Exam: 070-300

Title : Analyzing Requirements and Defining MS.NET Solution Architectures

Ver : 01.02.04

Case Study #1, Blue Yonder Airlines

Background.
Blue Yonder Airlines is a regional airline that operates 50 scheduled flights per day.
The company anticipates rapid future growth. Within six months, the company will operate 150 flights per day. Within one year, it will operate 500 flights per day. Currently telephone operators handle all reservations. To support the increased number of flights, the company plans to add an online reservation process.
You are contracted to develop a Microsoft .NET solution that will execute the new process. Your solution must be operational in five months. It must undergo one month of testing before it is available to the public. Within one year, it must be able to support 500 flights per day. To support this expansion, existing flight numbers might need to be reassigned.
Existing IT Environment Currently Blue Yonder Airlines uses an external vendor to provide flight scheduling services.
Fifteen dedicated terminals communicate with the vendor's mainframe computer.
The corporate network includes five Microsoft Windows 2000 Server computers and 15 Windows XP Professional computers. A Microsoft Exchange Server computer provides e-mail services for employees.
Internet Information Services (IIS) is used to support intranet application for the human resources department. This department is also supported by a dedicated server that has a single installation of Microsoft SQL Server 2000.
Interviews IT Department IT Manager.
Currently we have one engineer who is responsible for maintaining the dedicated terminals and the corporate intranet. In the future we need to be able to monitor the performance of the new application. Monitoring will tell us when we need to scale the solution.
Within three months, our scheduling vendor will implement an XML Web service to give us access to its mainframe computer.
Business Stakeholders Chief Executive Officer
My vision is to give our customers an easy-to-use, self-service reservation process. Our new application must provide customers with the following features:
Make reservations quickly Make reservations at any time, on any day of the week Store information in a customer profile, if customers choose Maintain complete confidentiality of customers profiles Search for available flights either by airport or by city of origin Create, save and retrieve an itinerary, without actually booking a flight Retrieve a saved itinerary and initiate booking for the flights saved in the itinerary.
Receive suggestions for alternate flights if the flights saved in an itinerary are no longer available for booking Receive an automatic e-mail message to confirm the itinerary after the flights are booked.
A previous development project required a considerable amount of rework. We were unable to find out why the rework occurred. If rework is needed during this project, we need to know why.
Business Manager
The application should help us provide that we are receiving a return on our investment. Periodically, detailed usage information must be logged for analysis. We must be able to turn logging on and of without recompiling the application.
When the XML Web service is available from our scheduling vendor, we can stop using dedicated terminals, stop paying a monthly mainframe charge and start reducing our operating expenses. Typically, that vendor meets its deadlines for delivering updates only 50 percent of the time.
Finance Department Chief Financial Officer
Our business model is based in the expansion of our flight schedules. This project is critical to our continued success. Our budget is sufficient to implement and support the new application. However, we need to reduce

operating expenses.
Users Reservations Agent
The current application is very confusing to use. It requires special keys to perform many functions. It does not offer online help Business Process
Currently customers make reservations by telephoning a Blue Yonder Airlines reservations agent. The agent uses a dedicated terminal to connect to the mainframe computer and then completes each reservation.

Questions Case Study #1, Blue Yonder Airlines

QUESTION 1 You are preparing the functional specification for the new reservation application.
Which two functionalities should you specify? (Each correct answer presents part of the solution. Choose two)
A. Localization
B. Monitoring of application performance
C. Secure storage of customer profile information
D. Availability of application for mobile phones and personal digital assistants
E. Integration with Active Directory
Answer: B, C
Explanation: We do have requirements to monitor the application and to secure it.
Incorrect Answers:
A: There is no requirements for this.
D: The case study makes no mention of any requirement to support mobile phones or PDA's. Therefore it would not be appropriate to prepare a functional specification for this functionality.
E: There is no requirements for this.

QUESTION 2 You are completing the technical specification for the new reservation application.
Which technique should you recommend for state management?
A. ASP.NET ViewState
B. Server-side database
C. Client-side cookies
D. Application cache
Answer: B
A: This will not be retained when the customer closes the session.
C: They may not be allowed on the client machine's browser.
D: Incorrect.

QUESTION 3 Which business constraint poses the greatest potential risk to completing your project for Blue Yonder Airlines?
A. The current IT staff must support the solution in the future
B. All testing scenarios and all necessary rework must be completed during the
C. The scheduling vendor will begin providing access by XML Web service in three months
D. The application must be completed within a five-month development period before it is tested
Answer: C
C: Business Manager says that the vendor only meets its deadlines for delivering updates only 50 percent of the time. This will have the greatest impact.
A: The question is asking for risks to completing the project. This does not have any impact.

B: This is all a matter of resources.
D: Since there is enough funding it should not be a problem.

QUESTION 4 You are establishing a policy to measure the effectiveness of your deployment process. You decide to track one or more phases of development to identify defects.
Which phase or phases should you track?(Choose all that apply)
A. Design and analysis
B. Development
C. Stabilization
D. Requirements
Answer: C
Explanation:
C: It is during the stabilizing phase that the Testing team completes the tasks and creates the deliverables that move the feature-complete build to a state in which the defined quality level is reached and the solution is ready for full production deployment.
The two main tasks in the stabilizing phase are:
1. • Testing the solution: The team implements the test plans that were created during the planning phase, which were enhanced and tested during the development phase.
2. • Conducting the pilot: The team moves a solution pilot from development to a staging area to test the solution with actual users and real scenarios. The pilot is conducted before the deploying phase is begun.
A pilot is a test of the solution in the production environment, and a trial of the solution by installers, systems support staff, and end users. The primary purposes of a pilot are to demonstrate that the design works in the production environment as expected and that it meets the organization's business requirements. A secondary purpose is to give the deployment team a chance to practice and refine the deployment process.

QUESTION 5 You are listing the operational requirements for the new reservation application.
Which requirement should you include?
A. Extensibility
B. Localization
C. Maintainability
D. Availability
E. Deploy ability
Answer: D
Explanation:
D: The Chief Executive Officer, who is a Business Stakeholder, wants to allow customers to make reservations at any time, on any day of the week.
Incorrect Answers:
B: There is no mention of Localization in the case study.
A, C, E: These are not the best answers.

QUESTION 6 You are writing the primary scenario of a use case named Customer retrieves a saved itinerary.
Which action or actions should be included?(Choose all that apply)
A. Application informs customers that no itineraries exist
B. Application informs customers that a saved flight is no longer available
C. Customer asks for saved itineraries
D. Application offers alternate flights

E. Application queries the database for saved itineraries
F. Application displays retrieved itineraries
Answer: C, E, F
Explanation:
C,E,F: The question is asking for the Primary Scenario.

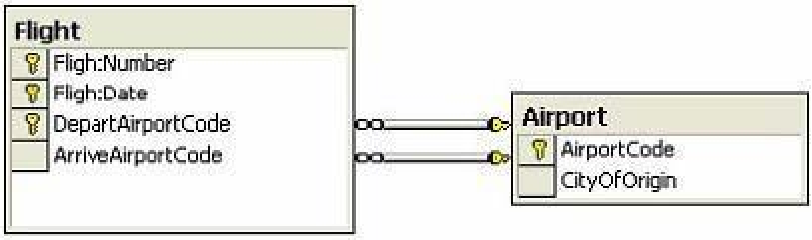
QUESTION 7 You need to select a strategy that will provide detailed usage information for the new reservation application. Information must be provided with a minimum development effort.
What should you do?
A. Use Microsoft .NET performance counters in the application
B. Create a Microsoft Management Console(MMC) snap-in for the application
C. Add Windows Management instrumentation to the application
D. Use the application's configuration file to enable and disable logging
Answer: A
Explanation:
A: This method will require a minimum development effort.

QUESTION 8 You must ensure that the new reservation application can be monitored while it is running.
Which approach should you use?
A. TraceSwitch objects
B. Diagnostic tools
C. PerformanceCounter objects
D. Windows Management Instrumentation Job Object provider
Answer: C
Using the PerformanceCounter object within the solution would allow developers to write performance specific information that can be monitored by Performance Monitor while the application is running.

QUESTION 9 You are creating the logical design for a use case named "Customer updates customer profiles".
Which object or objects should you include in the design? (Choose all that apply)
A. Data access object
B. Customer object
C. Flight object
D. Logging object
E. Airline object
Answer: A, B, D
Explanation:
A, B: These are definitely needed for the use case in question.
D: The Business Manager wants detailed logging of usage information for analysis.
Incorrect Answers:
C, E: These are not related to the use case named "Customer updates customer profiles".

QUESTION 10 You are creating constraints for tables named Flight and Airport. You must ensure data integrity.
Which action or actions should you take?(Choose all that apply)
A. Create a primary key constraint on the AirportCode column and the City Of Origin column in the Airport table

B. Create a primary key constraint on the Flight Number column in the Flight table
C. Create a cascading delete constraint on the AirportCode column in the Airport Table
D. Create a foreign key constraint on the Arrive Airport Code column in the Flight table to reference the AirportCode column in the Airport table
E. Create a primary key constraint on the Flight Number column, the Flight Date column and the Depart Airport Code column in the Flight table
F. Create a foreign key constraint on the Depart Airport Code column in the Flight table to reference the AirportCode column in the Airport table
G. Create a primary key constraint on the AirportCode column in the Airport table
H. Create a foreign key constraint on the AirportCode column in the Airport table to reference the Depart Airport Code column in the Flight table
Answer: D, E, F, G
Explanation:
The answers will meet the design shown below:



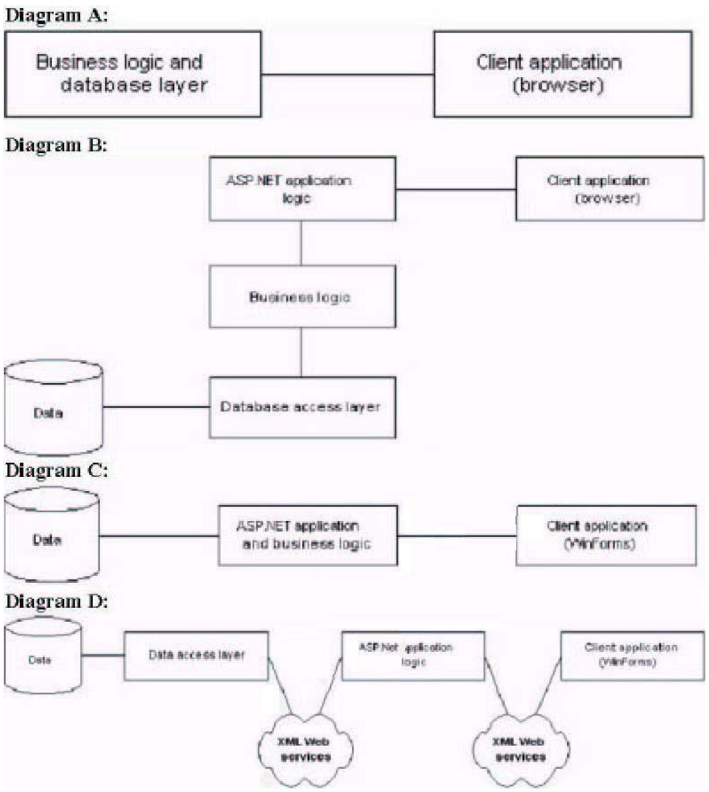
• Primary Keys
a. o Airport Table: AirportCode is unique enough.
b. o Flight Table: Composite primary key for Flight Number, Flight Date and Depart Airport Code. (Flight Number itself may not be unique enough since they could be reused)
• Foreign Keys
a. o Airport Table: Depart Airport Code will reference AirportCode
b. o Airport Table: Arrive Airport Code will reference AirportCode
1. • City Of Origin is not necessary to uniquely identify records within the Airport Table.
2. • Flight Date has to be part of the composite key within the Flight Table.
Having a cascade delete is a nice-to-have option on the database. It isn't essential. If you wish to delete an airport, you have 2 options :
a. o Delete all the related Flight records (programmatically) then delete the Airport record.
b. o Delete the Airport code and let the database delete all related flight children records.

QUESTION 11 You are creating the logical design for the new reservation application.
Which entity or entities should you include? (Choose all that apply)
A. Airport
B. Flight
C. Customer
D. Gate
E. City
Answer: A, B, C
Explanation:
A: Airport is an entity.
B: Flight is an entity.
C: Customer is an entity.

Incorrect Answers:
D: This can be an attribute
E: This can be an attribute

QUESTION 12 You need to implement online interactive user assistance for the new reservation application. What should you do?
A. Create a manual that can be downloaded from the Web site
B. Create a compiled help module and use context-sensitive help for all screen elements
C. Implement ToolTips to provide information about all screen elements
D. Use the ALT attribute to provide a short textual description for all images and audio files
Answer: C
Explanation:
C. This is the most suitable answer Note: Providing online user assistance Even the best user interface design and input validation procedures cannot ensure that your users will be able to know what to do and when to do it. To avoid personally training and supporting every user through their individual learning curves, you need to make some form of online user assistance in a format they are able, willing, and ready to call up. The most common ways to do this are through the use of status bars, tool tips, and application help files.
Incorrect Answers:
A. This is an offline help method.
B. This is suited for Windows Applications instead of Web Applications.
D. This is normally used for people with disabilities.
Providing online user assistance Even the best user interface design and input validation procedures cannot ensure that your users will be able to know what to do and when to do it. To avoid personally training and supporting every user through their individual learning curves, you need to make some form of online user assistance in a format they are able, willing, and ready to call up. The most common ways to do this are through the use of status bars, tool tips, and application help files.

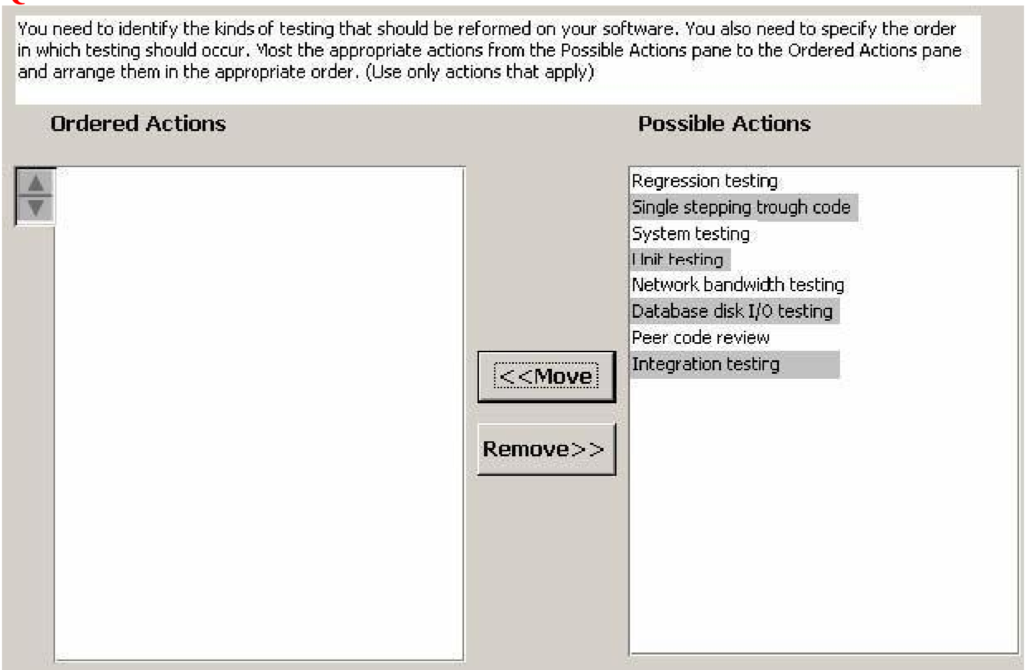
QUESTION 13 Your development team proposes four different conceptual designs for the new reservation application. You need to present one of these designs to the board of directors of Blue Yonders Airlines. Which design should you present?



A. Design A.
B. Design B.
C. Design C.
D. Design D.
Answer: B
Explanation: This is an N-tier application.
Incorrect Answers:
A: Incomplete design.
D: This is not possible because it suggests two web services.

QUESTION 14 During the conceptual design phase, you create the Customer fact as shown in the Customer Fact Diagram. Then you try to validate the population data shown in the Population Data Diagram. However, validation fails.
What should you do?
Customer Fact Diagram
Population Data Diagram
Incomplete. Will be fixed in later versions.
A. Change the Customer reference mode to Name plus City
B. Change the Customer reference mode to CustomerID
C. Add a unique constraint to the Name field
D. Add a mandatory role constraint to the CustomerID field
Answer: B

QUESTION 15



Answer:

Order Actions	**Possible Actions**
Unit testing	Regression testing
Integration testing	Single stepping trough code
Regression testing	System testing
Network	
bandwidth testing	Unit testing
Database disk I/O testing	Network bandwidth testing
System testing	Database disk I/O testing Peer code review
Integration testing	

Note:
The Testing Cycle
• Unit Test
ensures that each independent piece of code works correctly.
• Integration Test
• Ensures that all units work together without errors.
• Regression Test
1_ • Ensures that newly added features do not introduce errors to other features that are already working.
2_ • Unit and integration tests form the basis of regression testing. As each test is written and passed, it gets checked into the test library for a regularly scheduled testing run. If a new component or a change to an existing component breaks one of the existing unit or integration test, the error is called regression.
• Performance Test (also called Stress Test)
a. o Ensures that the product continues to work under extreme usage.
b. o When you deploy a Web application, it might be used by one or two clients at a time or it might get deluged by thousands of requests. To find out how well a Web application will work in these varying conditions, you need to perform load tests. Use the Microsoft Application Center Test (ACT) to create and run load tests on a Web application. In general, load tests are not created as early in the development process or run as frequently

as unit, integration, or regression tests.
1. • Platform Test
o Ensures that the product works on all of the target hardware and software platforms. For Web applications, platform testing usually means
verifying four main points:
-Web forms display correctly on all supported browsers and supported versions of the browsers.
-The web application appropriately handles unsupported browser versions, such as by displaying instructions for downloading the required version.
-The client is prompted to install any required components, such as ActiveX objects or plug-ins, if they are not already installed on his or her computer.
-The Web application has acceptable performance over slower forms of network connections, such as modems.
• Network Analysis
a. o An application network analysis is useful for identifying performance bottlenecks and improving end-user response time. Incorporating this into your development process helps detect performance issues in terms of response times, processing delays, and quantity of data transferred.
b. o In an application network analysis, Network Monitor is primarily used to identify the amount of data transferred and count the number of round trips used in response time calculations per page view, including associated elements or user actions performed that generate activity to the Web server.
• SQL Analysis
• Among the most important uses of any business application are getting, saving, and displaying data. .NET applications are no exception to this rule, and having a properly analyzed and tuned SQL tier is critical to achieving high scalability.
1_ • The tools used to monitor the server are SQL Profiler, System Monitor, SQL Query Analyzer. For applications with bottlenecks at the SQL tier, purchasing more or better hardware generally does not fix the problem. Before getting new hardware, you should first identify the bottlenecks affecting the scalability.
Reference:
MCAD/MCSD Self-Paced Training Kit: Developing Web Applications with Microsoft Visual Basic .NET and Microsoft Visual C#.NET. ISBN 0-7356-1584-5

Case Study #2, Consolidated Messengers

Background.
Consolidated Messenger is a shipping company that specializes in overnight parcel delivery. The company serves North America and Europe, and it provides both ground and air services. For delivery, the company uses its own vehicles, which includes trucks and aircraft. The company handles an average of 100,000 parcels every week. One of its most important services is business-to-business delivery.
Because the shipping market is declining, the company often sends out vehicles that are less than completely full. To maximize the use of space in its vehicles and to increase revenue, the company wants to offer a new service to independent transportation brokers.
The new service will enable the independent brokers to use the company's vehicles to send large shipments between cities. Each shipment will consist of a large number of parcels. The company's existing business applications must be enhanced to support the new service.
You are a developer employed by Consolidated Messenger. You will lead the development of a solution that uses the Microsoft .NET Framework to meet the requirements of the new service.
Existing IT Environment Existing Applications.
The company uses a parcel-tracking application that runs on a Microsoft Windows 2000 Server platform. This

application has interfaces to client computers, handled PCs and the Internet. Company employees use client computers and handled PCs to track the movement of parcels. Customers use the Internet to track the shipping status of their parcels.
For each parcel, the existing application tracks the following information:
Waybill number
.Account number to change
.Terms of payment
.Weight
.Sender name
.Sender address
.Sender telephone number
.Recipient name
.Recipient address
.Recipient telephone number
.Current shipping status
Users do not need to be authenticated to check the status of a waybill.
History records are maintained to track the location of parcels. A history record is written each time a parcel changes location. A history record contains the following information:
.Waybill number
.Date
.Time
.Route number
.Depot number
.Current shipping status
The average parcel requires 1KB of storage space for the parcel information and all associated parcel history records.
The company also uses a vehicle-scheduling application to track vehicles and their routes. This application schedules routes between depots, tracks the availability of vehicles and assigns available vehicles to scheduled routes.
The vehicle-scheduling application uses its own database, which includes the following tables:
The Route Definition table describes the characteristics of valid routes between depots, including scheduled departure time and arrival The Vehicle table records the type and size of the vehicle and its availability status The Route instance table associates a specific vehicle with a defined route. Every time a vehicle transports a shipment between two depots, an entry in the Route Instance table is created.
Physical Implementation
The parcel-tracking application and the vehicle-scheduling application were developed by using Microsoft SQL Server 2000, ASP pages, COM+ components written in Microsoft Visual Basic 6 and client software written in Visual Basic 6. The parcel tracking database is currently 1 terabyte in size. The company operates a private network that spans two continents. Its public Web servers run on a separate network and are protected by a firewall.
Standards
As a company standard, Consolidated Messenger uses Windows 200 Server computers and a SQL Server 2000 database management system. The company plans to use the Microsoft .NET Framework for new applications and for significant enhancements of existing applications.
Interviews IT Department IT Manager.
The new enhancements must be integrated with the existing parcel-tracking and vehicle scheduling applications.

An online registration process must be available to the independent brokers so they can request access to these applications. Once they are registered, the brokers must be properly authenticated for security purposes. We also want to be able to track the revenue associated with each broker. We are not planning to add any additional staff to develop or support the enhancements.
Business Stakeholders Vice President of Operations.
Currently, depot managers report that our vehicles are not being used to capacity. The existing vehicle scheduling application does not track the amount of space that is being used on each vehicle at a given time. However, the new solution should enable us to track this information. This enhancement will help us manage our vehicles more efficiently.
To handle the anticipated volume of new shipments, my department needs to know the pickup depot, the dimensions and the weight of each shipment.
The new solution must include an interface for independent brokers. These brokers must be able to use the Internet to schedule their own shipments. Brokers usually comply with strict time constraints. If response time is slow, they will not use our services. To keep our costs low, each broker must be able to track its own shipments. However, no broker must be permitted to see information about the shipments of any other broker. We also
want to be able to track the amount of business that each broker gives us over a period of time.
Requests for the new service will be fulfilled in the order in which they are received. When no vehicles are available, independent shipments must wait until the next day. However, all independent shipments must be completed in three days.
Finance Department Chief Financial Officer.
Company revenue and profit margins are declining. The new service is extremely important to our financial outlook. My forecast shows a 20 percent increase in the number of parcels delivered during the first year of the new service and a similar increase in each subsequent year. We can handle this additional volume by using our existing vehicles more effectively. However, the new solution must be capable of scaling to meet the continuously increasing demand.
Users Depot Manager.
My staff is comfortable with the existing parcel-tracking application. I want the new solution to be well integrated with this application so the staff does not need to learn a new interface. I also want to ensure that our existing handled PCs and bar code readers can be used to track shipments.
Response time for the bar code readers must be fast enough to handle the new shipping volume, without any errors. Response time for the vehicle-scheduling application must also be fast. Delays in updates can delay a shipment or reduce the amount of space used on a vehicle.
The current parcel-tracking application tracks only the weight of a parcel, not its dimensions. To ensure that space is fully used on each of our vehicles, my staff will need to know the dimension of each parcel, expressed in terms of height, length and width.
Business Process Vehicle Scheduling.
Currently, Consolidated Messenger operates a fleet of 200 aircraft and 600 trucks. Vehicles operate in all major markets served by the company. Vehicles are scheduled one month in advance on the basis of anticipated demand. One master schedule is in effect Monday through Friday. Each weekday follows the same timetable. Saturday uses a different schedule. No deliveries occur on Sunday.
The master schedule indicates the type and size of the vehicles needed to meet delivery requirements for the week. Available vehicles are associated with a scheduled route to form an active route. In total, the company's vehicles complete approximately 3000 routes each week.
Parcel Tracking.
Currently, each parcel is assigned a waybill number when it is picked up. A waybill bar code is affixed to the

parcel. This bar code is scanned at various checkpoints in the shipment process. A typical delivery includes the following checkpoints
.Picked up
.Received at depot
.On delivery truck
.Delivered
Customers can query the status of their shipment by using a Web browser. Response time to the customer is not critical, as long as this response is faster than telephoning a customer service representative.

Questions, Case Study #2, Consolidated Messengers

QUESTION 1 You need to ensure that transportation brokers are authenticated when they access the broker Web site. Which action or actions should you take? (Choose all that apply)
A. Create a distribution list of authenticated users
B. Provide a facility for online registration
C. Provide a facility to view passwords
D. Provide secure storage of user names and passwords
E. Secure the exchange of user names and passwords between the client computer and the server
F. Enable e-mail access for transportation brokers
Answer: B,D,E
Explanation:
B,D,E: To ensure transportation brokers are authenticated, we need a facility for the (B) registration and (D) secure storage for this information. The use of SSL could be implied in (E), to secure the exchange of user names and passwords.
The IT Manager says that: Once they [brokers] are registered, the brokers must be properly authenticated for security purposes.
Incorrect Answers:
A,C,F: All of these do not achieve the required objective.

QUESTION 2 Which data item or items should you add to the existing applications? (Choose all that apply)
A. Waybill information
B. Broker identification information
C. Depot information
D. Parcel dimensions
E. Parcel routing information
F. Information about use of space on vehicles
Answer: B,D,F
Explanation:
B,D: Basic information required. Parcel dimensions allows us to calculate space on vehicles.
F: The existing vehicle-scheduling application does not track the amount of space that is being used on each vehicle at a given time. However, the new solution should enable us to track this information.

QUESTION 3 You need to enable brokers to track their own shipment. To meet this requirement, you need to consider various specifications.
Which four specifications should you consider?(Each correct answer presents part of the solution)
A. Provide a Web-accessible form to authenticate brokers against a table of registered users

B. Provide a Web-accessible form to enable brokers to request vehicle routes for their shipments
C. Provide a Web-accessible form to query the database for broker shipments
D. Provide a Web-accessible form to generate waybill numbers
E. Identify a parcel in the database as part of a broker shipment
F. Relate a parcel to a specific broker
G. Track the weight of a parcel in the database
Answer: A,C,E
Explanation:
A. Form to authenticate brokers is required to allow brokers to log in.
C. Form to query the database for broker shipments is required since brokers need to know about their shipments.
E. Identify a parcel in the database as part of a broker shipment is required since brokers can track the parcel as it is shipped.
F. Required.
Incorrect Answers:
B. Form to enable brokers to request vehicle routes for their shipments - Brokers request the service (if it is available) not the routes.
G. Track the weight of a parcel in the database - This not a requirement.

QUESTION 4 Before you release the solution, you need to develop a process to validate and enforce an appropriate level of quality.
Which three statistics should you use? (Each correct answer presents part of the solution)
A. Number of defects per component
B. Number of defects per thousand lines of source code
C. Number of defects by developer
D. Percentage of successful builds
E. Percentage of requirements tested
F. Number of defects detected to date
G. Number of defects corrected to date
Answer: E, F, G
Explanation: Based on the number of successful builds and the Zero Bug Convergence
we should be able to validate and enforce an appropriate level of quality.
Note: Zero Bug Convergence is an interim milestone of the Stabilizing Phase of the MSF process model
Incorrect Answers:
A,B: Does not validate and enforce an appropriate level of quality
C: We do not need to measure a developer's level of expertise.
D: Does not validate and enforce an appropriate level of quality

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QUESTION 5 Which new business process or processes should be supported by the new solution? (Choose all that apply)
A. Brokers can order transportation services
B. Vehicle scheduling capability is provided
C. Bar code readers are supported
D. Use of space on vehicles can be tracked
E. Brokers can track shipments
F. Customers can track parcels

Answer: A, D, E
Explanation: The question requests for new business processes. The existing ASP application already allow users to track their parcels.
Incorrect answers:
B: This process already exists. Vehicles are scheduled one month in advance.
C: This process already exists. Bar code is scanned at various checkpoints in the shipment process.
F: This process already exists. Customers use the Internet to track the shipping status of their parcels.

QUESTION 6 Which performance standard should you use for your solution?
A. Vehicle usage of at least 80 percent of total capacity
B. Database size of less than one terabyte
C. CPU utilization of less than 50 percent in the database server
D. Screen response time of two seconds or less
Answer: D
Response time is a very important requirement. The industry standard for response time is a maximum of three seconds (MSDN). The new application should not be a bottleneck. Vice President of Operations says that: If response time is slow, they will not use our services.
Depot Manager says that: Response time for the bar code readers must be fast enough to handle the new shipping volume, without any errors. Response time for the vehicle-scheduling application must also be fast.
Reference:
Capacity Planning,
http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnduwon/html/d5cpctyplan.asp
Incorrect answers:
A: Vehicle usage does not related to performance standard for your solution.
B: This is not a performance measurement.
C: There is no such requirement.

QUESTION 7 You are validating the physical design for your solution.
Which element or elements should be included in the design? (Choose all that apply)
A. algorithms for scheduling vehicles
B. scalability to meet increased usage
C. authentication of transportation brokers
D. online registration facility for transportation brokers
E. interface to the bar code readers
Answer: B,C,E
Explanation:
B: Scalability is a design consideration
C: Security is required.
E: The bar code readers require an interface.
Note: Physical views are the least abstract and illustrate the specific implementation components and their relationships. The physical design should meet scalability elements, provide authentication of transportation brokers and an online registration facility for transportation brokers
Reference: Chap 6 "Creating the Physical Design" page 234 in MS .Net Sol. Arch. for exam 70-300

QUESTION 8 You are validating your conceptual design in terms of scalability.
Which requirement will probably have the greatest impact on scalability?

A. Scheduling additional vehicles
B. Using the interface to bar code readers
C. Reporting use of space in vehicles
D. Handling additional broker shipments
Answer: D
Explanation: The new service will enable the independent brokers to use the company's vehicles to send large shipments between cities. Each shipment will consist of a large number of parcels. The company's existing business applications must be enhanced to support the new service.
Chief Financial Officer says that: My forecast shows a 20 percent increase in the number of parcels delivered during the first year of the new service and a similar increase in each subsequent year. We can handle this additional volume by using our existing vehicles more effectively. However, the new solution must be capable of scaling to meet the continuously increasing demand.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/enus/vsent7/html/vxcondesigningforscalability.asp
Incorrect Answers:
A,B,C: All of these alternatives do not have a major impact on scalability.

