amount of the withdrawal without causing the application to fail.

Incorrect answers:

- A: When you throw an exception it will not allow the Certkiller .com employee to change the amount of the withdrawal and the application will fail.
- B: When you throw an exception it will not allow the Certkiller .com employee to change the amount of the withdrawal and the application will fail since the exception will be considered unhandled.
- D: You should not pass the value returned from the ToString method of the AccountOverdraftException instance to the Show method of the MessageBox class. This would display a lot of technical information and is in no way user friendly for the Certkiller .com employee to know that an error has occurred.

---

## **VB, Designing and Developing a Component (4 Questions)**

### **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 applications. Certkiller .com operates as a College of Education. You are currently designing a three-tier Microsoft Windows Form Student application for Certkiller .com. This application is intended to help the Certkiller .com

administrations staff to allow students to register for the year of study, place them in their courses, and to place them with the respective lecturers teaching those courses.

You need to design a mechanism that will allow the administration staff to pass student data between the presentation, business, as well as data access layers in the application.

What should you do?

- A. You should implement a service agent by using Enterprise Services.
- B. You should implement a business entity component using the DataSet class.
- C. You should implement a service interface by creating a Web Service.
- D. You should implement a data access component using Microsoft .NET Remoting.

Answer: B

Explanation: In this scenario you can consider the student as a business object. By implementing a business entity for students, you can pass student data between the presentation, business, as well as data access layers of the application. DataSet instances are serializable and thus you will be able to pass business entities represented as DataSet instances easily between the layers in the application.

Incorrect answers:

- A: Service agents hide the complexity of calling multiple services to access external functionality and will thus not be suitable to implement in this case.
- C: Service interfaces expose an application's business logic to external systems. This is not what is required.
- D: Data access components provide access to data stores. They help to isolate data access functionality from the application code which makes for improved maintenance. However, this will not allow you to pass the business entities between the layers in the application.

---

## **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 applications. Certkiller .com operates as a utilities company.

You are currently designing a Microsoft Windows Forms customer relationship management (CRM) application for Certkiller .com. Upon completion, this application must be able to support the following databases:

1. Microsoft SQL Server 2005
2. Microsoft SQL Server 2000
3. Microsoft Access 2000
4. Oracle 10g

The choice of database will depend on the type of customer. To this end you take a decision to create one or more data access components to facilitate the access to data in the databases. Now you need to determine how many data access components

should be created. Do bear in mind that the solution must be maintainable.  
What should you do?

- A. Create one data access component.
- B. Create two data access components.
- C. Create three data access components.
- D. Create four data access components.

Answer: C

Explanation: Three data access components will be sufficient in this scenario. One for each type of database:

One data access component that will facilitate access to SQL Server 2005 and SQL Server 2000 - benefits to be derived from the Microsoft .NET Framework Data Provider for SQL Server.

One data access component to access the Oracle database - benefits to be derived from .NET Framework Data Provider for Oracle.

One data access component to access the Access database - benefits to be derived from the OLE DB .NET Framework Data Provider.

Incorrect answers:

A, B, D: One, and Two data access components will be too few and four would be over compensating.

---

### **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 applications. Certkiller .com operates as a Geographic Positioning System service provider. You are currently developing a Microsoft Windows Forms application. The Exhibit below illustrates the type definition that exists:

Exhibit:

```
Public Structure Waypoint
Public Latitude As Double
Public Longitude As Double
Public Function GetNearbyPlaces() As Waypoint()
Throw New NotImplementedException
End Function
End Structure
```

You now need to allow the application to instantiate the Waypoint type and set the Latitude and Longitude properties by providing a street address.

What should you do?

- A. A default static constructor should be added to the type.
- B. A default instance constructor should be added to the type.
- C. A non-default static constructor should be added to the type.

D. A non-default instance constructor should be added to the type.

Answer: D

Explanation: When you add a non-default instance constructor to the type it will allow the calling code to initialize the Latitude and Longitude fields of the Waypoint type when the type is instantiated.

Incorrect answers:

A: Static constructors are called only the first time a class is instantiated. This is not the solution, albeit a default static constructor.

B: You should not add a default instance constructor type to the type because only classes support default constructors and not struct types.

C: You should not add a non-default static constructor to the type because static constructors only get called the first time a class is instantiated.

---

### 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 applications. Certkiller .com has a Microsoft Windows Forms application that makes use of a printing component. This component is configured to accept XmlDocument instances that may contain graphics information. It makes use of data in these instances and GDI+ to print the graphics. You have been instructed to analyze profiling results on this application and make a decision after you have run tests on the application. To this end you then profiled the component and obtained the following information regarding performance after running it on a test computer:

1. When the method is called one, 16 MB of memory is used.
  2. When the method is called twice, 32 MB of memory is used.
  3. When the method is called ten times, 160 MB of memory is used.
- You now need to make a decision as to what the next step of action should be. What should you do?

- A. Keep on profiling the component.
- B. The component should be redesigned.
- C. More memory should be added to the computer.
- D. A larger page file should be specified on the computer.

Answer: B

Explanation: The result clearly indicates that there is a memory leak. It is likely that the component does not dispose GDI+ objects that it creates which results in the memory leaks. The solution and logical next step would be to redesign the component.

Incorrect answers:

A: There is no need to keep on profiling the component as it is already evident that a memory leak exists.

C: Adding more memory to the computer will only alleviate the problem of the memory leak, but will not solve it.

D : There is a memory leak that exists and specifying a larger page file size will not completely solve the problem.

---

## **VB, Designing and Developing an Application Framework (4 Questions)**

### **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.

You are currently developing a Microsoft Windows Forms application. You are required to make use of a stock control in the application. To this end you examine a third party component that implements stock control. This specific component was implemented by using the Microsoft .NET Framework 1.1. You disassemble the code and discovered the following code:

```
Friend MustInherit Class Stock
Inherits Control
Public Sub New()
MyBase.New
End Sub
Protected Overrides Sub OnPaint(ByVal e As PaintEventArgs)
'Paint the control
MyBase.OnPaint(e)
End Sub
End Class
```

You must change the way the Stock control paints itself. Thus you need to take a decision as to whether you can reuse the component to meet this requirement. What conclusion can you draw?

- A. The component is reusable.
- B. The component is not reusable. The OnPaint method must specify the abstract inheritance modifier.
- C. The component is not reusable. The OnPaint method must specify the virtual inheritance modifier.
- D. The component is not reusable. The Stock class must specify the public access modifier.

Answer: D

Explanation: The component is not reusable as the Stock class is declared with the internal access modifier; it cannot be accessed from outside the assembly in which it exists. It needs to specify the public access modifier. The .NET Framework 2.0 does have the InternalsVisible To attribute, but not the .NET Framework 1.1 version with which

this component was created.

Incorrect answers:

A: The component is not reusable since you will require the Stock class to specify the public access modifier.

B: The abstract modifier indicates that a class member must be implemented by a derived class. In this case you cannot override the Stock class because it is declared with the internal access modifier.

C: The virtual inheritance modifier allows derived classes to override a class member, but the override inheritance modifier also allows derived classes to override a class member if the sealed inheritance modifier is not applied to the member. Thus you cannot conclude that the OnPaint method must specify the virtual inheritance modifier.

---

### **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.

You are developing Microsoft Windows Forms applications. You are required to display an opaque stock on a form in a Windows application. To this end you examine a third-party component that implements solid Stock control. This control has all of the functionality that you require, except for the fact that it does not display as an opaque stock. The following exhibit illustrates the class definition:

Exhibit:

Public Class Stock

Inherits Control

Protected Overrides Sub OnPaint(ByVal e As PaintEventArgs)

'Paint a solid stock

'Do not call the base OnPaint method

End Sub

End Class

You need to reuse the Stock control. You must ensure that your solution allows for changes made to the Stock control to be reflected automatically in the application.

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

A. Public Class SolidStock

Inherits Stock

Private \_stock As Stock = New Stock()

Protected Overrides Sub OnPaint(ByVal e As PaintEventArgs)

'Paint a solid stock

AddHandler \_stock.Paint,AddressOf StockPaint

End Sub

Private Sub StockPaint(ByVal sender As Object, ByVal e As PaintEventArgs)

OnPaint(e)

End Sub

End Class

```
B. Public Class SolidStock
Private _stock As Stock = New Stock()
Protected Sub OnPaint(ByVal e As PaintEventArgs)
'Paint a solid stock
AddHandler _stock.Paint,AddressOf StockPaint
End Sub
Private Sub StockPaint(ByVal sender As Object, ByVal e As PaintEventArgs)
OnPaint(e)
End Sub
End Class
C. Public class SolidStock
Inherits Control
Protected Overrides Sub OnPaint(ByVal e As PaintEventArgs)
'Paint a solid stock
End Sub
End Class
D. Public Class SolidStock
Inherits Stock
Protected Overrides (Sub OnPaint(ByVal e As PaintEventArgs)
'Paint a solid stock
End Sub
End Class
```

Answer: D

Explanation:

The SolidStock class must be derived from the Stock class and override the OnPaint method. This will allow you to inherit all the functionality of the Stock control except for painting functionality. In the overridden OnPaint method, you should implement the painting logic for displaying a solid stock.

Incorrect answers:

A: You should not declare the SolidStock class without specifying a Control-derived base class. Only classes that derive directly or indirectly from Control can be visually displayed on forms.

B: There is no need to attach an event handler to the Paint event of the Stock class. The OnPaint method of the Stock class does not call the OnPaint method of the Control class; however, the OnPaint method of the control class is responsible for raising the Paint event. And in this scenario the Paint event never gets raised.

C: You should not derive the SolidStock class from control as it will not allow you to reuse the functionality that is exposed by the Stock control.

---

## **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.

You are currently developing Microsoft Windows Forms applications for Certkiller .com The following exhibit illustrates the code in an application:

Exhibit:

```
Dim _pictureBox As PictureBox = new PictureBox
Private Sub ShowImage()
Try
_pictureBox.Image = Image.FromFile("WeatherMap.bmp")
Catch ex As OutOfMemoryException
MessageBox.Show("The image format is not supported.")
End Try
End Sub
```

You need to make an evaluation regarding the exception handling mechanism for Microsoft best practices.

What conclusion can you draw?

- A. The mechanism is a good practice.
- B. The mechanism is not a good practice. The application should not catch exceptions.
- C. The mechanism is not a good practice. The application should catch only instances of Exception.
- D. The mechanism is not a good practice. The application should catch only instances of ApplicationException.

Answer: A

Explanation: It is illustrated that this code only catches an exception that it knows how to handle. This is a good practice. In this case the exception is a type of OutOfMemoryException. And the exception is raised when you attempt to load an image that is not supported by GDI+ and the application then responds by displaying a message box to the user when this happens.

