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Exam : **70-300**

Title : Analyzing Requirements and Defining Microsoft .NET Solution Architectures

Version : DEMO

The following Case will present a Blue Yonder Airlines followed by 15 questions.

For help on how to answer the questions, click the Instuctions button on the question screen.

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.

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: BC

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

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 one-month testing period

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

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

Question 5

You are listing the operational requirements for the new reservation application. Which requirement should you include?

A.Extensibility

B.Localization

C.Mantainability

D.Availability

E.Deployability

Answer: D

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: CEF

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 configurationfile to enable and disable logging

Answer: A

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

Question 9

You are creating the logical design for a use case named "° Customer updates customer profile"¡±

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: ABD

Question 10

You are creating constraints for table 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 CityOfOrigin column in the Airport

table

B.Create a primary key constraint on the FlightNumber 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 ArriveAirportCode column in the Flight table to reference the AirportCode column in the Airport table

E.Create a primary key constraint on the FlightNumber column, the FlightDate column and the DepartAirportCode column in the Flight table

F.Create a foreign key constraint on the DepartAirportCode 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 DepertAirportCode column in the Flight table

Answer: DEFG

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: ABC

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

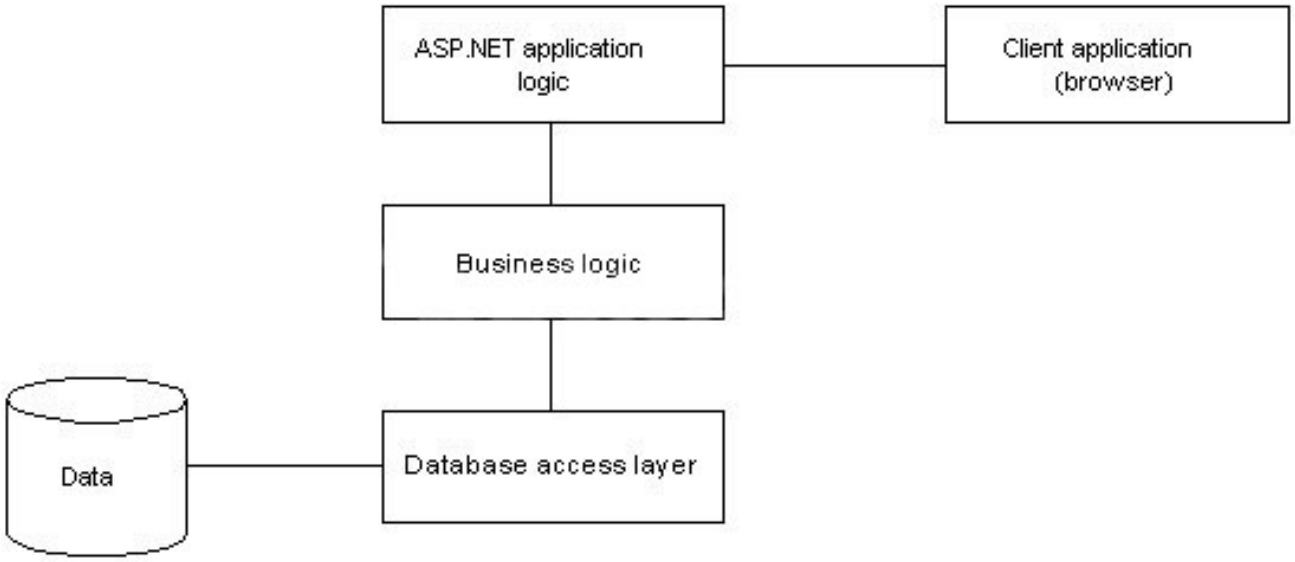
Answer: C

Question 13

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

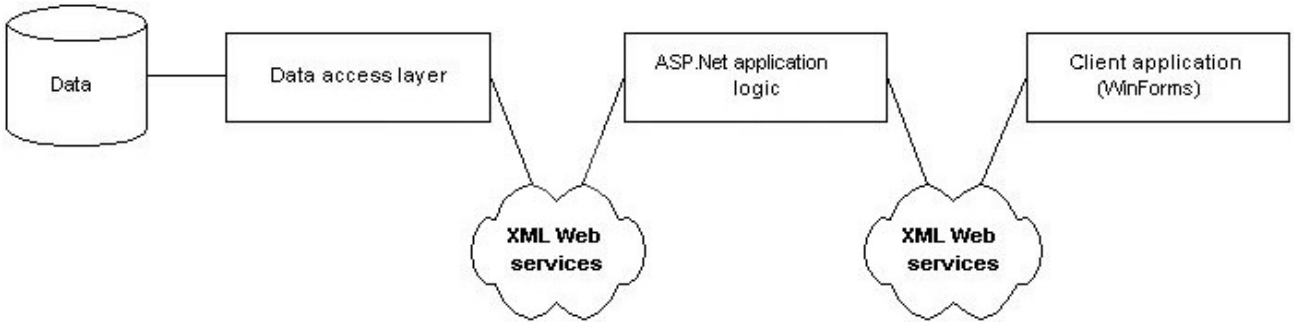
Design A (exhibit):