QUESTION 9 When the new solution is in place, parcel information and parcel history information must be stored. You need to estimate the amount of data that will be generated by the new solution during its first year of use.
What is the approximate amount?
A. 824MB
B. 5GB
C. 8GB
D. 50GB
Answer: C
Estimate the amount of data that will be generated by the new solution during its first year of use (GB) = 100,000 parcels every week * 52 weeks * 20% increase * 1 KB / 1,048,576 KB = 5.95 GB

QUESTION 10 You need to decide whether your conceptual design represents a complete solution.
Which four design artifacts are relevant to your decision? (Each correct answer presents part of the solution. (Choose four)
A. Unit test for authenticating brokers
B. Component prototypes for tracking shipments
C. Functional requirements for tracking shipments
D. Unit test cases for tracking shipments
E. Use cases for authenticating brokers
F. Functional requirements authenticating brokers
G. Component prototypes for authenticating brokers
H. Use cases for tracking shipments
Answer: C,E,F,H
Explanation: Conceptual design should include on functional requirements and use cases. Conceptual views are the most abstract and tend to be described in terms that are most familiar to the (non-IT professional) users of the system. The conceptual view is used to define the functional requirements and the business users' view of the application to generate a business model. The conceptual view is used to define the business requirements and the business users' view of the application to generate a business model. Conceptual modeling techniques,

such as use case analysis, activity diagrams, process design, and business entity modeling, help to build a description of the key business processes and the data they use, in way that emphasizes business objectives and requirements, and is free of implementation technology.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnea/html/eaarchover.asp
Incorrect answers:
A. Conceptual design does not contain component prototypes
D. Conceptual design does not contain component prototypes
F. Conceptual design does not contain unit test cases
H. Conceptual design does not contain unit test cases

QUESTION 11 Your development team creates four different logical designs for the solution.
Which design should you use?
Diagram A:

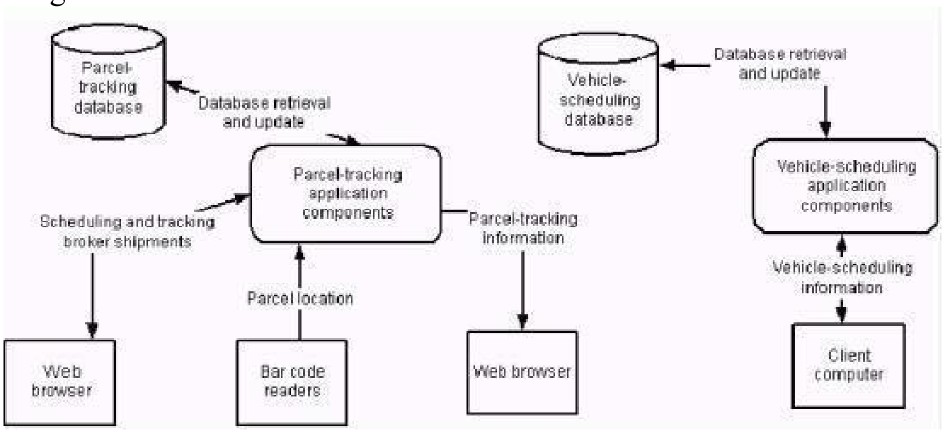


Diagram B:

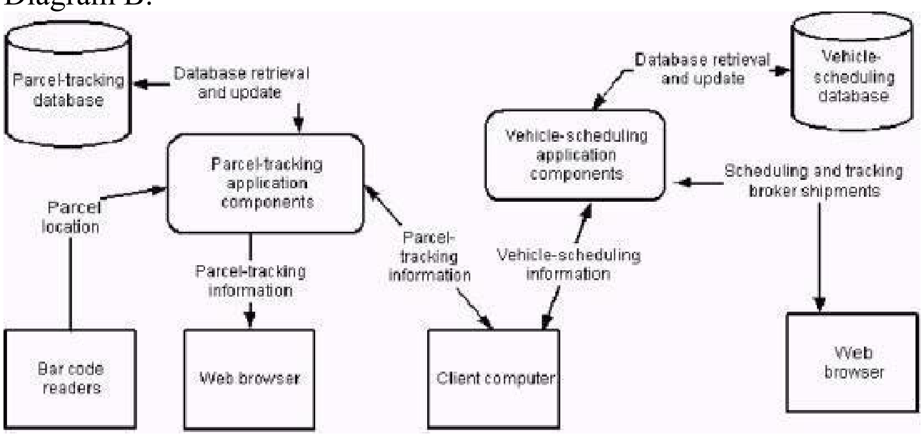


Diagram C:

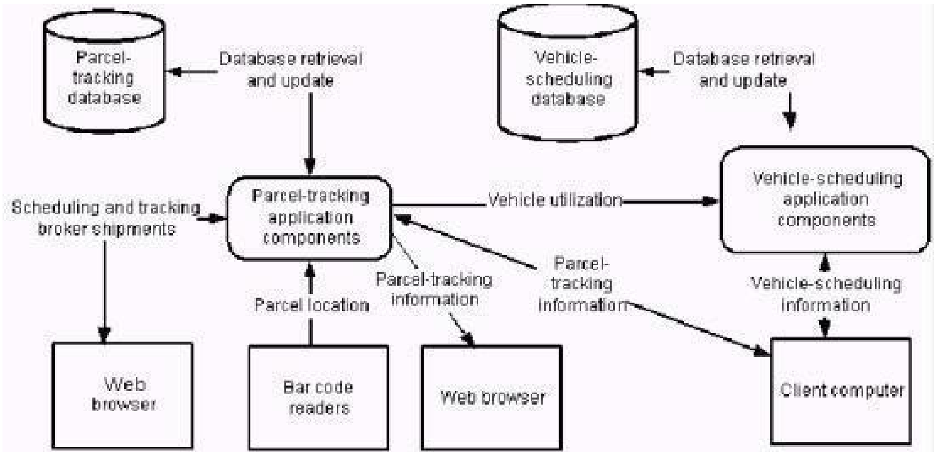
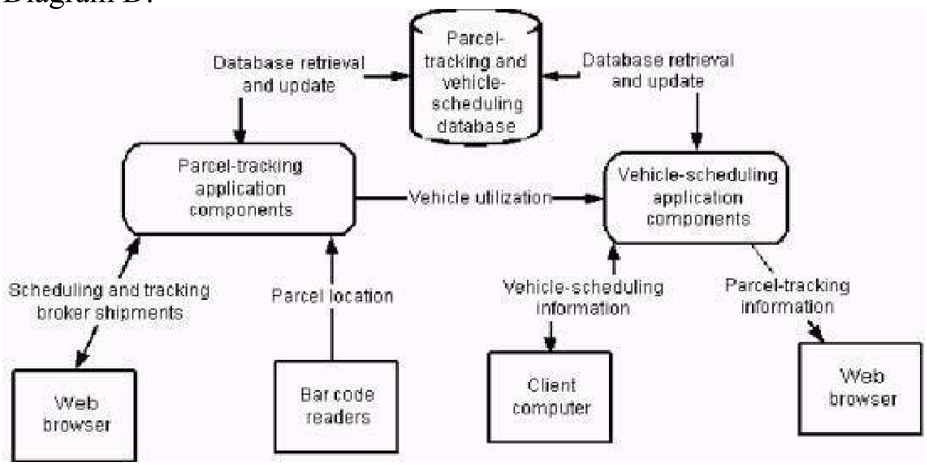
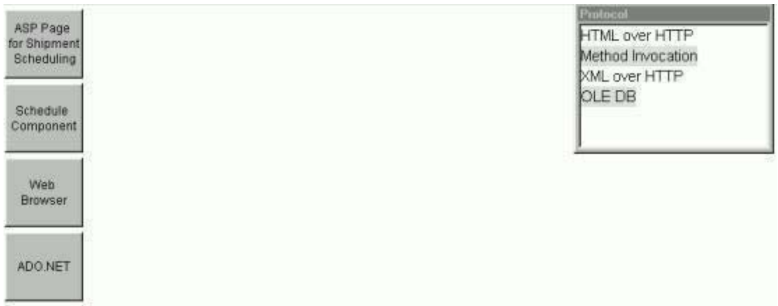


Diagram D:



A. Design A.
B. Design B.
C. Design C.
D. Design D.
Answer: C
Incorrect Answers:
A: The interface between the vehicle scheduling application and the parcel tracking application is missing.
B: The scheduling and tracking of broker shipments is part of the parcel tracking application, not the vehicle scheduling application. Vehicle utilization information is missing.
D: There should be two separate databases.

QUESTION 12 You are creating the design for shipment scheduling functionality. You need to identify which modules are associated with this functionality and how they will interact. Use available modules and protocols to create a diagram that illustrates your solution. (Use only modules and protocols that apply)



Modules Protocol
ASP Page for Shipment Scheduling HTML over HTTP
Schedule Component Method Invocation
Web Browser XML over HTTP
ADO.NET OLE DB
Answer: Web Browser <=> HTML over HTTP <=> ASP Page For Shipment Scheduling <=> Method Invocation <=> Schedule Component

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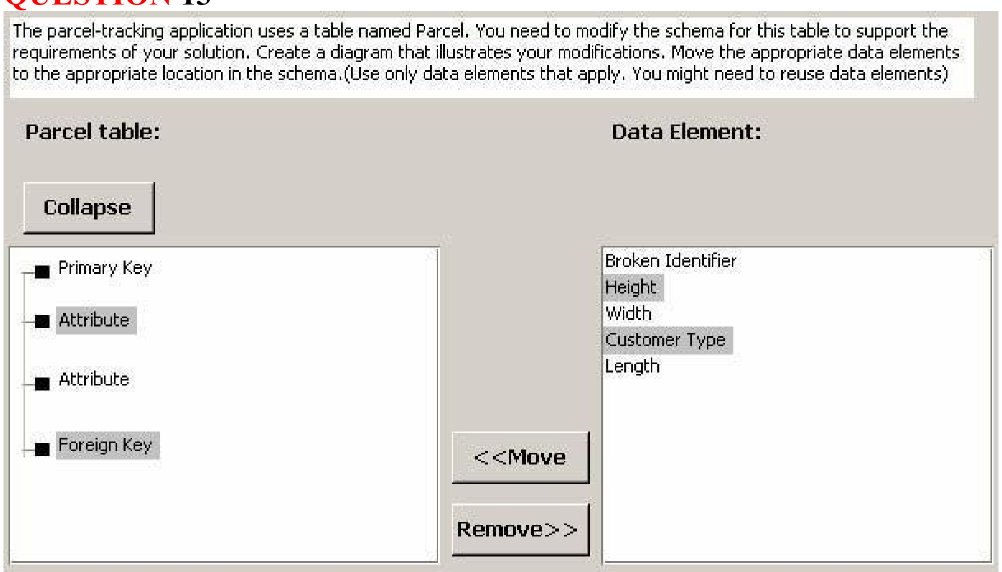
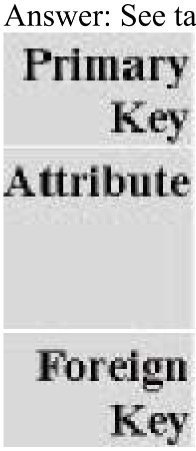
QUESTION 13

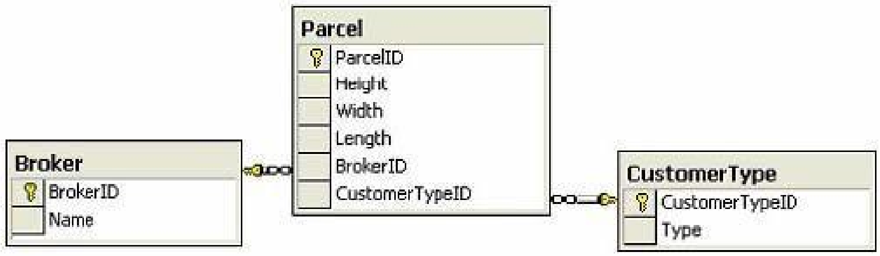


Answer: See table below

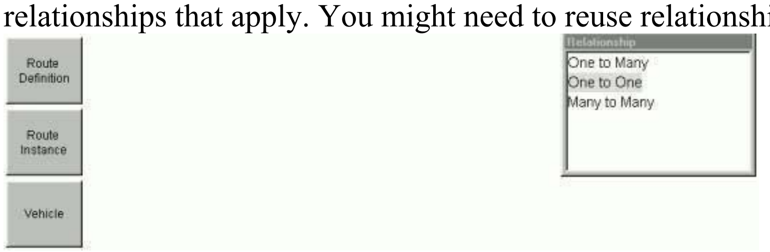


• Height
1. • Width

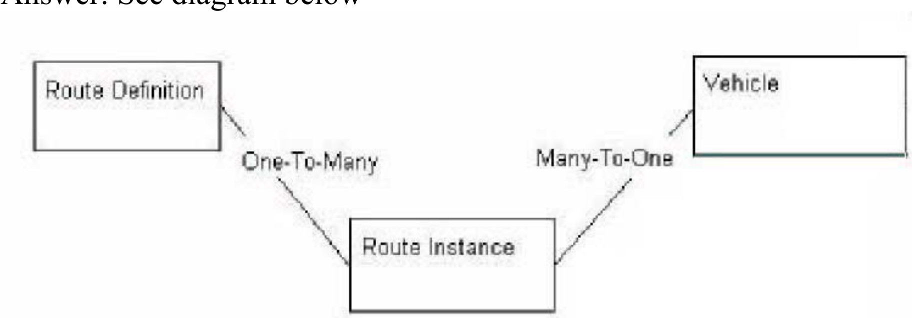
2. • Length
3. • Customer Type
4. • Broker Identifier
Explanation:
1. • The Parcel table already exists within the database. We are simply modifying it.
Therefore, we do not need to add to the Primary Key as this has already been set previously.
2. • Height, Width and Length are attributes.
3. • This Broker table will be a new table, therefore we need a foreign key in the Parcel table to reference the Broker Table. Broker Identifier is a new field that identifies the Broker from the Broker Table.
• Foreign key is set to customer type because parcels can belong to two groups:
a. o A Package belonging to Consolidated Messengers
b. o A Package belonging to a Broker.
The envisioned design is shown below:



QUESTION 14 You are creating the logical data model for associating vehicles with routes.
Use entities and relationships to create a diagram that illustrates your solution.(Use only entities and relationships that apply. You might need to reuse relationships)



Answer: See diagram below



The Route Instance table associates a specific vehicle with a defined route. Therefore, Route Instance is a simple associative table.

Case Study #3, A.Datum Corporation

Background.

A. Datum Corporation is a large law firm. Currently, the firm uses a commercial timesheet application to track billable hours. However, this application no longer meets the firm's needs. You are contracted to create a new Windows-based solution by using the Microsoft .Net Framework and Microsoft SQL Server.
Existing IT Environment.
Each lawyer uses a computer that runs either Microsoft Windows 2000 Professional or Windows XP Professional. Many lawyers travel frequently and use only portable computers. Most lawyers also use handled PCs that run Windows CE.
Each employee has a domain user account. The domain is served by a Windows 2000 domain controller. All employees use Internet Explorer 6.0.
Employees do not have VPN access to the corporate network. A firewall restricts incoming traffic to HTTP connections on TCP ports 80 and 443. The IT staff will not open additional ports.
Interviews Users Lawyer, Corporate Law Division.
I am a typical end user at A. Datum Corporation. With our current software, I find it laborious to make timesheet entries. We often postpone updating our timesheets. As a result, we often forget important task details. The new timesheet application must be better suited to the way we work.
Typically, I spend each afternoon writing a contract. However, I might also receive 10 telephone calls related to other cases, and I might respond to 10 e-mail messages. The new solution should make easy to record each of these tasks while I am working. We envision a taskbar-type interface that should always be displayed along the edge of the screen. This taskbar should contain toolbar-type buttons. These buttons should represent the legal clients whom we most frequently bill. Each time we begin a new task for a client, we should be able to click the button associated with that client to start a timer. Clicking the same button again, or clicking another client button, should stop the timer. A completed. The taskbar should also expand to show a more conventional timesheet interface. The expanded interface must allow us to sort, review, add and edit our entries. The new timesheet application should not require us to provide explicit name and password information. When we work at home, we want to be able to use the application over the internet. When we do so, the application should update the data immediately.
Lawyer, Criminal Law Division.
Each week we spend several hours making billable telephone calls. We make a large number of these calls while commuting to the office, while traveling to and from meeting and court appearances and while waiting at the courthouse. We want to be able to keep track of our telephone calls by using our handled devices. We need a simple timesheet application that runs on our devices and is similar to the taskbar application.
When we return to the office, the application should synchronize with our desktop computers and add the information from the handled device.
Business Stakeholders Business Manager.
We need a new solution to serve the needs of Team Leads and Business Planners. Each large project has a Team Lead. One responsibility of the Team Lead is to review and approve all timesheet entries before the entries can be used to create invoices. The new application should prevent Team Leads from viewing or approving entries that are unrelated to their projects.
My own staff consists of several Business Planners. They must be able to view all timesheet entries. In addition, they must be the only users who can add new clients, create new projects, close projects and assign lawyers to projects. After a project is closed, lawyers should no longer be able to bill to it and the project should be described as completed.
Team Leads and Business Planners often work at home or while traveling. Therefore, we want the new solution to be a Web application that is accessible from the Internet.
Accounting Manager For billing, we use a commercial software package. Each month, I create an invoice for each of our legal clients. Currently, I need to consult a timesheet report to look up the numbers of hours billed

by each lawyer to each client. Then, I must manually add a line item to the invoice for each lawyer's hours. This task is time-consuming and clients complain about the lack of detail in the invoice.
We want the new solution to include a utility that automatically creates invoices in our billing application. This utility should create the invoices once each month, on the last business day of the month. A sales representative from the billing software company told me that the billing software package is fully programmable. He can provide you with API documentation.
IT Department IT Manager.
Our IT staff consists of five people. None of them has any programming experience. The new application must include tools that alert us to all failures and help us resolve failures. The application must also be secure. Any Web application or application endpoint exposed to the Internet must require authentication.
Business Process Timesheet Entries.
Each timesheet entry is billable to a project. A given client might have several ongoing projects. Each timesheet entry includes a time, a lawyer and a task description. The following example is a typical entry:
Lawyer: John Chen Client: Fabrikam.Inc. Time: 18 minutes Project: Kite patent application Task Description: Sent e-mail message to Ben with technical questions about Kite
Data Migration.
Data from the existing timesheet application must be migrated to the new timesheet application. This data is in a proprietary format. From an examination of the existing application, you learn that all required data can be exported to a comma delimited file.

Questions, Case Study #3, A.Datum Corporation

QUESTION 1 You are writing the technical specification for your solution. Your new timesheet application must be able to access timesheet entry data. You need to specify the technology that will be used for accessing this data. Your solution must require the minimum development effort.
Which technology should you use?
A. a SQLConnection class
B. a .NET Remoting object that uses TCP channel and binary formatting
C. an XML Web service proxy class
D. an interop assembly
Answer: C
This is the best solution since data can also be accessed through the firewall. Lawyer, Corporate Law Division: When we work at home, we want to be able to use the application over the internet. When we do so, the application should update the data immediately. To update the data immediately, a data layer webservice will have to be called from the Windows Form Application. This can be accomplished by using an XML Web service proxy class to make the call.
Note:
.NET Remoting vs. XML Web Services
XML Web services offer a simpler model for distributed applications than that provided by .NET Remoting. XML Web services are fine-tuned for Internet scenarios and cross platform use. Although you can apply .NET Remoting in these scenarios, thanks to its SOAP formatter and HTTP channel, .NET Remoting is more suitable as a high-speed solution for binary communication between proprietary .NET components, usually over an internal network. And although XML Web services can't match the communication speed of .NET Remoting over a binary channel, they still lend themselves to high-performance designs thanks to their stateless nature and ASP.NET's multithreaded hosting service. Here's a quick overview of the major differences between the XML Web service and .NET Remoting technologies:

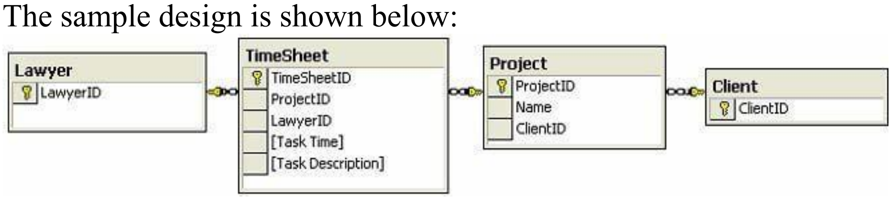
1. • The IT staff will not open additional ports: Because XML Web services work through Microsoft Internet Information Services (IIS) and ASP.NET, they can communicate with clients using the default HTTP channel (usually port 80). This means that consumers can use XML Web services just as easily as they can download HTML pages from the Internet. There's no need for an administrator to open additional ports on a firewall.
2. • Minimum development effort: Because of the restricted nature of XML Web services, the design issues are simplified. XML Web services are generally easier to create than remotable components (and easier to design well).
3. • XML Web services are more restricted than objects exposed over .NET Remoting. An XML Web service works in a similar way to a SingleCall .NET Remoting object. It isn't possible to create a singleton or a client activated object.
4. • Communication with .NET Remoting can be faster than XML Web service communication if you use a binary formatter. XML Web services support only SOAP message formatting, which uses larger XML text messages.
5. • XML Web services support open standards that target cross-platform use. For example, each .NET XML Web service has an associated WSDL document that describes how a client can interact with the service. Therefore, any client that can parse an XML message and connect over an HTTP channel can use an XML Web service, even if the client is written in Java and hosted on a UNIX computer.
6. • XML Web services are designed for use between companies and organizations. They can use a dynamic discovery mechanism or a UDDI registry that "advertises" services to interested parties over the Internet.
7. • XML Web services don't require a dedicated hosting program because they are always hosted by ASP.NET. That also means that they gain access to some impressive platform services, including data caching, Web farm ready session state management, authentication, and an application collection for global, shareable objects. These features, if required, can be extremely difficult to re-create by hand in a component exposed through .NET Remoting.

References:
Chapter 5: XML Web Services (RPC the Easy Way), http://www.perfectxml.com/WebSvcRPC.asp
Incorrect Answers:
A. SQLConnection is a class that is part of ADO.Net technology. The class on its own is not enough for data access. We must view solutions from a holistic view point.
B. Remoting requires more development effort than Web Services
D. This makes no sense. An interop assemble is a way to access data.

QUESTION 2 You are writing a conceptual diagram of the modules that must be developed for your solution. Which module or modules should be included?(Choose all that apply)
A. a Web application for Team Leads and Business Planners
B. a timesheet entry database
C. a billing database
D. a notification engine that sends timesheet entry reminders
E. a timesheet entry application
F. a Windows CE application
G. a utility that uploads information to the billing application
Answer: A,B,E,F,G
We identify all modules.
Incorrect Answers
D. This is not a requirement.
C: This is not required.

QUESTION .3 You are writing the technical specification for your solution. You need to select a technology for the new timesheet application.
Which technology should you use?
A. an XML Web service
B. a Web application
C. a console application
D. a Windows Forms application
Answer: B
There are three applications to be developed:
1. • A web application for Team Leads and Business Planners. The Business Manager wants "the new solution to be a Web application that is accessible from the Internet." (Refer to the hint given in Q.11)
2. • A simple time sheet Windows CE application for Lawyers in the Criminal Law Division. (Refer to the hint given in Q.2)
3. • A web application for Lawyers in the Corporate Law Division. This refers to this question.
It must be a web application because:
1. • Critical constraint: Only TCP ports 80 and 443 are open. A Windows Form, which uses an XML web service will be able to penetrate the firewall
2. • Our web application does not require any client installation.
3. • Data will be updated immediately when users work at home
4. • The underlying XML Webservice which the windows Form will use is accessible from the Internet, as required by the Business Manager
5. • It is stated: "We envision a taskbar-type interface that should always be displayed along the edge of the screen. This taskbar should contain toolbar-type buttons." A web application is capable of this.
Incorrect Answers:
A: An XML Web Service does not have the type of user interface required to build the application.
C,D: These alternatives will not meet the requirements.

QUESTION 4 A database architect on your team prepares a logical data model. The model includes entries that correspond to clients, projects and timesheet entries. You are reviewing the model.
Which entity relationship or relationships should be included?(Choose all that apply)
A. a Project entity is the parent of a Timesheet Entry entity
B. a Client entity is the child of a Timesheet Entry entity
C. a many-to-many relationship exists between a Client entity and a Project entity
D. a many-to-many relationship exists between a Project entity and a Timesheet Entry entity
E. a Client entity is the parent of a Project entity
F. a Client entity is the parent of a Timesheet Entry entity
Answer: A, E
A. Timesheets are billable to projects.
E. One client may have many projects
The sample design is shown below:



Incorrect Answers

B. Does not appear to make sense.
C. A client can have many projects, but a project may have only one client.
D. A project will have many timesheet entries, but a timesheet entry will have only one project
F. Timesheets belong to projects, not clients.

QUESTION 5 The invoice creation process must be dynamically monitored to track the following information:
.Average number of seconds to create an invoice
.Number of invoices created per second
.Total number of successfully created invoices
.Total number of failed attempts to create an invoice
Monitoring should occur with a minimum of development effort.
What should you do?
A. Write statistics to the database and use SQL Query Analyzer to dynamically monitor the statistics
B. Create a remotable Microsoft .NET class to contain statistics. Configure the class as singleton class. Write a utility that retrieves statistical information from this class
C. Write statistics to the application event log
D. Use custom performance counters
Answer: D
Custom PerformanceCounter objects can be created to collect and monitor performance data while the application is running.
Incorrect Answers:
A. This takes more time and is not as efficient as the proposed solution.
B. Will require too much effort.
C. This would work, but viewing and analyzing the statistics would be a hassle.
Using performance monitor is much easier.

QUESTION 6 You are creating a high level class diagram for your solution. You need to add one or more business entities to the diagram.
Which entity or entities should you add? (Choose all that apply)
A. Task time
B. Pop-up window
C. Project
D. Lawyer
E. Client
F. Task description
G. Time entry
Answer: C, D, E, G
A use case diagram documents the following design activities:
1. • Identifying the system
2. • Identifying actors
3. • Defining the interactions between the actor and the system
4. • Determining the system boundary
Incorrect Answers:
A. Task time is part of a time entry.
B. A popup window is not a business object.
F. Task Description is also part of the time entry.

QUESTION 7 You are analyzing the feasibility of your solution. You need additional information to decide whether the solution is technically possible.
Which additional information do you need?
A. A copy of the existing timesheet application
B. A prototype of the Web application that will be used by Team Leads and Business Planners
C. A list of the different models of Windows CE devices that need to be supported
D. API information and requirements related to integration with the billing application
Answer: D
The Accounting Manager has the following requirement: "We want the new solution to include a utility that automatically creates invoices in our billing application." It is also stated that the billing software package is fully programmable." Thus we will need the API documentation.
You would need to ensure that these API will let you satisfy the Accounting Manager's. If the API's cannot satisfy the requirements then that will greatly affect the feasibility of the project.
Incorrect Answers:
A. Why would you need a copy of the existing application to see if a new updated application is feasible?
B. Access to a prototype application will not assist you determine if your proposed application is feasible.
C. As long as the handhelds supports Windows CE, it is sufficient.

QUESTION 8 You are designing a strategy to migrate data from the existing timesheet application to the new application.
Which tool or technology should you use?
A. XML Schema Definition tool (xsd.exe)
B. COM interoperability
C. Microsoft SQL Server Data Transformation Services (DTS)
D. Microsoft SQL Server replication
Answer: C
(DTS) provides a set of tools that lets you extract, transform, and consolidate data from disparate sources into single or multiple destinations.
Incorrect Answers:
A. The XML Schema Definition tool generates XML schema or common language runtime classes from XDR, XML, and XSD files, or from classes in a runtime assembly.
B. Interoperability with COM, or COM interop, enables you to use existing COM objects while transitioning to the .NET Platform at your own pace.
D. Using replication, you can distribute data to different locations, to remote or mobile users over a local area network, using a dial-up connection, and over the Internet. Replication also allows you to enhance application performance, physically separate data based on how it is used (for example, to separate online transaction processing (OLTP) and decision support systems), or distribute database processing across multiple servers.

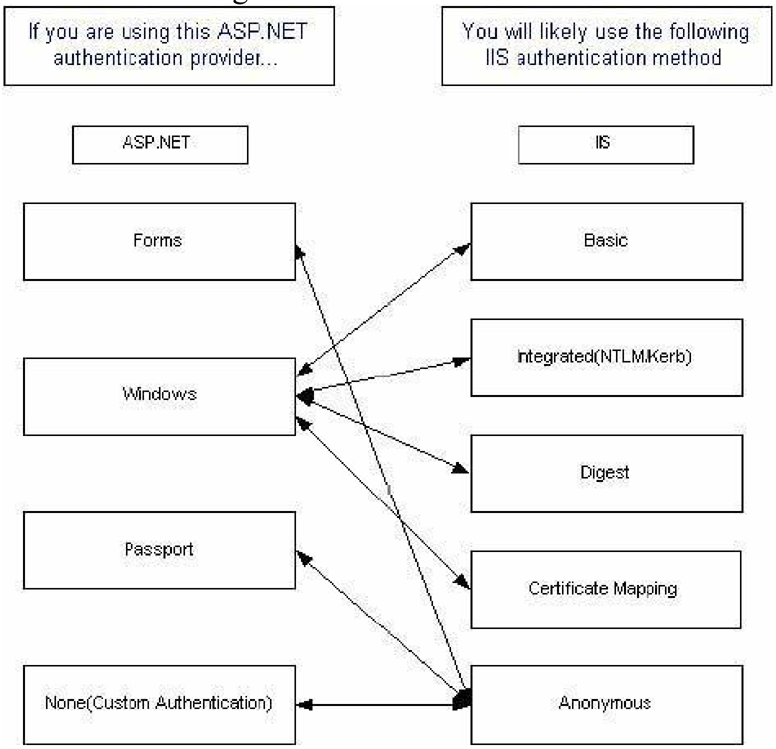
QUESTION 9 You are writing the operational requirements document for your solution.
Which should you include?
A. The application must encrypt all time entry data on client computers and in the database, and data must be encrypted when transmitted over the internet.
B. The IT staff will be responsible for fixing bugs in the code
C. The IT staff must be alerted to application problems
D. The application can have no single point of failure

Answer: C
This is an operational requirement. It satisfies the requirement of the IT Manager:
"The new application must include tools that alert us to all failures and help us resolve failures."
Incorrect Answers:
A. The requirement just requires us to ensure that the application is secure and that users are authenticated.
B. The IT staff are not programmers, so they will not be able to fix bugs.
D. There is no requirement for this.

QUESTION 10 The Web application used by Business Planners generates many types of reports. One type displays billing information over specified timeframes. The other selects a lawyer and a timeframe and the report displays the average number of minutes billed by that lawyer per day and the average number of minutes billed to each client per day over that timeframe. You must ensure that this report is generated with a minimum network traffic.
What should you do?
A. Use Microsoft SQL Server indexes to optimize the data calculations
B. Implement the calculations in a business layer class
C. Implement the calculations in a data layer class
D. Use Microsoft SQL Server stored procedures for the data calculations
Answer: D
When SQL statements and conditional logic are written into a stored procedure, they become part of a single execution plan on the server. The results do not have to be returned to the client to have the conditional logic applied; all of the work is done on the server.
Note: To remove bottlenecks while accessing and writing to the database, you can perform the following steps:
1. • Identify potential indexes, but do not index excessively.
2. • If using Microsoft SQL Server, use SQL Server Profiler and Index Tuning Wizard.
3. • Monitor total processor usage; desired range is 75 to 80 percent processor time.
4. • Analyze query plans by using Query Analyzer to optimize queries.
5. • Use stored procedures to maximize performance.
6. • Normalize data that is written frequently.
7. • Denormalize data that is read frequently.
Incorrect Answers:
A. Indexes can help to retrieve data faster from SQL server but not minimize network traffic.
B, C. Such classes can only add to network traffic.

QUESTION 11 The Web application used by Team Leads and Business Planners requires an authentication mechanism.
Which pair of authentication technologies should you recommend?
A. IIS Anonymous authentication with ASP.NET Passport authentication
B. IIS Anonymous authentication with ASP.NET Forms authentication
C. IIS Basic authentication with SSL and ASP.NET Windows authentication
D. IIS Integrated Windows authentication with ASP.NET Windows authentication
E. IIS Basic authentication with SSL and ASP.NET Forms authentication
Answer: C
Explanation: Each employee has a Windows 2000 domain user account. This solution will work because the User Name and Password as passed in as strings in clear text which can work through port 80 & 443. Because of this, Microsoft recommends using SSL with IIS Basic authentication.

Please refer to diagram below:



Incorrect Answers:
A, B: The IT Manager: Any Web application or application endpoint exposed to the Internet must require authentication. Anonymous authentication fails this requirement.
1) D: Because of the firewall restrictions, IIS Integrated Windows authentication cannot be used because it requires additional ports to be open. Kerberos uses port 88. There are other ports as well like 464 (kpasswd) and 543 (klogin).
2) E. This would work, but is less than ideal. Using ASP.Net forms authentication you will need to somehow maintain a list or database of valid users, and provide some way for them to change their passwords. Using Windows authentication you do not have to worry about that

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QUESTION 12 You are validating the physical design of a data a data layer class that will return a set of time entries from the timesheet database. This class will be used by the Web application for Team Leads and Business Planners and, indirectly, by the new timesheet application. The class must use connection pooling, and it must be as secure and as flexible as possible. You need to specify a Microsoft SQL Server authentication strategy that meets these requirements.
Which strategy should you use?
A. The data class uses SQL Server authentication with an application specific SQL Server account. The account name and password are embedded in a connection string
B. The data class uses Windows authentication when connecting to the database and impersonates a specific account created for operations on the database
C. The data class uses Windows authentication when connecting to the database and impersonates the application user
D. The data class uses SQL Server authentication with the SQL Server sa account
Answer: B
This is both secure and flexible. A specific account implies that connection pooling can be achieved.

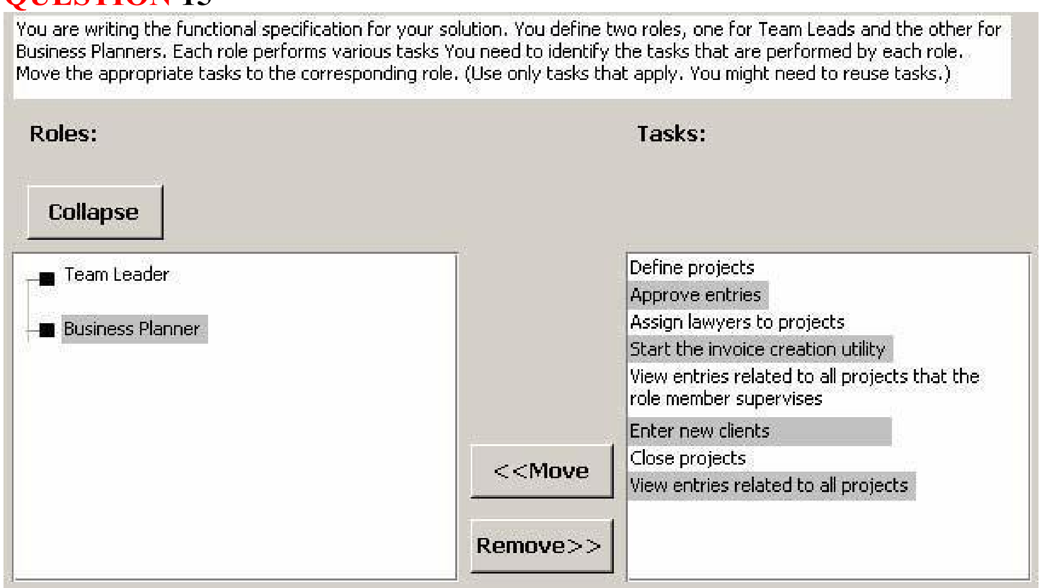
Note 1: There are some drawbacks to using integrated security, most of which you can overcome. Because integrated security requires a Windows account, it defeats connection pooling if you impersonate each authenticated principal using an individual Windows account. However, if you instead impersonate a limited number of Windows accounts, with each account representing a particular role, you can overcome this drawback. Each Windows account must be a domain account with IIS and SQL Server in the same or trusted domains. Alternatively, you can create identical (including passwords) Windows accounts on each machine. If you configure SQL Server to use Windows Authentication, you could create one Windows account for read-only operations and another Windows account for read/write operations. You then map each Windows account to a SQL Server login and establish the desired permissions. Using application logic, you then determine which Windows account to impersonate when performing database operations. In SQL Server, you can add any Windows user account as a member of a fixed database role.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/vsent7/html/vxconDatabaseSecurity.asp
Note 2: Windows authentication requires a Windows account for database access. Although it might seem logical to use impersonation in the middle tier, you must avoid doing so because it defeats connection pooling and has a severe impact on application scalability.
To address this problem, consider impersonating a limited number of Windows accounts (rather than the authenticated principal), with each account representing a particular role.
For example, you can consider the following approach:
1. • Create two Windows accounts, one for read operations and one for write operations. (Or, you might want separate accounts to mirror application-specific roles. For example, you might want to use one account for Internet users and another for internal operators and/or administrators.)
2. • Map each account to a SQL Server database role, and establish the necessary database permissions for each role.
3. • Use application logic in your data access layer to determine which Windows account to impersonate before you perform a database operation.
4. • Note Each account must be a domain account with Internet Information Services (IIS) and SQL Server in the same or trusted domains; or, you can create matching accounts (with the same name and password) on each computer.
Incorrect Answers:
A. This is not flexible.
C. This is not feasible because for connection pooling to work the same user account has to be used.
D. It is not secure to use the System Administrator (sa) account.