Incorrect answers:

- B: This is incorrect since best practice would mean that the application should catch exceptions that it knows how to handle.
- C: If you catch instances of any exception that you know how to handle you would be performing good practice and in general you should not catch instances of Exception unless you need to log the exception. In this scenario, you should still re-throw the exception. Thus this option is incorrect to suggest that only instances of exception are caught.
- D: You should not catch only instances of ApplicationException. You should be catching instances of any exception that the application knows how to handle.

---

## **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 design and development of Application

Frameworks. Certkiller .com operates as an international retail company.

The Certkiller .com management follows an incentive scheme in the enumeration of their personnel. This incentive scheme is as follows:

1. If a staff member ships goods to the value of \$5,000 they receive \$500
2. If a staff member ships goods of a value greater than \$5,000 and up to \$10,000 they receive \$1,200
3. If a staff member ships goods of a value greater than \$10,000 and up to \$15,000 they receive \$2,500
4. If a staff member ships goods of a value greater than \$15,000 they receive 25% of the value.

You are developing a Microsoft Windows Forms shipping management application for Certkiller .com. You thus need to take into account how the Certkiller .com staff is enumerated. To this end you create two Double variables named shipped and enumeration to represent the shipped goods and enumeration, respectively. The shipped variable is always greater than zero. You now need to select an appropriate decision flow structure to implement the business rules.

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

```
A. If (shipping <= 5000) Then
    enumeration = 500
    If (shipping <= 10000) Then
        enumeration = 1200
    If (shipping <= 15000) Then
        enumeration = 2500
    Else
        enumeration = shipping * 0.25
    End If
End If
End If
B. Select Case (CType(shipping, Integer))
    Case 5000
        enumeration = 500
    Exit Select
    Case 10000
        enumeration = 1200
    Exit Select
    Case 15000
        enumeration = 2500
    Exit Select
    Case Else
        enumeration = shipping * 0.25
    Exit Select
End Select
C. If (shipping <= 5000) Then
    enumeration = 500;
End If
```

```
If (shipping <= 10000) Then
enumeration = 1200;
End If
If (shipping <= 15000) Then
enumeration = 2500;
End If
If (shipping > 15000) Then
enumeration = shipping * 0.25;
End If
D. If (shipping <= 5000) Then
enumeration = 500
ElseIf (shipping <= 10000) Then
enumeration = 1200
ElseIf (shipping <= 15000) Then
enumeration = 2500
Else
enumeration = shipping * 0.25
End If
```

Answer: D

Explanation:

You need to make use of if-else statements because these statements control execution based on a single expression. In this scenario, if a staff member ships goods of value less than or equal to \$5,000, the enumeration variable is 500 and execution leaves the entire if-else block. If not the code will determine if the amount shipped is less than or equal to \$10,000, if so then the enumeration variable is set to 1200 and execution leaves the entire if-else block, etc.

Incorrect answers:

A: You should not make use of nested statements as it will result in shipping of a value of less than \$500 to generate enumeration of \$2,500.

B: You should not make use of Switch-case statements as each case statement can be used to test a single value and this will result in shipping of the value less than \$500 to generate enumeration of 25% of the shipped amount.

C: You should not make use of if statements as it will result in shipping to the value of less than \$500 to generate enumeration of \$2,500.

---

## **VB, Testing and Stabilizing an Application (5 Questions)**

### **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 as a company rendering financial and accounting services to its customers.

Certkiller .com developed a Microsoft Windows Forms application that allows users to file their federal and state income taxes. There are fifty assemblies in the application that provides the business logic for state income taxes. Each of these fifty assemblies contains the business logic for a particular state. It just so happened that California, Florida, and Arkansas changed their tax regulations. These three states are now allowing their taxpayers to deduct all the capital profits that they made on the sales of all properties other than first properties on their state income tax returns. A Certkiller .com developer named Amy Wilson was then instructed to modify three components to accommodate this change. These modifications included method and property additions and changes. Amy Wilson then created the following unit testing strategy:

1. Test all new and changed methods and properties in the California component.
2. If the test passes, conclude that the Florida and Arkansas components also pass testing.

You now need to make a decision as to whether the unit testing strategy is adequate. What conclusion can you draw?

- A. The unit testing strategy is adequate.
- B. The unit testing strategy is adequate. Amy Wilson should test only the new methods and properties in the California component.
- C. The unit testing strategy is adequate. Amy Wilson should test all methods and properties in the California component.
- D. The unit testing strategy is adequate. Amy Wilson should test the methods and properties in the Florida and Arkansas components.

Answer: D

Explanation: The unit testing strategy is inadequate. Unit testing should always be performed whenever you add, remove, or modify exposed members of a component. If you use a driver stub approach in unit testing to verify each functional unit in a component, you ensure that the component work successfully before it is integrated into the overall solution. In this case the methods and properties were added and changed in three of the fifty components. Thus Amy Wilson should test each new and changed method in all three components.

Incorrect answers:

- A: This is an inadequate unit testing strategy since Amy Wilson should be testing all three components that changed and have new methods.
- B: If only the California component is tested, it cannot be an adequate unit testing strategy.
- C: If only the methods and properties of the California component are tested it is an inadequate unit testing strategy since three of the components have been modified.

---

## **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 offers financial and accounting services to their customers.

A Certkiller .com team is developing a Microsoft Windows Forms application. This application will allow users to file their federal and state income tax returns. The application access business logic exposed by an internally-developed Extensible Markup Language (XML) Web service. The team is considering performing an integration test by making calls to the Web service from the application.

You now need to make a decision as to whether the testing strategy is correct. What conclusion can you draw?

- A. The testing strategy is correct.
- B. The testing strategy is incorrect. The team should perform integration testing by calling the Web methods from a test application.
- C. The testing strategy is incorrect. The team should perform integration testing by calling to a dummy Web service from the application.
- D. The testing strategy is incorrect. The team should not perform integration testing on internally developed Web services.

Answer: A

Explanation: When performing integration testing, you should test the interactions of all the components in an application. Because the Web service exposes business logic, you need to ensure that the Windows Forms application calls Web methods of the Web service with expected input values and receives expected output values. Thus this testing strategy is correct.

Incorrect answers:

- B: The team should not perform integration testing making use of calls from a test application. The point of integration testing is to use the real application to ensure that it interacts as expected with the Web service.
- C: The team should not make calls to dummy Web services. The whole point of integration testing is to ensure that the application interacts with all components correctly and a dummy Web service will yield dummy results.
- D: This would be inadequate since integration testing involves all components.

---

### **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 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 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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the testing and stabilization of Applications.

One of the Certkiller .com Windows Forms applications contains the following production environment specifications:

1. The application is deployed to production desktop computers.
  2. A Web service that is used by the application is deployed to a production Web server.
  3. The production desktop computers run Microsoft Windows XP Professional.
- Following is the test environment specification for performance testing that the development team created:

1. The application is deployed to production desktop computers.
2. The Web service is deployed to a staging Web server.

3. The staging Web server's hardware configuration is identical to the production Web server.

4. The Web servers have 1 gigabyte (GB) of memory.

You need to make a decision as to whether the test environment specification is appropriate.

What conclusion can you draw?

A. The test environment is appropriate.

B. The test environment is inappropriate. The Web service should be deployed to the production Web server.

C. The test environment is inappropriate. The staging Web server's hardware configuration should be changed.

D. The test environment is inappropriate. The application should be deployed to test desktop computers.

Answer: D

Explanation: When testing an application for performance, one should perform testing in an isolated environment that is similar to the production environment and not to the production desktop computers as suggested in the question. The test environment is thus inappropriate. You should also be making use of test desktop computers.

Incorrect answers:

A: This is incorrect since you should not make use of production desktop computers when doing performance testing.

B: You should not be deploying the Web service to the production server; it should be deployed to a staging server so as to facilitate the isolation aspect of performance testing.

C: There is no need to change the hardware configuration of the staging server because the test environment should mimic the production environment which also includes hardware configuration.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the testing and stabilization of Applications.

You are currently evaluating an existing performance testing strategy for one of the Microsoft Windows Forms applications for Certkiller .com. This application was developed to allow the Certkiller .com customers to scan checks and submit the images to financial institutions electronically. The performance testing strategy that is under scrutiny now specifies that the actual rate at which checks are imaged and stored into a database will be compared against a preferred rate.

You need to make a decision as to whether the performance strategy is appropriate. What conclusion can you draw?

A. The performance testing strategy is appropriate.

- B. The performance testing strategy is inappropriate. The number of checks that are imaged correctly should be identified.
- C. The performance testing strategy is inappropriate. The number of checks that are imaged incorrectly should be identified.
- D. The performance testing strategy is inappropriate. The number of checks that cannot be imaged due to physical defects should be identified.

Answer: A

Explanation: The test identifies the rate at which the checks are imaged and stored in a database. This will allow you to determine whether the check imaging process is performing as expected. Thus this strategy is an appropriate one.

Incorrect answers:

- B: When one test application performance one does not identify the number of checks that are imaged correctly; one test the application according to predefined thresholds.
- C: When one test application performance one does not identify the number of checks that are imaged incorrectly; one test the application according to predefined thresholds.
- D: You should not be identifying the number of checks that cannot be imaged due to physical defects when testing application performance. This will not allow you to control the validity of the checks with the application.

---

## **VB, Deploying and Supporting an Application (5 Questions)**

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. You are currently evaluating one of the Microsoft Windows Forms applications for Certkiller .com. This application was developed to allow the Certkiller .com customers to scan checks and submit the images to financial institutions electronically for processing purposes. The application is deployed to dual processor computers. You scan five checks with check number that ranges from 901 to 905 and obtained the following performance results illustrated in the table below:

Check Number	CPU Usage	Memory Usage	Elapsed Time
901	54%	4,672K	0.801 ms
902	33%	4,676 K	0.749 ms
903	54%	4,680 K	0.800 ms
904	61%	4,684 K	0.852 ms
905	60%	4,688 K	0.834 ms

You now need to analyze the results.  
What conclusion can you draw?

- A. Too much processor time is used.

- B. There is a synchronization problem.
- C. There is a memory leak.
- D. Too much memory is used.

Answer: C

Explanation: The table shows clearly that the memory usage increases with 4 K each time a check is scanned. As the number of check increases, memory usage increases. If this persists then there will not be enough memory available on the computer that runs the application. Thus there is a definite memory leak.

Incorrect answers:

A: The average CPU usage is only 52%. This is due to the fact that the application is deployed to dual-processor computers. This means that it is not a case of too much processor time being used.

B: Synchronization issues cannot be deduced from the results in the table. Thus you cannot assume that it is a synchronization problem.

D: Only 4,672 K of memory is being used initially. Apart from the memory leak, the memory consumption itself is not problematic.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a financial institution.