QUESTION 13 Your team builds a daily release of the timesheet application for testing by the quality assurance(QA) team. You find that the volume of bugs is threatening your project schedule. The following example is a typical bug: One method should return a dataset that is based on a date range given as input parameters. However, when the method queries the database, it erroneously interchanges the beginning date and the end date. An empty dataset is always returned. You need to minimize these kinds of bugs using a minimum of development effort and QA effort.
What should you do?
A. Require more frequent builds
B. Require the QA team to perform more integration testing
C. Require engineers to perform complete integration testing before submitting code
D. Require engineers to perform adequate unit tests before submitting code
Answer: D

It is unit testing that is causing the problem.
Incorrect Answers:
A. More frequent builds will not help. We will have the same number of bugs, but just find them more often.
B. The role of the QA team is not to fix bugs. They should be sorted out before QA.
C. In the example, the method that always returns an empty dataset is one that should be fixed in unit testing.

QUESTION 14 In your first code review, you detect several violations of your policies. The following examples are typical violations:
Data controls are used in presentation layer components Windows UI elements are added to Web UI projects
Shareware user controls are used
You must establish and enforce standards to prevent these kinds of violations. You want to enforce the standards with a minimum of administrative effort.
What should you do?
A. Base projects on an appropriate Microsoft Visual Studio .NET Enterprise Template
B. Conduct more frequent code reviews
C. Use Active Template Library projects
D. Write a utility that uses Microsoft .Net reflection to examine compiled code for inappropriate types
Answer: A
An enterprise Template allows you to enforce policies and rules.
Incorrect Answers:
B. More frequent code reviews would be time consuming and not required.
C. Active Template Library projects are for C++.
D. This is not appropriate.

QUESTION 15



Answer: See table below:

Roles	Tasks
Team Lead	View entries related to all projects that the role member supervises
	Approve entries
Business Planner	View entries related to all projects
	Enter new clients
	Define projects
	Close projects
	Assign lawyers to projects

Incorrect Answers:
Start the invoice creation utility: Performed by the Accounting Manager.

Case Study #4, Fabrikam, Inc.

Background
Fabrikam, Inc manufactures and sells kites on a hole sale basis to more than 5.000 customers. Currently, the company maintains a static Web site and receives customer orders by telephone. It obtains raw materials from two vendors. The company contracts you to design and develop a solution by using the Microsoft .NET Framework that will enable customers to place orders over the internet.
The solution will include a new customer Web site. Testing and deployment of the site must be complete in six months.
Existing IT Environment
Fabrikam, Inc has a private VPN. Salespeople use VPN to access e-mail and file shares when they travel. The company uses an accounting application to manage the customer billing process. The accounting application runs on a mainframe computer. This application accepts connections over TCP/IP and it uses its own binary communication protocol. It responds to requests slowly and supports a maximum of two concurrent TCP/IP connections. It cannot store information about shipping status. The company will continue to use the accounting application
Interviews Users Sales manager.
Our salespeople need access to customer information and order history when they are in the office and when they travel in the field. We categorize our customers by sales volume. We use three categories, in ascending order of volume, they are Bronze, Silver or Gold. Customer in higher categories pay lower prices. We currently store category pricing on paper. I want to store category pricing as part of the new solution. I want also the ability to change pricing every quarter. Each customer must be able to see only its own pricing information. Customers must not learn that different pricing categories exist.
Manufacturing Manager
I want a solution that tracks my raw material inventory and helps me order raw materials
Shipping Manager
We spend too much time handling customer telephone calls. Customers often telephone to learn the shipping status of their orders. Our staff needs to find each printed order and then report the shipping status to the customer It Department IT Manager I own this project and I will be working directly with you. Eventually, I want to locate all our business process on the Internet. However, our highest priority is to make our customers happy. Anything makes our salespeople more efficient will make our customers happier. One of our bigger customer requests is the ability to place orders at the end of the month. Currently, we cannot fulfill that request because we do not have enough staff to answer the telephones.

Customers also want better information about order status. They want to track the stages of their orders and monitor shipping status. They want to be notified by e-mail when an order ships. Currently customers do not receive any notification, because we do not have enough staff to telephone them when orders ship. We invest a lot of money in building our brand. Whenever our customers have a request that involves our company, I want them to be able to go to the Web site of Fabrikam, Inc to complete the request. Customers should not be redirected to another site with another company's branding for such requests. Our competitors have very successful Web sites, so we must act quickly to ensure that our Web site offers all appropriate functionality. I manage a staff of four people. They all have experience with ASP, but no experience with ASP.NET. I want at least two of my staff to participate in the development project. My staff will maintain the new application after its initial deployment. We will host the application ourselves. We are upgrading our network to handle the expected traffic. We want the Web site to be as easy as possible to administer. During peak loads, we must be able to monitor how many customers in each customer category are logged on to the site.
I do not want to modify our existing accounting application and I do not want to add any applications to the mainframe computer. In four months our shipping partner will begin using an XML Web service to track shipments. We already have the documentation for the interfaces that our partner will support.
Finance Department Chief Financial Officer.
This project is critical to our business. However, we have only a limited amount of money to spend. We must ensure that the scope of the project will maximize the benefit to our customers.
Business Process.
Customers place orders for Kites once a month. After an order is placed, it cannot be changed. Each order is taken over telephone by a salesperson. The salesperson immediately enters the order into the accounting application by using a client computer. The order is then printed and delivered in the shipping department. The shipping department completes and ships the order from existing inventory. The order is the marked as complete.
Many customers have standing orders. A standing order is a list of products that the customer expects to need each month. Currently, the sales department records standing orders on paper.
Customers with standing orders sometimes override their standing order by placing a monthly order. The accounting application does not store shipping information for an order. When an order is placed, the accounting application considers the order complete for billing purposes.

Questions,. Case Study #4, Fabrikam, Inc

QUESTION 1 You are creating the physical design for the customer category data model. For reporting purposes, you want to optimize access to customer category data. You define a Customer table and a Category table.
What should you do next?
A. Define three foreign key columns in the Category table, such that each column references a different parent row in the Customer table. Define indexes on the foreign key columns.
B. Define three foreign key columns in the Customer table, such that each column references a different parent row in the Category table. Define indexes on the foreign key columns.
C. Define a foreign key column in the Category table that references the parent row in the Customer table. Define an index on the foreign key column.
D. Define a foreign key column in the Customer table that references the parent row in the Category table. Define an index on the foreign key column.
Answer: D
D: This solution is depicted below

Incorrect Answers:
A,B,C: All other designs to link Customer table and Category table are invalid.

QUESTION 2 You are designing the implementation of the interface to the accounting application. You need to ensure that the new application can communicate with the accounting application.
What should you do?
A. Create an XML Web service class
B. Create TcpClient objects
C. Create TcpListener objects
D. Create an XML Web service proxy class by using Wsdl.exe
Answer: B
B: TcpClient provides client connections for TCP network services.
Reference: TCPClient,
http://msdn.microsoft.com/library/default.asp?url=/library/enus/cpref/html/frlrfsystemnetsocketstcpclientclasstopic.asp
TCPListener,
http://msdn.microsoft.com/library/default.asp?url=/library/enus/cpref/html/frlrfsystemnetsocketstcplistenerclasstopic.asp
Incorrect Answer:
A: The accounting application which runs on a mainframe computer only accepts connections over TCP/IP and uses its own binary communication protocol.
C: TcpListener listens for connections from TCP network clients. This class is from the System.Net.Sockets namespace.
D: The accounting application which runs on a mainframe computer only accepts connections over TCP/IP and uses its own binary communication protocol.

QUESTION 3 Which module or modules should you include in your solution concept for Fabrikam, Inc? (Choose all that apply)
A. Data store
B. Interface to mainframe computer
C. Web site for customers
D. Feature set for ordering raw materials
E. Web site for salespeople
Answer: A, B, C, D, E
A: Data stores are part of a solution concept as they require designing.
B: An interface to the mainframe computer is needed.
IT Manager: I do not want to modify our existing accounting application and I do not want to add any applications to the mainframe computer.
C, D: The company contracts you to design and develop a solution by using the Microsoft .NET Framework that will enable customers to place orders over the Internet
E: Sales manager: Our salespeople need access to customer information and order history when they are in the office and when they travel in the field.
Reference: MOC 2710:

Note: Solution Concept
The Solution Concept is part of the Vision/Scope Document, which is a deliverable of the Envisioning Phase of the MSF process model. The Solution Concept outlines the approach the team will take to meet the goals of the project and provides the basis for proceeding to the Planning Phase. After identifying the business problem and defining the vision and scope, the team creates the solution concept that explains in general terms how the team intends to meet the requirements of the project. The Solution Concept can serve as a business case. Because it focuses only on the concepts and not the details of the solution, it is not very technical. The Solution Concept includes a conceptual model of the system's software and hardware architectures. The solution concept is the proposed method of addressing the issues identified as being in scope. The team must evaluate the various options and select the one that is the best for its particular situation. A team can then narrow the range of solution concept options to a few alternatives.

QUESTION 4 You are planning the deployment of the new application. You need to decide how to migrate customer data on the shortest possible time.
What should you do?
A. Load the customer data into the new application from Active Directory
B. Create a Data Transformation Services package to load the customer data into the new application from the mainframe computer
C. Create an interface to the accounting application. Always access customer data from the accounting application
D. Create a Data Transformation Services package to load the customer data into the new application from the customer category data
Answer: B
Explanation:
B: Customer data may have to be expanded to include new field, such as shipping status. The existing customer data on the mainframe should not be modified otherwise there would be a need to make modifications to the Accounting Application on the mainframe.
Incorrect Answers
A: Incorrect
C: There is no data migration at all. There is only two TCP/IP channels to communicate.
D: Customer data is located in the accounting application

QUESTION 5 You are writing a document that identifies potential project risks.
Which business constraint poses the greatest potential risk?
A. The solution must be hosted by Fabrikam, Inc
B. Testing and deployment of the customer Web site must be complete in six months
C. The shipping partner will deploy the XML Web service in four months
D. All customers will try to place orders at the end of the month
Answer: D

QUESTION 6 You are validating your physical design. You need to ensure that the design maps to the categorization requirements for customer pricing.
Which member should you include in the design?
A. A Get Price method of a Product class with no parameters
B. A Price property of a Product class
C. A Price property of a Customer class

D. A Get Price method of a Product class with a single Customer Object parameter
Answer: D
D: By passing the Customer Object as a parameter to the Get Price method of a product class, we can assign a different price based on the customer type.
Incorrect Answers:
A,B,C: All other designs will not allow different customers to have different prices for a product.

QUESTION 7 You are writing a list of integration requirements for your solution.
Which requirement or requirements should you include? (Choose all that apply)
A. Order data must be read from the accounting application
B. Shipment tracking must be read from an XML Web service
C. Customers must be redirected to another Web site to track shipments
D. Customers must be able to place orders by using an XML Web service
E. Order data must be written to the accounting application
F. Order data must be e-mailed to the salespeople
Answer: A, B, E
A: The salespeople need access to customer information and order history Under the old system, the staff needs to find each printed order and then report the shipping status to the customer. The new system should allow them to access order data.
B: This is a requirement.
Manufacturing Manager: I want a solution that tracks my raw material inventory and helps me order raw materials.
IT Manager: Customers also want better information about order status. They want to track the stages of their orders and monitor shipping status.
E: The new application should support this action of the old system. "The salesperson immediately enters the order into the accounting application by using a client computer"
Incorrect Answers:
C: Customers are not to be redirected to any other websites
IT Manager: Customers should not be redirected to another site with another company's branding for such requests.
D: Customers must be able to place orders by using a Web Application.
Background: The company contracts you to design and develop a solution by using the Microsoft .NET Framework that will enable customers to place orders over the Internet.
The solution will include a new customer Web site.
F: It is the customers who want to be notified by e-mail when an order ships.

QUESTION 8 You need to recommend standard development processes for your solution. Your recommendations must assist the development team in learning to use the Microsoft .NET Framework as quickly as possible.
Which process or processes should you recommend? (Choose all that apply)
A. Create an automated build process
B. Install error-tracking software
C. Ensure that all assemblies pass unit testing
D. Permit individual developers to use any Microsoft .NET language
E. Hold regular code reviews
Answer: C, E

Incorrect answers:
A, B: These would not help.
D: Individual developers not should be given too much freedom to decide on what language to use as this may result in communication problems.

QUESTION .9 You need to create a physical design that meets the monitoring requirements of Fabrikam, INC.
What should you do?
A. Create and use a new event log to record each customer logon event
B. Use the built-in ASP.NET performance counters to monitor application load
C. Use the Trace class to record each customer logon event
D. Create and use new Number Of Items performance counters to monitor active customer sessions
Answer: D
Explanation:
D: The requirement stated by the IT Manager can be fulfilled using this solution.
Performance Monitor is suited for this.
IT Manager: During peak loads, we must be able to monitor how many customers in each customer category are logged on to the site.
Incorrect Answers
A: Not a suitable method.
B: We are not interested in application load
C: We are not interested in tracing.

QUESTION 10 You are writing the functional specification for your solution. You must include the customer pricing requirements.
Which requirement or requirements should you include? (Choose all that apply)
A. Pricing data must be encrypted
B. Each user must be uniquely identified
C. Content must be personalized by user
D. Order data must be read from the accounting application
Answer: B, C
Explanation:
B: To provide categorized pricing, we need to uniquely identify each customer.
C: Content is personalized based on customers.
Note: Sales Manager: We use three categories, in ascending order of volume, they are Bronze, Silver or Gold. Customer in higher categories pay lower prices. We currently store category pricing on paper. I want to store category pricing as part of the new solution. I want also the ability to change pricing every quarter. Each customer must be able to see only its own pricing information. Customers must not learn that different pricing categories exist.
Incorrect Answers:
A: We are concerned with protecting pricing categories, not price data. We only need to allow the customer to view their own their prices.
D: The accounting application is only used to manage the customer billing process. This has nothing to do with including the customer pricing requirements.

QUESTION 11 You are writing the technical specification for your solution. When a customer uses the new Web site to place an order, the new Web application must submit the order data to the accounting application.

You need to specify how the data will be submitted.
Which technology should you use?
A. Transactional serviced component
B. .NET Remoting object
C. Queued component
D. XML Web service
Answer: C
Explanation: Our chosen solution shall be queued components implemented with .Net Remoting.
Our solution must use a maximum of two concurrent TCP/IP connections.
Our constraint is stated here: The accounting application runs on a mainframe computer. This application accepts connections over TCP/IP and it uses its own binary communication protocol. It responds to requests slowly and supports a maximum of two concurrent TCP/IP connections. It cannot store information about shipping status. The company will continue to use the accounting application.
Queued Components (QC) provide an easy and safe way to implement background processing. Easy because a Queued Component can be called much like any other object, and the fact that the processing occurs asynchronously in the background is transparent. Safe because QC supports automatic retry functionality, so if the processing fails, it is automatically retried several times.
Reference:
Working with Queued Components,
http://msdn.microsoft.com/library/default.asp?url=/library/us/dnadvnet/html/vbnet10222002.asp
Incorrect Answers:
A,B,D: All the other suggestions will not be able to use a maximum of two concurrent TCP/IP connections reliably.

QUESTION 12 You need to ensure that the security implementation for the customer Web site meets the requirements of Fabrikam, Inc.
Which strategy should you use?
A. Use SSL to secure the logon page and customer order pages
B. Encrypt the customer category data and the product pricing data in the database
C. Encrypt only the customer category data in the database
D. Use SSL to secure only the logon page
Answer: A
The order pages must be secured as well.

QUESTION 13 You need to select a user authentication mechanism for the new customer Web site.
Which mechanism should you use?
A. Basic Authentication
B. ASP.NET Forms authentication
C. Integrated authentication
D. ASP.NET Windows authentication
Answer: B
We will need to create a custom login screen for customers.
Note: ASP.NET Authentication Providers and IIS Security
ASP.NET implements authentication using authentication providers, which are code modules that verify credentials and implement other security functionality such as cookie generation.
ASP.NET supports the following three authentication providers:

1. • Forms Authentication. Using this provider causes unauthenticated requests to be redirected to a specified HTML form using client side redirection. The user can then supply logon credentials, and post the form back to the server. If the application authenticates the request (using application-specific logic), ASP.NET issues a cookie that contains the credentials or a key for reacquiring the client identity. Subsequent requests are issued with the cookie in the request headers, which means that subsequent authentications are unnecessary.
2. • Passport Authentication. This is a centralized authentication service provided by Microsoft that offers a single logon facility and membership services for participating sites. ASP.NET, in conjunction with the Microsoft(r) Passport software development kit (SDK), provides similar functionality as Forms Authentication to Passport users.
3. • Windows Authentication. This provider utilizes the authentication capabilities of IIS. After IIS completes its authentication, ASP.NET uses the
authenticated identity's token to authorize access.

Authentication using non-Windows accounts

If you are planning to authenticate users at the application level, and the users do not have Windows accounts, you will typically configure IIS to use Anonymous authentication. In this configuration, consider the following .NET authentication modules:

1. • None: Use when you are not authenticating users at all, or developing custom authentication code.
2. • Forms: Use when you want to provide users with a logon page.
3. • Passport: Use when you are using Passport services.

Reference:
http://msdn.microsoft.com/library/enus/dnbda/html/authaspdotnet.asp

Incorrect Answers:

A. This will not work. We need every user identified.

C. The customers are not users in the network. Customers should be able to register themselves via web and login through a login form.

QUESTION 14 You are writing the conceptual design for your solution. The Sales Manager sends you a spreadsheet containing sample data.

Which new fact should you add to your conceptual design ?

A. Standing orders are monthly, quarterly or annually

B. Customer has one standing order

C. Customer has a unique ID

D. Customer has several standing orders

Answer: C

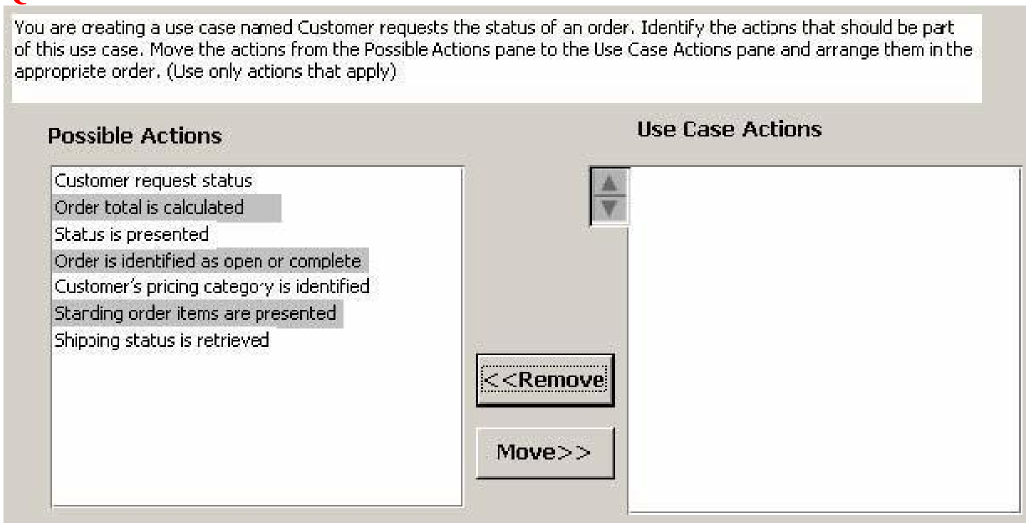
Incorrect Answers

A: Standing orders are defined as: A standing order is a list of products that the customer expects to need each month

B: Customer may or may not have one standing order: Many customers have standing orders.

D: Customer may have only one standing order

QUESTION 15



Answer:
A. Customer request status
B. Order is identified as open or complete
C. Shipping status is retrieved
D. Status is presented
Explanation: Business Process
1a: Customers with standing orders sometimes override their standing order by placing a monthly order. - OR -
1b: Customers place orders for Kites once a month.
Business Rule: After an order is placed, it cannot be changed.
2: The order is still open until the shipping department completes and ships the order from existing inventory. It is stated: The shipping department completes and ships the order from existing inventory. The order is then marked as complete.
3: The order is then marked as complete.
4: The shipping department completes and ships the order from existing inventory.
Incorrect Answer:
1. • Standing Order Items are presented: We are interested in the order status only
2. • Order Total is calculated: We are interested in the order status only
3. • Order is identified as open or complete: We are interested in the order status only furthermore, after an order is placed, it cannot be changed.
4. • Customer's pricing category is identified: We are interested in the order status only.

Case Study #5, Northwind Traders

Background
Northwind Traders operates retail stores in 16 countries worldwide. The company sells a wide variety of furniture, dining and kitchen goods, bath end bedding accessories and other specialty items for the home. Products are delivered to retail stores from regional distribution centers.
The company plans to offer its products in an online store, which will also be serviced by the regional distribution centers. The company contracts you to design and implement a Microsoft .NET solution architecture for the online store. The new online services will be made available in three cities in a pilot implementation. If the pilot is successful, the company will deploy the online store worldwide over the next 13

months. The worldwide deployment must be completed without any additional development effort.
Existing IT Environment.
The existing corporate network includes both Microsoft Windows NT Server 4.0 computers and Windows 2000 Server computers in a single domain. Employees use desktop computers that run Windows XP Professional and Microsoft Office XP. The human resources department has its own intranet, which uses Internet Information Services (IIS) and Microsoft SQL Server 2000.
Product inventory functions are currently performed by a mainframe computer. Users connect to the mainframe computer by using terminal emulation software on their desktop computers. The regional distribution centers are connected to the main office by a dedicated T1 frame relay link. Every night, the distribution centers update the inventory data on the mainframe computer.
Interviews IT Department IT Manager.
I manage a staff of 50 trained technicians who are located around the world. We employ two technicians at the main office in each country where we do business. The technicians spend most of their time troubleshooting computers that stop responding. We want a replacement for the terminal emulation software that we currently use. The new software should still permit us to use the mainframe computer to print reports. It should also provide secure access to the mainframe computer from the Internet. The development and deployment of the mainframe solutions should occur during the pilot implementation of the online store.
Lead Developer.
Five developers work on my staff. They are responsible for maintaining an inventory management application on the mainframe computer. They also maintain the human resources intranet. They are proficient in Microsoft Visual Basic Scripting Edition (VBScript) and ASP. They can also use several mainframe development languages.
Finance Department Chief Financial Officer.
We want to be able to update product information more frequently. Currently, updating the product information from our vendors is a time-consuming process. Replacing this process is essential if we want to remain competitive in the marketplace. We will continue to perform inventory reporting from the mainframe computer.
Business Stakeholders Business Manager.
As a global company, we have some unique challenges. We must be able to present our online store in a way that is appropriate to each locale in which it is viewed. In particular, we need to display currencies and calendars in the format that is most familiar in each locale. Currently, we use an international company to perform credit card verification for our retail stores. We want to use the same company's XML Web Service to perform
verification for our new online store. One key goal is to protect the confidentiality of credit card information during online transactions.
Marketing manager
Currently, we analyze customer spending by examining paper reports that are generated each month by the mainframe computer. These reports provide limited data and we cannot perform any additional analysis of the data. Our online store will require us to analyze data that relates to virtual shopping carts. Analyses must be performed several times each month in a variety of ways, such as by customers, by promotion, by geographical location and by time period.
Users Inventory Manager
The terminal emulation software is slow and difficult to use. It often causes our computers to stop responding. In addition, we need to remember several different user names and passwords to access our desktop computers and to use the mainframe computer. This requirement is difficult and frustrating.
Business Process
Northwind Traders obtains products from 15 different vendors. Once a month, a magnetic tape is sent by each

of the vendors to the main office of Northwind Traders. These tapes are used to update the product data in the mainframe computer. The tapes include data relating to new products and discontinued products. They also include pricing changes for existing products. Each tape provides product names and descriptions in several different languages. Each vendor uses a different format for the data on tape.

Questions Case Study #5, Northwind Traders

QUESTION 1 You are establishing a new development environment for the online store application. You are using source code control(SCC) software. Every night, you must perform software builds that use the source code currently in SCC.
Which action or actions should you take? (Choose all that apply)
A. Copy the most current source code from SCC onto the lead developer's computer.
B. Check all source code into SCC every night
C. Check all source code into SCC after unit testing
D. Copy the most current source code from SCC onto an isolated build computer
Answer: C, D
Explanation:
C. You should only check in source code in SCC after it has been tested.
D. As the question states, you must perform software builds that use the source currently in SCC, hence it is a good practice to copy the source code onto an isolated build computer.

QUESTION 2 You are creating the data model for a table named Product. This table will contain data relating to products sold by Northwind Traders. Each product can belong to more than one category. Categories include furniture, bedding, bath accessories and kitchen goods.
Which entity or entities should you model?
A. A Product entity that contains attributes for three Category names and descriptions
B. A Product entity and a Category entity that are related by a ProductID attribute
C. A Product entity and a Category entity that are related by a ProductID attribute and a CategoryID attribute
D. A Product entity, a Category entity and a ProductCategory entity that are related by a ProductID attribute and a CategoryID attribute
Answer: D
Explanation: There is a Many-to-Many relationship between Product and Category but some Relational DBMS (including SQL Server) are not able to model Many-to-Many relations. This would require an additional ProductCategory entity.

QUESTION 3 You want to establish development process that will speed the detection of development errors.
Which two processes should you recommend?(Each correct answer presents part of the solution)
A. Daily integration testing
B. Daily validation of application build
C. Daily build of application code
D. Daily system testing
E. Daily code reviews
Answer: B,C
Explanation: Daily build of application code and B. Daily validation of application build would be two recommended process to speed the detection of development errors.
Reference:

Module 1 in MOC2710 Note: MSF recommends the preparation of frequent builds of the components of a solution for testing and review. This approach applies to developing code in addition to builds of hardware and software components. By creating daily builds, you can ensure that you understand the stability of the total solution and have accumulated ample test data before releasing the solution.
Using the daily build approach is particularly effective for larger, complex projects that are divided into smaller subsystems. Separate teams develop and test these subsystems and then consolidate them into a single solution. Developers complete core functionality of the solution or product first, and add additional features later. Development and testing occur continuously and simultaneously. Creating daily builds ensures that all code is compatible and allows the various sub-teams to continue their development and testing iterations.
Incorrect Answers:
A: Requires a lot of effort.
D: Impractical.
E: Impractical.

QUESTION 4 The online store application needs to be localized. You plan to use the localization support in the Microsoft .NET Framework.
Which localization feature or features are feasible? (Choose all that apply)
A. Support multiple character sets (MBCS)
B. Support right-to-left mirroring of Web pages
C. Automatically translate text for different cultures
D. Automatically convert currency values for different cultures
E. Support localized resources for different cultures
F. Automatically format currency for different cultures
Answer: E,F
E,F: Currency formatting and localized resources are supported.
Incorrect answers:
A: This is a C++ feature.
B: The .NET Framework does not support mirroring.
C, D: The .NET Framework does not support text translation or currency conversion.
This however, can be implemented by XML Web Services.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/vsent7/html/vxconlanguageissues.asp

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QUESTION 5 You must enable the marketing department to analyze data that relates to virtual shopping carts.
Which action or actions should you take? (Choose all that apply)
A. Create an OLAP interface to the mainframe computer to enable the marketing department to perform its analysis
B. Create OLAP cubes by using Analysis Services
C. Use Microsoft Excel and Pivot Table Services to enable the marketing department to perform its analysis
D. Use Data Transformation Services(DTS) to extract customer demographic information and order information to a Microsoft SQL Server computer at the main office
E. Use Microsoft SQL Server Replication to copy the customer demographic information and order information to a SQL Server computer at the main office
Answer: B,C,D
Explanation:
B. To use Pivot tables, you need a connection to an OLAP Cube which is provided by Analysis Servers in

Microsoft SQL Server.
C. Employee desktop computers have Office XP installed, so they can use Microsoft Excel and Pivot Table Services to perform its analysis.
D. You need to import the data into Microsoft SQL Server using DTS.
Reference:
OLAP Cubes,
http://msdn.microsoft.com/library/default.asp?url=/library/enus/comsrv2k/htm/cs_mmc_datawarehouse_sgee.asp
OLAP, DataGrid, and Ann Landers,
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/dnaskdr/html/askgui07022002.asp
Processing Objects Using Data Transformation Services,
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/olapdmad/agautomating_7rjn.asp
Incorrect answers:
A. The DBMS on the mainframe computer probably does not support OLAP Cubes.
E. Replication is not used to copy data from the mainframe to SQL Server.

QUESTION 6 You need to identify the primary actors who will participate in the use cases for the online store application.
Which type of actor should you identify?
A. delivery truck driver at a distribution center
B. Inventory management clerk at a distribution center
C. Customer
D. Accountant
Answer: C The purpose of the online store application is to serve customers.
Reference:
http://www.objectsbydesign.com/books/larman_notes/2-RequirementsModeling.html
Note:
An Actor:
1. • Is something with behavior such as person, computer system or organization.
• Actors are classified as:
a. o Primary actor has user goals fulfilled through using services of the system under development.
b. o Supporting actor provides a service to the system under development.
c. o Offstage actor has "somehow" an interest in the behavior of the use case.
2. • Actor is a role that a user plays with respect to the system.
3. • When dealing with actors is important to think about roles rather than people or job titles.
4. • Actors carry out use cases.
5. • A single actor may perform many use cases and many roles.

QUESTION 7 You need to deploy a new Web application that will enable employees to access the mainframe computer. You plan to use the services provided by Microsoft Host Integration Server.
What should you do?
A. Add an OBJECT tag with a CODEBASE attribute to the Web page for the ActiveX controls for Host Integration Server
B. Create a Windows Installer package and install the package on the desktop computers used by the employees
C. Use a group policy object (GPO) to advertise the application on the Start menu of the desktop computers used by the employees

D. Use XCOPY to distribute the components to the desktop computers used by the employees
Answer: A
Incorrect Answers:
B: This is a Web-application.
C: Since this is a Web-application, the OBJECT tag will be more appropriate.
D: This is a Web-application

QUESTION 8 You are creating the logical design for the online store application. You are retrieving a use case named "Customer places an order item in the virtual shopping cart".
Which object or objects should you include to support the use case?(Choose all that apply)
A. Transaction object
B. Virtual shopping cart object
C. Order item object
D. Customer object
Answer: B,C,D
Explanation: The use case clearly specifies nouns (objects) that should be included to support the use case. This implies Customer, Order Item and Virtual Shopping cart as objects.
Incorrect answers:
A. Transaction is not mentioned in the use case.

QUESTION 9 The company's inventory management application runs on a mainframe computer. You are creating the functional specification for a new Web application that will provide access to this application. You propose the use of Microsoft Host Integration Server.
Which requirement or requirements will Host Integration Server meet? (Choose all that apply.)
A. Web-based access to the inventory management application
B. Single user logon to a desktop computer and the mainframe computer
C. Secure connectivity through the internet
D. Ability to print mainframe computer reports
Answer: A, B, C, D
A. Host Integration Server provides ActiveX-enabled 3270 and 5250 clients.
B. Host Integration Server provides Single User Log-On which streamline and reduces management burden by automatically and simultaneously authenticating a user on both the Windows NT domain and on the host system.
C. Host Integration Server provides low-cost tunneled connectivity through the Internet for client-to-server and network-to-network VPN features.
D. Host Integration Server 2000 has a Host Print Service which provides server based 3270 and 5250 print emulation, allowing mainframe and AS/400 applications to print to a LAN printer supported by Windows 2000 and Windows NT Servers.
Reference: Microsoft Host Integration Server Product Overview and Features Overview, http://www.microsoft.com/hiserver/

QUESTION 10 After the online store is implemented, vendors will use data files instead of tape to deliver product update data. However, each vendor uses a different file format. Input files need to be processed to produce output files in a standard format. Output files will be submitted to the mainframe computer. You need to recommend a flexible solution for file processing.
What should you do?

A. Create a Windows service that periodically examines a folder for new files and processes them.
B. Use Microsoft Host Integration Server
C. Create a console application
D. Use Microsoft Biz Talk Server
Answer: D
Explanation: Microsoft Biz Talk Server is a more appropriate answer since it is able to transform various file formats into one specific file format. It has support for various document types. It has Data and transformation services and the application integration features in BizTalk Server can provide businesses with the tools they need to achieve a unified view of data and applications both within the organization and business partners.
Reference:
http://www.microsoft.com/biztalk/evaluation/features/default.asp
http://www.microsoft.com/biztalk/evaluation/overview/default.asp

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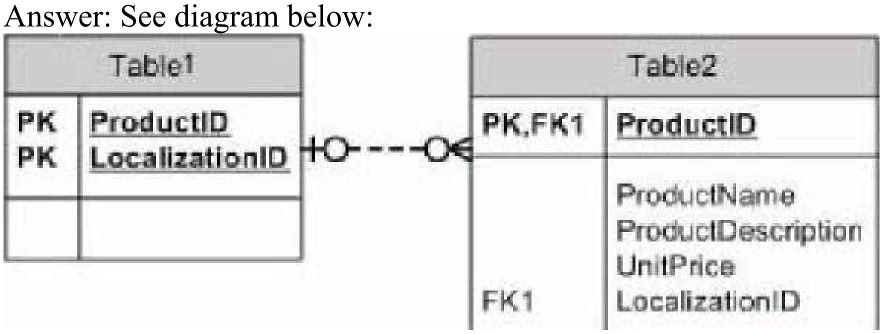
QUESTION 11 You create a product fact diagram to explain your solution.
Which fact or facts does the diagram show? (Choose all that apply)
A. A unique index will be created over the Product role
B. Each Product has at most one vendor
C. Every product is identified y one distinct ProductID
D. It is possible that some Products have more than one Vendor
E. A unique index will be created over the vendor role
Answer: B, C

QUESTION 12 You are creating the logical design for customer profiles. These profiles contain data that requires the highest possible level of security.
Which strategy or strategies should you recommend? (choose all that apply)
A. Log all failed customer logon attempts
B. Lock out a customer after a predefined number of failed logon attempts.
C. Encrypt all confidential customer information
D. Authenticate each customer by using a logon process
Answer: B, C, D
Explanation: We can recommend the above to implement the highest level of security for the solution. This is part of the STRIDE model.
The simplest way to apply the STRIDE model to your application is to consider how each of the threats in the model affects each Commerce Server component and each of its connections or relationships with other application components. Essentially, you look at each part of the application and determine whether any threats that fall into the S, T, R, I, D, or E categories above exist for that component or process.
Most parts will have numerous threats, and it is important that you record all of them. Following are some sample threats to a Web site. Note that this is a highly abridged list. In a two-hour threat-analysis meeting you will likely be able to identify 20 to 40 security threats.
1. • Threat #1 A malicious user views or tampers with personal profile data enroute from the Web server to the client or from the client to the Web server. (Tampering with data/Information disclosure)
2. • Threat #2 A malicious user views or tampers with personal profile data enroute from the Web server to the COM component or from the component to the Web server. (Tampering with data/Information disclosure)
3. • Threat #3 A malicious user accesses or tampers with the profile data directly in the database. (Tampering with data/Information disclosure)
4. • Threat #4 A malicious user views the Lightweight Directory Access Protocol (LDAP) authentication

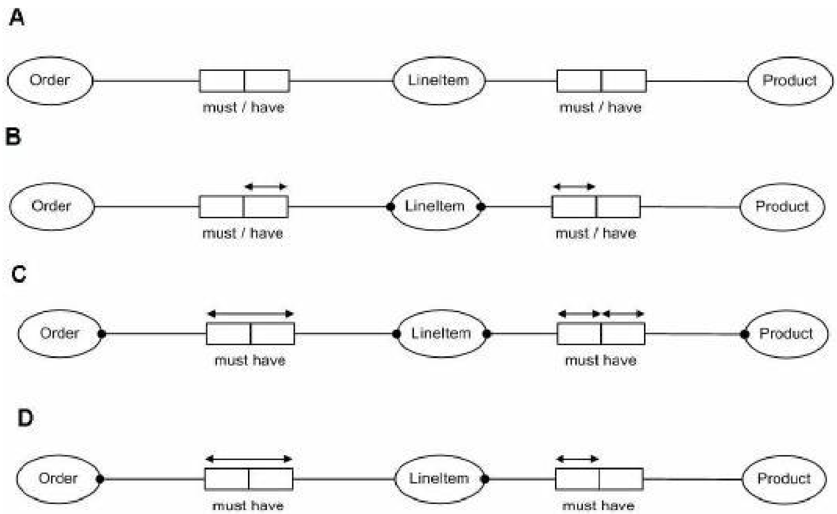
packets and learns how to reply to them so that he can act "on behalf of" the user. (Spoofing identity/Information disclosure/Elevation of privilege [if the authentication data used is that of an administrator])
5. • Threat #5 A malicious user defaces the Web server by changing one or more Web pages. (Tampering with data)
6. • Threat #6 An attacker denies access to the profile database server computer by flooding it with TCP/IP packets. (DoS)
7. • Threat #7 An attacker deletes or modifies the audit logs. (Tampering with data/Repudiation)
8. • Threat #8 An attacker places his own Web server on the network after killing the real Web server with a distributed DoS attack. (Spoofing identity; in addition, a particularly malicious user could instigate all threat categories by stealing passwords or other authentication data, deleting data, and so on.)
Reference, Commerce Server 2002, Applying STRIDE
Incorrect answers:
A. Logging alone is not effective, however no remedial action is specified. We should be able to ban certain IP addresses based on failed customer logon attempts.

QUESTION 13 You are creating the physical design for a database table that will contain product information. Your design must support multiple translations of the ProductName entity and the ProductDescription entity.
You evaluate four different designs.
Which design should you use?
Incomplete. Will be fixed in later versions.
A. Design A.
B. Design B.
C. Design C.
D. Design D.
Answer: See diagram below:



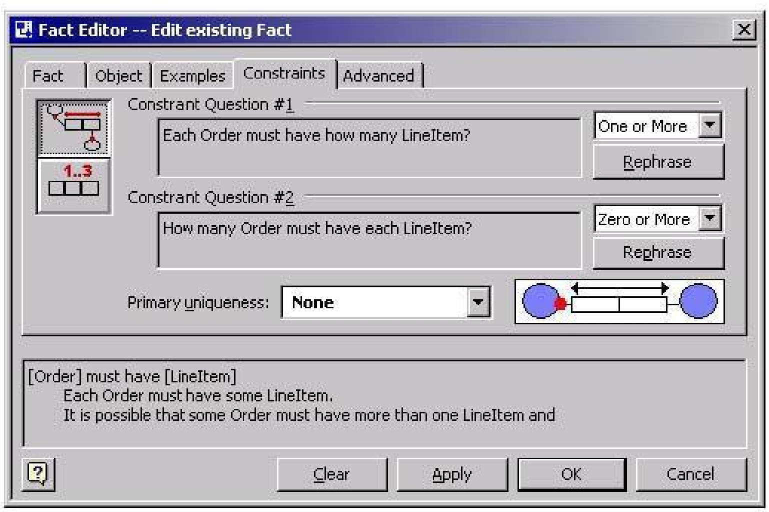
We have one Product definition with multiple translations and unit prices.

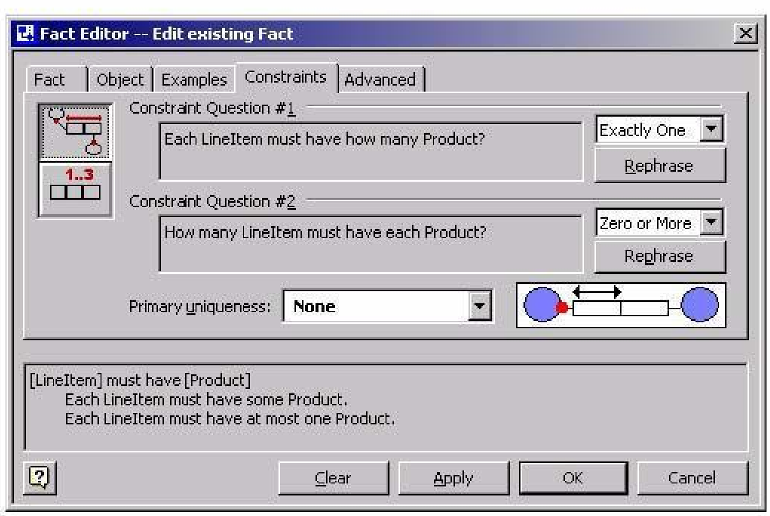
QUESTION 14 Your development team is creating the conceptual model of an order. You need to comply with the following business rules.
.Each order must have at least one LineItem
.Each LineItem must have only one product
Your team proposes four different Object Role Modeling (ORM) diagrams.
Which diagram should you use?



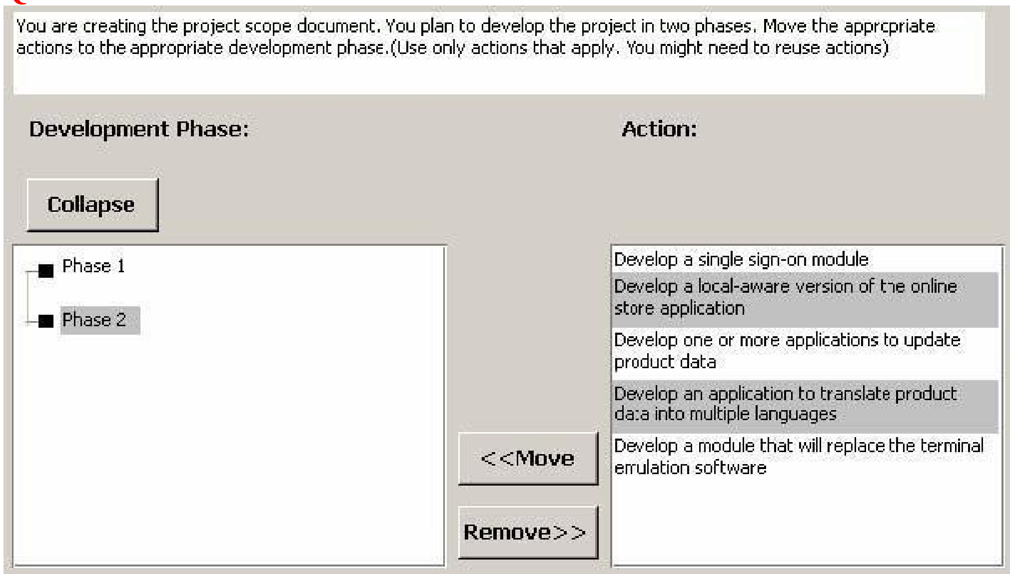
Answer: D

Explanation: See below. This is the explanation for the answer using Visio:





QUESTION 15



Answer: See table below.

Development Phase	**Action**
Phase 1	Develop a single sign-on module
	Develop one or more applications to update product data
	Develop a module that will replace the terminal emulation software
Phase 2	Develop a local-aware version of the online store application

Explanation: We have to optimize communication with the mainframe since it gives a lot of problems and has a high priority Incorrect answers:
Develop an application to translate product data into multiple languages: This is not needed. Product names and descriptions are already provided in the vender tapes, so there is no need to translate them.

Case Study #6, School of Fine Art

Background
The School of Fine Art is a large regional university with more than 45,000 students. Currently, the university manages course scheduling and course registration by using applications that run on an AS/400 computer. However, this solution is no longer adequate. The university has a long-term goal of migrating away from all of its existing AS/400 applications. You are contracted for a short term goal. You will replicate and extend the existing functionality course scheduling and course registration in a new Windows based solution. Your solution will consist of a new administrative application and associated user applications. You will develop the new application by using the Microsoft .Net Framework and Microsoft SQL Server
Existing IT Environment
The university uses two AS/400 applications to provide the existing functionality for scheduling and registration:
.A scheduling application is used by administrators, academic counselors and professors to establish and review course schedules for the upcoming academic term A registration application is used by students to register for the upcoming academic term
Both of these applications use a DB2 database named REG2. This database contains all current information relating to students, professors, course schedules and registrations.

Both of these applications can be accessed by using dedicated terminals located on campus, or by using terminal emulation software on computers that are connected to the university network. Both applications will be replaced as part of the new solution The university has two additional AS/400 applications, which were developed by a single software vendor:
.A grading application is used by professors to assign course grades to students at the end of each academic term A transcript application is used by administrators to generate official student transcripts
The grading application and the transcript application use a DB2 database named TRANS2. This database contains records of all courses completed by each student and all grades received by each student. TRANS2 and the associated applications will not be replaced.
Four registration periods occur each year. Each registration period begins one month before the beginning of an academic term. Registration closes when the term begins. A summary of student enrolment data is then exported by a batch export operation from REG2 to TRANS2.
Interviews Business Stakeholders Director, Department of Registrars
We want to make it impossible for students with overdue tuition accounts to register for courses.
Project Manager
Currently, students must wait in long lines to use dedicated terminals or on-campus computers during each registration period. We want to enable students to register over the Internet. In addition, we want to enable professors, academic counselors and administrators to access the new administrative application over the Internet.
Users Director, Department of South Asian Art.
Our existing scheduling application lets us specify prerequisite courses only in a very simple way. We can specify prerequisite relationships of the following type: 'ARTHI 101 and ARTHI 202 are required before registering for ARTHI 303'. However, we need to be able to specify more complex prerequisite relationships, such as 'ARTHI 101 and ARTHI 202 are required, or ARTHI 301 is required, before registering for ARTHI 303'.
Currently, a student cannot register for a course if it is fully enrolled or if the student has not completed the prerequisites. The professor who currently teaches a course section can issue various waivers. One type of waiver authorizes a student to register in a course section that is fully enrolled. Another type authorizes a student to register for a course section without completing the prerequisites.
Currently a professor issues a waiver by signing a paper form and sending it to the IT department. However, we want the new administrative application to enable professors to issue waivers online. After a professor issues an online waiver, the student should be able to register for the appropriate course.
Academic Counselors
If a student transfers from another university, the student's academic history will not exist in TRANS2. This omission can cause problems with prerequisite requirements. Academic counselors must be able to use the new administrative application to issue prerequisite waivers on the basis of our own evaluation of a student's academic history. When an academic counselor issues a waiver, it must apply to all sections of a course, except for sections that are fully enrolled.
IT Department IT Manager
High availability is critical to the success of this solution. We can have no single point of failure. For maximum scalability and flexibility, we do not want any Web server session affinity.
AS/400 Application Support Engineer
Initially, the IT department will generate an XML file to populate the new SQL Server database from REG2.
At the end of each registration period, we must be able to import into TRANS2 a list of all courses for which a student is registered. We need this information in an XML file format. All information about courses that students have already completed must be stored only in TRANS2.

At the end of each registration period, all course registration information for students should be archived and then removed from the SQL Server database. We have the Microsoft OLE DB Provider for DB2, which will enable access to student transcript data from TRANS2
Accounting Application Support Engineer.
Each course is worth between one and six credits. Tuition for each term is calculated on the basis of the total number of credits for which a student is registered during that term. Information about student tuition accounts is stored in an Oracle database named Accounting. This database is located on the same intranet that the new solution will use. Whenever a student adds or drops a course, the new student registration application must update the credit information for the student in Accounting. The credit data in Accounting must reflect the total number of credits for which the student is registered. We can also provide the SQL statements needed to update credit data and to establish whether a student's tuition account is past due. We have an OLE DB provider for Oracle and Oracle supports the Microsoft Distributed Transaction Coordinator (MS DTC).
Business Process Courses and Course Sections.
The university offers thousands of different courses each year. Each course has a name (for example, Introduction to Art History), a department code (for example, ARTHI), a three-digit course number (for example, 101) and a number of credits(for example, 5).
Each course is taught in one or more sections. However, not all courses are taught every term. Zero, one, or more than one section of any course might be offered in any given term. Therefore, the professor, section identifier, location, meeting time and maximum student count are properties of a section of the course rather than of the course itself.

Questions Case Study #6, School of Fine Art

QUESTION 1 The Web application for the student registration includes business logic that queries TRANS2. The purpose of the query is to establish whether a student satisfies the prerequisite requirements for a course. Preliminary testing shows that the query is slow. To optimize access to transcript data, you need to minimize the number of these queries.
What should you do?
A. Store the student's transcript data in the ASP.NET Session object. Use the default session state configuration
B. Cache the students transcript data in a session cookie.
C. Use ASP.NET page caching
D. Store the student's transcript data in the ASP.NET Session object. Configure ASP.NET to store session state in a Microsoft SQL Server database
Answer: D
Explanation: This is the best alternative for the fastest queries with scalability and flexibility.
For applications that rely extensively upon external resources, consider enabling Web gardening on multiprocessor computers. The ASP.NET process model helps enable scalability on multiprocessor computers by distributing work to several processes, one per CPU, each with processor affinity set to its CPU. This technique is called Web gardening. If your application uses a slow database server or calls COM objects that have external dependencies, to name only a couple of possibilities, it can be beneficial to enable Web gardening for your application. However, you should test how well your application performs in a Web garden before your decide to enable this.
Server-Side Method State Management Summary
The following table summarizes server-side state management options and when you should consider using them.
Method Use when

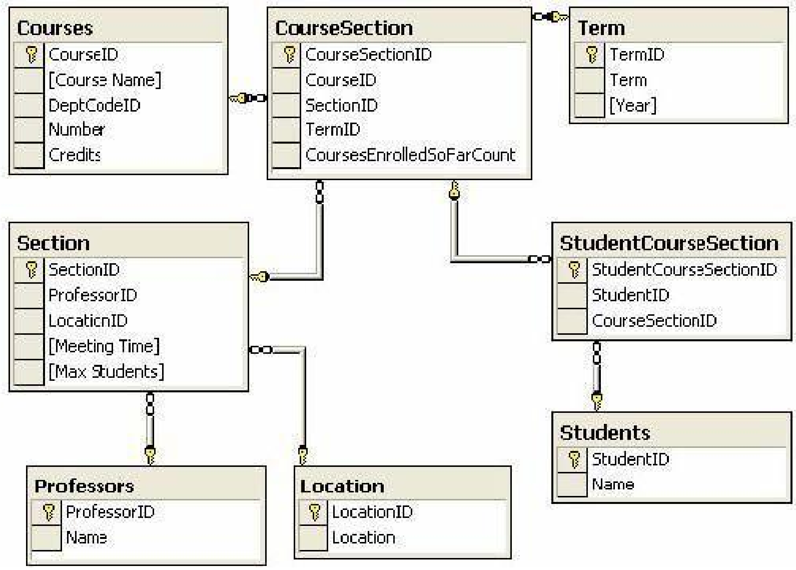
Application state	You are storing infrequently changed, global information that is used by many users, and security is not an issue. Do not store large quantities of information in application state.
Session state	You are storing short-lived information that is specific to an individual session, and security is an issue. Do not store large quantities of information in session state. Be aware that a session state object will be created and maintained for the lifetime of every session in your application. In applications hosting many users, this can occupy significant server resources and affect scalability.
Database Support	You are storing large amount of information, managing transactions, or the information must survive application and session restarts. Data mining is a concern, and security is an issue.

Note: If the process is not long-running and does not need to be recovered in case of a problem, you should persist the state in memory. For user interfaces created for rich clients, you might want to keep the state in memory. For Web applications, you can choose to store the user process state in the Session object of ASP.NET. If you are running in a server farm, you should store the session in a central state server or a SQL Server database. A server farm is a grouping of several Web servers used for load balancing. When you implement a Web site on a server farm, the processing load is distributed across different Web servers. ASP.NET will remove unnecessary SQL Server-stored session to prevent the buildup of unwanted data.
Reference: NET Framework Developer's Guide, Developing High-Performance ASP.NET Applications MCSD Self-Paced Training Kit: Analyzing Requirements and Defining Microsoft .NET Solution Architectures, Exam 70-300
Incorrect answers:
A. Not scalable.
B. Not scalable. Client side caching of cookies will not improve query performance on the server.
C. Not scalable.

QUESTION 2 Which new module or modules should you develop for the school of Fine Arts? (Choose all that apply)
A. A Web application for administrators, academic counselors and professors
B. An application to report transcripts
C. An accounting database
D. A Web application for student registration
E. A utility to export course registration data
F. A course registration database
Answer: A, D, E, F
Explanation:
A: The administrators, academic counselors and professors will use a Web application.
D: This is a requirement.
E: Course registration data must be exported to their existing application.
F: Their solution necessitates the creation of a SQL Server based course registration database.
Incorrect Answers
B: This is not required
C: The accounting database is retained

QUESTION 3 You are writing the functional specification for your solution. You need to specify the data integration needs and the migration needs for transferring data to and from the existing REG2 and TRANS2 databases.
Which two statements should you include n your specification?(Each correct answer presents part of the solution. (Choose two)
A. The new student registration application must query historical transcript data in REG2.
B. Student data, professor data and course schedule data from REG2 are needed to initially populate a Microsoft SQL Server course registration database.
C. Student data, professor data and course schedule data from REG2 will be needed each term to populate the Microsoft SQL Server course registration database.
D. The new student registration application must query historical transcript data in TRANS2.
Answer: B,D
Explanation:
B. This is what the AS/400 Application Support Engineer says.
D. The historical transcript data are in TRANS2.
Incorrect Answers:
A. REG2 does not contain historical transcript data.
C. This is incorrect.

QUESTION 4 You must minimize the time required to establish whether a course section is fully enrolled.
What are two possible ways to achieve this goal?(Each correct answer presents a complete solution. Choose two)
A. Keep a hash table of enrolment counts for each course section. Save the hash table in the ASP.NET Cache object.
B. Keep a hash table of enrolment counts for each course section. Save the hash table in the ASP.NET Application object.
C. Create an index on the CourseSectionID foreign key column in the Student Course Section table.
D. Denormalize the course registration database so that the Course Section table contains a column for enrolment count.
Answer: C,D
Explanation:
C. Creating an index will help in speeding up queries.
D. By including an enrolment count, we will be able to establish whether a course section is fully enrolled or not. This will require us to denormalize the registration database. By using a single select statement, we are able to establish whether a course section is fully enrolled.
The suggested database design is shown below:



To create the CoursesEnrolledSoFarCount field, you would run the following query against the Student Course Section Table.
SELECT @CoursesEnrolledSoFarCount = count(*) FROM
Student Course Section WHERE CourseSectionID = ?
(C) will complement our solution since the index on the CourseSectionID will speed up the query and we will be able to determine the results almost instantly. Without an index, a slower table scan would have to be done.
Incorrect answers:
A. Cache and Application object cannot span over web farms. Storing a huge hash table in the Cache object is not a good idea. The IT Manager points out that "High availability is critical to the success of this solution. We can have no single point of failure. For maximum scalability and flexibility, we do not want any Web server session affinity". We will lost data if the server is down.
B. Cache and Application object cannot span over web farms. Application is suitable to store read-only, small objects or data. If there are a lot of Course Sections, they will consume resource.

QUESTION 5 You want to simplify the code that embodies security restrictions and exception handling. You also want to minimize redundant code.
What should you do?
A. Use Microsoft Visual Studio .NET Enterprise templates
B. Use Microsoft .NET reflection
C. Derive all classes in your solution from a single base class that implements best practices
D. Apply attributes
E. Use utility components
Answer: C
Explanation: The main criterion in this question is: You want to simplify the code that embodies security restrictions and exception handling. We are not required to apply any policies onto controls, components or references. Simply deriving all classes in your solution from a single base class that implements best practices will achieve the objective.
Reference:
The Dwarmish7 sample that comes with the Microsoft .Net Framework Installation uses a base class for every module and page.
Incorrect Answers:

A. Enterprise Templates quickly get you building distributed applications by providing a choice of customized architecture models that fit your company's application infrastructure. The policy file of an application template describes the elements of a multiproject application and the technologies to build it. Policies can permit specific components, references, or controls and exclude others. They can shape elements and their properties and can customize the Visual Studio environment to meet the needs of team members and projects.

QUESTION 6 You are writing the technical specification for your solution. You need to implement a class that will retrieve information about tuition account status from the Accounting database.
Which implementation should you specify?
A. A Microsoft .NET class that is not a serviced component
B. A queued component
C. An XML Web service proxy class
D. A Microsoft .NET serviced component that requires a transaction
Answer: A
Explanation: Since information is retrieved, it is not necessary to use a serviced component that requires a transaction.
B,C,D: Inappropriate solution to retrieve information about tuition account status from the Accounting database.

QUESTION 7 Your developers are allowed to use only the project types and components that are approved by your architectural guidance team. You need to establish a process to ensure that the developers comply with this guideline. This process should be as automatic as possible.
What should you do?
A. Create and distribute a Microsoft Visual Studio .NET Enterprise template
B. Use Enterprise Services components
C. Establish a code review process
D. Write and distribute a white paper detailing your architectural policies
Answer: A
Explanation: This solution supports an automated process. Enterprise Templates help define policies and best practices that simplify the Visual Studio integrated development environment (IDE) and offer guidance throughout the development process
Reference:
http://msdn.microsoft.com/library/en-us/vsent7/html/vxconEnterpriseTemplatePolicyOverview.asp
Incorrect Answers:
B,C,D: All of these will not achieve the required objectives.

QUESTION 8 You are creating a list of business requirements for your solution.
Which two requirements should you include? (Each correct answer presents part of the solution. (Choose two)
A. A professor can grant a student a waiver from a prerequisite requirement for any course section that he or she teaches
B. An academic counselor can grant a student a waiver from a prerequisite requirement for a course
C. A professor can grant a student a waiver from a prerequisite requirement for any course section
D. An academic counselor can grant a student a waiver to enroll in a course section even if it is fully enrolled
Answer: A, B
Explanation: This is clearly stated in the case study.
Incorrect Answers:
C,D: These statements are incorrect.

QUESTION 9 You are writing the technical specification for your solution. You need to implement a class that will update information about course credit in the Accounting database.
Which implementation should you specify?
A. A Microsoft .NET class that is not a serviced component
B. A queued component
C. An XML Web service proxy class
D. A Microsoft .NET serviced component that requires a transaction
Answer: D
Explanation: The Accounting database is an Oracle database which has an OLE DB provider and supports Microsoft Distributed Transaction Coordinator. When updating information, transactions are recommended.

QUESTION 10 To create the logical data model for your solution, you need to identify the relationships between the Student, Course and Course Section entities.
Which two entity relationships should you identify? (Each correct answer presents part of the solution. Choose two)
A. The Student entity is a parent of the Course Section entity
B. There is a many-to-many relationship between the Course entity and the Course Section entity
C. The Student entity is a parent of the Course entity
D. There is a many-to-many relationship between the Student entity and the Course Section entity
E. The Course entity is a parent of the Course Section entity
F. There is a many-to-many relationship between the Student entity and the Course entity
Answer: D,E
A: Course (not Student) should be the parent of Course Section.
B: There should be a One-to-Many relationship between Course and Course Section.
C: Incorrect.
F: Student entity and the Course entity cannot be linked as such.

QUESTION 11 You are using Object Role Modeling (ORM) to model data relationships between courses and course sections. You plan to use entities named Course and Course Section.
Which fact should you include in your model?
A. It is possible that the same Course Section is of more than one Course and that the same Course has more than one Course Section
B. Course Section has a name
C. Course has a location
D. Course has Course Section. Course Section is of Course
Answer: D
Explanation: Only the statement D is correct.
Incorrect Answers:
A: Incorrect
B: Course has a name.
C: Course Section has a location.

QUESTION 12 You are designing a utility to export all data from REG2 to an XML file. The utility must write important messages to an event log. You must choose a log type.
What are two possible log types for you to use?(Each correct answer presents a complete solution. Choose two)

A. The security log
B. The Application log
C. A custom log
D. The system log
Answer: B, C
B,C: Applications and services should add their names to the Application log file, or a custom log file.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/debug/base/event_sources.asp
Incorrect Answers:
A: This log stores security related events
D: Device drivers should add their names to the System log file. The Security log file is for system use only.

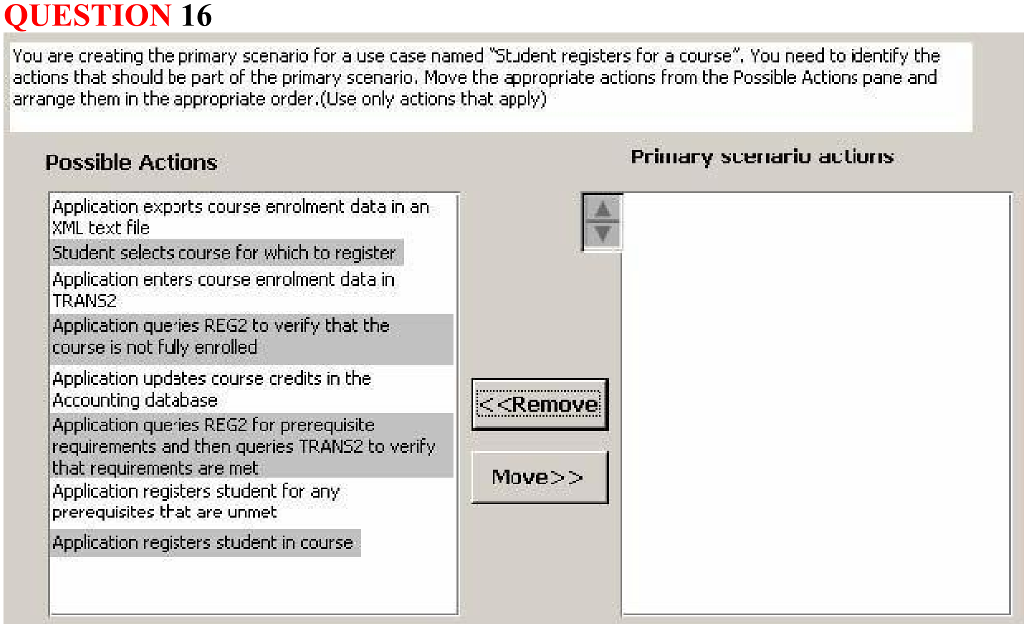
QUESTION 13 You are creating the physical design of the Web application for student registration. Your design includes a Web page that shows all course names within a selected department. The content of this page will change once each term. The page is generated slowly. You want to optimize its generation.
What should you do?
A. Store the list of courses for each department in a session cookie
B. Store the list of courses for each department in the ASP.NET Application object
C. Store the list of courses for each department in the ASP.NET Session object
D. Use ASP.NET page caching
Answer: D
Incorrect Answers:
A: Session cookies are stored on the client and lost when the browser is closed, so it is inappropriate here.
B: Caching the course names at the application level can be efficient, but there will be little automatic control over when the data is refreshed.
C: Caching the course names at the session level can be efficient, but there will be little automatic control over when the data is refreshed.

QUESTION 14 The new administrative application will be used by administrators, professors and academic counselors. You need to select a mechanism that will authorize the use of application functionality on the basis of user type.
Which mechanism should you use?
A. Microsoft .NET role-based security
B. Access Control List (ACL) based security
C. Integrated Windows authentication
D. Code access security
Answer: A
Explanation: This will allow the use of application functionality on the basis of user type. Role-based security supports authorization by making information about the principal, which is constructed from an associated identity, available to the current thread. The identity (and the principal it helps to define) can be either based on a Windows account or be a custom identity unrelated to a Windows account.
Reference:
http://msdn.microsoft.com/library/en-us/cpguide/html/cpconintroductiontorole-basedsecurity.asp
http://msdn.microsoft.com/library/en-us/cpguide/html/cpconcodeaccesssecurity.asp
Incorrect Answers:
B: This is a possible answer but there is no indication that all administrators, professors and academic

counsellors have Windows login accounts.
D: Code access security allows code to be trusted to varying degrees, depending on where the code originates and on other aspects of the code's identity. Code access security also enforces the varying levels of trust on code, which minimizes the amount of code that must be fully trusted in order to run. Using code access security can reduce the likelihood that your code can be misused by malicious or error-filled code. It can reduce your liability because you can specify the set of operations your code should be allowed to perform as well as the operations your code should never be allowed to perform. Code access security can also help minimize the damage that can result from security vulnerabilities in your code. This is not what we want here.

QUESTION 15 You need to identify the sequence of decisions that are required when a student tries to register for a course section. Proposed sequences are shown in the sequence diagrams.
Which diagram should you use?
Diagram A
Diagram B Diagram C Diagram D
Diagram will be available in next update.
A. Diagram A.
B. Diagram B.
C. Diagram C.
D. Diagram D.
Answer: A
Incorrect Answers:
B: This is incorrect because even if the course is full, it is possible for the student to have a waiver from an Academic counselor. A student cannot register for a fully enrolled course with a waiver from an Academic counselor.
C: Academic counselors cannot issue a waiver if the course if full
D: The course must be checked to see if it is full first.

QUESTION 16

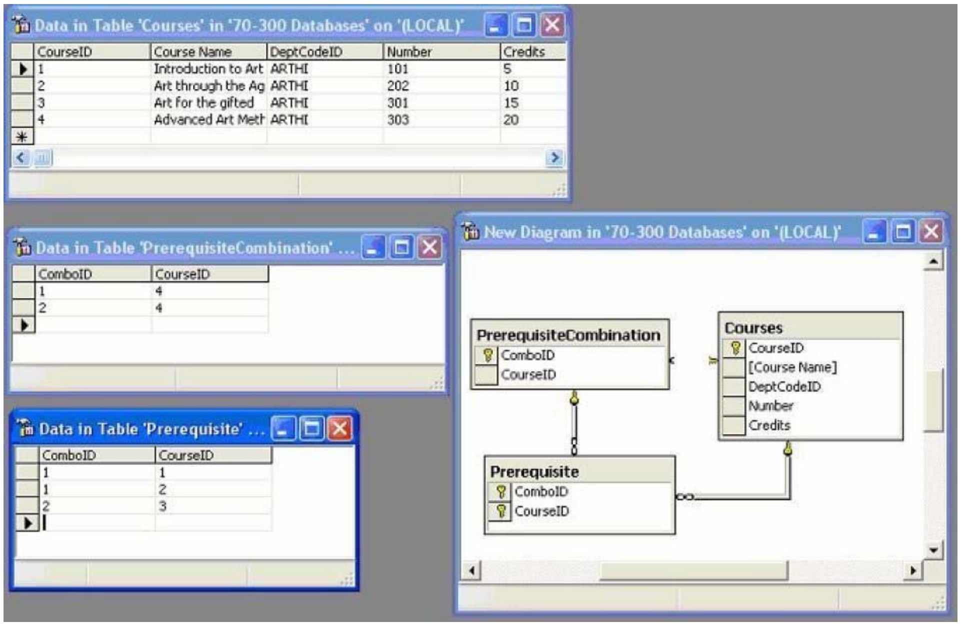


Answer:

Possible actions	Primary scenario actions
Application exports course enrolment data in an XML text file	Student selects course for which to register
Student selects course for which to register	Application queries REG2 to verify that the course is not fully enrolled
Application enters course enrolment data in TRANS2	Application queries REG2 for prerequisite requirements and then queries TRANS2 to verify that requirements are met
Application queries REG2 to verify that the course is not fully enrolled	Application updates course credits in the Accounting database
Application updates course credits in the Accounting database	Application registers student in course
Application queries REG2 for prerequisite requirements and then queries TRANS2 to verify that requirements are met	
Application registers student for any prerequisites that are unmet	
Application registers student in course	

Explanation:
1. • Application enters course enrolment data in TRANS2
2. • At the end of each registration period, we must be able to import into TRANS2 a list of all courses for which a student is registered.
3. • Each registration period begins one month before the beginning of an academic term. Registration closes when the term begins. A summary of student enrolment data is then exported by a batch export operation from REG2 to TRANS2.
4. • Application should update course credits in the Accounting database before registers student in course.
5. • We want to make it impossible for students with overdue tuition accounts to register for courses.