You need to evaluate a Microsoft Windows Forms application for Certkiller .com. This application allows Certkiller .com employees to access accounts on behalf of their customers. You thus created a Performance Session in Microsoft Visual Studio 2005 for the application. Following is an illustration of the result that you obtained for a method named Validate when running the application:

1. Call the Validate method once - execution time is 0,401 ms
2. Call the Validate method twice - total execution time is 0,802 ms
3. Call the Validate method ten times - total execution time is 4,010 ms

You now need to analyze these performance trends.

What conclusion can you draw?

- A. There is a memory leak.
- B. The execution time is constant.
- C. The memory consumption increases linearly.
- D. The execution time increases exponentially.

Answer: B

Explanation:

Note that the results mention that the total execution time of calling the Validation

method twice and ten times yields the increase in time. This it means that the execution time PER call of the Validation method is constant at 0,401 ms.

Incorrect answers:

A: Execution times do not indicate memory leaks.

C: You cannot use execution time to measure memory consumption.

D: The execution time does not increase exponentially.

---

**QUESTION 34**

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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a financial institution.

You need to evaluate a Microsoft Windows Forms application for Certkiller .com. This application allows Certkiller .com employees to access accounts on behalf of their customers. The application accesses an Extensible Markup Language (XML) Web service to authenticate users and retrieve account data. At present there are approximately 20,000 users that make use of this application.

You need to evaluate the application's performance while it is in production.

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

- A. Establish the total number of users that log on to the application on a given day.
- B. Establish the longest elapsed time that a single user is logged on to the application.
- C. Establish the time of day at which the largest number of users are logged on to the application.
- D. Establish the largest number of times that a single user logs on to the application on a given day.
- E. Evaluate the performance of the application for the single user.
- F. Evaluate the performance of the application at that time.

Answer: C, F

Explanation: You should establish the time of day at which the largest number of users are logged on to the application. Then you should evaluate the application's performance at that time. You will be able to establish the time by tracking the user logon times.

Incorrect answers:

A: You should not establish the total number of users that log on to the application on a given day; you need to know when users are logged on to the application at the same time.

B: You should not establish the longest elapsed time that a single user is logged on to the application because multiple users will access the application, you need to establish the time at which the largest number of users are logged on to the application at the same time.

D: You should not establish the largest number of times that a single user logs on to the

application on a given day because multiple users will access the application. Instead you need to establish the time at which the largest number of users are logged on to the application.

E: You should be evaluating the application's performance for the largest number of users simultaneously logged on; and not the performance of the application for a single user.

---

**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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com offers financial and accounting services to their customers.

Certkiller .com has a Microsoft Windows Forms application named QuickPick. This application will allow users to file their federal and state income taxes. QuickPick is used by approximately 75,000 customers and 10 % of these customers reported that they encountered bugs indicating that data is incorrectly transferred from their federal returns to the state returns. You need to address the problem; however you are unable to reproduce the problem at Certkiller .com. To this end you suspect that the reported bugs are associated with the way in which the customers are using the application.

You now need to determine how to mitigate the bugs in the next application update. What should you do?

- A. You should configure QuickPick to periodically submit summaries of customer activities to an Extensible Markup Language (XML) Web service.
- B. You should display a message informing customers that attempt to transfer data to contact the Certkiller .com Customer Care for a walk-through of the process.
- C. You should remove the feature that supports the automatic data transfers and require customers to manually reenter the data on their state returns.
- D. You should install a screen capturing application that records the customer's activities from the time QuickPick is launched to the time that they exit QuickPick.

Answer: A

Explanation: Configuring QuickPick to periodically submit summaries of customer activities to an XML Web service will allow you the opportunity to figure out what a customer is doing wrong when transferring data from the federal return to the state income return.

Incorrect answers:

B: Displaying a message to all customers to contact the Certkiller .com Customer Care for a walk through when they attempt to transfer data will only introduce unnecessary operational overhead.

C: Removing this feature would be foolhardy since it is only 10% of the customers that experience the problem and not 90%. This obviously means that the 10 % must be doing

something wrong.

D: Installing a screen capturing application that will record the customer's activities on the QuickPick application will violate the customer's right to privacy.

---

**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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a College of Education.

The Certkiller .com development team is currently developing a Microsoft Windows Form Student application. This application is intended to help the Certkiller .com administrations staff to allow students to register for the year of study, place them in their courses, place them with the respective lecturers teaching those courses, providing each student with a user name and password for the duration of their studies. This application will store student data in a Microsoft SQL Server 2005 database.

The Certkiller .com company policy states that user names and passwords cannot be stored in any installation program. When the application is installed, the database must be created. The installation program makes use of the Osql.exe utility to create the database.

You now need to specify installation requirement of the application so that it will comply with the company policy.

What should you do?

- A. Specify that the user must run the installation program in the database server.
- B. Specify that the user who runs the installation programs must have domain administrator rights.
- C. Specify that the user who executes the installation program must have administrative access to SQL Server.
- D. Specify that the application must be added to a code group that has full trust permissions.

Answer: C

Explanation: The user who executes the installation program must have administrative access to SQL Server. Thus you need to specify this as a requirement for the application.

Incorrect answers:

A: There is no need to specify that the user must run the installation program in the database server because the Osql.exe utility allows one to specify parameters such as database server name.

B: There is no need to specify that the user that runs the installation program must have domain administrator rights because the user only requires administrative access to SQL Server to run the script to create the database successfully.

D: There is no need to specify that the application must be added to a code group that has

full trust permissions. Code access security does not affect unmanaged applications and Osql.exe utility is unmanaged.

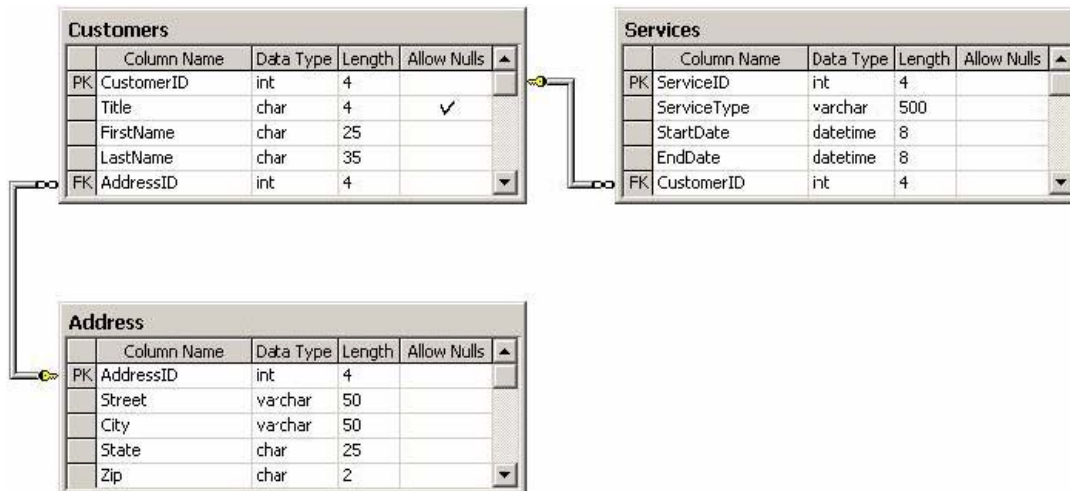
## C#, Envisioning and Designing an Application (11 Questions)

### 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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a company that provides cable television, Digital Subscriber Line (DSL) as well as telephone services.

One factor that should be kept in mind is that only one customer per household may sign up for services from Certkiller .com. However, a customer is allowed to sign up for multiple services. The exhibit below illustrates the logical database design.

Exhibit



You need to make a decision as to whether the design offers the best performance possible.

What conclusion can you draw?

- A. The design offers the best performance.
- B. The design does not offer the best performance. You need to normalize the Services and Address tables.
- C. The design does not offer the best performance. You need to de-normalize the Customers and Address tables.
- D. The design does not offer the best performance. You need to de-normalize the Customers and Services tables.

Answer: C

Explanation: It shows that the address can be associated with only one customer, thus you should place the address information as close as possible to the customer information as it will enhance the speed of data loads when both the customer and address

information is required. This means that you should de-normalize the Customers and Address tables.

Incorrect answers:

A: This is incorrect since the performance can still be improved by de-normalizing the Customers and Address tables.

B: This is incorrect since these tables are already normalized and does not result in the best performance under the circumstances.

D: You should not de-normalize the Customers and Service tables. It is mentioned in the question that a customer may be associated with multiple services and this option suggests an excessive duplication of data to exist in either the Customers table or the Services table. Duplicate data results in a degrading of performance in the event of searches being performed.

---

### **QUESTION 38**

You work as the 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 configuration and customization of Web Service applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as an information centre for the California Property Title Deeds Office. You are currently busy developing a Microsoft Windows Forms application. This application is intended to allow the California Property Title Deeds Office to perform property deed verifications and renewals for the state of California. The application will be installed at all the California Property Title Deeds Office locations all round California. The application must meet the following requirements:

1. It must negate the possibility of malicious tampering of Property Title deeds data.
2. Users of the application must be authenticated.

The logical design includes the following aspects:

1. Host driver data are to be located on a central server at the California Property Title Deeds Head Quarters.
2. Extensible Markup Language (XML) Web services will be used to access the Property Title data.
3. A Symmetric key will be used to encrypt and decrypt Property Title Deed data at the Web service.
4. A Custom role-based security mechanism will be used to grant access to the application.

You now need to make a decision as to whether the design meets the security requirements.

What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements. You should grant access to the application using Active Directory.
- C. The design does not meet the requirements. You should encrypt and decrypt data at the application and the Web service.
- D. The design does not meet the requirements. You should encrypt and decrypt data at

the Web service using asymmetric keys.

Answer: C

Explanation:

You should encrypt and decrypt the property title deed data at both the application and the Web service. If not you would not meet the requirement or negating the malicious tampering of data. The data needs to be transmitted in an unencrypted form when transmitted to and from the application (this provides a window for individuals to tamper with the data. You need to make use of Secure Sockets Layer (SSL) to provide confidentiality and data integrity. And this can be achieved by should encrypt and decrypt the property title deed data at both the application and the Web service. Thus the design does not meet the requirements.

Incorrect answers:

A: This is incorrect since you will still require encrypting and decrypting data at both the application and the Web Service.

B: There is no need to make use of Active Directory to grant access to the application. You can make use of whatever appropriate mechanism provided the credential store is secure.

D: The problem with this option is that the data is not encrypted or signed during transmission.