QUESTION 17 You are validating the logical model for course prerequisites.
Which two entity relationships should be included in the model? (Each correct answer presents part of the solution? (Choose two)
A. The Prerequisite entity is a child of the Prerequisite Combination entity
B. The Prerequisite Combination entity is a child of the Course entity
C. The Prerequisite entity is a child of the Course entity
D. The Prerequisite Combination entity is a parent of the Course entity
E. The Prerequisite entity is a parent of the Course entity.
Answer: A,C
Incorrect Answers:
B: In designing a logical model, relating Course to Prerequisite Combination is not desirable, although there is an implicit relationship. It would be better to state the relationship with Prerequisite and Prerequisite Combination explicitly instead.
D: Prerequisite Combination entity is a child of Course entity
E: Prerequisite entity is a child of Course entity



Note:
The diagram above explains the question.
1. • Entities are represented by tables.
2. • All the combinations for a course are setup within the Prerequisite Combination Table. So in our example, Course 4 (ARTHI 303) has 2 combinations.
• These combinations are defined within the Prerequisites Table.
a. o Combo 1 consists of doing course 1 (ARTHI 101) and course 2 (ARTHI 202).
b. o Combo 2 consists of doing course 3 (ARTHI 301)

Case Study #7, City power and light

Background
City Power and Light is a large regional provider of electrical services for residential and business customers. The company has more than 500,000 residential customers. Every month, bills are printed and mailed to these customers. Most of them pay their bills by mail. However, a growing number of residential customers pay their bills by using online payment services offered by their banks.
The company contracts you to create a Web site for customer bill payment and an XML Web service for bill presentment. You will use the Microsoft .NET Framework. When the new bill presentment solution is implemented, banks will not store monthly billing data for individual customers. Instead, banks will use a bill payment application to obtain this data from the XML Web service. Whenever a customer uses a bank's online service to pay bills, the bank's application will query the XML Web service to provide the correct billing amount.
Existing IT Environment.
An existing accounting application manages the customer billing process for City Power and Lights, This application receives electrical usage data for customers and then creates and prints monthly bills. The accounting application runs on a mainframe computer that is located on the corporate network. The mainframe computer has a TCP/IP interface that uses a binary protocol. Communication over this interface is very slow.
Another existing application receives bank payments. This application enables banks to submit electronic payments on behalf of their customers to City Power and Light. The bank payment application is hosted on a

network that is separate from the corporate network. The hosting network and the corporate network are connected by firewalls and a leased line.
Interviews IT Department IT Manager.
If we expose any programmatic interfaces that are externally accessible, they must be available only to authenticated users. These interfaces must also use secure transport. Our mainframe computer is operating a capacity. I do not want to add any new applications or data to this computer.
Currently, we do not store authentication credentials for our customers. However, all customers have unique account numbers. Customers will need to create passwords and enter them when they use the new customer Web site to pay bills. I want the administration of the bill presentment solution to be as easy as possible. We expect many banks to use this service. We already have authentication credentials for most of the banks as part of our existing bank payment application. These credentials are accessible from the bank payment application through COM interfaces.
Business Stakeholders Chief Executive Officer.
Reliability is critical to our services. The new solution must always be available both to our residential customers and to our banking partners.
Security is also very important. Unauthorized users must not be able to view billing data or bill presentment data that relates to our customers.
Some bank plan to discontinue electronic payment for our bills unless we offer a bill presentment data that relates to our customers.
Some banks plan to discontinue electronic payment for our bills unless we offer a bill presentment service. We want to ensure that these banks continue to offer electronic payment for our bills.
Finance Department Chief Financial Officer.
We want to reduce the costs involved in handling paper bills. We want as many of our residential customers as possible to pay their bills electronically.
Currently, some of our customers use bill payment services offered by their banks. However, the banks have no way to obtain billing data from us. Therefore, customers need to enter each bill amount in the bill payment application. Customer entry results in frequent billing errors and in dissatisfied customers. We need a bill presentment application to solve this problem. This application will enable banks to query our computers for detailed billing data for each customer. It will also enable us to control the appearance and branding of bills that are electronically presented to our customers.
In addition, we need a customer Web site to enable our customers to view and pay their monthly bills. Some of our customers do not have access to bill payment services offered by a bank. We want to enable each customer to pay bills by using one or more credit cards. Some customers prefer to pay bills manually each month by credit card. Other customers prefer to schedule an automatic monthly payment by credit card. We must support both preferences.
Business Process
Residential customer bills can be due on ten different dates during the month. Each customer is assigned to one of the ten dates. The existing accounting application stores the due date for each customer. Meter reader employees read electrical usage meters for residential customers. However, each meter is read only four times a year. Therefore, most monthly bill amounts are estimates. Each bill amount is generated 30 days before the bill is due. Bill amounts are adjusted to balance actual estimated usage. The existing interface for the accounting application can provide data only for the current billing cycle.

Questions, Case Study #7, City Power and Light

QUESTION 1 Which solution concept should you recommend for bill presentment?
A. Banks communicate an XML Web service to access customer billing data.
B. Each bank has an XML Web service for submitting bill presentment data.
C. Banks provide customer billing data to an XML Web service.
D. Each bank has an XML Web service for receiving bill presentment data.
Answer: A
Explanation: This is the requirement as stated in the background.
Incorrect Answers:
B, D: It is City Power and Light who needs to provide the web service, not the banks.
C: The XML Web Service provides banks with customer billing data.

QUESTION 2 You are creating the functional specification for your solution.
Which bill presentment requirement should you include?
A. Communicate with a secure programmatic interface for bulk loading of customer billing data when the data changes.
B. Provide a secure programmatic interface for bulk loading of customer billing data.
C. Provide a secure XML Web service for presenting individual customer billing data.
D. Communicate with a secure XML Web service for loading individual customer billing data.
Answer: C
Explanation: IT Manager says that: If we expose any programmatic interfaces that are externally accessible, they must be available only to authenticated users. These interfaces must also use secure transport. Chief Executive Officer says that: Security is also very important. Unauthorized users must not be able to view billing data or bill presentment data that relates to our customers.
Therefore, we need to provide a secure XML Web service for presenting individual customer billing data.
Incorrect Answers:
A,B,D: No requirement in case study.

QUESTION 3 You are creating the conceptual design for your solution.
Which entity or entities should you include? (Choose all that apply)
A. Meter read
B. Customer
C. Billing schedule
D. Bank
E. Credit card
Answer: B, D, E
B, D: These are required.
E: Because the Chief Financial Officer wants to allow each customer to pay bills by using one or more credit cards. Otherwise, this would have been an attribute of Customer instead of an entity.
Incorrect Answers:
A. The Meter read is not needed because meter reader employees only read electrical usage meters for residential customers only four times a year and most monthly bill amounts are estimates. This should be an attribute.
C. Not required.

QUESTION 4 You are validating the logical data model for your solution.
Which attribute or attributes should be included in the Customer entity? (Choose all that apply)

A. Password
B. Customer Identifier
C. Bank Identifier
D. Bill Identifier
E. Credit Card Number
Answer: A, B
Explanation:
A: IT Manager: All customers have unique account numbers. Customers will need to create passwords and enter them when they use the new customer Web site to pay bills.
B: The Customer Identifier is the Primary Key for Customer entity.
Incorrect answers:
C,D: These should not be included in the Customer entity.
E: Chief Financial Officer wants to allow each customer to pay bills by using one or more credit cards. After normalization, this should not appear in the Customer entity.

QUESTION 5 You need to create the physical design for the authentication mechanism in the bill presentment module.
What should you do?
A. Pass authorization credentials in SOAP headers.
B. Include a WindowsPrincipal parameter in every Web method.
C. Create a single authentication service that has authentication parameters.
D. Include a Generic-Principal parameter in every Web method.
Answer: A
Client application communicates with an XML Web service by sending and receiving SOAP messages over Hypertext Transfer Protocol (HTTP).
XML Web services created using ASP.NET can choose their security options from the authentication and authorization options offered by ASP.NET or customized SOAP-based security. ASP.NET operates in conjunction with Internet Information Services (IIS) to provide several authentication and authorization options. It is also possible to create custom authentication options, such as the use of SOAP headers.
Note: Summary of Authentication Options for XML Web Services

Authentication option	**Description**
Windows - Basic	Use for nonsecure identification of clients, as the user name and password are sent in base 64-encoded strings in plain text. Passwords and user names are encoded, but not encrypted, in this type of authentication. A determined, malicious user equipped with a network-monitoring tool can intercept user names and passwords.
Windows - Basic over SSL	Use for secure identification of clients in Internet scenarios. The user name and password are sent over the network using Secure Sockets Layer (SSL) encryption, rather than plain text. This is relatively easy to configure and works for Internet scenarios. However, using SSL degrades performance.
Windows - Digest	Use for secure identification of clients in Internet

	scenarios. Uses hashing to transmit client credentials in a secure manner so the password is not transmitted in clear text. In addition, Digest authentication can work through proxy servers. However, it is not widely supported on other platforms.
Windows - Integrated Windows	Uses NTLM or Kerberos. Uses a cryptographic exchange with the user's Microsoft Internet Explorer Web browser.
Windows - Client Certificates	Use for secure identification of clients in Internet and intranet scenarios. Requires each client to obtain a certificate from a mutually trusted certificate authority. Certificates are optionally mapped to user accounts, which are used by IIS for authorizing access to the XML Web service.
Forms	Not supported by XML Web services. This is a system by which unauthenticated requests are redirected to an HTML form using HTTP client-side redirection. Most clients of XML Web services will not want to provide credentials using a UI. You have to use work around this in order to avoid the logon form.
SOAP headers - Custom	Useful for both secure and nonsecure Internet scenarios. User credentials are passed within the SOAP header of the SOAP message. The Web server, regardless of the platform hosting the XML Web service, provides a custom authentication implementation.

For all options listed above, except the use of SOAP headers, the security settings are specified using a combination of configuration files and IIS. The custom SOAP headers option is detailed following the Authorization section, as that solution involves both authentication and authorization.
Incorrect Answers:
B: Not using IIS Windows authentication.
C: Not suitable.
D: Not suitable.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/enus/dnbda/html/authaspdotnet.asp
.NET Framework Developer's Guide Securing XML Web Services Created Using ASP.NET, http://msdn.microsoft.com/library/default.asp?url=/library/enus/cpguide/html/cpconsecuringaspnetwebservices.asp
Note: Windows Principal object The System.Security.Principal namespace within the .NET Framework Class Library (BCL) provides a WindowsPrincipal object to represent the security context under which the code is running. This object is created for you automatically when you use Windows authentication in IIS. It allows you to check the Windows group membership of a Windows user and restrict access accordingly.
Generic Principal object A Generic Principal object can be created based on your own custom roles. You will use this when you have your own user/role database. The Principal object is populated in the On Authenticate

event. You may have a custom table mapped to Windows accounts that you map in this event. In any case, you can create a custom Principal object for that particular user.

QUESTION 6 Simple logical errors often occur in your daily builds. You need to recommend improvements in the build process.
Which action or actions should you recommend? (Choose all that apply)
A. Developers must create and perform unit tests.
B. Developers must instrument code before checking it in.
C. All errors must be logged in an error-tracking application.
D. Developers must write comment for classes, methods, and properties.
E. Quality assurance testing must be performed on all assemblies.
Answer: A,B,E
Incorrect Answers:
C,D: Does not prevent simple logical errors.

Case Study #8, WoodGrove Bank

Background
WoodGrove Bank is a regional financial institution that has 30 branch offices. It maintains a Web site that allows customers to perform banking operations over the Internet. WoodGrove Bank processes an increasingly large volume of loans. The existing loan processing application cannot handle this volume effectively. The board of directors wants to replace the application with a scalable solution based on the Microsoft .NET Framework. You are a developer employed by the bank. You will lead the development of the new solution, which must be operational in six months. You already have all the hardware that you will need for development and production.
Existing IT Environment Logical Design
The existing loan processing application is based on a client/server architecture. The client application is written in Microsoft Visual Basic 6.0. This application implements the loan processing logic and interacts with a database server named Database1 to store and retrieve data.
An application can request a loan by using an HTML form available on the bank's Web site. The information on this form is e-mailed to a loan clerk, who telephones the applicant to complete the request.
Physical Implementation
A computer named Server1 is located at the main branch of WoodGrove Bank. Server1 hosts modules for reporting and for exchanging data with a mainframe computer named Main1. Main1 hosts a check disbursement application and an accounting application. Currently, the interface to Main1 is not well integrated with the loan processing application. Database1 runs Microsoft SQL Server 2000. It hosts a database that includes a table containing the loan request data. This table is indexed by applicant name and by loan number.
All 30 branches of the bank are connected to a common internal network by private T1 lines. The network supports TCP/IP and NetBEUI and is protected by a firewall. All branches employ loan clerks and loan officers. These employees use computers that run Microsoft Windows 2000 Professional.
Interviews IT Department IT Manager
All of our existing applications share a standard appearance. Our standard includes colors, fonts, and the position of the company logo. All new applications must adhere to this standard. The new loan processing application must use a Web browser as the user interface, without any additional client software. Database1 will be used in the implementation of the new application. The confidential information that resides on this server must be inaccessible to unauthorized users. The information must remain secure even if our firewall is

penetrated.
When a loan is approved, the new loan processing application must send data to the check disbursement application. The new application must also send data to the accounting application to indicate which general ledger accounts need to be created or debited. Therefore, we need a reliable interface between the new application and Main1. The interface must support transaction recovery and logging.
The check disbursement application and the accounting application were implemented 10 years ago. They remain unmodified. No one on my staff understands how to interface with these applications. Six people on my staff are assigned to work with you on this project. However, four of them have less than one year of experience as a developer.
Finance Department Chief Financial Officer
The new loan processing application must include an audit module. The module must randomly select 5 percent of the loans approved in each month to be audited by a member of my staff. All server hardware to support development and production has already been procured. For the new loan processing solution, budget is approved for application software, development software, and utilities. However, we have no budget to replace either the check disbursement application or the accounting application. At the beginning of the fiscal year, we made high-level projections about the new application. We estimated that its development would require 30 staff months, but only if we use senior staff. Our goal is to complete this project in six calendar months.
Business Stakeholder Loan Processing Manager
I authorized the funding for this project, and I will make the final decisions. The new loan processing application must reduce the amount of time needed to process each loan request. If we can directly enter all of an applicant's personal data into the new application, we can work more efficiently. The new application must also support simple workflow routing between the loan clerks and the loan officers. In addition, I want the application to assign loans to different loan officers on the basis of business rules. These business rules will use loan amount and loan type as criteria for assignment. The rules might need to change every month. The loan processing staff has little computer experience. Because of their current workload and experience they might have difficulty learning how to use the new application. I want to ensure that this project causes the least possible disruption to our business.
Business Process Loan Processing
Each of the 30 branches of WoodGrove Bank employs 10 loan clerks and 10 loan officers. Using the current loan processing application, both the clerks and the officers are directly involved in processing loans.
The loan clerks perform the following actions:
1. Collect personal data and credit history data from the applicant.
2. Enter the data into the database by using the loan processing application.
3. Review all data for clerical accuracy.
4. Verify the credit history data by using external resources, such as lending agencies and employers.
The loan officers then perform the following actions:
1. Review the loan request for risk.
2. Either reject the loan request or approve it for disbursement.
An employee of WoodGrove Bank can fulfill more than one role. For example, a branch manager can assist in processing loan requests, and can also approve loans as needed. Employee roles are not defined in the current application. Workflow and approval are managed by external business processes. Loan requests are stored in our database for six months and then purged.
Loan Request
Loan requests contain the following confidential information about the applicant:
1. • Name
2. • Address

3. • Telephone number
4. • Personal identification number
5. • Current employer and salary
6. • One or more credit history items

The loan department handles many types of loans. Applicants can request mortgages, automobile loans, home equity loans, and unsecured consumer loans.

Questions Case Study #8, WoodGrove Bank

QUESTION 1 You need to present a list of potential project risks to the IT Manage of WoodGrove Bank. Which three potential risks should you include? (Each correct answer presents part of the solution. Choose three)
A. The loan department staff will not know how to use the new loan processing application effectively by the project deadline.
B. You will not be able to develop and appropriate interface with the applications that reside on Main1.
C. You will have difficulty to develop an appropriate interface with the applications that reside on Main1.
D. You will have difficulty selecting a database management system.
E. Your development staff lacks the expected level of experience.
F. You have difficulty selecting a development environment.
Answer: A,C,E
Explanation:
A. Loan Processing Manager: "The loan processing staff has little computer experience. Because of their current workload and experience they might have difficulty learning how to use the new application."
C. An interface to Main1 already exists. It is not well integrated with the existing VB6 loan processing application. It's difficult, but not totally impossible.
E. Chief Financial Officer has mentioned that development would require 30 staff months, but only if we use senior staff and the goal is to complete this project in six calendar months. In order words, we need at least 5 senior staff to complete the project in 6 months. But the IT Manager as assigned six people to this project, of which, four have less than one year of experience as a developer.
Incorrect Answers:
B: The opposite of C.
D: It has already been selected. IT Manager has already mentioned that Database1 will be used in the implementation of the new application. Database1 runs Microsoft SQL Server 2000.
F: It has already been selected. The board of directors wants to replace the application with a scalable solution based on the Microsoft .NET Framework.

QUESTION 2 Which network protocol or protocols are required for your solution? (Choose all that apply)
A. NetBEUI
B. HTTP
C. DCOM
D. SNMP
E. HTTPS
Answer: B,C,E
Explanation:
B. Only the solution is in question. Non confidential information may use HTTP since they have a private T1. This implies the use of Serviced Components which will use the DCOM protocol.

E. Only the solution is in question. Loan request contain confidential information.
Incorrect Answer:
A: Not required.
1) C: DCOM is not a network protocol.
2) D. This is not needed. SNMP (Simple Network Management Protocol) is the Internet standard protocol for exchanging management information between management console applications. The managed entities can include hosts, routers, bridges, and hubs.

QUESTION 3 Your solution requires an interface between the new loan processing application and the applications that reside on Main1. You need to supply the specifications for a software product that will provide an appropriate interface.
Which three specifications should you supply? (Each correct answer presents part of the solution. (Choose three)
A. Transaction recovery.
B. Support for workflow data exchange.
C. Integration with a data warehouse.
D. Transaction auditing and logging.
E. Reliable exchange of data between applications.
Answer: A, D, E
Explanation:
A. This is a requirement of the new interface of the new application. IT Manager says that "The interface must support transaction Recovery and logging".
D. This is a requirement of the new interface of the new application. IT Manager says that "The interface must support transaction Recovery and logging". Chief Financial Officer says that "The new loan processing application must include an audit module.".
E. This is a requirement of the new interface of the new application. IT Manager says that "We need a reliable interface between the new application and Main1".
Incorrect Answers:
B. This question is on the new interface of the new application, not the new application itself. The Loan Proc Manager is referring to the new application - "The new application must also support simple workflow routing between the loan clerks and the loan officers".

QUESTION 4 High confidential applicant data is stored with each loan request. Your solution must ensure the security of this data.
Which three security techniques should you recommend? (Each correct answer presents part of the solution. Choose three)
A. Authentication of application server components to the database management system.
B. Algorithmic validation of data fields.
C. Secure communications for loan requests from the Internet.
D. Password authentication for loan applicants.
E. Encrypted database fields.
F. Digital certificate authentication for loan applicants.
Answer: A,C,D
Note 1:
Microsoft(r) SQL Server(tm) encrypts or can encrypt:
1. • Login and application role passwords stored in SQL Server.

2. • Any data sent between the client and the server as network packets.
3. • Stored procedure definitions.
4. • User-defined function definitions.
5. • View definitions.
6. • Trigger definitions.
7. • Default definitions.

• Rule definitions. Encrypting the database files using NTFS file encryption.
Reference:
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/adminsql/ad_security_93u6.asp
http://msdn.microsoft.com/library/default.asp?url=/library/en-us/sqlntsv/htm/ns_adminsecurity_4nw3.asp
Incorrect answers:
B: This is to ensure data integrity
E: Microsoft(r) SQL Server(tm) does not support encrypted database fields

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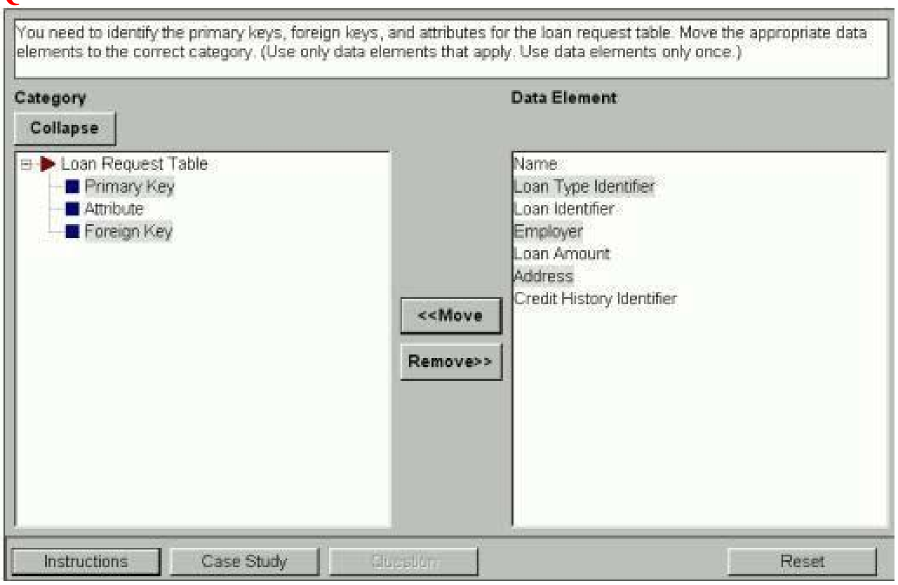
QUESTION 5 You need to recommend a strategy for storing the data associated with the loan processing application.
Which strategy should you recommend?
A. Install a new database on a new database server.
B. Use the local file system on the application server.
C. Use the existing database and database server.
D. Install a new database management system on the application server.
Answer: C
Explanation: IT Manager: "Database1 will be used in the implementation of the new application".
A,B,D: Incorrect answers.

QUESTION 6 The conceptual database design for your solution requires validation. You need to use the most effective strategy for ensuring that all necessary data elements are included in your design.
Which strategy should you use?
A. Create the table definitions.
B. Review the use cases for data requirements.
C. Develop detailed test cases.
D. Create a representation of the data elements in third-normal form.
Answer: B
Explanation: MSF recommends validating the conceptual database design against the use cases, usage scenarios, business requirements, architecture, risks, available resources and time, and all other are facts that you have developed.
Reference:
MOC 2710A (Module 4)

QUESTION 7 You need to implement the presentation tier of the loan processing application.
Which technology or technologies should you use? (Choose all that apply)
A. IIS
B. ADO.NET
C. XML Web services
D. Secure sockets
E. ASP.NET

Answer: A,D,E
Explanation:
A. IIS is used to host the Web Pages on the Presentation Tier
D. Secure Sockets is used on the Presentation tier to create SSL
E. ASP.NET is used to create the Web Pages on the Presentation Tier
Incorrect Answers:
B: This would exist within a data component on the Business Logic tier
C: There is no need for an XML Web Service

QUESTION 8



Answer:

Loan Request Table	**Data Element**
Primary Key	Loan Identifier
Attributes	Name

Based on the case study, loan requests contain the following confidential information about the applicant:
1. • Name (Attribute)
2. • Address (Attribute)
3. • Telephone number (Attribute)
4. • Personal identification number (Attribute)
5. • Current employer and salary (Attribute)
6. • One or more credit history items (implying a foreign key on Credit History Identifier)
7. • The loan department handles many types of loans (implying a foreign key on Loan Type Identifier)

QUESTION 9 WoodGrove Bank sets a response time goal of five seconds for customers on dialup Internet connections. The IT department establishes that dial-up connections average 40 kilobits per second. For a typical Web form, the time between the user's click and the generation of the server's response averages 500 milliseconds.
What is the maximum allowable size of the server's response?
A. 11.3 kilobytes
B. 22.5 kilobytes
C. 36.8 kilobytes

D. 90.1 kilobytes
Answer: B
Explanation:
No of Kilobits per second: 40
No of Kilobytes per second: 40 / 8 = 5
Server response overhead: 500 milliseconds or (0.500 seconds)
Maximum no of kilobytes in 4.5 seconds (inclusive of server response overhead) = 5X4.5 = 22.5
A,C,D: Incorrect.

QUESTION 10 WoodGrove Bank requires a standard appearance for all Web applications.
Standards are expected to change periodically. You need to enforce these standards and reduce maintenance time.
What should you do?
A. Create a Microsoft Visual Studio .NET Enterprise template.
B. Create a sample HTML page.
C. Create a sample ASP.NET Web form.
D. Create a cascading style sheet.
Answer: D
Explanation:
Cascading Style Sheets will meet the objective.
IT Manager: "Our standard includes colors, fonts, and the position of the company logo.".
1. • Cascading Style Sheets can set the color, size, font and behavior of the HTML elements on a web page.
2. • Using Cascading Style Sheets also reduces maintenance time as formatting can be maintained in one location, so that you only need to make changes once for an entire application. This is possible if you are using Global/External styles defined in a style sheet file (.CSS), there is no need to make changes to the application here.
Incorrect Answers:
A,B,C: All other alternatives will not allows us to enforce these standards and reduce maintenance time.

Case Study #9, Baldwin Museum of Science

Background
Baldwin Museum of Science is a nonprofit, regional science museum. The museum maintains branches in three cities. Each branch contains explorations areas designed for children. The exploration areas offer two kinds of hands-on exploration activities. One kind of consists of a kiosk-type computer that displays static, user selectable science information. The other kind consists of non-computerized puzzles, maps, and physical experiments. The museum now intends to computerize all of its hands-on exploration activities.
The museum director contracts you to define a solution architecture that will achieve this goal. You will use the Microsoft .NET Framework.
Under the terms of your contract, you must introduce the first new activity at the main branch of the museum within three months. The remaining activities must be available as soon as possible afterward. All activities must be introduced at the main branch before they are introduced at the other two branches.
Existing IT Environment
Baldwin Museum of Science has five computers running Microsoft Windows 2000 Advanced Server. Active Directory is used to authenticate the museum staff. Three of the five servers run Internet Information Services (IIS). Each IIS server is dedicated to one of the branches.

Each exploration area contains kiosk computers running Windows 2000 Professional and Internet Explorer 5 in kiosk mode. A total of 25 kiosk computers are available across the three branches. In each branch, the kiosk computers receive content from the appropriate IIS server.
The main branch is connected to the other branches by dedicated frame relay links, with each link operating at 56 Kbps.
Interviews IT Department IT Manager
The main branch of the museum has three Windows 2000 Advanced Server computers. One of the them also runs IIS. Each of the other branches has one server computer running IIS. The IIS servers display content for the kiosk computers. To update our content offerings, we deploy new software from the main branch to the remote branches on one day each month. We need to shut down the kiosk computers all day for this update. Therefore, we want to redesign the update process to minimize the time that it requires. We plan to install a dedicated streaming media server at the main branch of the museum. We also plan to install new application computers at all three branches to run the new exploration appliance. We will retain all existing kiosk computers.
Lead Developer
Currently, my developers use ASP and Microsoft JScript. We will be training the developers to maintain the new exploration applications. We plan to use common modules in every application, so we must be able to reuse modules easily. Whenever a module is upgraded, all of our applications must be able to take advantage of upgrades in every module.
Business Stakeholder Museum Director
An anonymous donor presented us with a large grant, so we have the necessary financial resources to complete this project. Under the terms of the grant, we need to use the grant money to upgrade the hands-on exploration activities in our museum.
These activities must include the following characteristics:
• Easy navigation between exploration applications.
1_ • The method of navigation must run continuously.
2_ • The method of navigation must prevent children from accessing the features of the operating system.
3_ • The method of navigation must prevent children from stopping its execution.
1. • High-Resolution graphics.
2. • Drag-and-drop functionality, so that screen elements can easily be manipulated to accomplish tasks.
3. • Highly interactive operation, with fast response time and immediate feedback to users.
4. • Support for streaming media, with fast response time.
5. • Support for children with special needs, such as low vision or hearing disabilities.
6. • Online help in a format that is comfortable for children and easy for them to use.
In addition, the grant requires us to give periodic reports to the donor about the frequency with which each exploration activity is used.

Questions Case Study #9, Baldwin Museum of Science

QUESTION 1 Which solution concept should you recommend for the Baldwin Museum of Science?
A. Console application
B. Thick client application
C. N-tier application
D. Web application
Answer: C
Explanation: Our design involves front-end kiosk (running on Internet Explorer with kiosk mode on), middle

tier consisting of an ASP.Net website, and a backend reporting Database.
Our solution does not envision a standalone kiosk.
Note:
For standalone kiosks, a thick client application is suggested:
1. • Graphics. If an application makes heavy use of highly dynamic graphics, such as computer-aided design (CAD) or video applications, then you need to use a rich client. Highly interactive applications are those that present a dynamic user interface that changes frequently based on user input (for example, a word processor, a game, or a CAD application), allows drag-and-drop operations, performs immediate inter-control validations, and so on. We specifically need drag and drop operations.
2. • Network bandwidth. A thin-client application generally uses much more network bandwidth than a locally hosted rich client. This is especially true if the interface uses Web server controls because many mouse clicks result in a round trip to the Web server. This is also true for Terminal Services clients and remote desktop connections because, in the case of remote clients, user interface rendering and responses need to travel across the network. Therefore, if network bandwidth is an issue, a rich client is the preferred choice. Here bandwidth is an issue.
3. • CPU-intensive operations. If users need to perform operations that require a lot of CPU-intensive work (for example, CAD and graphics applications), these operations should occur on the end-user's computer; otherwise the operations could quickly overload the server. CPU-intensive applications are best suited to a rich-client environment.
Reference:
Module 7: Designing the Presentation Layer Kiosk mode,
http://www.microsoft.com/windowsxp/expertzone/tips/july/oswald1.asp
Note:
Running in kiosk mode will fulfill the requirements of this case.
Kiosk mode means setting the browser window to full screen view with just a scroll bar for navigation. To provide additional controls, such as access to the Back, Forward, or Refresh buttons, you can set Internet Explorer 6 in partial kiosk mode, which includes a smaller toolbar at the top of the browser window. To add a Full Screen button to this toolbar, so that you can move easily from full screen view to the standard browser window, do this:
Right-click the toolbar at the top of the browser window, and then click Customize.
In the Customize Toolbar dialog box, click Full Screen under Available toolbar buttons, click Add, and then click Close.
Incorrect Answers:
A. We need graphics support.
B. A thick client application is suggested only for standalone kiosk design.
D. We need to protect the kiosks operating systems.

QUESTION 2 You are listing the requirements for the Baldwin Museum of Science.
Which requirement or requirements should you include? (Choose all that apply)
A. Maintainability
B. Ease of use
C. Extensibility
D. Performance
Answer: A,B,C,D
A: Maintenance is an issue. Although it is stated that "We will be training the developers to maintain the new exploration applications", it is also stated that "it should require the minimum of administrative effort".

B: We are required to use an online help in a format that is comfortable for children and easy for them to use
C: We need to reuse modules easily. Whenever a module is upgraded, all of our applications must be able to take advantage of upgrades in every module
D: We need highly interactive operation, with fast response time and immediate feedback to users

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QUESTION 3 You are assessing the impact of your solution on the existing IT environment. You decide that the environment needs to be modified.
What should you do?
A. Upgrade Internet Explorer to version 6.0.
B. Upgrade the kiosk computers to Microsoft Windows XP Professional.
C. Increase bandwidth between the museum branches.
D. Add more space to the hard disks of the servers.
Answer: C
Explanation:
C: The bandwidth bottleneck must be dealt with.
Incorrect answers:
A,B,D: The environment (bandwidth) needs to be modified to support our solution.
Our answers in this case study must be consistent to reflect our solution.
Reference:
http://www.microsoft.com/enable/default.htm
http://www.msdn.microsoft.com/library/default.asp?url=/nhp/default.asp?contentid=280

QUESTION 4 You need to provide user assistance for your exploration applications.
What should you do?
A. Add context-sensitive help to all screen elements.
B. Add pop-up text for all screen elements.
C. Add an interactive animated character that talks to the user.
D. Create a streaming media tutorial for each application.
Answer: C
Explanation:
C: To provide user assistance for our exploration applications, we should use an interactive animated character.
This will be comfortable for children and easy for them to use.

QUESTION 5 You are designing a common interface for launching your exploration applications.
What should you do?
A. Create a multiple-document interface (MDI) application.
List the available exploration activities on the View menu.
Launch each application in a separate MDI window.
B. Create an application that displays a graphical image of each exploration activity in the application window.
When the user clicks an image, launch the appropriate application.
C. Create a single-document interface (SDI) application.
List the available exploration activities on the View menu.
Switch applications within the SDI window.
D. Create shortcuts for each exploration activity.
Place the shortcuts on the desktop.
When the user clicks a shortcut, launch the appropriate application.

Answer: B
Explanation:
Our requirements are listed here:
1. • Easy navigation between exploration applications.
2. • The method of navigation must run continuously.
3. • The method of navigation must prevent children from accessing the features of the operating system.
4. • The method of navigation must prevent children from stopping its execution.
5. • Support for children with special needs, such as low vision or hearing disabilities.
Incorrect Answers
A: We do not list the available exploration activities in the view menu. We do not need a separate MDI for each application.
C: We need to use something more intuitive.
D: We should not give the user access to the desktop. We need to use something more intuitive.
Reference:
Menus, The Windows User Experience, Official Guidelines for User Interface Developers and Designers, Microsoft

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QUESTION 6 The navigation application will be used to access all of your exploration applications.
You are creating a conceptual model for this application.
Which object or objects should you model? (Choose all that apply)
A. Title bar
B. Main screen
C. Logon Manager
D. Animated assistant
Answer: B,D
Explanation:
B: This represents the view object in document-view model
D: This object will provide us with animated help that we need
Note: Kiosk mode hides title and status bar.
Incorrect Answers:
A: The title bar is a property of the window that is opened.
C: There is not logon requirement. The Logon Manager will not be part of the navigation application.

QUESTION 7 You are designing the methodology for installing and upgrading your exploration applications and their shared assemblies. Your methodology should support new applications and updates to existing applications. It should require the minimum of administrative effort.
Which two strategies should you use? (Each correct answer presents part of the solution. Choose two)
A. Install all applications in the same directory as the navigation application.
B. Install the shared modules in the \bin directory of each application.
C. Install each application in the application \bin directory of Inetpub\wwwroot.
D. Install the shared modules in the global assembly cache (GAC).
E. Install each application in a separate application directory.
Answer: A,D
Explanation:
A: One web.config file in the root directory will be applied to all the other applications, reducing administrative effort.