---

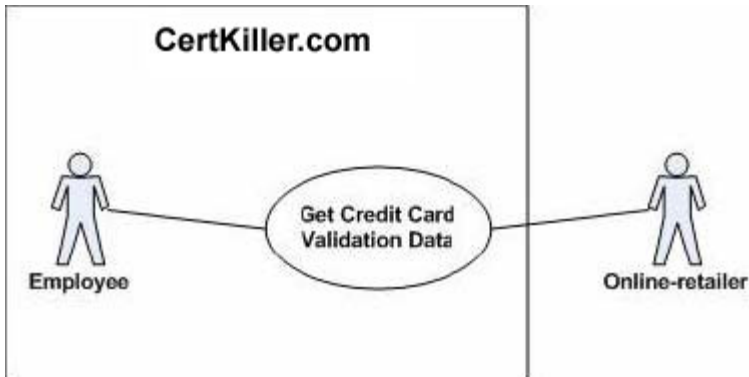
### **QUESTION 39**

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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a company offering credit card validation services to online-retailers. You are currently developing a Microsoft Windows Forms application for Certkiller .com. When completed the application must meet the following requirements:

1. It must allow all Certkiller .com employees to access credit card validation data on behalf of the online-retailers.
2. It must allow the online-retailers to build applications that access credit card validation data on behalf of users.

The following exhibit illustrates the use case diagram that models the above-mentioned requirements:

Exhibit:



The following aspects are included in the design document.

1. Create an Extensible Markup Language (XML) Web service to access the Credit Card Validation Data.
2. Create a Windows Forms application to be used by Certkiller .com employees.
3. Configure the Windows Forms application to access the Web service.
4. Deploy the Web service to a server at Certkiller .com.
5. Deploy the Windows Forms application to client computers at Certkiller .com.

You now need to make a decision as to whether the design will meet the requirements as represented by the use case.

What conclusion can you draw?

- A. The design meets the requirements.
- B. The design does not meet the requirements. You need to deploy the Windows Forms application to the online-retailers.
- C. The design does not meet the requirements. You need to configure the Web service to access the Windows Forms application.
- D. The design does not meet the requirements. You need to allow the online-retailers to host the Web service.

Answer: A

Explanation:

The use case diagram illustrates the roles and actions that can be taken. Both of the roles, Certkiller .com employee and online-retailer, have the ability to access the Credit Card validation data which represents the action. To allow the online-retailers the ability to build applications that access the credit card validation data, you should deploy a Web service with which the online-retailers can interact. This is in fact mentioned in the design.

Incorrect answers:

- B: You do not need to deploy Windows Forms application to the online-retailers. Though the online-retailers need to be able to build application that accesses the credit card validation data, they should not be restricted to using Windows Forms applications.
- C: The Web service should not be configured to access the Windows Forms application as it would tightly couple the Web service to a specific type of client application and the online-retailers should not be restricted to using Windows Forms applications.
- D: You should not allow the online-retailers to host the Web service because the Web

service will access the Credit Card validation data which should be hosted by Certkiller .com.

---

**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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a financial institution.

You are planning to develop a Microsoft Windows Forms application for Certkiller .com. This application, when completed will access data in the Certkiller .com database which is a Microsoft SQL Server 2005 database. The logical design has the following aspects:

1. Every Sunday, at 12:00 A.M. a full database backup must occur.
2. Every 60 minutes on the half hour a transaction log (incremental) backup must occur.
3. Every six hours on the hour a differential database backup must occur.
4. No more than seven tapes will be used to store each backup.

Each backup is expected to require only a single tape, and in the event of a failure there should not be a loss of more than 60 minutes worth of transactions.

It is up to you to ensure that the design will provide complete data recovery in the event of a failure.

What conclusion can you draw?

- A. The design makes provision for complete data recovery.
- B. The design does not make provision for complete data recovery. You should rather use only full backups and transaction log backups.
- C. The design does not make provision for complete data recovery. You should rather use only full backups.
- D. The design does not make provision for complete data recovery. You should rather use only transaction log backups.

Answer: A

Explanation: This design does indeed make adequate provision for complete data recovery. A full backup consists of complete backups; and a transaction log backup consists of transactions that occurred since the last transaction log backup. A differential backup consists of only the changes that occurred since the last full backup. If a full backup is made at 12:00 A.M. every Sunday, you will require one backup tape. Then you will also require a backup tape for each transaction log backup until 6:00 A.M. when the differential backup occurs. Once the differential backup is performed; you can throw away the previous transaction log backups. This way you will not require more than seven tapes.

Incorrect answers:

B: Transaction log backups consist of only the transactions that occurred since the last transaction log backup. And then you would require a new tape every sixty minutes for a

whole week. And since you are limited to only seven tapes per day, you cannot make use of only the full backups and transaction log backups.

C: Using only full backups will not allow you to restore data if a failure occurs at any time other than every Sunday at 12:00 A.M. when a full backup is performed.

D: Making use of only transaction log backups will require an infinite supply of tapes and you are only allowed seven tapes.

---

**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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com operates as a financial institution. As such they are obligated to comply with the legislation governing the financial institutions while protecting the assets of their customers.

One of these laws governing financial institutions and the rights of the customers involves the assurance that the risk of hackers tampering with information is negated. Another of these laws states that Certkiller .com must be able to submit data to the government in case of them auditing all transactions that involves amounts greater than \$10,000. You are currently developing an application for Certkiller .com. This application will allow Certkiller .com to submit relevant data to the government. This application must thus meet the following requirements:

1. It must prevent malicious users from interpreting the data.
2. It must prevent malicious users from tampering with the data.

Following are the aspects included in the design of the application:

1. Submit data to the government by accessing an Extensible Markup Language (XML) Web service.
2. Encrypt data before transmission by using the government's public key.

It is now up to you to make a decision as to whether the design will meet the data integrity requirement.

What conclusion can you draw?

- A. The design meets the data integrity requirement.
- B. The design does not meet the data integrity requirement. Use the Certkiller .com private key to sign the data.
- C. The design does not meet the data integrity requirement. Use the Certkiller .com public key to sign the data.
- D. The design does not meet the data integrity requirement. Use the government's public key to sign the data.

Answer: B

Explanation:

The design should make provision for the signing of the data to prevent malicious tampering. When you sign data, you in essence hash the data and encrypt the hash with a private key that is only known to the signer. When the government receives the data, they

will decrypt the hash by using the Certkiller .com public key, rehash the data, and comparing the hash with the decrypted hash. If the two hash values match, then you have proof that the data was not tampered with. Thus the data integrity requirement is not met in this scenario and you should make use of the Certkiller .com private key to sign the data.

Incorrect answers:

A: This design does not meet with the data integrity requirements.

C: You cannot use the Certkiller .com public key to sign the data. Encryption makes provision for confidentiality, not data integrity. Furthermore if you encrypt data using a public key, then only the corresponding private key can be used to decrypt the data. Because the Certkiller .com private key should only be available to Certkiller .com, the government will not be able to decrypt the data.

D: You cannot use the government public key to sign the data. Public keys are publicly available and will thus allow malicious users to tamper with the data and then resign it as if the data is still intact and not tampered with.

---

### **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. The design of applications forms part of your responsibilities at Certkiller .com. Certkiller .com offers financial and accounting services to their customers.

You are currently developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income taxes. The application will make use of fifty assemblies that will provide the business logic for state income taxes. These assemblies are for the exclusive use of the application, and each assembly will be signed with a strong name.

There is currently an existing design that suggests a deployment of the fifty assemblies to the application runtime directory. The new design suggests a deployment of the fifty assemblies to the global assembly cache (GAC).

You are now required to make a decision as to whether the new design will offer better performance.

What conclusion can you draw?

A. The new design does offer better performance.

B. The new design does not offer better performance. Only shared assemblies should be installed in the GAC.

C. The new design does not offer better performance. The state income tax business logic should be exposed via Extensible Markup Language (XML) Web services.

D. The new design does not offer better performance. Each assembly should be loaded into the application domain of a Microsoft .NET Remoting host application.

Answer: A

Explanation: When one installs strong-named assemblies in a GAC, then one eliminates the performance overhead required to verify strong-name signatures. Thus this option is

correct.

Incorrect answers:

B: Even though the GAC is used mainly as a repository for shared assemblies, you are allowed to install non-shared assemblies that are signed with strong names into the GAC to improve performance.

C: The business logic should not be exposed via XML Web services. This will seriously degrade performance because then there would be a need to serialize and deserialize objects every time a Web service method is invoked.

D: There is no need to load each assembly into the application domain of a .NET Remoting host application as this would degrade performance as then there will be a requirement for marshalling between application domains.

---

### **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 are planning to develop the following three Microsoft Windows Forms applications for Certkiller .com:

1. CashManager
2. CreditManager
3. CustomerCarePro

Each of these applications will be designed to use business logic components, business entity components as well as data access components. Each component will further be specific to an application and each application will be maintained by a different development group. All three applications will be hosted in the same Microsoft Visual Safe database.

This design suggests make use of the following Microsoft Visual Studio 2005 projects:

1. Mex.BusinessLogic
2. Mex.BusinessEntity
3. Mex.DataAccess
4. Mex.CashManager
5. Mex.CreditManager
6. Mex.CustomerCarePro

You now need to make a decision as to whether these applications will be maintainable.

What conclusion can you draw?

- A. The three applications will be maintainable.
- B. The three applications will not be maintainable. The Mex.CashManager, Mex.CreditManager and Mex.CustomerCarePro projects should be consolidated into a single project.
- C. The three applications will not be maintainable. The Business logic, Business entities and data access logic should be separated into multiple projects.

D. The three applications will not be maintainable. The Mex.BusinessLogic, Mec.BusinessEntity and Mex.DataAccess projects should be consolidated into a single project.

Answer: C

Explanation: The three applications do not lend itself to maintainability. The problem is due to the components that are applicable to one application are part of the same projects as components that are applicable to the other two application. This will require the three teams to work with the same projects which make maintenance difficult.

Incorrect answers:

A: This is incorrect since the maintainability requirement will need you to separate the Business logic, Business entities and data access logic into multiple projects

B: The Mex.CashManager, Mex.CreditManager and Mex.CustomerCarePro projects should not be consolidated into a single project. This will require that the three teams will need to work with the same project.

D: The Mex.BusinessLogic, Mec.BusinessEntity and Mex.DataAccess projects should not be consolidated into a single project as this will require that the three teams need to work with the same project.

---

#### **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 offers financial and accounting services to their customers.

You are planning on developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income tax returns. The application must make provision for frequent updates to be made easily since the government revises the laws governing tax frequently and often security vulnerabilities are discovered that has to be addressed. Certkiller .com estimates that approximately 150 million users will make use of the application after it has run for three consecutive years. Currently the design suggests the use of ClickOnce technology that will provide automatic updates from a Web server.

You need to make a decision as to whether the design is scalable.

What conclusion can you draw?

A. The design is scalable.

B. The design is not scalable. Make use of Windows Installer technology instead.

C. The design is not scalable. Create a Web application instead.

D. The design is not scalable. Implement a Web service to provide the updates.

Answer: A

Explanation: The design does lend itself to scalability. The ClickOnce type of application allows you to implement horizontal scaling by deploying a Web farm which

will also reduce the load on a single Web server.

Incorrect answers:

B: There is no need to make use of Windows Installer technology since the ClickOnce application is scalable. Besides applications using Windows Installer deployment is not able to take full advantage of automatic updates without custom implementation.