D: The applications can access the shared modules if they are installed in the GAC.
Whenever a module is upgraded, all of our applications must be able to take advantage of upgrades in every module.
Incorrect Answers:
B,C,E: Compared to A and D, these suggestions do not help in reducing administrative effort.

QUESTION 8 You are designing an assembly to monitor the usage of your exploration applications.
Reports that describe usage will be generated at the main branch of the museum.
You need to select a strategy for logging the appropriate information.
What should you do?
A. Add a TextWriterTraceListener to the Listeners collection to write an entry each time an application is started.
B. Create a System.Diagnostics.EventLog to write an entry each time an application is stated.
C. Use the System.Diagnostics.TraceSwitch to write an entry each time an application is started.
D. Use the System.Diagnistics.Debug.WriteLine to write an entry each time an application is started.
Answer: A
Explanation:
A: You need to generate a report, so writing to a text file is better.
Incorrect Answers
B: Extracting info from the EventLog is cumbersome.
C,D: We are not displaying debugging or tracing statements.

Case Study #10, Trey Research

Background
Trey Research is a national chain of medical laboratories. An important part if its business involves conducting random drug test for trucking companies. Currently, the following procedures is used to administer random drug tests:
1. • At various times throughout the year, trucking supervisors request drug tests from all drivers.
2. • Drivers undergo drug testing at a Trey Research laboratory.
3. • The laboratory faxed the results to the appropriate trucking supervisors.
4. • Drivers who fail the dug test are put on job probation and are monitored by the appropriate trucking supervisors. During the problem period, these drivers are subjected to frequent random drug tests.
Monitoring the random drug tests during the probation period is a burden for the trucking companies. They want to outsource this monitoring to Trey Research. To meet this objective, the Director of Business Development for Trey Research recently administered a trail program with a selected trucking company. The Director's name is Marie.
Trial Program
The trucking company gave Marie as list of 25 drivers who were on job probation. Every weekday morning, Marie randomly selected one driver.
All 25 drivers were instructed to telephone a toll-free number every weekday morning. When drivers telephoned their names were written in a daily log, and they were informed whether or not they were selected for drug testing on that day. If they were selected, the drivers were required to report to a Trey Research laboratory to undergo the test. The laboratory faxed the results to Marie, rather than to the driver's trucking supervisor.
At the end of each month, Marie used the telephone log and the laboratory results to compile a summary report

for the trucking company. Marie reported the number of times that each driver telephoned, the dates when each driver was chosen, and the drug test results.
The report saved trucking supervisors several hours each week. It also provided a concise record of drug test results and program compliance. The trial program was considered a success, and Trey Research now plans to offer this service to a number of its customers. Trey Research contracts you to develop a solution that will provide the functionality of the trail program and meet a number of new requirements. Your solution will use the Microsoft .NET Framework and Microsoft SQL Server.
Interview IT Department IT Manager
I employ a small IT staff at the main office to support our corporate network. We use consultants for all software development. Our IT staff is already trained to support Microsoft operating systems and networks, but it will need additional training to support the new solution. The solution should require minimal administration. As appropriate, we will use Microsoft technologies for the solution.
We are analyzing the feasibility and expense of hosting the application at our main office rather than using a hosted facility. We need a way to import data from laboratory reports, without requiring our laboratory staff to adopt new procedures. Currently, we have a software package that can create text files out of fax data by using optical character recognition (OCR) technology. When a fax is received on a fax server, the OCR software can save the fax data as a text file in a designated folder. The new solution must provide the ability to read the text file into a database.
Business Stakeholders Directory of Business Development
The new solution must automate all steps that were part of the trial program. In the trail program, each driver was randomly selected about once a month. However, in the new solution, individual drivers might need to be selected more frequently or less frequently.
We want a Web application that enables trucking supervisors to use the Internet to perform the following actions:
1. • Add and remove drivers from the list of drivers on job probation.
2. • For each driver, view a summary of driver compliance and laboratory results, with the summary ordered by date.
3. • For each laboratory result, view result details.
4. • View a summary of all driver compliance and results.
Trucking supervisors will need to provide a user name and a password to access the Web application. Because drug-testing information is highly confidential, all information must be transmitted securely. Each trucking company can have several supervisors. Drivers can be assigned to more than one supervisor. Supervisors should have access only to date that applies to the drivers who are assigned to them. At the end of each month, an automated report generator will create and print a report by using a printer on the Trey Research internal network. This report will be mailed to trucking supervisors and will contain the same summary information that the Web application provides. My most critical requirement is that trucking supervisors should be able use the Web application to access test result information as soon as Trey Research completes its testing process. Each weekday, drivers will telephone an interactive voice response (IVR) application to learn whether they need to be tested. Telephone callers will use a personal identification number and a password to identify themselves to the IVR application. We are hiring an IVR consultant to develop this part of the solution.
We want a new Web application that drivers can use in addition to the IVR application. This new application should provide all the functionality of the IVR application. However, we do not yet know if a typical driver has Internet access, so this part of the solution does not need to be completed immediately.
Vice President of Sales and Marketing
We want to begin a pilot program of the solution in three months. However, we are currently investigating a corporate merger. The new revenue stream provided by this solution will increase our corporate valuation.

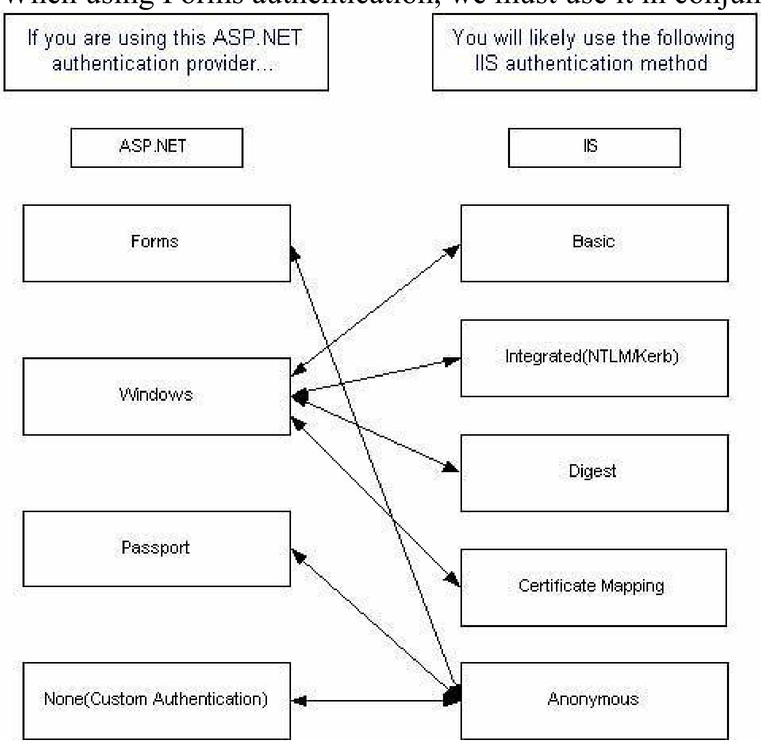
Therefore, if the merger negotiations continue, we want the pilot program to begin sooner.
Users Trucking Supervisor
The key to random drug testing is surprise. Currently, a driver on job probation expects to be tested only once each calendar month. A driver who is test on the first day of the month might decide to use drugs for the next few weeks. Therefore, we want to set an average interval between tests, but we also want to ensure that individual test dates cannot be predicted.
We have two main objectives. We want to be able to monitor program compliance throughout the month, and we want to be able to view drug test results as soon as Trey Research completes its testing process.
Business Process Drug Tests
Currently, the standard drug test looks for 18 substances. Each substance has an associated status. The three possible status are None, Trace, and Detected.
Compliance
A driver is in compliance with job probation when the following conditions are met:
1. • The driver telephones the IVR application every weekday morning.
2. • The driver submits to drug testing on specific days.
3. • The driver's drug test results are negative.

Questions Case Study #10, Trey Research

QUESTION 1 You need to include two key project risks in your risk assessment plan.
Which two risks should you include? (Each correct answer presents part of the solution. (Choose two)
A. The application might be hosted off-site.
B. Users might be unwilling to use the IVR application.
C. The project timeline might change.
D. The IT staff has no programming experience.
E. Laboratories have no on-site IT support.
F. Communication and coordination issues might develop with an independent IVR consultant.
Answer: C,F
Explanation:
C: if the merger negotiations continue, we want the pilot program to begin sooner)

QUESTION 2 You are writing the functional specification for your solution. You need to specify the security requirements of the Web application used by trucking supervisors.
Which statement or statements should you include? (Choose all that apply)
A. Drivers who are not trucking supervisors must use their assigned identifier to log on to use the supervisor Web application
B. Logon information must be transmitted securely over the internet
C. Trucking supervisors must log on to use the supervisor Web application
D. Driver information, including drug test results, must be transmitted securely over the internet
E. After they log on, trucking supervisors are authorized to view all drivers who are currently on probation
Answer: B, C, D
Explanation B,C,D: This is what the case study specifies.
1. • We want a web application that enables trucking supervisors to use the Internet
2. • Trucking supervisors will need to provide a user name and a password to access the web application.
3. • Because drug-testing information is highly confidential, all information must be transmitted securely.
4. • Supervisors should have access only to data that applies to the drivers who are assigned to them.

QUESTION 3 You are writing the technical specification for your solution. You need to specify the most appropriate and secure authentication mechanism for the Web application used by supervisors.
Which authentication mechanism should you specify?
A. IIS Integrated Windows authentication with Windows authentication mode in ASP.NET.
B. IIS Basic authentication with SSL and no ASP.NET authentication.
C. IIS Basic authentication with SSL and Windows authentication mode in ASP.NET.
D. IIS Anonymous authentication with SSL and Forms authentication mode in ASP.NET.
Answer: D
Explanation: ASP.NET Forms authentication mode is required because we need to ensure that supervisors should have access only to data that applies to the drivers who are assigned to them. Using this provider causes unauthenticated requests to be redirected to a specified HTML form using client side redirection. Forms authentication uses cookies to allow applications to track users throughout their visit. The way ASP.NET handles forms authentication is probably very similar to the methods you have used in classic ASP. When a user logs in via forms authentication, a cookie is created and used to track the user throughout the site. If the user requests a page that is secure and has not logged in, then the user will be redirected to the login page. Once the user has been successfully authenticated, he/she will be redirected to their originally requested page.
When using Forms authentication, we must use it in conjunction with IIS's anonymous authentication.



By using IIS's anonymous authentication in conjunction with ASP.NET Forms Authentication, we create a highly secure, highly scalable application that meets all of the case's requirements, without the added hassle of Windows Domain account administration. IIS anonymous access is very secure as the IIS user has no rights at all on the system. This helps protect the system. This, coupled with .NET Forms authentication should be used on top of this to provide the actual user authentication. All of this is over a SSL connection.
Trucking supervisors will need to provide a user name and a password to access the web application. Because drug-testing information is highly confidential, all information must be transmitted securely.
You should consider Integrated Windows authentication when:
1. • Your users have Windows NT Domain or Active Directory accounts.

2. • Your application runs on an intranet (behind a firewall).
3. • All of your clients are running Internet Explorer version 3.01 or later.
4. • You need to perform delegation (this requires Kerberos).
5. • You need a seamless logon procedure for domain users (for example, without pop-up logon dialog boxes).

You should not consider Integrated Windows authentication when:
1. • Your user accounts are stored in an external database rather than a Windows NT Domain database or Active Directory.
2. • You need to support authentication over the Internet.
3. • Your clients are using Netscape Navigator or other non-Microsoft browsers.
4. • You need to obtain the client's clear text password. "

Incorrect answers:
A: Integrated Windows Authentication cannot work over the internet.
B: Not the best solution. Supervisors may not have a windows account. We cannot ensure that they will not view other drivers' data.
C: Not the best solution. Supervisors may not have a windows account. We cannot ensure that they will not view other drivers' data.

QUESTION 4 The OCR software receives a fax, converts it into a text file, and writes the file in a designated folder. You need to create a module that automatically imports laboratory data from this folder. The module must be bale to start when its host computer starts, without requiring a user to log on.
Which type of module should you create?
A. A console application
B. A serviced component
C. A Windows service
D. An XML Web service
Answer: C

QUESTION 5 You need to design a deployment mechanism for the Web application used by supervisors. This application includes components that need to be installed in the global assembly cache (GAC). The deployment mechanism must require a minimum of development effort.
What should you do?
A. Create and use a Web setup project.
B. Create and use a setup project.
C. Use an XCOPY deployment.
D. Copy files from the target folder of your build server.
Answer: A

QUESTION 6 Exhibit:

You create a prototype Web page for the Web application used by supervisors, as shown in the exhibit. The Web page displays a summary of driver's program compliance and drug test results, ordered by date. You need to modify the page to display the required information in a way that emphasizes instances of noncompliance.
What should you do?
A. Modify the Web page to show all days when the driver did not telephone.
B. Remove the test results summary.
C. Modify the Web page to show all drivers.
D. Modify the Web page to show all days when the driver telephoned.
Answer: A
Explanation:
A: The driver may not telephone.

QUESTION 7 You need to develop two business layer classes that will be used by the IVR application. The IVR application will be complete in two weeks. Your business layer classes will be complete in six weeks. You need to manage these conflicting developments schedules and minimize integration time.
What should you do?
A. Create and document the database. Then instruct the IVR consultant to access the database directly instead of using your classes.
B. Instruct the IVR consultant to create classes that are equivalent to the classes that you will create.
C. Create skeleton classes or interfaces for the IVR consultant to use.
D. Instruct the IVR consultant to comment out the IVR application code that references the classes that you will create.
Answer: C
Incorrect Answers:
B, D: This is not the IVR consultant's concern.
C: This is incorrect.

QUESTION 8 We just received txt-file from OCR-application into some local folder.
What is the right sequence of operations for saving this information in the database?
Open txt-file Archive txt-file Create new Driver Create new Supervisor Create new Drug Results Get Driver

info (name, ...) Get Drug results from Laboratory
Answer:
Explanation:
Incorrect Answers Get Drug results from Laboratory: The drug results must be obtained from the txt file. It is stated that "The new solution must provide the ability to read the text file into a database". Create new Driver: A new driver does not need to be created each time because the driver should have been created after scheduling the test Create new Supervisor: A new Supervisor does not need to be created each time because the driver should have been created after scheduling the test Archive txt file: There is no such requirement

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QUESTION 9 You are writing a conceptual diagram of the modules that must be developed for your solution. Which module or modules should be included? (Choose all that apply)
A. OCR-application
B. Web-app for supervisors
C. Web-app for drivers
D. Module for export Lab results
E. Module for import Lab results
F. Database
Answer: B, C, E, F
Explanation:
B, C, E, F: All of these are needed
Incorrect Answers
A: This already exists
D: We are required to import the results.

QUESTION 10 Which poses the greatest potential risk to completing your project?
A. Stuff don't have programming experience
B. App will be hosted by Trey Research
C. IVR application
D. Nobody will want to use this application
E. Drivers will not call
Answer: C
Explanation:
C: If the merger negotiations continue, we want the pilot program to begin sooner

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QUESTION 11 How often drivers will be testing?
A. Decided by company
B. Decided by driver
C. Will be set up by supervisor once for all companies and drivers
Answer: B

QUESTION 12 Substance table (parent) - Lab Result table (child). How you can speed up process of getting Lab results?
A. Create Primary Key and index in Lab Results.
B. Create Foreign Key and index in Lab Results
C. Create Foreign Key and index in Substance .
D. Create Primary Key and index in Substance.

Answer: B

Case Study #11, Alpine Ski Stores

Background:
Alpine Ski Stores is in the business of selling sports equipment related to skiing etc.
They have 3 channels of business. These are:
a. Telephonic orders
b. 5 retail outlets spread across the country
Selling on the internet 50,000 Orders are expected this year. They want to enhance their presence as they are expecting their sales to grow by 20% each year for the next 5 years. You have been contracted by Alpine to help develop a Microsoft .NET based solution for them.
Existing Infrastructure:
At present all orders go through one Central warehouse. The warehouse has an existing Order Fulfillment application which is used by the warehouse staff and also by the staff at the retail outlets. This application is based on ASP with VBscript and accesses the database on SQL Server 7.0 and is running on desktops having Windows NT and Windows 2000 OS.
Ecommerce Application is available on the extranet and they support only HTTP and HTTPS. No other extra port will be allowed across the firewall. The company also has an eCommerce application designed and developed by a local software vendor. Alpine has had a very good relationship with this vendor and they have been flexible and delivered and willing to change etc... The eCommerce application is based on SQL Server 7.0 database that lies on the same machine as that of the Order Fulfillment application and is also based on ASP with Visual Basic 6.0 scripting edition. Presently the eCommerce Application (ECA) and the Order Fulfillment Application (OFA) are synchronized nightly. The synchronization component is developed on VB6 by the same Order Fulfillment machine.
The ECA has the following database structure implemented: It has 4 tables: Order - OrderID, Customer ID, Shipping address etc Order Items - OrderItem ID, OrderID #, InventoryItemID, Price Inventory Items - Inventory Item ID, VendorID, Stock Inventory items are linked to a master Vendor table.
Interviews:
We are not happy with the way things are working at present. All our customers are happy with our existing eCommerce application and its features. But many times we have had problems. The ECA shows the customers that a product is in stock when actually it is possible that we don't have any stock. Then we have to call up these customers and mention this to them, which results in cancellation of the orders most of the time. Customers don't mind waiting for a product if it is not in stock - but if the website tells them this before and gives them the option to backorder. This problem is because of the synchronization between the OFA and ECA. This obviously needs to be improved.
We don't have too much budget for this project. We expect that this development is done at the lowest cost and in a short time.
We would like to have a feature that would allow our vendors to access our inventory and monitor the level of their products in our inventory. Right now we have a list of vendors for each product. We want to provide this facility to our vendors so that once the level goes below a threshold; the vendors can replenish our inventory with their product. We want to ensure very strict development practices for this project. We want to track each release and make sure that we have strict control over the source code. We also want to be very clinical on our testing and want to perform regressive testing. Orders can be filled in whole or in part. If it is a part fulfillment, then the items not in inventory are placed as backordered and this status is updated in the database.
We are not willing to change the database that we are running. We have already installed .NET framework on

all the development machines. We have 2 developers familiar with ASP and VBScript but no one has worked with .NET (not sure of this)
Business Process:
The staff at the warehouse fulfills orders as follows:
a. The list of orders is printed out
b. The order to be fulfilled is chosen
c. The items are selected from the inventory
d. If a part of the order is not in stock, the item status is updated as backordered
e. The packing list is printed
f. The items are packed
g. The shipping address is printed
h. The order is dispatched
The backorder fulfillment process is as below:
a. The list of backorders is retrieved
b. The inventory is checked to see if the order can be filled
c. If not the status is updated as backordered
d. If available, then the order fulfillment process is followed

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Questions Case Study #11, Alpine Ski Stores

QUESTION 1 You are evaluating the potential risks in this project.
Which business process or business processes will strongly affect your solution? Choose all that apply
A. Customers can order on the web
B. The warehouse staff will be filling the orders
C. Customer Service Dept updating the Shipping and Billing Address
D. Customers update Shipping Address.
E. Customer enters shipping address & billing address.
Answer: B
Explanation: They are expecting around 50,000 orders, and all of them will be fulfilled by a single warehouse. This could be a bottleneck.
Wrong
Incorrect Answers:
A: There is no side effects.
C: We do not foresee any problem.
D: This is a normal business process.
E: This will not affect our business process strongly.

QUESTION 2 What additional software would you recommend to be installed on development desktops. Visual studio .Net is already installed in the machines. Chose all that apply.
A. BizTalk Server
B. Share point
C. SQL Server 2000
D. Visual Source Safe
Answer: D
Explanation: The company wants to have strict control over the source code.

Incorrect Answers:
A, B, C: These products will not meet their requirements to have strict control over the source code.

QUESTION 3 What data store would you recommend for the application? (Choose one.)
A. SQL Server 7.0
B. SQL Server 2000
C. Use data warehousing tools.
D. XML Store
Answer: A
Explanation: The company is not willing to change the database that they are running on.
Incorrect Answers:
B: The company will not change their database.
C: This is not appropriate.
D: This is not appropriate.

QUESTION 4 You are assigned to perform Quality Assurance on the software. Your specific job is to ensure that each modified vers1ion of every component is thoroughly tested before being accepted.
How do you perform this testing? Drag and drop all that apply in the correct sequence
A. Retrieve the latest version of source code
B. Deploy it on the Test Server
C. Perform regression testing
D. Reject the new component if the test fails
E. Install development tools in the staging server.
F. Correct bugs on the Test Server
G. Perform debugging
Answer: A, B, D, G
Incorrect Answers:
C, E, F: These steps are not necessary.

QUESTION 5 What mechanism would you recommend for synchronizing ECA and OFA?
A. XML Web Services built on the existing component
B. SQL Server stored procedures
C. DCOM
D. Asp Page that uses XML
Answer: A
Explanation: Since the Ecommerce Application is available on the extranet and they support only HTTP and HTTPS we must use XML web services built on existing components. Moreover, no other extra port will be allowed across the firewall.
Incorrect Answers:
B: This is not the best way.
C: We can only use port 80 and 443 only.
D: This will not achieve anything.

QUESTION 6 What is the sequence of actions you will perform for the Use Case that vendor requests for existing items in inventory? Drag and drop all that apply in the correct sequence
A. Vendor passes Vendor Id and Product ID to the web service

B. XML Web Service calculates the no of items to be supplied
C. XML Web Service updates the inventory of the item
D. XML web service validates that the vendor actually supplies that product
E. XML Web service authenticates the Vendor
F. XML web service queries the database for the item
G. XML web service returns the stock via SOAP
Answer: A, E, D, F, G
Explanation: The correct sequence of actions are
1. Vendor passes Vendor Id and Product ID to the web service
2. XML Web service authenticates the Vendor
3. XML web service validates that the vendor actually supplies that product
4. XML web service queries the database for the item
5. XML service returns the stock via SOAP
Incorrect Answers:
B, C: These are not required.

QUESTION 7 You have to create a interface for the order fulfillment application. This interface would be accessible by the e-commerce application.
What should you use?
A. provide WSDL
B. Register in UDDI
C. Provide IDL
D. Use stored Procedures
E. DCOM
Answer: A
Explanation: Since we have elected to use an XML web service in question 5, it is only logical for us to use WSDL to provide the e-commerce application an interface.
Incorrect Answers:
B: We do not need to use UDDI. This is inappropriate for a commercial solution.
C: We are not using Interop
D: Stored procedures will not be sufficient
E: No additional ports other than HTTP and HTTPS will be opened.

QUESTION 8 Steps followed by the staff at the warehouse to fulfill order.
What is missing?
1. • Update Inventory
2. • Print Inventory
3. • If the item is not available, put it in the back order
4. • Inform the Sales Person, if the order is complete
Incomplete. Will be fixed in later versions.

Section B - practice questions
Case Study #B1, Quicken Dynamics Airlines

Background
Quicken Dynamics Airlines is a regional airline. We serve several European countries, the US and Japan. Currently telephone operators handle all reservations. To support the increased number of flights, the company plans to add an online reservation process. You are submitting a proposal to develop a Microsoft .NET solution that will execute the new process. Your solution must be operational in five months. It must undergo one month of testing before it is available to the public. Within one year, it must be able to support 500 flights per day. To support this expansion, existing flight numbers might need to be reassigned.
Existing IT Environment
Currently Quicken Dynamics Airlines uses a PHP application to allow its executives to book flights on behalf of customers.
Interviews IT Department IT Manager
We need better support for our web servers. We depend on expensive support for our servers. We have been occasionally hacked. Most of our hacking incidences because our applications to stop functioning while the CPU to engage in long, pointless calculations. System memory is consumed so that the functioning of applications and the operating system is impaired. We need to deal with this. This results in network bandwidth reduction. We are getting a better firewall in place which will only allow port 80 and port 443 preconfigured for us. We will not configure it to allow other incoming traffic. No new software should be installed on desktop PCs for security purposes other than the .Net framework and other required files.
We plan to use Active directory to manage our growing users and implement better security. We need to use connection pooling on database connections. We currently do not use any Microsoft products. We may consider them if it is justified, since we prefer open source. Our IT staff do not specialize in Microsoft products. We need a reliable messaging service.
Business Stakeholders Chief Executive Officer
My vision is to give our customers an easy-to-use, self-service reservation process. Our new application must provide customers with the following features:
.Make reservations quickly through the Internet
.Make reservations at any time, on any day of the week
longer available for booking Receive an automatic e -mail message to confirm the itinerary after the flights are booked.
.Book through Windows CE based pocket PCs
.The interface must be understood by our customers and easy to use.
A previous development project required a considerable amount of rework.
We were unable to find out why the rework occurred. If rework is needed during this project, we need to know why.
Business Manager
The application should help us provide that we are receiving a return on our investment. Periodically, detailed usage information must be logged for analysis. We must be able to turn logging on and of without recompiling the application. The reservation agents may be reluctant to use the new system as they have been used to the old system.
Finance Department Chief Financial Officer
Our business model is based in the expansion of our flight schedules. This project is critical to our continued success. Our budget is limited and we need to implement and support the new application with whatever resource we have. However, we need to reduce operating expenses. We must be able to introduce new modules without any problems. We have rejected an earlier proposal because of the lack of flexibility and potential rework.
Users Reservations Agent

The application must be able to provide help to us. We require training if new applications are introduced.
Business Process
Currently customers make reservations by telephoning a Quicken Dynamics Airlines reservations agent.
The agent uses a dedicated PC to connect to the web server and then completes each reservation.

Questions, Case Study #B1, Quicken Dynamics Airlines

QUESTION 1 You are preparing the functional specification for the new application.
Which two functionalities should you specify? (Each correct answer presents part of the solution. Choose two)
A. Localization
B. Monitoring of application performance
C. Security.
D. Support for mobile phones and personal digital assistants
E. Integration with Active Directory
F. Low maintenance
G. Less reworking
Answer: A, B, C, D, E
All applies except low maintenance and less reworking. There are no such requirements. Reworking must be justified.

QUESTION 2 You are completing the technical specification for the new application.
Which technique should you recommend for state management?
A. ASP.NET ViewState
B. Server-side database
C. Client-side cookies
D. Application cache
Answer: B
This will retain the information when the customer closes the session.

QUESTION 3 Which business constraint poses the greatest potential risk to completing your project for Quicken Dynamics Airlines?
A. The current IT staff must support the solution in the future
B. All testing scenarios and all necessary rework must be completed during the one-month testing period
C. Their budget is limited
D. The reservation agents may be reluctant to use the new system
E. The company must agree to use Microsoft products
F. The application must be completed within a five-month development period before it is tested
Answer: E
They require use to use features such as Active Directory, which require the use of Microsoft products.

QUESTION 4 You are establishing a policy to measure the effectiveness of your deployment process. You decide to track one or more phases of development to identify defects.
Which phase or phases should you track?(Choose all that apply)
A. Design and analysis
B. Development
C. Stabilization

D. Requirements
Answer: C
It is during the stabilizing phase that the Testing team completes the tasks and creates the deliverables that move the feature-complete build to a state in which the defined quality level is reached and the solution is ready for full production deployment.
The two main tasks in the stabilizing phase are:
. • Testing the solution: The team implements the test plans that were created during the planning phase, which were enhanced and tested during the development phase.
. • Conducting the pilot: The team moves a solution pilot from development to a staging area to test the solution with actual users and real scenarios. The pilot is conducted before the deploying phase is begun.
A pilot is a test of the solution in the production environment, and a trial of the solution by installers, systems support staff, and end users. The primary purposes of a pilot are to demonstrate that the design works in the production environment as expected and that it meets the organization's business requirements. A secondary purpose is to give the deployment team a chance to practice and refine the deployment process.

QUESTION 5 You are listing the operational requirements for the new reservation application.
Which requirement should you include? (Choose all that apply)
A. Extensibility
B. Localization
C. Maintainability
D. Availability
E. Deploy ability
Answer: A, D
The proposal may be refused if the solution is not flexible enough. They need to ensure the solution is reliable.

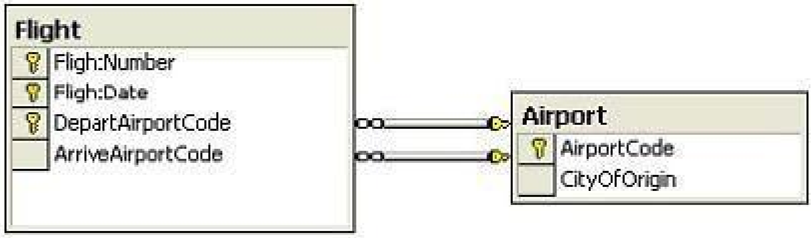
QUESTION 6 You are writing the primary scenario of a use case named "Customer places a booking for a flight that is full".
Which action or actions should be included?(Choose all that apply)
A. Application informs customers that no flight exist
B. Application informs customers that the flight is no longer available for booking
C. Customer asks for alternative flights
D. Application suggests alternate flights
E. Application queries the database for alternate flights
F. Application displays alternate flights
Answer: B, D, E, F
This is the Primary Scenario for "Customer places a booking for a flight that is full".

QUESTION 7 You need to select a strategy that will provide detailed usage information for the new reservation application. Information must be provided with a minimum development effort.
What should you do?
A. Use Microsoft .NET performance counters in the application
B. Create a Microsoft Management Console(MMC) snap-in for the application
C. Add Windows Management instrumentation to the application
D. Use the application's configuration file to enable and disable logging
Answer: A
This method will require a minimum development effort.

QUESTION 8 You must ensure that the new reservation application can be monitored while it is running.
Which approach should you use?
A. TraceSwitch objects
B. Diagnostic tools
C. PerformanceCounter objects
D. Windows Management Instrumentation Job Object provider
Answer: C
Using the PerformanceCounter object within the solution would allow developers to write performance specific information that can be monitored by Performance Monitor while the application is running.

QUESTION 9 You are creating the logical design for a use case named "Customer updates customer profiles".
Which object or objects should you include in the design? (Choose all that apply)
A. Data access object
B. Customer object
C. Flight object
D. Logging object
E. Airline object
Answer: B, D
These are definitely needed for the use case in question. They require detailed logging of usage information for analysis.

QUESTION 10 You are creating constraints for tables named Flight and Airport. You must ensure data integrity.
Which action or actions should you take?(Choose all that apply)
A. Create a primary key constraint on the AirportCode column and the City Of Origin column in the Airport table
B. Create a primary key constraint on the Flight Number column in the Flight table
C. Create a cascading delete constraint on the AirportCode column in the Airport Table
D. Create a foreign key constraint on the Arrive Airport Code column in the Flight table to reference the AirportCode column in the Airport table
E. Create a primary key constraint on the Flight Number column, the FlightData column and the Depart Airport Code column in the Flight table
F. Create a foreign key constraint on the Depart Airport Code column in the Flight table to reference the AirportCode column in the Airport table
G. Create a primary key constraint on the AirportCode column in the Airport table
H. Create a foreign key constraint on the AirportCode column in the Airport table to reference the Depart Airport Code column in the Flight table
Answer:
The answers will meet the design shown below:



.• Primary Keys
a. o Airport Table: AirportCode is unique enough.
b. o Flight Table: Composite primary key for Flight Number, Flight Date and Depart Airport Code.
(Flight Number itself may not be unique enough since they could be reused)
.• Foreign Keys
a. o Airport Table: Depart Airport Code will reference AirportCode
b. o Airport Table: Arrive Airport Code will reference AirportCode
. • City Of Origin is not necessary to uniquely identify records within the Airport Table.
. • Flight Date has to be part of the composite key within the Flight Table.

QUESTION 11 You are creating the logical design for the new reservation application.
Which entity or entities should you include? (Choose all that apply)
A. Airport
B. Flight
C. Customer
D. Gate
E. City
Answer: A, B, C
A: Airport is an entity.
B: Flight is an entity.
C: Customer is an entity.
Incorrect Answers:
D: This can be an attribute
E: This can be an attribute

QUESTION 12 You need to implement online interactive user assistance for the new reservation application.
What should you do?
A. Create a manual that can be downloaded from the Web site
B. Create a compiled help module and use context-sensitive help for all screen elements
C. Implement ToolTips to provide information about all screen elements
D. Use the ALT attribute to provide a short textual description for all images and audio files
Answer: C
ToolTips is best to provide context sensitive help. Even the best user interface design and A. Design A. input validation procedures cannot ensure that your users will be able to know what to do and when to do it. To avoid personally training and supporting every user through their individual learning curves, you need to make some form of online user assistance in a format they are able, willing, and ready to call up. The most common ways to do this are through the use of status bars, tool tips, and application help files.

QUESTION 13 Your development team proposes four different conceptual designs for the new reservation applications. You need to present one of these designs to the board of directors of Quicken Dynamic Airlines.
Which design should you present?
B. Design B.
C. Design C.
D. Design D.
Answer: B
This is an N-tier application.

QUESTION 14 How should you access the database?
A. XML web services
B. COM+ components
C. Queued Components
D. Service components
E. Windows application
F. Web application
Answer: A
Web services will provide secure data access through firewall.

QUESTION 15 Which kinds of testing should you perform on your application? (Choose all that apply)
A. Regression testing
B. Single stepping trough code
C. System testing
D. Unit testing
E. Network bandwidth testing
F. Database disk I/O testing
G. Peer code review
H. Integration testing
Answer: A, C, D, E, F, H
We need to perform a standard test. It comprises of Unit testing, Integration testing, Regression testing, Network bandwidth testing, Database disk I/O testing and System testing.

QUESTION 16 Which Microsoft products are required to realize your solution? (Choose all that apply)
A. Microsoft BizTalk server
B. Microsoft Exchange server
C. Microsoft Windows 2000 Server
D. Microsoft Windows 2000 Professional
E. Microsoft Access
F. Microsoft Windows CE
G. Microsoft Commerce Server
H. Microsoft SQL 2000
Answer: B, C, H
These three products are the core requirement for this scenario.

QUESTION 17 How should you authenticate company users through the Internet? (Select the best.)
A. IIS Anonymous authentication with ASP.NET Passport authentication
B. IIS Anonymous authentication with ASP.NET Forms authentication
C. IIS Basic authentication with SSL and ASP.NET Windows authentication
D. IIS Integrated Windows authentication with ASP.NET Windows authentication
E. IIS Basic authentication with SSL and ASP.NET Forms authentication
Answer: C
Each employee has a Windows 2000 domain user account. This solution will work because the User Name and Password as passed in as strings in clear text which can work through port 80 & 443. Because of this, Microsoft recommends using SSL with IIS Basic authentication.

QUESTION 18 Which solution concept will your agents use? (Select the best.)
A. XML web services
B. COM+ components
C. Queued Components
D. Service components
E. Windows application
F. Web application
Answer: F
No new software should be installed on desktop PCs.

QUESTION 19 Which solution concept will mobile customer use? (Select the best.)
A. XML web services
B. COM+ components
C. Queued Components
D. Service components
E. Windows application
F. Web application
Answer: F
Mobile customers should use a web application to access the reservation system.

QUESTION 20 What model should you use to help prevent misuse of the system? (Select the best.)
A. UML
B. STRIDE
C. Risk mitigation
D. Conceptual
Answer: B
The STRIDE threat model is a technique used for identifying and categorizing threats to an application. Each letter in the STRIDE acronym specifies a different category of security threat: spoofing identity, tampering, repudiation, information disclosure, denial of service, and elevation of privilege.

QUESTION 21 When should the Release candidates be released? (Choose all that apply)
A. After the first achievement of zero-bug bounce
B. After reaching the milestone in the stabilizing phase
C. When bug peaks should become noticeably smaller
D. When the team meets bug convergence
Answer: A, C
After the first achievement of zero-bug bounce, a series of release candidates are prepared for release to the pilot group. Each of these releases is marked as an interim milestone. The release candidates are made available to a preselected group of users so they can test it. The users provide feedback to the project team, and the project team in turn continues to improve the product and resolve bugs that appear during the pilot. As each new release candidate is built, there should be fewer bugs to report, prioritize, and resolve. Each release candidate indicates that the team is nearing the end of deployment.

QUESTION 22 You need to assure your client on the minimum availability.
How would you calculate it?

A. Availability = (MTBF + MTBF + MTTR) × 100
B. Availability = (MTBF / (MTBF + MTTR)) × 100
C. Availability = (MTTR / (MTBF + MTBF)) × 100
D. Availability = (MTBF / (MTTR)) × 100
Answer: B
For example, the typical availability requirement for your client's application is that the site is available 24 hours a day, 7 days a week. If you assume 1000 continuous hours as a checkpoint, two 1-hour failures during this time period results in availability of: ((1000 / 2) / ((1000 / 2) + 1)) × 100 = (500 / 501) × 100 = .998 × 100 = 99.8%.

QUESTION 23 You need to ensure that your team is deploying the solution on time.
What goals must you set?
A. Place the solution into a production environment.
B. Facilitate the smooth transfer of the solution from the project team to the operations team.
C. Secure customer approval that the project is complete.
D. Submit application monitoring results
E. Complete deployment plan
Answer: A, B, C
The goals of the deploying phase are:
. • Place the solution into a production environment.
. • Facilitate the smooth transfer of the solution from the project team to the operations team.
. • Secure customer approval that the project is complete.

QUESTION 24 What solution architecture is a possible choice for your solution?
A. N-tier
B. Thick client and thin client
C. Client - server
D. Distributed processing Answer: A
N-tier is advantageous because it offer the following benefits:
. • Scalability and fault tolerance are strongly supported by configuring the application tier as a server farm and the database tier as a server cluster.
. • Separating the client computer from the application logic supports the development and distribution of thin client applications.
. • Each tier can operate within its own security context.
. • Having the Web server and business components on the same computer, and quite often in the same process, increases performance.

Case Study #B2, Law Inc. Corporation

Background
Law Inc. Corporation is a large law firm. Currently, the firm uses a commercial timesheet application to track billable hours. However, this application no longer meets the firm's needs. You are contracted to create a new Windows-based solution by using the Microsoft .Net Framework and Microsoft SQL Server.
Existing IT Environment
Each lawyer uses a computer that runs either Microsoft Windows 2000 Professional or Windows XP Professional. Many lawyers travel frequently and use only portable computers. Most lawyers also use handled

PCs that run Windows CE.
Each employee has a domain user account. The domain is served by a Windows 2000 domain controller. All employees use Internet Explorer 6.0.
Employees do not have VPN access to the corporate network. A firewall restricts incoming traffic to HTTP connections on TCP ports 80 and 443. The IT staff will not open additional ports.
Interviews Users Lawyer, Corporate Law Division
I am a typical end user at Law Inc. Corporation. With our current software, I find it laborious to make timesheet entries. We often postpone updating our timesheets. As a result, we often forget important task details. The new timesheet application must be better suited to the way we work.
Typically, I spend each afternoon writing a contract. However, I might also receive 10 telephone calls related to other cases, and I might respond to 10 e-mail messages. The new solution should make easy to record each of these tasks while I am working. We envision a taskbar-type interface that should always be displayed along the edge of the screen. This taskbar should contain toolbar-type buttons. These buttons should represent the legal clients whom we most frequently bill. Each time we begin a new task for a client, we should be able to click the button associated with that client to start a timer. Clicking the same button again, or clicking another client button, should stop the timer. A pop-up window should then prompt us to describe and categorize the task that was just completed. The taskbar should also expand to show a more conventional timesheet interface. The expanded interface must allow us to sort, review, add and edit our entries. The new timesheet application should not require us to provide explicit name and password information. When we work at home, we want to be able to use the application over the internet. When we do so, the application should update the data immediately.
Lawyer, Criminal Law Division
Each week we spend several hours making billable telephone calls. We make a large number of these calls while commuting to the office, while traveling to and from meeting and court appearances and while waiting at the courthouse. We want to be able to keep track of our telephone calls by using our handled devices. We need a simple timesheet application that runs on our devices and is similar to the taskbar application. When we return to the office, the application should synchronize with our desktop computers and add the information from the handled device.
Business Stakeholders Business Manager
We need a new solution to serve the needs of Team Leads and Business Planners. Each large project has a Team Lead. One responsibility of the Team Lead is to review and approve all timesheet entries before the entries can be used to create invoices. The new application should prevent Team Leads from viewing or approving entries that are unrelated to their projects.
My own staff consists of several Business Planners. They must be able to view all timesheet entries. In addition, they must be the only users who can add new clients, create new projects, close projects and assign lawyers to projects. After a project is closed, lawyers should no longer be able to bill to it and the project should be described as completed. Team Leads and Business Planners often work at home or while traveling. Therefore, we want the new solution to be a Web application that is accessible from the Internet .
Accounting Manager For billing, we use a commercial software package. Each month, I create an invoice for each of our legal clients. Currently, I need to consult a timesheet report to look up the numbers of hours billed by each lawyer to each client. Then, I must manually add a line item to the invoice for each lawyer's hours. This task is time-consuming and clients complain about the lack of detail in the invoice. We want the new solution to include a utility that automatically creates invoices in our billing application. This utility should create the invoices once each month, on the last business day of the month. A sales representative from the billing software company told me that the billing software package is fully programmable. He can provide you with API documentation.
IT Department IT Manager

Our IT staff consists of five people. None of them has any programming experience. The new application must include tools that alert us to all failures and help us resolve failures. The application must also be secure. Any Web application or application endpoint exposed to the Internet must require authentication.
Business Process Timesheet Entries
Each timesheet entry is billable to a project. A given client might have several ongoing projects. Each timesheet entry includes a time, a lawyer and a task description. The following example is a typical entry:
Lawyer: John Chen Client: KiddiKite.Inc. Time: 18 minutes Project: Kite patent application Task Description: Sent e-mail message to Ben with technical questions about Kite
Data Migration
Data from the existing timesheet application must be migrated to the new timesheet application. This data is in a proprietary format. From an examination of the existing application, you learn that all required data can be exported to a comma delimited file.

Questions, Case Study #B2, Law Inc. Corporation

QUESTION 1 Your project team needs to commit to producing the highest quality product possible. Each team member is individually responsible for helping achieve the desired level of quality.
What approach should you use?
A. The MSF approach
B. Bug Convergence
C. Zero defect mindset
D. Perform alpha and beta tests
Answer: C
Zero-defect mindset means that the project team commits to producing the highest quality product possible. Each team member is individually responsible for helping achieve the desired level of quality. The zero-defect mindset does not mean that the deployed solution must be perfect with literally no defects; rather, it specifies a predetermined quality bar for the deliverables.

QUESTION 2 One of your developers is developing a Web application for Team Leads and Business Planners.
What testing types are applicable?
A. Prefix testing
B. Buddy tester principle
C. Usage testing
D. Perform testing on isolated features
Answer: A, B, D
A unit test is a form of developer-performed internal coverage testing or prefix testing that takes advantage of automated testing. The philosophy behind unit testing is to perform testing on isolated features (one small piece at a time). Coverage testing is low-level technical testing. For example, when a developer writes a section of code or a subject matter expert creates an automated unattended installation, he or she typically performs low-level testing to ensure that the solution meets the functional specification. In MSF, this type of testing is called coverage testing; in Microsoft product groups, it is also referred to as prefix testing. A typical strategy that is used for performing the coverage testing role is to use the buddy tester principle.

QUESTION 3 You are writing the technical specification for your solution. You need to select a technology for the new timesheet application.
Which technology should you use?

A. an XML Web service
B. a Web application
C. a console application
D. a Windows Forms application
Answer: B
There are three applications to be developed:
. • A web application for Team Leads and Business Planners. The Business Manager wants "the new solution to be a Web application that is accessible from the Internet."
. • A simple time sheet Windows CE application for Lawyers in the Criminal Law Division.
. • A web application for Lawyers in the Corporate Law Division

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QUESTION 4 One of your testers reports of a bug that occurs only when the user holds down the Control and Shift key while left-clicking the mouse and viewing the File menu to access the manager's login.
Under which category will you classify this bug?
A. Repeatability
B. Visibility
C. Severity
D. Priority
Answer: B
A variable that measures the situation or environment that must be established before the issue or bug manifests itself.

QUESTION 5 You are designing the bug tracking process. How should you order the process? (Select all that applies)
. • Assigned developers resolve or correct issue or bug.
. • Perform regression tests
. • Developers develop code, perform internal coverage testing, and then check this code into the change control system.
. • Developers perform internal coverage testing and then check this code into the change control system.
. • Calculate bug convergence
. • The development and test leads conduct a Prioritization or Issue/Bug Prioritizing meeting
. • Testers perform the daily or periodic build and external coverage testing on all submitted code.
. • Conduct a Pilot test
. • Testers submit issues or bugs into the issue or bug tracking system, entering issue or bug descriptions and Repeatability, Severity, and Visibility variables.
• Mark release as ready for milestone approval
Answer: (The correct order is shown below)
1. Developers develop code, perform internal coverage testing, and then check this code into the change control system.
2. Testers perform the daily or periodic build and external coverage testing on all submitted code.
3. Testers submit issues or bugs into the issue or bug tracking system, entering issue or bug descriptions and Repeatability, Severity, and Visibility variables.
4. The development and test leads conduct a Prioritization or Issue/Bug Prioritizing meeting
5. Assigned developers resolve or correct issue or bug.
6. Developers perform internal coverage testing and then check this code into the change control system.

QUESTION .6 The page generation for your web application is slow.
What should you do?
A. Use page caching
B. Use SQL Servers to manage state
C. Enable view state
D. Enable the application cache
E. Enable smart navigation
Answer: A
The page caching will improve page generation.

QUESTION 7 You are about to release the Golden release. You have reached the Golden release milestone. At golden release, your team must select the release candidate that they will release to production.
How should perform selection?
A. The team should use the testing data that is measured against the zero-defect and success criteria metrics and the tradeoff triangle to make this selection.
B. The team should use the testing data that is measured against the bug convergence and success criteria metrics and the tradeoff triangle to make this selection.
C. The team should use the testing data that is measured against the pilot test and success criteria metrics and the tradeoff triangle to make this selection.
D. The team should use the testing data that is measured against the zero-defect and bug convergence metrics and the tradeoff triangle to make this selection.
Answer: A
Golden release is the release of the product to production. Golden release is a milestone in the stabilizing phase, which is identified by the combination of zero-defect and success criteria metrics. At golden release, the team must select the release candidate that they will release to production. The team uses the testing data that is measured against the zero-defect and success criteria metrics and the tradeoff triangle to make this selection.

QUESTION 8 You plan to expose business entities to allow custom scripting from other future applications. You then provide an extra component that helps the client to "log on" from code and set the security context required by these objects since you are not relying on platform authentication.
What guidelines should you heed to?
A. You should not design business entities to rely on having a Generic Identity security context for a particular human user if your business entities will be invoked by non-impersonating mechanisms
B. You should design business entities to rely on having a Generic Identity security context for a particular human user if your business entities will be invoked by non-impersonating mechanisms
C. You should not design business entities to rely on having a Windows security context for a particular human user if your business entities will be invoked by non-impersonating mechanisms
D. You should design business entities to rely on having a Windows Identity security context for a particular human user if your business entities will be invoked by non-impersonating mechanisms
Answer: C
If you plan to expose business entities to allow custom scripting or consumption from other applications, you may need to provide an extra component that helps the client to "log on" from code and sets the security context required by these objects if you are not relying on platform authentication. You should not design business entities to rely on having a Windows security context for a particular human user if your business entities will be invoked by non-impersonating mechanisms (for example, a business process started asynchronously).

QUESTION 9 You have almost completed evaluating the security mechanisms of your application. You are concerned with controlling what an assembly can do and preventing renegade codes from being run.
What security mechanism should you use?
A. Impersonation
B. Code access security
C. Generic Identity
D. SSL
Answer: B
Code access security, which was introduced by .NET, gives developers and administrators an extra dimension of access control and the possibility of cross-checking the correct security configuration. Unlike user permissions and rights, code access security is concerned with what an assembly can do. For example, a .NET assembly could be configured in such a way that the code is unable to access file system resources, and any code that attempts to do so will trigger an access violation exception. You can establish trust zones that apply different code access security policies to different assemblies based on a number of factors.

QUESTION 10 You must ensure that your business entity components can enforce authorization rules based on the security context of the caller for both users and service accounts. You need to make sure that criminal lawyers do not access private information of a Client object.
What guidelines should you use? (Select all that apply)
A. Make sure that your security contexts are consistent in all physical tiers of your application
B. Make sure that your security contexts are consistent in the presentation tier of your application
C. Make sure that your security contexts are consistent in the data access tier of your application
D. Place the appropriate checks through PrincipalPermission attributes and PrincipalPermision.Demand calls in your business entity calls.
E. Place the appropriate checks through Identity Permission attributes and IdentityPermision.Demand calls in your business entity calls.
Answer: A, D
Business entity components can enforce authorization rules based on the security context of the caller (for both users and service accounts). For example, you can make sure that users in a particular role do not access private information of a Customer object. To implement this functionality, you will need to:
. • Make sure that your security contexts are consistent in all physical tiers of your application:
Different physical tiers that use business entities should have equivalent Principal objects in the running context.
. • Place the appropriate checks through PrincipalPermission attributes and PrincipalPermision.Demand calls in your business entity calls.

QUESTION 11 You need to ensure that your design is scalable.
What guidelines should you use? (Select all that apply)
A. Design processes so that they do not wait
B. Design processes that are tightly coupled
C. Design processes so that they do not fight for resources
D. Design processes for commutability
E. Design components for interchangeability
F. Design components using the singleton design pattern
G. Partition resources and activities
H. Design components using the façade design pattern

Answer: A, C, D, E, G
Guidelines for scaling include:
. • Design processes so that they do not wait
. • Design processes so that they do not fight for resources
. • Design processes for commutability
. • Design components for interchangeability
. • Partition resources and activities

QUESTION 12 The business planners want at least 98% uptime. Your company will be in charged of maintaining the application as well.
What can you suggest to meet this requirement? (Select all that apply)
A. Reduce planned downtime
B. Do not plan for any downtime
C. Reduce unplanned downtime by using clustering
D. Use network load balancing
E. Use RAID for data stores
F. Isolate mission-critical applications
G. Ensure that applications are well tested
H. Use queuing
Answer: A, C, D, E, F, H
Guidelines for designing for availability of a solution include:
. • Reduce planned downtime
. • Reduce unplanned downtime by using clustering
. • Use network load balancing
. • Use RAID for data stores
. • Isolate mission-critical applications
. • Use queuing

QUESTION 13 You need to evaluate the performance benefits and limitations of Page Cache in your application.
Which of the following is true? (Select all that apply)
A. Dynamic content on cached pages may become invalid.
B. This strategy does accommodate passing parameters to the page.
C. This strategy does not accommodate passing parameters to the page.
D. Absolute expiration works well only if the whole page stays the same.
E. Absolute expiration works well only if the whole page is dynamic.
F. There is no way to flush the cached pages.
G. Pages can be flushed after a set duration.
H. You do not need to alter the code in each page to change the expiration policy.
I. Storing pages in a cache does not require disk space on the server.
Answer: A, C, D, F
. • Dynamic content on cached pages may become invalid. This is because the page expiration is based on time rather than content.
. • This strategy does not accommodate passing parameters to the page. Dynamic pages are often parameterized.
. • Absolute expiration works well only if the whole page stays the same. In many applications, large portions of a page change rarely (great candidates for caching), but are coupled with other sections that change frequently

(cannot be cached). Because absolute expiration caches only whole pages, it cannot take advantage of localized changes such as this.
. • the cached pages. The pages remain in the cache until they expire or the server is restarted.
. • You must alter the code in each page to change the expiration policy. Because the expiration policy can only be changed in the code, there is no mechanism to turn off caching for the entire application.
. • Storing pages in a cache requires disk space on the server.

QUESTION 14 Your database designer needs to map relational data to business entities.
What recommendations should you provide the database designer with? (Select 2 choices)
A. Use a formal design notation for modeling objects in an object-oriented application, and for capturing information about how objects represent automated processes, human interactions, and associations.
B. It is best to separate business entities to represent many-to-many tables in the database; these relationships can be exposed through methods implemented in your Data Access Logic Component.
C. If you have methods that return a particular type of business entity, place these methods in the Data Access Logic Component for that type.
D. If you have methods that return a particular type of business entity, place these methods in the Business Logic Component for that type.
Answer: A, C
Take the time to analyze and model the logical business entities of your application, rather than defining a separate business entity for every table. One of the ways to model how your application works is to use Unified Modeling Language (UML). UML is a formal design notation for modeling objects in an object-oriented application, and for capturing information about how objects represent automated processes, human interactions, and associations.
Do not define separate business entities to represent many-to-many tables in the database; these relationships can be exposed through methods implemented in your Data Access Logic Component. For example, the OrderDetails table in the preceding example is not mapped to a separate business entity; instead, the Orders data access logic component encapsulates the OrderDetails table to achieve the many-to-many relationship between the Order and Product tables. If you have methods that return a particular type of business entity, place these methods in the Data Access Logic Component for that type.
For example, if you are retrieving all orders for a customer, implement that function in the Order Data Access Logic Component because your return value is of the type Order. Conversely, if you are retrieving all customers that have ordered a specific product, implement that function in the Customer Data Access Logic Component.

QUESTION 15 You are planning to represent the time sheet entity as a generic DataSet. What benefits can you reap? (Select 2 choices)
A. Flexibility
B. Serialization
C. Pessimistic concurrency
D. Client code must access data through collections in the DataSet
Answer: A, B
The advantages of representing business entities as a generic DataSet are as follows:
. • Flexibility. Datasets can contain collections of data, and can represent complex data relationships.
. • Serialization. Datasets natively support serialization when passing across tiers.
. • Data binding. Datasets can be bound to any user-interface controls in ASP.NET and Windows Forms applications.
. • Sorting and filtering. Datasets can be sorted and filtered by using DataView objects. An application can

create several DataView objects for the same DataSet, to view the data in different ways.
. • Interchangeability with XML. Datasets can be read or written in XML format. This is a useful technique in remote and disconnected applications, which can receive a DataSet in XML format and recreate the DataSet object locally. Applications can also persist Datasets to XML format while the applications are disconnected from the database.
• Availability of metadata. Full metadata can be provided for a DataSet, in the form of an XSD schema. You can also programmatically obtain metadata for the DataSet by using methods in the DataSet, DataTable, DataColumn, Constraint, and Relation classes. Optimistic concurrency. When you are updating data, you can use Datasets, in conjunction with data adapters, to perform optimistic concurrency checks easily.
. • Extensibility. If the database schema is modified, the methods in the Data Access Logic Component can create Datasets that contain modified DataTable and DataRelation objects as appropriate. The Data Access Logic Component method signatures do not change. The calling application can be modified to use these new elements in the DataSet.
The disadvantages of representing business entities as a generic DataSet are as follows:
• Client code must access data through collections in the DataSet. To access a table in a DataSet, client code must index into the DataTable collections by using an integer indexer or a string indexer. To access a particular column, you must index into the DataColumn collection by using a column number or a column name. The following example shows how to access the ProductName column for the first row in the Products table:

QUESTION UESTION .16 To achieve secure communication between calling applications and data access logic
components what recommendations should you give to your team? (Select all that apply)
A. Use Distributed Component Object Model (DCOM)
B. Use Secure Sockets Layer (SSL)
C. Make data access logic components responsible for encrypting and decrypting the data.
D. Consider securing the communication channel to and from the data access logic components.
Answer: B, C, D
We are not using any DCOM application. SSL and securing the communication channel will be advantageous. Data access logic components should be responsible for encrypting and decrypting.

QUESTION 17 You need to design a highly available infrastructure tier for the application to run.
What issues should you consider? (Select all that apply)
A. The failure of hardware components, applications, or services can render an application unusable or unavailable.
B. Planned server downtime will not affect the application availability.
C. Monitoring and maintaining multiserver tiers increases demand on system and network resources.
D. An application using a failover cluster may need special coding to ensure that when a failure occurs, the failover process is transparent to the user and the application remains available.
Answer: A, C, D
. •The failure of hardware components, applications, or services can render an application unusable or unavailable. For example, imagine if a server that is delivering an application experiences a power supply failure. If this is the only server or only power supply in the server, a single point of failure exists and the application will be unavailable.
. •Planned server downtime can affect the application availability. For example, if you want to update the operating system on a database server for which there is no standby server, you might have to bring down the application to patch the server.

. •Monitoring and maintaining multiserver tiers increases demand on system and network resources.
. •An application using a failover cluster may need special coding to ensure that when a failure occurs, the failover process is transparent to the user and the application remains available.

QUESTION 18 You are designing your clustering strategy. You must ensure that before the standby server can start processing transactions, it must synchronize its state with the state of the failed server. You want the updates to the internal state of the active server to be copied to the standby server. Because the standby server's state is a clone of the active server's, the standby server should immediately become the active server and start processing transactions.
Which approach should you use?
A. Transaction log
B. Hot standby
C. Shared storage
D. Dedicated servers clustering
Answer: B
In hot standby, updates to the internal state of the active server are immediately copied to the standby server. Because the standby server's state is a clone of the active server's, the standby server can immediately become the active server and start processing transactions.

QUESTION 19 You have defined the business process. You want them to be automatically orchestrated.
Which product would suit your need? (Select the best)
A. Microsoft BizTalk server
B. Microsoft Commerce Server
C. Microsoft SQL Server 2000
D. Microsoft Windows 2000 Advanced Data Center
Answer: A
You can use BizTalk Server to define the business process and automatically orchestrate the business components.

QUESTION 20 What factors will influence you when choosing an authentication method? (Select all that apply)
A. Server and client operating systems
B. The client browser type
C. The number of users
D. Deployment considerations
E. User skills
F. Bandwidth
G. Response time
H. User growth
Answer: A, B, C, D, F, G, H
When choosing an authentication method we must consider these:
. •Server and client operating systems
. •The client browser type
. •The number of users, and the location and type of the user name and password database
. •Deployment considerations, such as whether your application is Internet or intranet based and whether it is

located behind a firewall
. •Performance and scalability factors

QUESTION 21 You are securing the web version of the time sheet application. You need to ensure that the sub-level configuration files are used to override settings made at a higher level.
A. Use the <location> element coupled with the allow Override attribute.
B. Instruct the web server administrator to not override any of the permissions granted to the application.
C. Use code access
D. Use a custom XML configuration file
Answer: A
This can be achieved using the <location> element coupled with the allow Override attribute.

QUESTION 22 You need to ensure that each row in the customer table has a unique identifier. a customer record must have a primary key. How should you implement it?
A. Entity integrity
B. Domain integrity
C. Table integrity
D. Referential integrity
Answer: A
Entity integrity requires that each row in a table has a unique identifier, known as the primary key value.

QUESTION 23
A. Builds are organized by build number. A simple approach for generating build numbers is described later in this chapter.
B. The latest folder always contains the output from the latest build.
C. The Latest folder must match the binaries contained in the current highest build number folder.
D. The contents of each project's output folder is copied by the build script to a subfolder beneath the Latest\Release folder, the name of which is based on the project name.
Answer: A, B, C, D
All statements are true.

QUESTION 24 You discover that you somehow have multiple builds of the same assembly with the same strong name. You need to ensure that the build number does match your system build number.
How can you prevent this without using manually update by a build coordinator? (Select the best)
A. Use dynamic versioning
B. Using Static Version Numbers
C. Use a build script
D. Change the version of a strongly named assembly each time.
Answer: C
The version numbers must be manually updated by the build coordinator or by the build script.

QUESTION 25 You need to prepare a logical data model. The model includes entries that correspond to clients, projects and timesheet entries. You are reviewing the model.
Which entity relationship or relationships should be included?(Choose all that apply)
A. a Client entity is the child of a Timesheet Entry entity
B. a Project entity is the parent of a Timesheet Entry entity

C. a many-to-many relationship exists between a Client entity and a Project entity
D. a many-to-many relationship exists between a Project entity and a Timesheet Entry entity
E. a Client entity is the child of a Timesheet Entry entity
F. a Client entity is the parent of a Project entity
Answer: B, F
A. Timesheets are billable to projects.
E. One client may have many projects

Case Study #B3, KiddiKite, Inc

Background
KiddiKite, Inc manufactures and sells kites on a whole sale basis to more than 5.000 customers. Currently, the company maintains a static Web site and receives customer orders by telephone. It obtains raw materials from two vendors. The company contracts you to design and develop a solution by using the Microsoft .NET Framework that will enable customers to place orders over the internet. The solution will include a new customer Web site. Testing and deployment of the site must be complete in six months.
Existing IT Environment
KiddiKite, Inc has a private VPN. Salespeople use VPN to access e-mail and file shares when they travel. The company uses an accounting application to manage the customer billing process. The accounting application runs on a mainframe computer. This application accepts connections over TCP/IP and it uses its own binary communication protocol. It responds to requests slowly and supports a maximum of two concurrent TCP/IP connections. It cannot store information about shipping status. The company will continue to use the accounting application.
Interviews Users Sales manager
Our salespeople need access to customer information and order history when they are in the office and when they travel in the field. They should access the application by downloading it on demand over the Web. We categorize our customers by sales volume. We use three categories, in ascending order of volume, they are Bronze, Silver or Gold. Customer in higher categories pay lower prices. We currently store category pricing on paper. I want to store category pricing as part of the new solution. I want also the ability to change pricing every quarter. Each customer must be able to see only its own pricing information. Customers must not learn that different pricing categories exist.
Manufacturing Manager
I want a solution that tracks my raw material inventory and helps me order raw materials.
Shipping Manager
We spend too much time handling customer telephone calls. Customers often telephone to learn the shipping status of their orders. Our staff needs to find each printed order and then report the shipping status to the customer.
It Department IT Manager
I own this project and I will be working directly with you. Eventually, I want to locate all our business process on the Internet. However, our highest priority is to make our customers happy. Anything makes our salespeople more efficient will make our customers happier. One of our bigger customer requests is the ability to place orders at the end of the month. Currently, we cannot fulfill that request because we do not have enough staff to answer the telephones.
Customers also want better information about order status. They want to track the stages of their orders and monitor shipping status. They want to be notified by e-mail when an order ships. Currently customers do not receive any notification, because we do not have enough staff to telephone them when orders ship. We invest a

lot of money in building our brand. Whenever our customers have a request that involves our company, I want them to be able to go to the Web site of KiddiKite, Inc to complete the request. Customers should not be redirected to another site with another company's branding for such requests. Our competitors have very successful Web sites, so we must act quickly to ensure that our Web site offers all appropriate functionality. I manage a staff of four people. They all have experience with ASP, but no experience with ASP.NET. I want at least two of my staff to participate in the development project. My staff will maintain the new application after its initial deployment.
We will host the application ourselves. We are upgrading our network to handle the expected traffic. We want the Web site to be as easy as possible to administer. During peak loads, we must be able to monitor how many customers in each customer category are logged on to the site.
I do not want to modify our existing accounting application and I do not want to add any applications to the mainframe computer. In four months our shipping partner will begin using an XML Web service to track shipments. We already have the documentation for the interfaces that our partner will support.
Finance Department Chief Financial Officer
This project is critical to our business. However, we have only a limited amount of money to spend. We must ensure that the scope of the project will maximize the benefit to our customers.
Business Process
Customers place orders for Kites once a month. After an order is placed, it cannot be changed. Each order is taken over telephone by a salesperson. The salesperson immediately enters the order into the accounting application by using a client computer. The order is then printed and delivered in the shipping department. The shipping department completes and ships the order from existing inventory. The order is the marked as complete.
Many customers have standing orders. A standing order is a list of products that the customer expects to need each month. Currently, the sales department records standing orders on paper. Customers with standing orders sometimes override their standing order by placing a monthly order.
The accounting application does not store shipping information for an order. When an order is placed, the accounting application considers the order complete for billing purposes.

Questions, Case Study #B3, KiddiKite, Inc

QUESTION 1 You are creating the physical design for the customer category data model. For reporting purposes, you want to optimize access to customer category data. You define a Customer table and a Category table.
What should you do next?
A. Define three foreign key columns in the Category table, such that each column references a different parent row in the Customer table. Define indexes on the foreign key columns.
B. Define three foreign key columns in the Customer table, such that each column references a different parent row in the Category table. Define indexes on the foreign key columns.
C. Define a foreign key column in the Category table that references the parent row in the Customer table. Define an index on the foreign key column.
D. Define a foreign key column in the Customer table that references the parent row in the Category table. Define an index on the foreign key column.
Answer: D
D: This solution is depicted below

QUESTION 2 While building your application with Visual Source Safe, the build process fails with file lock errors.
Other problems emerge when referencing an assembly from a folder that is designated as your project's output folder.
How can you solve these errors? (Select the best)
A. Do not alter the Build Output Path
B. Alter the Build Output Path
C. Do not use Visual Source Safe
D. Rebuild it
Answer: A
You might be tempted to alter the output paths of your projects in order to build to a single folder and then establish file references to that folder. Do not do this for the following reasons:
. •It causes the build process to fail with file lock errors when a referenced assembly exceeds 64 KB in size. This problem is likely to be fixed in a future version of Visual Studio .NET.

. •You can encounter another problem when you reference an assembly from a folder that is designated as your project's output folder. In this event, Visual Studio .NET cannot take a local copy of the assembly because the source and destination folders for the copy operation are the same. If you subsequently remove the reference from your project, Visual Studio .NET deletes the "local" working copy. Because the local folder is the same as the assembly's original folder, the original assembly is deleted.

QUESTION 3 You are using Visual Source Safe to update the assembly version information for multiple assemblies.
How will you centralize the version information and enable a single file checkout and update? (Select all that apply)
A. Place the Assembly Version attribute in a single source file, for example AssemblyVersionInfo.cs or AssemblyVersionInfo.vb.
B. Share the file across any projects that need to share the same version number within VSS.
C. Do not use Visual Source Safe
D. Configure a build script
Answer: A, B
To update the assembly version information for multiple assemblies, the build script or build coordinator must check out and update multiple Assembly Info files. To centralize the version information and enable a single file checkout and update, consider the following approach:
1. Place the Assembly Version attribute in a single source file, for example AssemblyVersionInfo.cs or AssemblyVersionInfo.vb.
2. Share the file across any projects that need to share the same version number within VSS.

QUESTION 4 You are planning the deployment of the new application. You need to decide how to migrate customer data on the shortest possible time.
What should you do?
A. Load the customer data into the new application from Active Directory
B. Create a Data Transformation Services package to load the customer data into the new application from the mainframe computer
C. Create an interface to the accounting application. Always access customer data from the accounting application

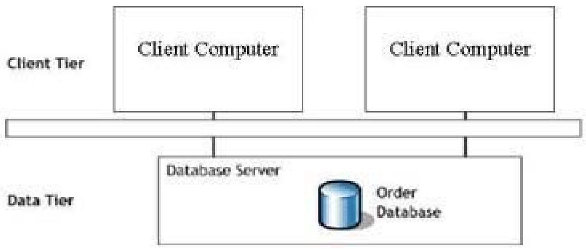
D. Create a Data Transformation Services package to load the customer data into the new application from the customer category data
Answer: B
Customer data may have to be expanded to include new field, such as shipping status. The existing customer data on the mainframe should not be modified otherwise there would be a need to make modifications to the Accounting Application on the mainframe.

QUESTION 5 You are designing the solution concept for the salespeople's application.
What should you use? (Select the best)
A. Web application
B. Thin clients
C. Thick client
D. Smart clients
Answer: D
Smart clients are characterized by their reliance on Windows Forms for their client-side implementation (optionally downloaded on demand over the Web), combined with back-end Web services for their server-side implementation. Since good Web services are inherently stateless and leave all of the UI and state management duties to the client, there's no hybrid layer that generates UI and manages state as required in typical Web applications.