C: There is no requirement to create a Web application since the ClickOnce application is deployable to a Web farm, much the same as Web applications.

D: You should not implement a Web service to provide automatic updates because the ClickOnce application does provide scalable automatic updates.

---

**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 a department of the Federal Bureau of Investigation.

You are planning on developing a Microsoft Windows Forms application for Certkiller .com. This application will allow for the sharing of information for the FBI and will be deployed to 60 FBI offices nation-wide. The following aspects are included in the design of the application:

1. Making use of Microsoft .NET Remoting to facilitate inter-office communication.
2. Making use of asymmetric encryption to secure transmission messages.
3. Storing the public key in an ASCII text file in the application's runtime directory.
4. Storing the private key in an ASCII text file in the application's runtime directory.
5. Allowing only users of the application to access files that are used by the application.

You now need to change the design to enhance the security of the application.

What should you do?

- A. Make use of Distributed Component Object Model (DCOM) and not .NET Remoting for inter-office communication.
- B. Store the private key in a binary file that is encrypted with a symmetric key.
- C. Store the private key in a key container of a cryptographic storage provider (CSP).
- D. Make use of Extensible Markup Language (XML) Web services and not .NET Remoting for inter-office communication.

Answer: C

Explanation: The private key should be protected and you can do this by storing the key in a key container of a CSP. The key container can be configured to allow only the application to access the private key. If the private key is not protected, then any application running under the same identity as the information sharing application will be able to access the private key in the text file.

Incorrect answers:

A: You should not make use of DCOM to improve security since the problem is related to

the physical location of the private key in this case.

B: The private key should not be stored in a binary file that is encrypted with a symmetric key because then any application that runs under the same identity as the information sharing application will be able to access the private key in the text file.

D: You should not make use of Extensible Markup Language (XML) Web services to improve security since the problem is related to the physical location of the private key in this case.

---

**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.

You are currently evaluating the physical design of a Microsoft Windows Forms application for Certkiller .com. This application was designed to access data from a Microsoft SQL Server 2005 database via an Extensible Markup Language (XML) Web service. The application also makes use of Microsoft .Net Remoting to access a digital image device. The physical design is as follows:

1. Host the application on a Terminal server computer named Certkiller -TS01.
2. Host the database on a server computer named Certkiller -DB01.
3. Host the Web service on a Web server computer named Certkiller -SR01.
4. Host the remote components on an application server named Certkiller -APP01.

You then decide to implement a redundant array of independent disks to provide recoverability in case of failure. To this end you need to make a decision as to where you should implement the RAID solution.

What should you do?

- A. Use the Certkiller -APP01 server to implement RAID.
- B. Use the Certkiller -SR01 server to implement RAID.
- C. Use the Certkiller -DB01 server to implement RAID.
- D. Use the Certkiller -TS01 server to implement RAID.

Answer: C

Explanation: Raid is implemented when multiple disks are used to provide fault tolerance. Thus, if one disk fails, the data can be accessed on other disks. Thus the RAIDS solution should be implemented on Certkiller -DB01.

Incorrect answers:

A: The RAID solution should not be implemented on Certkiller -APP01 because it does not store data; it only hosts the remote components that are used to access the digital image device.

B: The RAID solution should not be implemented on Certkiller -SR01 that is hosting the Web service, since there is no data stored on that server.

D: The Raid solution should not be implemented on Certkiller -TS01 since it does not store data; it only hosts the Windows Forms application.

**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 College of Education.

You are planning to develop a Microsoft Windows Forms application for Certkiller .com. This application will allow the Certkiller .com educational centers to manage transcripts. The plan is to make use of Microsoft SQL Server 2005 to store the transcripts for the application. The logical design of the application indicates a many-to-many relationship between candidates and examinations. The physical design suggests making use of three tables that are named Candidate, Examination, and CandidateExamination, respectively. These three tables are to be stored in the same database.

Following is a list of the requirements that should be met by the design:

1. Referential integrity between the candidates and the examinations must be maintained by SQL Server.
2. There should be no excessive duplication of data in existence.

You need to make a decision as to whether the design meets these requirements.

What conclusion can you draw?

- A. The design does meet the requirements.
- B. The design does not meet the requirements. The data of the three tables should be consolidated into one table named Transcript in the same database.
- C. The design does not meet the requirements. The three tables should be placed in different databases on the same server.
- D. The design does not meet the requirements. The data of the three tables should be consolidated into two tables named Candidate and Examination in the same database.

Answer: A

Explanation: Since it is mentioned that there is a many-to-many relationship between two entities, there is a need for a junction table which only exists to hold data that is unique to the relationship. Because the three tables are located in the same database, you can allow SQL Server to enforce referential integrity between the tables.

Incorrect answers:

B: The three tables should not be consolidated into a single table named Transcript in the same database. This will not prevent the excessive duplication of data.

C: The three tables should not be placed in different databases on the same server. This way SQL Server cannot enforce referential integrity between data in different databases.

D: Though this consolidation of the three tables into two tables named Candidate and Examination in the same database will allow SQL Server to enforce referential integrity, it does not prevent excessive duplication of data because either Examination data would need to be duplicated for each candidate who takes a particular examination, or Candidate data would need to be duplicated for each examination that the candidate takes.

---

## C#, Designing and Developing a User Interface (7 Questions)

### 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. Your responsibilities at Certkiller .com include the design and development of applications. All applications should be in a Microsoft Windows Forms environment. Certkiller .com operates as the Administration department for a College of Education.

You are currently designing the user interface for a form in a student management application. The logical design indicates that the content is divided into sections. The number of sections depends on the identity of the logged-on user. However, this number ranges from one to ten. The main purpose of the form is to allow users to manage the following aspects of student applications.

1. Lecturer assignments
2. Educational history
3. Personal information
4. Religious and philosophical information
5. Courses
6. Bursaries

Now you need to implement the form by using the best mechanism to achieve fulfillment of the purpose of the form.

What should you do?

A. Add a TabControl control to the form.

Dynamically add TabPage controls based on a user's identity.

Map each TabPage control to a section in the logical design.

B. Add 10 GroupBox controls to the form.

Show or hide a GroupBox control based on a user's identity.

Map each GroupBox control to a section in the logical design.

C. Add a FlowLayoutPanel control to the form.

Add input controls to the FlowLayoutPanel control based on the user's identity.

Map a set of input controls to a section in the logical design.

D. Add 10 PropertyGrid controls to the form.

Show or hide a PropertyGrid control based on the user's identity.

Map each PropertyGrid control to a section in the logical design.

Answer: A

Explanation: A TabControl visually resembles dividers in a notebook when one makes use of TabPage controls. The contents of only one TabPage can be visible at any one time. This makes the TabControl the ideal mechanism to display lots of information that can be grouped together.

Incorrect answers:

B: You should not be adding 10 GroupBox controls to the form. This will result in a situation that when a user is granted access to multiple sections, one would need to display multiple GroupBox controls on the form. This is an adverse effect on the usability of the application and its purpose.

C: When making use of a FlowLayoutPanel and a user is granted access to all section, one would then require displaying all input controls on a single form at the same time. This renders the application unusable.

D: You should not add 10 PropertyGrid controls to the form because this will result in a situation where a user when granted access to multiple sections, one would be compelled to display multiple PropertyGrid controls on the form. This affects the usability of the application negatively.

---

**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. Your responsibilities at Certkiller .com include the design and development of applications. All applications should be in a Microsoft Windows Forms environment.

You are instructed to develop a consistent appearance for all the Windows Forms applications that were developed by Certkiller .com. Every form in an application must display a TreeView control and a WebBrowser control. The nodes in the TreeView control open Web pages in the WebBrowser control. But, due to each department within Certkiller .com performing different business activities, the TreeView control must be populated with nodes that are specific and applicable to a particular department.

You need to develop a solution to meet these requirements.

What should you do?

A. You should create a company-wide base form.

Then allow each department to create a specific base form that suits their type of job description.

Then ensure that each department-specific base form references the corporate base form.

B. You should create a department-specific base form for each Certkiller .com department.

Then have each department place on their respective form a TreeView control and a WebBrowser control.

C. You should create a base class that derives from TreeView.

Then create a base class that derives from WebBrowser.

Then allow each Certkiller .com department to create a base form and have each department place on each form the derived controls.

D. You should create a base class that derives from TreeView.

Then create a base class that derives from WebBrowser.

Then allow each Certkiller .com department to ass the derived control classes to each form.

Answer: A

Explanation: By creating a company-wide base form you afford yourself the opportunity to define a consistent layout that can be used across the company. This will include the display of a TreeView control and a WebBrowser control. You can implement the base form with class members that each Certkiller .com department can use to populate the TreeView control and display the appropriate Web pages in the WebBrowser control.

Incorrect answers:

B: This option will allow each Certkiller .com department to have a different base form. This is not compelling the departments to adhere to a consistent appearance across all applications.

C: You cannot allow each Certkiller .com department to add derived TreeView and WebBrowser controls to applications. This option will not result in a consistent appearance across all applications.

D: You cannot allow each Certkiller .com department to add derived TreeView and WebBrowser controls to applications. This option will not result in a consistent appearance across all applications.

---

### **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. Your responsibilities at Certkiller .com include the design and development of applications. All applications should be in a Microsoft Windows Forms environment. You are currently developing a Microsoft Windows Forms application. This application will be used in inventory management and will, upon completion, consist of in excess of seventy different forms. What's more, these forms are not all related or required.

You need to make provision for users to navigate the application without being forced to learn how to make use of the user interface. Instructions clearly stated that you need to ensure that your solution does not adversely affect the usability of the application.

What should you do?

- A. Add LinkLabel controls to each form in the application. Then configure each LinkLabel control with a link to a form.
- B. Add a TreeView control to each form in the application. Then configure each tree node with a link to a form.
- C. Configure a main menu for the application. Then configure each main menu item with a link to a form.
- D. Associate a context menu with each form in the application. Then configure each context menu with a link to a form.

Answer: A

Explanation: By adding a LinkLabel control to each form in the application and each form in turn should contain links to other related or required forms, will allow users the

ability to navigate easily through the application without having to learn the user interface.

Incorrect answers:

B: You should not configure TreeView controls as this would require that the users will have to navigate a TreeView control to determine which form to open.

C: A main menu to provide links to the forms will require that the users knows which menu items pertains to specific forms.

D: A context menu item will require that the users manually invoke the context menu.

---

**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. All applications should be in a Microsoft Windows Forms environment. Certkiller .com offers financial and accounting services to their customers. You are currently developing a Microsoft Windows Forms application for Certkiller .com. This application will allow users to file their federal and state income tax returns. The application must fulfill one requirement: it must provide users with questions that will assist them in making a choice in the types of tax forms that they need to file.

You need to develop a solution that will meet this requirement.

What should you do?

A. You should implement a multiple document interface (MDI) application. Display the appropriate forms based on selections from a context menu.

B. You should implement an application that resembles a tax forms booklet. Display a question at the top of each form.

C. You should implement a Wizard-like application. Use the Back and Next buttons to allow users to navigate to the appropriate forms based on user input.

D. You should implement a single document interface (SDI) application. Display the appropriate forms based on selections from a main menu.

Answer: C

Explanation: With a Wizard-type application you can choose the forms to display based on user input or selections on a previous form. This will eliminate the need to have the user to figure out which tax forms to file.

Incorrect answers:

A: You should not display the appropriate forms in a context menu. This will result in the user being required to invoke the menu and make a menu selection. You cannot effective pose questions in menu items and this solution would thus affect the usability of the application in a negative way.

B: Implementing an application that resembles a booklet of tax forms and displaying a question at the top of each form will require that the user must visit every form to decide and determine whether he/she is filing the correct tax forms and whether that particular

tax form is indeed a requirement.

D: You should not display the appropriate forms in a main menu. This will result in the user being required to invoke the menu and make a menu selection. You cannot effectively ask questions in menu items and this solution would thus affect the usability of the application in a negative way.

---

**QUESTION 52**

You work as the Enterprise application developer at Certkiller .com. Your responsibilities at Certkiller .com include the design and development of applications. All applications should be in a Microsoft Windows Forms environment. You are planning on developing a Microsoft Windows Forms application that, upon completion, must meet the following requirements:

1. It must have the ability to display different types of legal documents.
2. It must make allowance for users to toggle easily between legal documents and other applications' documents.
3. It must run on Microsoft Windows XP Professional computers.

The following aspects are included in the design:

1. Create a single document interface (SDI) application.
2. Allow users to toggle between documents by means of using the Alt + Tab keys.
3. Allow users to toggle between documents by means of using the Windows Task Bar.

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. You must implement a multiple document interface (MDI) application.
- C. The design does not meet the requirements. Users should be allowed to toggle between documents with the Ctrl + Esc keys.
- D. The design does not meet the requirements. Users should be allowed to toggle between documents with the Ctrl + Tab keys.

Answer: A

Explanation: This design adequately meets the requirements. An SDI application contains a Task Bar icon for each instance of the application that is running. This is a common design choice for Windows XP Professional applications. Users can navigate between different open documents using the Alt + Tab keys or the Windows Task Bar.

Incorrect answers:

B: A MDI application does not make for easy navigation of users between documents of different types of applications. The Windows Task Bar does not display documents in an MDO application as separate Task Bar buttons.

C: The Ctrl + Esc key combination is usually used to invoke the Windows Start menu and will thus not allow for easy navigation between documents.

D: The Ctrl + Tab key combination is typically used to toggle between documents in an MDO application. Not in this scenario.

---

**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. All applications should be in a Microsoft Windows Forms environment. Certkiller .com operates as a toy and specialty store. Currently Certkiller .com stock, sells, and deals with toys in excess of 100,000 of more than 30 brands. You are currently developing an inventory management application for Certkiller .com. Following are the requirements that the application must meet:

1. It must allow sales personnel to search for toys by type.
2. It must allow sales personnel to search for toys by brand.
3. It must allow sales personnel to quickly find a toy by recognizing a toy's picture.
4. It must allow all toys of a particular brand to be displayed in a grid-like representation.
5. It must allow sales personnel to change how lists of toys are displayed.
6. It must display toy descriptions and specifications in multiple columns.

You now need to determine the most appropriate control to use to display the toy data.

What should you do?

- A. Use the ListBox control.
- B. Use the ComboBox control.
- C. Use the ListView control.
- D. Use the DataGridView control.

Answer: C

Explanation: The ListView control will allow one to choose between different views for displaying information. In addition it also inherently supports sorting, searching, and multiple column display.

Incorrect answers:

- A: The ListBox control supports only a single-column, single-view display.
- B: The ComboBox control supports only a single-column, single-view display.
- D: The DataGridView control supports sorting, searching, as multiple column display, but it does not allow you to choose between different views for displaying information.

---

**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. All applications should be in a Microsoft Windows Forms environment. Certkiller .com offers financial and accounting services to their customers.

You are currently developing a Microsoft Windows-based application for Certkiller .com. This application will allow the Certkiller .com employees to manage the customer accounts. The following exhibit illustrates the event handler which is called when a Certkiller .com employee attempts to withdraw funds from an account.

Exhibit:

```
01 private void Button_Click(object sender, EventArgs e)
02 {
03 try
04 {
05 Account FinanceAccount = new Account(_accountTextBox.text);
06 financeAccount.Withdraw(Double.Parse(_amountTextBox.Text));
07 }
08 catch(AccountOverdraftException ex)
09 {
10
11 }
12 }
```

You need to notify the Certkiller .com employee if an account overdraft would occur. The Certkiller .com employee would then inform the customer and change the amount of the withdrawal if necessary. To this end you need to add code at line 10 to accomplish this goal.

What should you do?

- A. Use the  
throw new ApplicationException("An account overdraft would occur.", ex);  
code segment.
- B. Use the  
throw new Exception("An account overdraft would occur.");  
code segment.
- C. Use the  
MessageBox.Show("An account overdraft would occur.");  
code segment.
- D. Use the  
MessageBox.Show(ex.ToString() + "An account overdraft would occur.");  
code segment.

Answer: C

Explanation:

When you call the Show method of the MessageBox class to display a user-friendly message you will allow the Certkiller .com employee to change the amount of the withdrawal without causing the application to fail.

Incorrect answers:

- A: When you throw an exception it will not allow the Certkiller .com employee to change the amount of the withdrawal and the application will fail.
- B: When you throw an exception it will not allow the Certkiller .com employee to change

the amount of the withdrawal and the application will fail since the exception will be considered unhandled.

D: You should not pass the value returned from the ToString method of the AccountOverdraftException instance to the Show method of the MessageBox class. This would display a lot of technical information and is in no way user friendly for the Certkiller.com employee to know that an error has occurred.

---

## **C#, Designing and Developing a Component (4 Questions)**

### **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 a College of Education.

You are currently designing a three-tier Microsoft Windows Form Student application for Certkiller .com. This application is intended to help the Certkiller .com administrations staff to allow students to register for the year of study, place them in their courses, and to place them with the respective lecturers teaching those courses.

You need to design a mechanism that will allow the administration staff to pass student data between the presentation, business, as well as data access layers in the application.

What should you do?

- A. You should implement a service agent by using Enterprise Services.
- B. You should implement a business entity component using the DataSet class.
- C. You should implement a service interface by creating a Web Service.
- D. You should implement a data access component using Microsoft .NET Remoting.

Answer: B

Explanation: In this scenario you can consider the student as a business object. By implementing a business entity for students, you can pass student data between the presentation, business, as well as data access layers of the application. DataSet instances are serializable and thus you will be able to pass business entities represented as DataSet instances easily between the layers in the application.

Incorrect answers:

A: Service agents hide the complexity of calling multiple services to access external functionality and will thus not be suitable to implement in this case.

C: Service interfaces expose an application's business logic to external systems. This is not what is required.

D: Data access components provide access to data stores. They help to isolate data access functionality from the application code which makes for improved maintenance.

However, this will not allow you to pass the business entities between the layers in the application.

---

**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. Certkiller .com operates as a utilities company.

You are currently designing a Microsoft Windows Forms customer relationship management (CRM) application for Certkiller .com. Upon completion, this application must be able to support the following databases:

1. Microsoft SQL Server 2005
2. Microsoft SQL Server 2000
3. Microsoft Access 2000
4. Oracle 10g

The choice of database will depend on the type of customer. To this end you take a decision to create one or more data access components to facilitate the access to data in the databases. Now you need to determine how many data access components should be created. Do bear in mind that the solution must be maintainable.

What should you do?

- A. Create one data access component.
- B. Create two data access components.
- C. Create three data access components.
- D. Create four data access components.

Answer: C

Explanation: Three data access components will be sufficient in this scenario. One for each type of database:

One data access component that will facilitate access to SQL Server 2005 and SQL Server 2000 - benefits to be derived from the Microsoft .NET Framework Data Provider for SQL Server.

One data access component to access the Oracle database - benefits to be derived from .NET Framework Data Provider for Oracle.

One data access component to access the Access database - benefits to be derived from the OLE DB .NET Framework Data Provider.

Incorrect answers:

A, B, D: One, and Two data access components will be too few and four would be over compensating.

---

**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 Geographic Positioning System service provider.

You are currently developing a Microsoft Windows Forms application. The Exhibit below illustrates the type definition that exists:

Exhibit:

```
public struct Waypoint
{
    public double Latitude;
    public double Longitude;
    public Waypoint[] GetNearbyPlaces()
    {
        throw new NotImplementedException();
    }
}
```

You now need to allow the application to instantiate the Waypoint type and set the Latitude and Longitude properties by providing a street address.

What should you do?

- A. A default static constructor should be added to the type.
- B. A default instance constructor should be added to the type.
- C. A non-default static constructor should be added to the type.
- D. A non-default instance constructor should be added to the type.

Answer: D

Explanation: When you add a non-default instance constructor to the type it will allow the calling code to initialize the Latitude and Longitude fields of the Waypoint type when the type is instantiated.

Incorrect answers:

- A: Static constructors are called only the first time a class is instantiated. This is not the solution, albeit a default static constructor.
- B: You should not add a default instance constructor type to the type because only classes support default constructors and not struct types.
- C: You should not add a non-default static constructor to the type because static constructors only get called the first time a class is instantiated.

---

### **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 has a Microsoft Windows Forms application that makes use of a printing component. This component is configured to accept XmlDocument instances that may contain graphics information. It makes use of data in these instances and GDI+ to print the graphics. You have been instructed to analyze profiling results on this application and make a decision after you have run tests on the application. To this end you then profiled the component and obtained the following information regarding performance after running it on a test computer:

1. When the method is called one, 16 MB of memory is used.  
2. When the method is called twice, 32 MB of memory is used.  
3. When the method is called ten times, 160 MB of memory is used.  
You now need to make a decision as to what the next step of action should be.  
What should you do?

- A. Keep on profiling the component.
- B. The component should be redesigned.
- C. More memory should be added to the computer.
- D. A larger page file should be specified on the computer.

Answer: B

Explanation: The result clearly indicates that there is a memory leak. It is likely that the component does not dispose GDI+ objects that it creates which results in the memory leaks. The solution and logical next step would be to redesign the component.

Incorrect answers:

- A: There is no need to keep on profiling the component as it is already evident that a memory leak exists.
- C: Adding more memory to the computer will only alleviate the problem of the memory leak, but will not solve it.
- D: There is a memory leak that exists and specifying a larger page file size will not completely solve the problem.