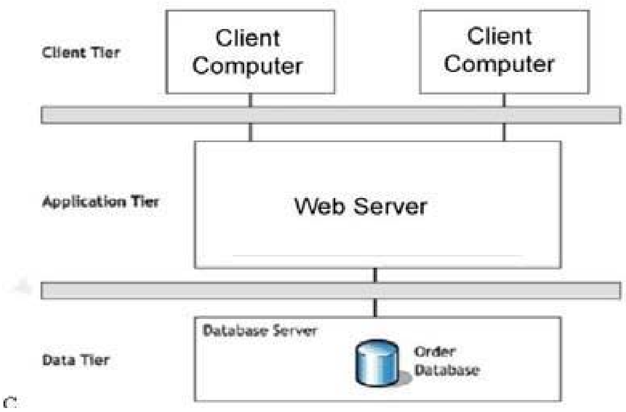
QUESTION 6 You are validating your physical design. You need to ensure that the design maps to the categorization requirements for customer pricing.
Which member should you include in the design?
A. A Get Price method of a Product class with no parameters
B. A Price property of a Product class
C. A Price property of a Customer class
D. A Get Price method of a Product class with a single Customer Object parameter
Answer: D
By passing the Customer Object as a parameter to the Get Price method of a product class, we can assign a different price based on the customer type.

QUESTION 7 You are verifying the design for the new application used by the salespeople. The design must be able to handle the user's state. Select the best design.

A.

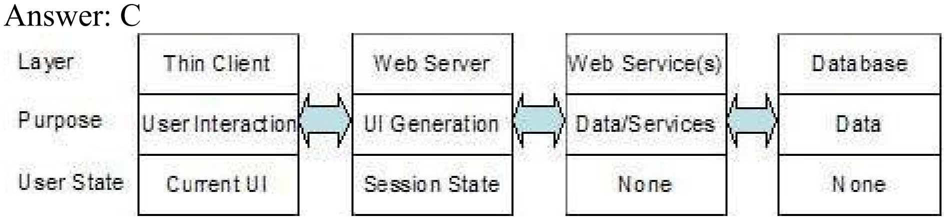


B.



C.

Answer: C



This is a typical Web application architecture

QUESTION 8 You need to select the best design pattern to be able to ensure that the creation and initialization of an object is abstract. This indirection should enable the client to focus on its discrete role in the application without concerning itself with the details of how the new object is created. The client should remain unchanged.

What should you do? (Select the best)

A. Factory

B. Façade

C. Singleton

D. Observer

Answer: A

The factory completely abstracts the creation and initialization of the object or product from the client. This indirection enables the client to focus on its discrete role in the application without concerning itself with the details of how the product is created. Thus, as the product implementation changes over time, the client remains unchanged.

QUESTION 9 You need to create a physical design that meets the monitoring requirements of KiddiKite, INC.
What should you do?
A. Create and use a new event log to record each customer logon event
B. Use the built-in ASP.NET performance counters to monitor application load
C. Use the Trace class to record each customer logon event
D. Create and use new Number Of Items performance counters to monitor active customer sessions
Answer: D
The requirement stated by the IT Manager can be fulfilled using this solution. Performance Monitor is suited for this.

QUESTION 10 You need to design an additional component to allow customers to track their shipping status through the company's website. You have these requirements:
. • The component must use HTTP channel
. • You need to provide a secure path for data
. • Your solution must be able to support SOAP
. • Must work well with firewalls
. • Fast performance
What should you use? (Select the best)
A. A web application
B. An XML service
C. A DCOM object
D. .Net Remoting
Answer: D
.Net Remoting fits all the above requirements.

QUESTION 11 You are writing the technical specification for your solution. When a customer uses the new Web site to place an order, the new Web application must submit the order data to the accounting application.
You need to specify how the data will be submitted.
Which technology should you use?
A. Transactional serviced component
B. .NET Remoting object
C. Queued component
D. XML Web service
Answer: C
Our chosen solution shall be queued components implemented with .Net Remoting. Our solution must use a maximum of two concurrent TCP/IP connections.

QUESTION 12 You application need to use pessimistic locking in ADO.NET.
What should you do? (Select the best)
A. Use ADO
B. Use OLEDB
C. ADO transactions
D. Use stored procedures

Answer: D
Although there is no direct support for pessimistic locking in ADO.NET, a client can achieve the same effect by using ADO.NET transactions or implementing the required functionality in a stored procedure.

QUESTION 13 You need to fine tune the performance of your application, since it uses view state. Your application depends on it. Since each object must be serialized and then deserialized upon post back you notice that performance is lacking.
What should you do? (Select all that apply)
A. Disable ViewState completely.
B. Use the optimized ViewState serializes.
C. Use the fewest number of objects
D. Turn off ViewState on a per-control basis
E. Turn off ViewState per-page basis
F. Turn off ViewState per-application basis
Answer: B, C, D, E, F
ViewState performance may be increased by:
. • Disabling ViewState completely if not in use
. • Using the optimized ViewState serializers.
. • Using the fewest number of objects
. • Turning off ViewState on a per-control basis
. • Turning off ViewState per-page basis
. • Turning off ViewState per-application basis

QUESTION 14 You need to ensure that your ViewState is not tampered with.
What should you do? (Select all that apply)
A. <%@Page EnableViewStateMAC=true %>
B. <machine Key validation="SSL" />
C. <machine Key validation="Kerberos" />

D. <machine Key validation="MD5" />
E. <machine Key validation="SHA1"
validationKey="F3690E7A3143C185AB1089616A8B4D81FD55DD7A69EEAA3B32A6AE813ECEECD28DEA66A23BEE42193729BD48595EBAFE2C2E765BE77E00
6330BC3B1392D7C73F"/>
Answer: A, D, E
A hash code will not secure the actual data within the ViewState field, but it will greatly reduce the likelihood of someone tampering with ViewState to try to spoof your application, that is, posting back values that your application would normally prevent a user from inputting. The validation key is a string of 20 to 64 random, cryptographically-strong bytes, represented as 40 to 128 hexadecimal characters. Longer is more secure, so a 128-character key is recommended for machines that support it.

QUESTION 15 You need to allow your application to main session state with these requirements:
. • Process independent.
. • Support for server farm configurations.
• Cookie independent. What should you use? (Select the best)
A. ASP Session

B. ASP.net Session
C. Cookies
D. Stored procedures
Answer: B
ASP.net sessions are:
. • Process independent. ASP.NET session state is able to run in a separate process from the ASP.NET host process. If session state is in a separate process, the ASP.NET process can come and go while the session state process remains available. Of course, you can still use session state in process similar to classic ASP, too.
. • Support for server farm configurations. By moving to an out-of-process model, ASP.NET also solves the server farm problem. The new out-of-process model allows all servers in the farm to share a session state process. You can implement this by changing the ASP.NET configuration to point to a common server.
. • Cookie independent. Although solutions to the problem of cookie less state management do exist for classic ASP, they're not trivial to implement. ASP.NET, on the other hand, reduces the complexities of cookie less session state to a simple configuration setting.

QUESTION 16 You need a type of session management where performance is important but you cannot guarantee which server a user will request an application from. You need high performance when reading the state information and high reliability.
What should you do? (Select the best)
A. In process
B. Out of process
C. SQL Server
D. Cookie less
Answer: B
. • In process. In process will perform best because the session state memory is kept within the ASP.NET process. For Web applications hosted on a single server, applications in which the user is guaranteed to be redirected to the correct server, or when session state data is not critical (in the sense that it can be reconstructed or repopulated), this is the mode to choose.
. • Out of process. This mode is best used when performance is important but you can't guarantee which server a user will request an application from. With out-of-process mode, you get the performance of reading from memory and the reliability of a separate process that manages the state for all servers.
. • SQL Server. This mode is best used when the reliability of the data is fundamental to the stability of the application, as the database can be clustered for failure scenarios. The performance isn't as fast as out of process, but the tradeoff is the higher level of reliability.

QUESTION 17 You need to ensure that queries return correct information.
What must you do to make sure that the information being stored is valid? (Select 2 answers)
A. Client side checking
B. Server-side checks
C. Client scripting
D. Server side scripting
Answer: A, B
Client-side checks can ensure that invalid data is not posted to a database. These checks can be coded in many ways, including in scripts, in the user interface controls, as part of an executable program, or as part of a Web page. For example, if a field on a Web page denotes a monetary value, validation controls on the page can ensure that the information in that field is the proper data type and format.

Server-side checks, which are executed by the DBMS engine, can be implemented with field data types, default values, and constraints. These checks can also ensure that invalid data is not stored in the database.

QUESTION 18 You need to redirect HTTP Error 404 pages to the company's search page.
What should you do? (Select the best)
A. <customErrors mode="On" default Redirect="customError.aspx"> <errorstatusCode="404" redirect="custom404.aspx"/></customErrors>
B. <customErrors mode="On" Redirect="customError.aspx"> <error status Code="404"redirect="custom404.aspx"/> </customErrors>
C. <customErrors default Redirect="customError.aspx"> <error status Code="404" redirect="custom404.aspx"/>
</customErrors>
D. <customErrors mode="On" default Redirect="customError.aspx"/>
Answer: A
This option provides a special case for the custom error page depending upon the HTTP status code.
For example, we may want a custom error page if the request attempts to access a page that doesn't exist (HTTP 404).

QUESTION 19 When a customer places an order you need to notify the company's staff to dispatch the goods.
How should you do this?
A. Implement stored procedures that will send a notification email
B. Implement triggers that will send a notification email
C. Use CDONTS to notify staff of such events
D. Use event delegates
Answer: B
Triggers are sets of programmatic statements that are explicitly defined for a particular table. When a specific action (such as an insert, update, or delete) occurs in that table, the trigger causes the statements to automatically run. For example, a trigger can verify data in other tables or perform an automatic update to a different table.

QUESTION 20 You are assigning components to tiers.
What should you do? (Select all that apply)
A. Go through each component in the application and assign it to a tier
B. User interface components may be mapped to the Web tier,
C. Business components are mapped to the application tier
D. Be aware of the technical, legal, and business constraints that will be imposed on the solution
Answer: A, B, C, D
Application architects must meet with the system architects to create a deployment plan that describes which tier each of the application's components will be deployed to. Key to the success of this meeting is that both parties are starting from a set of high-quality requirements that are precisely specified down to a testable level. For example, a requirement stated as "The application must be scalable" is not specific enough to be testable. A more testable requirement would be: "The application must support 50 concurrent users with two second response time at launch and must scale up to 500 concurrent users with three second response time." This requirement is also phrased in a way that both system and application architects can understand. In addition starting from specific requirements, both parties must be intimately aware of the technical, legal, and business constraints that will be imposed on the solution.

QUESTION 21 You are deciding on the deployment strategy for the application which will be used by the salespeople. Your strategy must move the presentation components to the client tier so that rich user interfaces is provided to the user.
What should you do? (Select the best)
A. Simple Web application
B. Complex Web application
C. Extended enterprise application
D. Smart client application
Answer: D
The smart client configuration deploys the user interface components onto the client tier instead of the Web tier. The primary motivation for moving the presentation components to the client tier is that rich user interfaces demand a high degree of interactivity with the user. Mainstream Web technology does not support these rich user interface requirements.

QUESTION 22 You are responsible to propose a load balancing strategy. The strategy must account for the different processing capabilities of each server. You will assign a performance weight to each server, and a scheduling sequence. (Select the best)
A. Round robin
B. Weighted round robin
C. Least-connection
D. Load based
Answer: B
Weighted round robin accounts for the different processing capabilities of each server. Administrators manually assign a performance weight to each server, and a scheduling sequence is automatically generated according to the server weight. Requests are then directed to the different servers according to a round-robin scheduling sequence.

QUESTION 23 When deciding on a scalable infrastructure tier what must you consider? (Select all that apply)
A. maximum amount of load capacity for any given application
B. limitations on the number of CPUs that applications can use
C. complexity of managing and monitoring
D. the number of peripherals that any one server can use
Answer: A, B, C, D
When designing your scalable infrastructure tier, consider the following forces:
. •Individual servers have a maximum amount of load capacity for any given application. For example, if a single server provides Web pages as part of a Web-based application and the user or transaction load increases beyond the limitation of the server, the application will either fall below performance expectations or, in the worst case, become unavailable.
. •Individual servers have maximum physical performance limitations, including limitations to the bus speed, the amount of memory, the number of processors, and the number of peripherals that any one server can use. For example, if the server is capable of housing only four processors, you cannot add a fifth processor to enhance performance.
. •Certain applications have limitations on the number of CPUs that they can use.
. •Servers, as individual entities, are single points of failure within a solution. If only one server is responsible for delivering the functionality of a component within an application, its failure results in an application failure.

. •Adding servers can increase the complexity of managing and monitoring the server hardware and its associated software.

QUESTION 24 What are potential liabilities for the load balancing cluster pattern that you have chosen? (Select all that apply)
A. Development complexity
B. Cost
C. Does not account for network failure
D. Human resource requirements
Answer: A, C
. • Development complexity. A load-balanced solution can be difficult to develop if the solution must maintain state for individual transactions or users.
. • Does not account for network failure. If a server or network failure occurs during a client session, a new logon may be required to reauthenticate the client and to reestablish session state.

QUESTION 25 What constitutes your team development environment? (Select all that apply)
A. A build server on which an automated build script is used to generate daily builds
B. A backup server to maintain VSS database backups
C. Computers running Microsoft SQL Server(tm) for development and test databases
D. Web servers for development and test Web services
E. A Microsoft(r) Visual SourceSafe(tm) (VSS) server to maintain the source code control database or databases
F. Developer workstations
Answer: A, B, C, D, E, F
. • Developer workstations
. • A Microsoft(r) Visual SourceSafe(tm) (VSS) server to maintain the source code control database or databases
. • A backup server to maintain VSS database backups
. • Computers running Microsoft SQL Server(tm) for development and test databases
. • Web servers for development and test Web services
. • A build server on which an automated build script is used to generate daily builds

Case Study #B4, SouthEastern Bay Traders

Background
SouthEastern Bay Traders operates retail stores in 16 countries worldwide. The company sells a wide variety of furniture, dining and kitchen goods, bath end bedding accessories and other specialty items for the home. Products are delivered to retail stores from regional distribution centers.
The company plans to offer its products in an online store, which will also be serviced by the regional distribution centers. The company contracts you to design and implement a Microsoft .NET solution architecture for the online store. The new online services will be made available in three cities in a pilot implementation. If the pilot is successful, the company will deploy the online store worldwide over the next 13 months. The worldwide deployment must be completed without any additional development effort.
Existing IT Environment
The existing corporate network includes both Microsoft Windows NT Server 4.0 computers and Windows 2000 Server computers in a single domain. Employees use desktop computers that run Windows XP Professional and

Microsoft Office XP. The human resources department has its own intranet, which uses Internet Information Services (IIS) and Microsoft SQL Server 2000.
Product inventory functions are currently performed by a mainframe computer. Users connect to the mainframe computer by using terminal emulation software on their desktop computers. The regional distribution centers are connected to the main office by a dedicated T1 frame relay link. Every night, the distribution centers update the inventory data on the mainframe computer.
Interviews IT Department IT Manager
I manage a staff of 50 trained technicians who are located around the world. We employ two technicians at the main office in each country where we do business. The technicians spend most of their time troubleshooting computers that stop responding. We want a replacement for the terminal emulation software that we currently use. The new software should still permit us to use the mainframe computer to print reports. It should also provide secure access to the mainframe computer from the Internet. The development and deployment of the mainframe solutions should occur during the pilot implementation of the online store. Our suppliers have Active Directory accounts and our application must multiple browser types, including Netscape Navigator and all versions of Internet Explorer.
Lead Developer
Five developers work on my staff. They are responsible for maintaining an inventory management application on the mainframe computer. They also maintain the human resources intranet. They are proficient in Microsoft Visual Basic Scripting Edition (VBScript) and ASP.
They have developed some functions in ASP which could be reused. They can also use several mainframe development languages.
Finance Department Chief Financial Officer
We want to be able to update product information more frequently. Currently, updating the product information from our vendors is a time-consuming process. Replacing this process is essential if we want to remain competitive in the marketplace. We will continue to perform inventory reporting from the mainframe computer.
Business Stakeholders Business Manager
As a global company, we have some unique challenges. We must be able to present our online store in a way that is appropriate to each locale in which it is viewed. In particular, we need to display currencies and calendars in the format that is most familiar in each locale. Currently, we use an international company to perform credit card verification for our retail stores. We want to use the same company's XML Web Service to perform verification for our new online store. One key goal is to protect the confidentiality of credit card information during online transactions.
Marketing manager
Currently, we analyze customer spending by examining paper reports that are generated each month by the mainframe computer. These reports provide limited data and we cannot perform any additional analysis of the data. Our online store will require us to analyze data that relates to virtual shopping carts. Analyses must be performed several times each month in a variety of ways, such as by customers, by promotion, by geographical location and by time period.
Users Inventory Manager
The terminal emulation software is slow and difficult to use. It often causes our computers to stop responding. In addition, we need to remember several different user names and passwords to access our desktop computers and to use the mainframe computer. This requirement is difficult and frustrating. In addition, any out of stock products must be backordered. Backordering status must be logged. We also must allow our vendors to access our inventory information securely through the Internet. They should not be able to view our other vendors.
Business Process
SouthEastern Bay Traders obtains products from 15 different vendors. Once a month, a magnetic tape is sent by

each of the vendors to the main office of SouthEastern Bay Traders. These tapes are used to update the product data in the mainframe computer. The tapes include data relating to new products and discontinued products. They also include pricing changes for existing products. Each tape provides product names and descriptions in several different languages. Each vendor uses a different format for the data on tape.

Questions Case Study #4, SouthEastern Bay Traders

QUESTION 1 You are establishing a new development environment for the online store application. You are using source code control(SCC) software. You plan to use Visual Source Safe.
What are the requirements for the VSS server? (Select all that apply)
A. VSS version 6.0c
B. Appropriate backup software
C. Must host the build server as well
D. Must use Microsoft Windows OS
Answer: A, B
This question is asking about the software required on the VSS server and not the installation requirements of VSS.
The following software is required on the VSS server:
. • VSS version 6.0c. This ships with Visual Studio .NET Enterprise Architect and Enterprise Developer versions. It is also available via MSDN on CD/DVD or as a subscriber download.
. • Appropriate backup software. The VSS database must be backed up on a regular basis, due to its critical role in the team development process. Use your current backup software and procedures to backup the VSS database.

QUESTION 2 You are creating the data model for a table named Product. This table will contain data relating to products sold by SouthEastern Bay Traders. Each product can belong to more than one category. Categories include furniture, bedding, bath accessories and kitchen goods.
Which entity or entities should you model?
A. A Product entity that contains attributes for two Category names and descriptions
B. A Product entity that contains attributes for each Category names and descriptions
C. A Product entity and a Category entity that are related by a ProductID attribute
D. A Product entity and a Category entity that are related by a ProductName attribute
E. A Product entity and a Product entity that are related by a ProductID attribute and a CategoryID attribute
F. A Product entity and a Category entity that are related by a ProductID attribute and a CategoryID attribute
G. A Product entity, a Category entity and a ProductCategory entity that are related by a ProductID attribute and a CategoryID attribute
Answer: G
There is a Many-to-Many relationship between Product and Category but some Relational DBMS (including SQL Server) are not able to model Many-to-Many relations. This would require an additional ProductCategory entity.

QUESTION 3 You need to establish a build server. What software is required on the build server? (Select all that apply)
A. Visual Studio .NET
B. Visual SourceSafe 6.0c (client)
C. IIS

D. Message Queuing.
Answers: A, B
ISS and Message queuing is optional.

QUESTION 4 The online store application needs to be localized. You plan to use the localization support in the Microsoft .NET Framework.
Which localization feature or features are feasible? (Choose all that apply)
A. Support multiple character sets (MBCS)
B. Support right-to-left mirroring of Web pages
C. Automatically translate text for different cultures
D. Automatically convert currency values for different cultures
E. Support localized resources for different cultures
F. Support tool tips translation of Web pages
G. Automatically detect different cultures
H. Automatically format currency for different cultures
Answer: E,G, H
Currency formatting and localized resources are supported.

QUESTION 5 You need to streamline the development process with Visual studio .net to meet these requirements:
. • Capture architecture and implementation rules and apply them as "active" guidance while developers are building the application.
. • Help architects provide developers with relevant Help topics on a "just-in-time" basis
What should you use?
A. Enterprise templates
B. Solutions
C. VSS
D. Inherit from a base class that meets the above.
Answer: A
Enterprise Templates provide architects with three capabilities they can use to help developers be more successful building applications with the .NET Framework:
. • Capture architecture and implementation rules and apply them as "active" guidance while developers are building the application. Architects can use these rules to filter out options that are not relevant to the project at hand. These rules can provide immediate reminders when developers add items, references, interfaces, class members, or property values to inappropriate parts of the application, helping them avoid common problems.
. • Help architects provide developers with relevant Help topics on a "just-in-time" basis to reduce the need to read mountains of documentation before they can begin to write code.

QUESTION 6 What can Enterprise Templates offer? (Select all that apply)
A. Automatic updates of source codes
B. Source code management
C. Source code synchronization
D. Provides developers with a familiar design experience
E. Provide application infrastructure that is common and consistent across projects, in areas such as security
F. Better error handling
G. A template for error handling

H. Provides application instrumentation.
Answer: D, E, G, H
Enterprise Templates helps to package an architect supplied framework of existing code and components in a way that integrates it into Visual Studio .NET, providing developers with a familiar design experience. Architects can use this capability to provide application infrastructure that should be common and consistent across projects, in areas such as security, error handling, and application instrumentation.

QUESTION 7 Towards the end of the development cycle, you notice frequent corruption of the VSS database. What may be the causes? (Select 3 answers)
A. Network problems
B. Unreliable remote connection
C. Running out of disk space.
D. Improper installation of VSS
Answer: A, B, C
There are a number of reasons why you may experience database corruption. The most common reasons include:
. • General network problems, such as using an unreliable remote connection and dropping the connection mid-way through a file check in.
. • Running out of disk space.

QUESTION 8 You are creating the logical design for the online store application. You are retrieving a use case named "Customer places an order item in the virtual shopping cart that is out of stock".
Which object or objects should you include to support the use case?(Choose all that apply)
A. Transaction object
B. Virtual shopping cart object
C. Order item object
D. Customer object
E. Logging object
F. Backordering object
Answer: D, E, F
The use case clearly specifies nouns (objects) that should be included to support the use case. The manager wants out of stock items to be logged and backordered.

QUESTION 9 The company's inventory management application runs on a mainframe computer. You are creating the functional specification for a new Web application that will provide access to this application.
What should you propose to enable access to the mainframe computer?
A. Microsoft Host Integration Server.
B. Microsoft Commerce Server 2000
C. Microsoft SQL 2000
D. Microsoft BizTalk
Answer: A
a. Host Integration Server provides ActiveX-enabled 3270 and 5250 clients.
b. Host Integration Server provides Single User Log-On which streamline and reduces management burden by automatically and simultaneously authenticating a user on both the Windows NT domain and on the host system.
c. Host Integration Server provides low-cost tunneled connectivity through the Internet for client-to-server and

network-to-network VPN features.
d. Host Integration Server 2000 has a Host Print Service which provides server-based 3270 and 5250 print emulation, allowing mainframe and AS/400 applications to print to a LAN printer supported by Windows 2000 and Windows NT Servers.

QUESTION 10 After the online store is implemented, vendors will use data files instead of tape to deliver product update data. However, each vendor uses a different file format. Input files need to be processed to produce output files in a standard format. Output files will be submitted to the mainframe computer. You need to recommend Microsoft Biz Talk Server for file processing.
How can you justify it?
A. It can transform various file formats into one specific file format
B. It has Data and transformation services and the application integration features
C. It integrates well with Microsoft SQL 2000
D. It integrates well with Microsoft Biz Talk Server
Answer: D
Microsoft Biz Talk Server is able to support for various document types. It has Data and transformation services and the application integration features in BizTalk Server can provide businesses with the tools they need to achieve a unified view of data and applications both within the organization and business partners.

QUESTION 11 The data store you are accessing has a different authentication mechanism than the rest of your application and you have very limited change control over the accounts that can log on to the other system.
Which type of account should you use to access Data Access Components?
A. Service Accounts
B. Administrator Accounts
C. Guest Accounts
D. Impersonate Caller
Answer: A
Use service accounts when:
. • You connect to the underlying data source from an environment in which impersonation of the initial caller is unavailable (for example, Microsoft BizTalk(r) Server).
. • You have very limited change control over the accounts that can log on to the other system, for example, when logging on to a relational database management system, which is strictly managed by the database administrator.
. • The data store you are accessing has a different authentication mechanism than the rest of your application, for example, when you are logging on to a Web service across the Internet.

QUESTION 12 What services must your solution offer? (Select all that apply)
A. User services
B. Business services
C. Data services
D. System services
Answer: A, B, C, D
The services that a solution typically provides are:
. • User services. User services are units of application logic that provide the user interface in an application. The user services of an application manage the interaction between the application and its users. To design efficient user services, you need a thorough understanding of the users of the application, the tasks that they will

perform, and the typical interactions they will have with the application to perform their activities.
. • Business services. Business services are units of application logic that enforce business rules in the correct sequence. A business service hides the logic of implementing business rules and transforming data from the user services, other business services, and data services.
. • Data services. Data services are units of application logic that provide the lowest visible level of detail for manipulating data. You use data services to implement business schema on the data store being used by the application. Data services are used to manage all kinds of data-static, structured, and dynamic. You use data services in all scenarios in which a user or business service needs to access or work with data.
. • System services. System services are the units of application logic that provide functionality outside the business logic. Common system services include:

QUESTION 13 You want to reuse the functions in ASP that the company has developed earlier.
How can you ensure performance is maximized when compiling? (Select the best)
A. Use early binding
B. Use late binding
C. Disable ASP Compat
D. Turn On Option Strict and Explicit
Answer: A
Visual Basic 6 does a lot of work under the hood to support casting of objects, and many programmers aren't even aware of it. In Visual Basic 7, this is an area that out of which you can squeeze a lot of performance. When you compile, use early binding. This tells the compiler to insert a Type Coercion is only done when explicitly mentioned. This has two major effects:
. • Strange errors become easier to track down.
. • Unneeded coercions are eliminated, leading to substantial performance improvements.

QUESTION 14 What strategies should you use to distribute your components into separate assemblies? (Select all that apply)
A. Create a separate assembly for each component type
B. Avoid deploying one assembly into multiple locations
C. Avoid deploying one assembly into a single location
D. Consider having more than one assembly per component type
E. Split into more than one assembly when the size is too large
Answer: A, B, D
Many factors affect how you distribute your components into separate assemblies. The following recommendations will help you make the appropriate choices for your application size, team composition and distribution, and management processes:
. •Create a separate assembly for each component type. Using separate assemblies for data access components, business components, service interfaces, business entities, and so on gives you basic flexibility for deployment and maintenance of the application.
. •Avoid deploying one assembly into multiple locations. Deploying the same components in multiple places increases the complexity of your deployment and management processes, so carefully consider whether you can consolidate all deployments into one physical tier, or whether you should use more than one assembly for a particular component type.
. •Consider having more than one assembly per component type. Not all components of the same type follow the same development and maintenance cycles. For example, you may have multiple service agent components abstracting service calls for multiple business partners. In this case, it may be better to create one assembly per

business partner to simplify versioning. Consider the following factors when deciding whether to use more than one assembly per component type:

QUESTION 15 You realize data access is rather slow. You want to remove any optional commands. The code is shown below:
public DataSet SelectSqlSrvRows(DataSet, string connection, string query){ SqlConnection conn = new SqlConnection(connection); SqlDataAdapter adapter = new SqlDataAdapter(); adapter.SelectCommand = new SqlCommand(query, conn);
adapter.MissingSchemaAction = MissingSchemaAction.AddWithKey; adapter.Fill(dataset); return dataset; }
How can you optimize this data access code? (Select the best)
A. Do not set MissingSchemaAction.Add with key
B. Use a stored procedure to replace the code
C. Use a trigger to replace the code
D. Use OLEDB classes
Answer: A
When filling a dataset with the data adapter, it is best not to get primary key information if you do not have to.

QUESTION 16 You need to optimize data access.
Which strategy should you use? (Select the best)
A. Pick data reader over data set when you can
B. Use more triggers
C. Perform more data validation
D. Use more constraints on data defined in the database
Answer: A
Use a data reader whenever when you don't need to keep the data lying around. This allows a fast read of the data, which can be cached if the user desires.

QUESTION 17 You need to guarantee in which orders Finalize methods are called.
What should you do? (Select the best)
A. Implement destructors
B. Develop finalize methods
C. Implement constructors
D. Implement Dispose method. We cannot guarantee in which orders Finalize methods are called.
Answer: D
We should use Dispose methods to deallocate resources

QUESTION 18 You intend to create your own memory allocator.
What practices should you consider? (Select the best)
A. Allocate all of the memory to be used with a given data structure at the same time.
B. Remove all allocations that can be avoided with little penalty in complexity.
C. Minimize the number of times object pointers get written
D. Increase the density of pointers in your data structures.
E. Make limited use the IDisposable interface
Answer: A, B
To get the best out of the allocator you should consider practices such as the following:
. • Allocate all of the memory (or as much as possible) to be used with a given data structure at the same time.

. • Remove temporary allocations that can be avoided with little penalty in complexity.
. • Minimize the number of times object pointers get written, especially those writes made to older objects.
. • Reduce the density of pointers in your data structures.
. • Make limited use of finalizers, and then only on "leaf" objects, as much as possible. Break objects if necessary to help with this.

QUESTION 19 You need to find the best way to increase performance while performing garbage collection.
What approach should you use? (Select the best)
A. Implement destructors
B. Develop finalize methods
C. Implement IDisposable interface
D. Implement constructors
Answer: C
In many cases it is possible for objects that would otherwise always need to be finalized to avoid that cost by implementing the IDisposable interface. This interface provides an alternative method for reclaiming resources whose lifetime is well known to the programmer, and that actually happens quite a bit.

QUESTION 20 You need to customize policy for use with Enterprise Templates.
From which template files can you customize your own policy files? (Select the best)
A. .etp files provided
B. Net Reflections template
C. DAP.tdl and VSIDE.tdl
D. Secsvr.inf
Answer: C
The two policy files that ship with Visual Studio .NET, DAP.tdl and VSIDE.tdl, can be used as a starting point for a custom policy file. These files are general because the policy requirements of specific applications vary widely. For use in a specific application, you must create a customized copy that defines the rules you want your policy to implement.

QUESTION 21 You are using an Enterprise Template to help you to update the class and namespace names at project creation time. You also need to be able to provide additional flexibility in what you can add to the initial project structure.
What should you use? (Select the best)
A. Use .etp with static prototypes
B. Use Custom Project Wizard
C. Use .etp with subproject wizards
D. Use .Net Reflections
Answer: C
Etp with sub project wizards allows you to update the class and namespace names at project creation time. It also provides additional flexibility in what you can add to the initial project structure.

QUESTION 22 You need a way to programmatically execute solution and project builds. You also need to perform these common tasks:
. • Build a solution by calling the Build method of the Solution Build object.
. • Build a particular project within a solution by calling the Build Project method.
. • Initiate a debug build of the solution by calling the Debug method.

. • Deploy certain projects in a solution by calling the Deploy method.
. • Execute the designated Start Project by calling the Run method.
What should you do? (Select the best)
A. Use the Visual Studio .NET Automation object
B. Use the Solution Build object
C. Use a custom script
D. Use Enterprise Templates
Answer: B
Using the Visual Studio .NET Automation model, you can programmatically execute solution and project builds.
The primary object for doing this is the Solution Build object. Using this object, you can:
. • Build a solution by calling the Build method of the Solution Build object.
. • Build a particular project within a solution by calling the Build Project method.
. • Initiate a debug build of the solution by calling the Debug method.
. • Deploy certain projects in a solution by calling the Deploy method.
. • Execute the designated Start Project by calling the Run method.

QUESTION 23 What Features Does a Well-Designed Interface Include? (Select all that apply)
A. Command to report errors or bugs
B. Ease of navigation
C. Controlled navigation
D. Populating default value
Answer: A, B, C
. • Ease of navigation. Because different users prefer different ways of accessing components on an interface, design the components so they are easily accessible by using the Tab key, the arrow keys, and other keyboard shortcuts, in addition to the mouse. Sometimes, as in the preceding data entry example, faster navigation is more important than guided navigation. When designing keyboard shortcuts into the UI, associate the shortcut keys with the action being performed. For example, if you are creating a shortcut that will fill in default data for a product description, a shortcut such as Ctrl+Alt+D might be more intuitive than Ctrl+Alt+P.
. • Controlled navigation. Although it is important for an interface to provide easy navigation, it is also important to maintain the order in which the components can be accessed. For example, in interfaces that are designed for the purpose of data entry and modifications, you might require that the values be entered in a specific order. However, be wary of taking away the user's feeling of control over the input process.
. • One of the key benefits of Windows-based applications is that they typically do not constrain a user to an input sequence, so users have more control. You should also consider adding breadcrumb trail navigation functionality to the interface. This type of navigation shows the path the user has navigated to get to the current position. To see an example of a Web site that uses the breadcrumb trail navigation functionality, see the article The Developing Phase, on MSDN, at
http://msdn.microsoft.com/library/enus/dnsolac/html/m05_develphase1.asp.
. • Populating default value. If the interface includes fields that always take default values, it is better to provide the default values automatically, therefore avoiding the user having to enter anything whenever possible.

QUESTION 24 How can you authenticate access to the XML service without requiring input? (Select all that apply)
A. Internet Protocol Security
B. Passport

C. Basic
D. Digest
E. Integrated Windows authentication
F. Certificate Mapping authentication
G. Application specific or custom authentication
Answer: A, B, C, D, E, F, G
The following authentication methods can be easily used and do not require users to input credentials, making them good choices for programmable Web services:
. •Basic, Digest, and Integrated Windows authentication
. •Certificate Mapping authentication
. •Application specific or custom authentication Potentially, you could also use:
. •Internet Protocol Security
. •Passport

QUESTION 25 Which authentication methods should you consider for your suppliers? (Select the best)
A. Basic authentication
B. Anonymous authentication
C. Code access security
D. Client certificates
Answer: A
Consider Basic authentication when:
. • Your users have Windows NT Domain or Active Directory accounts.
. • You need to support multiple browser types, including Netscape Navigator and all versions of Internet Explorer (including the Pocket PC and Windows CE platforms).
. • You need to support authentication over the Internet.
. • You need to access the clear text password in your application code.
. • You need to support delegation.