---

## **C#, Designing and Developing an Application Framework(4 Questions)**

### **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 Application Frameworks.

You are currently developing a Microsoft Windows Forms application. You are required to make use of a stock control in the application. To this end you examine a third party component that implements stock control. This specific component was implemented by using the Microsoft .NET Framework 1.1. You disassemble the code and discovered the following code:

```
internal abstract class Stock : Control
{
public Stock()
{
}
protected override void OnPaint(PaintEventArgs e)
{
// Paint the control
base.OnPaint(e);
}
```

```
}  
}
```

You must change the way the Stock control paints itself. Thus you need to take a decision as to whether you can reuse the component to meet this requirement.

What conclusion can you draw?

- A. The component is reusable.
- B. The component is not reusable. The OnPaint method must specify the abstract inheritance modifier.
- C. The component is not reusable. The OnPaint method must specify the virtual inheritance modifier.
- D. The component is not reusable. The Stock class must specify the public access modifier.

Answer: D

Explanation: The component is not reusable as the Stock class is declared with the internal access modifier; it cannot be accessed from outside the assembly in which it exists. It needs to specify the public access modifier. The .NET Framework 2.0 does have the InternalsVisible To attribute, but not the .NET Framework 1.1 version with which this component was created.

Incorrect answers:

- A: The component is not reusable since you will require the Stock class to specify the public access modifier.
- B: The abstract modifier indicates that a class member must be implemented by a derived class. In this case you cannot override the Stock class because it is declared with the internal access modifier.
- C: The virtual inheritance modifier allows derived classes to override a class member, but the override inheritance modifier also allows derived classes to override a class member if the sealed inheritance modifier is not applied to the member. Thus you cannot conclude that the OnPaint method must specify the virtual inheritance modifier.

---

### **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 Application Frameworks.

You are developing Microsoft Windows Forms applications. You are required to display an opaque stock on a form in a Windows application. To this end you examine a third-party component that implements solid Stock control. This control has all of the functionality that you require, except for the fact that it does not display as an opaque stock. The following exhibit illustrates the class definition:

Exhibit:

```
public class Stock : Control  
{
```

```
protected override void OnPaint(PaintEventArgs e)
{
//Paint a solid stock
//Do not call the base OnPaint method
}
}
```

You need to reuse the Stock control. You must ensure that your solution allows for changes made to the Stock control to be reflected automatically in the application. What should you do? (Choose the appropriate code segment.)

A. public class SolidStock : Stock

```
{
private Stock _stock = new Stock();
protected override void OnPaint(PaintEventArgs e)
{
// Paint a solid stock
_stock.Paint += delegate(object sender, PaintEventArgs pe)
{
OnPaint(pe);
};
}
}
```

B. public class SolidStock

```
{
private Stock _stock = new Stock();
protected void OnPaint(PaintEventArgs e)
{
// Paint a solid stock
_stock.Paint += delegate(object sender, PaintEventArgs pe)
{
OnPaint(pe);
};
}
}
```

C. public class SolidStock : Control

```
{
protected override void OnPaint (PaintEventArgs e)
{
// Paint a solid stock
}
}
```

D. public class SolidStock : Stock

```
{
protected override void OnPaint(PaintEventArgs e)
{
// Paint a solid stock
```

```
}  
}
```

Answer: D

Explanation:

The SolidStock class must be derived from the Stock class and override the OnPaint method. This will allow you to inherit all the functionality of the Stock control except for painting functionality. In the overridden OnPaint method, you should implement the painting logic for displaying a solid stock.

Incorrect answers:

A: You should not declare the SolidStock class without specifying a Control-derived base class. Only classes that derive directly or indirectly from Control can be visually displayed on forms.

B: There is no need to attach an event handler to the Paint event of the Stock class. The OnPaint method of the Stock class does not call the OnPaint method of the Control class; however, the OnPaint method of the control class is responsible for raising the Paint event. And in this scenario the Paint event never gets raised.

C: You should not derive the SolidStock class from control as it will not allow you to reuse the functionality that is exposed by the Stock control.

---

#### **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.

You are currently developing Microsoft Windows Forms applications for Certkiller .com The following exhibit illustrates the code in an application:

Exhibit:

```
private PictureBox _pictureBox = new PictureBox();  
private void ShowImage()  
{  
    try  
    {  
        _pictureBox.Image = Image.FromFile("WeatherMap.bmp");  
    }  
    catch(OutOfMemoryException)  
    {  
        MessageBox.Show("The image format is not supported.");  
    }  
}
```

You need to make an evaluation regarding the exception handling mechanism for Microsoft best practices.

What conclusion can you draw?

- A. The mechanism is a good practice.
- B. The mechanism is not a good practice. The application should not catch exceptions.
- C. The mechanism is not a good practice. The application should catch only instances of Exception.
- D. The mechanism is not a good practice. The application should catch only instances of ApplicationException.

Answer: A

Explanation: It is illustrated that this code only catches an exception that it knows how to handle. This is a good practice. In this case the exception is a type of OutOfMemoryException. And the exception is raised when you attempt to load an image that is not supported by GDI+ and the application then responds by displaying a message box to the user when this happens.

Incorrect answers:

- B: This is incorrect since best practice would mean that the application should catch exceptions that it knows how to handle.
- C: If you catch instances of any exception that you know how to handle you would be performing good practice and in general you should not catch instances of Exception unless you need to log the exception. In this scenario, you should still re-throw the exception. Thus this option is incorrect to suggest that only instances of exception are caught.
- D: You should not catch only instances of ApplicationException. You should be catching instances of any exception that the application knows how to handle.

---

### **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. Certkiller .com operates as an international retail company. The Certkiller .com management follows an incentive scheme in the enumeration of their personnel. This incentive scheme is as follows:

1. If a staff member ships goods to the value of \$5,000 they receive \$500
2. If a staff member ships goods of a value greater than \$5,000 and up to \$10,000 they receive \$1,200
3. If a staff member ships goods of a value greater than \$10,000 and up to \$15,000 they receive \$2,500
4. If a staff member ships goods of a value greater than \$15,000 they receive 25% of the value.

You are developing a Microsoft Windows Forms shipping management application for Certkiller .com. You thus need to take into account how the Certkiller .com staff is enumerated. To this end you create two Double variables named shipped and enumeration to represent the shipped goods and enumeration, respectively. The shipped variable is always greater than zero. You now need to select an appropriate decision flow structure to implement the business rules.

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

A. `if (shipping <= 5000)`  
`{`  
`enumeration = 500;`  
`if (Shipping <= 10000)`  
`{`  
`enumeration = 1200;`  
`if (Shipping <= 15000)`  
`{`  
`enumeration = 2500;`  
`}`  
`else`  
`{`  
`enumeration = shipping * 0.25;`  
`}`  
`}`  
`}`

B. `switch ((int)Shipping)`  
`{`  
`case 5000:`  
`{`  
`enumeration = 500;`  
`break;`  
`}`  
`case 10000:`  
`{`  
`enumeration = 1200;`  
`break;`  
`}`  
`case 15000:`  
`{`  
`enumeration = 2500;`  
`break;`  
`}`  
`default:`  
`{`  
`enumeration = shipping * 0.25;`  
`break;`  
`}`  
`}`

C. `if (shipping <= 5000)`  
`{`  
`enumeration = 500;`  
`}`  
`if (shipping <= 10000)`

```
{  
enumeration = 1200;  
}  
if (shipping <= 15000)  
{  
enumeration = 2500;  
}  
if (shipping > 15000)  
{  
enumeration = shipping * 0.25;  
}  
D. if (shipping <= 5000)  
{  
enumeration = 500;  
}  
else if (shipping <= 10000)  
{  
enumeration = 1200;  
}  
else if (shipping <= 15000)  
{  
enumeration = 2500;  
}  
else  
{  
enumeration = shipping * 0.25;  
}
```

Answer: D

Explanation: You need to make use of if-else statements because these statements control execution based on a single expression. In this scenario, if a staff member ships goods of value less than or equal to \$5,000, the enumeration variable is 500 and execution leaves the entire if-else block. If not the code will determine if the amount shipped is less than or equal to \$10,000, if so then the enumeration variable is set to 1200 and execution leaves the entire if-else block, etc.

Incorrect answers:

A: You should not make use of nested statements as it will result in shipping of a value of less than \$500 to generate enumeration of \$2,500.

B: You should not make use of Switch-case statements as each case statement can be used to test a single value and this will result in shipping of the value less than \$500 to generate enumeration of 25% of the shipped amount.

C: You should not make use of if statements as it will result in shipping to the value of less than \$500 to generate enumeration of \$2,500.

## C#, Testing and Stabilizing an Application (5 Questions)

### 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 testing and stabilization of Applications. Certkiller .com operates as a company rendering financial and accounting services to its customers.

Certkiller .com developed a Microsoft Windows Forms application that allows users to file their federal and state income taxes. There are fifty assemblies in the application that provides the business logic for state income taxes. Each of these fifty assemblies contains the business logic for a particular state. It just so happened that California, Florida, and Arkansas changed their tax regulations. These three states are now allowing their taxpayers to deduct all the capital profits that they made on the sales of all properties other than first properties on their state income tax returns. A Certkiller .com developer named Amy Wilson was then instructed to modify three components to accommodate this change. These modifications included method and property additions and changes. Amy Wilson then created the following unit testing strategy:

1. Test all new and changed methods and properties in the California component.
2. If the test passes, conclude that the Florida and Arkansas components also pass testing.

You now need to make a decision as to whether the unit testing strategy is adequate. What conclusion can you draw?

- A. The unit testing strategy is adequate.
- B. The unit testing strategy is adequate. Amy Wilson should test only the new methods and properties in the California component.
- C. The unit testing strategy is adequate. Amy Wilson should test all methods and properties in the California component.
- D. The unit testing strategy is adequate. Amy Wilson should test the methods and properties in the Florida and Arkansas components.

Answer: D

Explanation: The unit testing strategy is inadequate. Unit testing should always be performed whenever you add, remove, or modify exposed members of a component. If you use a driver stub approach in unit testing to verify each functional unit in a component, you ensure that the component work successfully before it is integrated into the overall solution. In this case the methods and properties were added and changed in three of the fifty components. Thus Amy Wilson should test each new and changed method in all three components.

Incorrect answers:

A: This is an inadequate unit testing strategy since Amy Wilson should be testing all three components that changed and have new methods.

B: If only the California component is tested, it cannot be an adequate unit testing strategy.

C: If only the methods and properties of the California component are tested it is an inadequate unit testing strategy since three of the components have been modified.

---

**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 testing and stabilization of Applications. Certkiller .com offers financial and accounting services to their customers.

A Certkiller .com team is developing a Microsoft Windows Forms application. This application will allow users to file their federal and state income tax returns. The application access business logic exposed by an internally-developed Extensible Markup Language (XML) Web service. The team is considering performing an integration test by making calls to the Web service from the application.

You now need to make a decision as to whether the testing strategy is correct.

What conclusion can you draw?

A. The testing strategy is correct.

B. The testing strategy is incorrect. The team should perform integration testing by calling the Web methods from a test application.

C. The testing strategy is incorrect. The team should perform integration testing by calling to a dummy Web service from the application.

D. The testing strategy is incorrect. The team should not perform integration testing on internally developed Web services.

Answer: A

Explanation: When performing integration testing, you should test the interactions of all the components in an application. Because the Web service exposes business logic, you need to ensure that the Windows Forms application calls Web methods of the Web service with expected input values and receives expected output values. Thus this testing strategy is correct.

Incorrect answers:

B: The team should not perform integration testing making use of calls from a test application. The point of integration testing is to use the real application to ensure that it interacts as expected with the Web service.

C: The team should not make calls to dummy Web services. The whole point of integration testing is to ensure that the application interacts with all components correctly and a dummy Web service will yield dummy results.

D: This would be inadequate since integration testing involves all components.

---

**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 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 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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the testing and stabilization of Applications. One of the Certkiller .com Windows Forms applications contains the following

production environment specifications:

1. The application is deployed to production desktop computers.
  2. A Web service that is used by the application is deployed to a production Web server.
  3. The production desktop computers run Microsoft Windows XP Professional.
- Following is the test environment specification for performance testing that the development team created:

1. The application is deployed to production desktop computers.
2. The Web service is deployed to a staging Web server.
3. The staging Web server's hardware configuration is identical to the production Web server.
4. The Web servers have 1 gigabyte (GB) of memory.

You need to make a decision as to whether the test environment specification is appropriate.

What conclusion can you draw?

- A. The test environment is appropriate.
- B. The test environment is inappropriate. The Web service should be deployed to the production Web server.
- C. The test environment is inappropriate. The staging Web server's hardware configuration should be changed.
- D. The test environment is inappropriate. The application should be deployed to test desktop computers.

Answer: D

Explanation: When testing an application for performance, one should perform testing in an isolated environment that is similar to the production environment and not to the production desktop computers as suggested in the question. The test environment is thus inappropriate. You should also be making use of test desktop computers.

Incorrect answers:

- A: This is incorrect since you should not make use of production desktop computers when doing performance testing.
- B: You should not be deploying the Web service to the production server; it should be deployed to a staging server so as to facilitate the isolation aspect of performance testing.
- C: There is no need to change the hardware configuration of the staging server because the test environment should mimic the production environment which also includes hardware configuration.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the testing and stabilization of Applications. You are currently evaluating an existing performance testing strategy for one of the

Microsoft Windows Forms applications for Certkiller .com. This application was developed to allow the Certkiller .com customers to scan checks and submit the images to financial institutions electronically. The performance testing strategy that is under scrutiny now specifies that the actual rate at which checks are imaged and stored into a database will be compared against a preferred rate.

You need to make a decision as to whether the performance strategy is appropriate. What conclusion can you draw?

- A. The performance testing strategy is appropriate.
- B. The performance testing strategy is inappropriate. The number of checks that are imaged correctly should be identified.
- C. The performance testing strategy is inappropriate. The number of checks that are imaged incorrectly should be identified.
- D. The performance testing strategy is inappropriate. The number of checks that cannot be imaged due to physical defects should be identified.

Answer: A

Explanation: The test identifies the rate at which the checks are imaged and stored in a database. This will allow you to determine whether the check imaging process is performing as expected. Thus this strategy is an appropriate one.

Incorrect answers:

B: When one test application performance one does not identify the number of checks that are imaged correctly; one test the application according to predefined thresholds.

C: When one test application performance one does not identify the number of checks that are imaged incorrectly; one test the application according to predefined thresholds.

D: You should not be identifying the number of checks that cannot be imaged due to physical defects when testing application performance. This will not allow you to control the validity of the checks with the application.

---

## **C#, Deploying and Supporting an Application (5 Questions)**

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications.

You are currently evaluating one of the Microsoft Windows Forms applications for Certkiller .com. This application was developed to allow the Certkiller .com customers to scan checks and submit the images to financial institutions electronically for processing purposes. The application is deployed to dual processor computers. You scan five checks with check number that ranges from 901 to 905 and obtained the following performance results illustrated in the table below:

Check Number	CPU Usage	Memory Usage	Elapsed Time
901	54%	4,672K	0.801 ms
902	33%	4,676 K	0.749 ms
903	54%	4,680 K	0.800 ms
904	61%	4,684 K	0.852 ms
905	60%	4,688 K	0.834 ms

You now need to analyze the results.  
What conclusion can you draw?

- A. Too much processor time is used.
- B. There is a synchronization problem.
- C. There is a memory leak.
- D. Too much memory is used.

Answer: C

Explanation: The table shows clearly that the memory usage increases with 4 K each time a check is scanned. As the number of check increases, memory usage increases. If this persists then there will not be enough memory available on the computer that runs the application. Thus there is a definite memory leak.

Incorrect answers:

A: The average CPU usage is only 52%. This is due to the fact that the application is deployed to dual-processor computers. This means that it is not a case of too much processor time being used.

B: Synchronization issues cannot be deduced from the results in the table. Thus you cannot assume that it is a synchronization problem.

D: Only 4,672 K of memory is being used initially. Apart from the memory leak, the memory consumption itself is not problematic.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a financial institution.

You need to evaluate a Microsoft Windows Forms application for Certkiller .com. This application allows Certkiller .com employees to access accounts on behalf of their customers. You thus created a Performance Session in Microsoft Visual Studio 2005 for the application. Following is an illustration of the result that you obtained for a method named Validate when running the application:

1. Call the Validate method once - execution time is 0,401 ms
2. Call the Validate method twice - total execution time is 0,802 ms
3. Call the Validate method ten times - total execution time is 4,010 ms

You now need to analyze these performance trends.

What conclusion can you draw?

- A. There is a memory leak.
- B. The execution time is constant.
- C. The memory consumption increases linearly.
- D. The execution time increases exponentially.

Answer: B

Explanation: Note that the results mention that the total execution time of calling the Validation method twice and ten times yields the increase in time. This it means that the execution time PER call of the Validation method is constant at 0,401 ms.

Incorrect answers:

- A: Execution times do not indicate memory leaks.
- C: You cannot use execution time to measure memory consumption.
- D: The execution time does not increase exponentially.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a financial institution.

You need to evaluate a Microsoft Windows Forms application for Certkiller .com. This application allows Certkiller .com employees to access accounts on behalf of their customers. The application accesses an Extensible Markup Language (XML) Web service to authenticate users and retrieve account data. At present there are approximately 20,000 users that make use of this application.

You need to evaluate the application's performance while it is in production.

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

- A. Establish the total number of users that log on to the application on a given day.
- B. Establish the longest elapsed time that a single user is logged on to the application.
- C. Establish the time of day at which the largest number of users are logged on to the application.
- D. Establish the largest number of times that a single user logs on to the application on a given day.
- E. Evaluate the performance of the application for the single user.
- F. Evaluate the performance of the application at that time.

Answer: C, F

Explanation: You should establish the time of day at which the largest number of users are logged on to the application. Then you should evaluate the application's performance

at that time. You will be able to establish the time by tracking the user logon times.

Incorrect answers:

A: You should not establish the total number of users that log on to the application on a given day; you need to know when users are logged on to the application at the same time.

B: You should not establish the longest elapsed time that a single user is logged on to the application because multiple users will access the application, you need to establish the time at which the largest number of users are logged on to the application at the same time.

D: You should not establish the largest number of times that a single user logs on to the application on a given day because multiple users will access the application. Instead you need to establish the time at which the largest number of users are logged on to the application.

E: You should be evaluating the application's performance for the largest number of users simultaneously logged on; and not the performance of the application for a single user.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com offers financial and accounting services to their customers.

Certkiller .com has a Microsoft Windows Forms application named QuickPick. This application will allow users to file their federal and state income taxes. QuickPick is used by approximately 75,000 customers and 10 % of these customers reported that they encountered bugs indicating that data is incorrectly transferred from their federal returns to the state returns. You need to address the problem; however you are unable to reproduce the problem at Certkiller .com. To this end you suspect that the reported bugs are associated with the way in which the customers are using the application.

You now need to determine how to mitigate the bugs in the next application update. What should you do?

A. You should configure QuickPick to periodically submit summaries of customer activities to an Extensible Markup Language (XML) Web service.

B. You should display a message informing customers that attempt to transfer data to contact the Certkiller .com Customer Care for a walk-through of the process.

C. You should remove the feature that supports the automatic data transfers and require customers to manually reenter the data on their state returns.

D. You should install a screen capturing application that records the customer's activities from the time QuickPick is launched to the time that they exit QuickPick.

Answer: A

Explanation: Configuring QuickPick to periodically submit summaries of customer activities to an XML Web service will allow you the opportunity to figure out what a customer is doing wrong when transferring data from the federal return to the state income return.

Incorrect answers:

B: Displaying a message to all customers to contact the Certkiller .com Customer Care for a walk through when they attempt to transfer data will only introduce unnecessary operational overhead.

C: Removing this feature would be foolhardy since it is only 10% of the customers that experience the problem and not 90%. This obviously means that the 10 % must be doing something wrong.

D: Installing a screen capturing application that will record the customer's activities on the QuickPick application will violate the customer's right to privacy.

---

### **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 and all client computers run Microsoft Windows XP Professional. Your responsibilities at Certkiller .com include the deployment and support of Applications. Certkiller .com operates as a College of Education.

The Certkiller .com development team is currently developing a Microsoft Windows Form Student application. This application is intended to help the Certkiller .com administrations staff to allow students to register for the year of study, place them in their courses, place them with the respective lecturers teaching those courses, providing each student with a user name and password for the duration of their studies. This application will store student data in a Microsoft SQL Server 2005 database.

The Certkiller .com company policy states that user names and passwords cannot be stored in any installation program. When the application is installed, the database must be created. The installation program makes use of the Osql.exe utility to create the database.

You now need to specify installation requirement of the application so that it will comply with the company policy.

What should you do?

- A. Specify that the user must run the installation program in the database server.
- B. Specify that the user who runs the installation programs must have domain administrator rights.
- C. Specify that the user who executes the installation program must have administrative access to SQL Server.
- D. Specify that the application must be added to a code group that has full trust permissions.

Answer: C

Explanation: The user who executes the installation program must have administrative access to SQL Server. Thus you need to specify this as a requirement for the application.

Incorrect answers:

A: There is no need to specify that the user must run the installation program in the database server because the Osql.exe utility allows one to specify parameters such as database server name.

B: There is no need to specify that the user that runs the installation program must have domain administrator rights because the user only requires administrative access to SQL Server to run the script to create the database successfully.

D: There is no need to specify that the application must be added to a code group that has full trust permissions. Code access security does not affect unmanaged applications and Osql.exe utility is unmanaged.