Design B (exhibit):



Design C (exhibit):

Design D (exhibit):



A.Design A

B.Design B

C.Design C

D.Design D

Answer: B

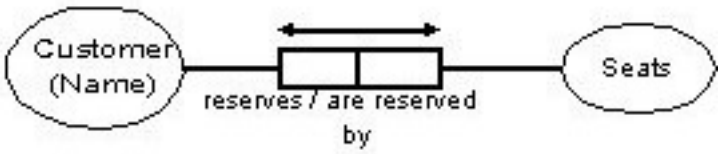
Question 14

During the conceptual design phase, you create the Customer fact as shown 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?

Exhibit:



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

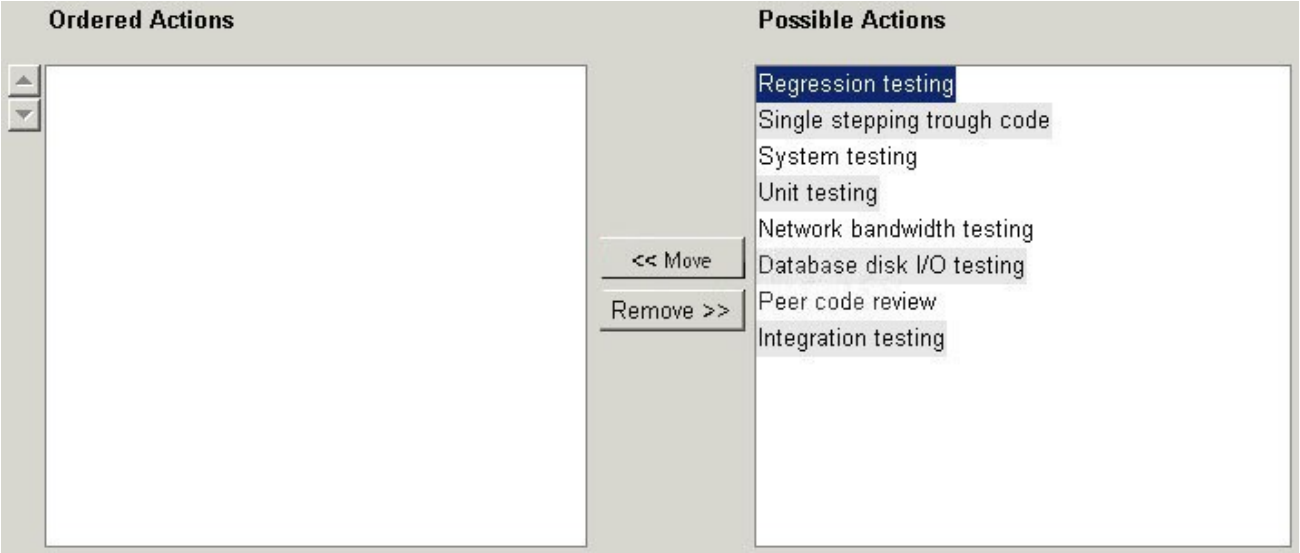
D.Add a mandatory role constraint to the CutomerID field

Answer: B

Question 15

You need to identify the kinds of KillTest that should be reformed on your software. You also need to specify the order in wich testing should occur. Most the appropirate actions from the Posible Actions pane

to the Ordered Actions pane and arrange them in the appropriate aorder. (Use only actions that apply)



Answer:

Case 1

Title: Consolidated Messengers

The following Case will present a Consolidated Messengers followed by 14 questions.

You will have 25 minutes to complete the Case.

For help on how to answer the questions, click the Instuctions button on the question screen.

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, handheld PCs and the Internet. Company employees use client computers and handheld 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 handheld 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.

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: BDE

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: BDF

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: ACEF

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: EFG

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: ADE

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

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: BCD

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

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

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

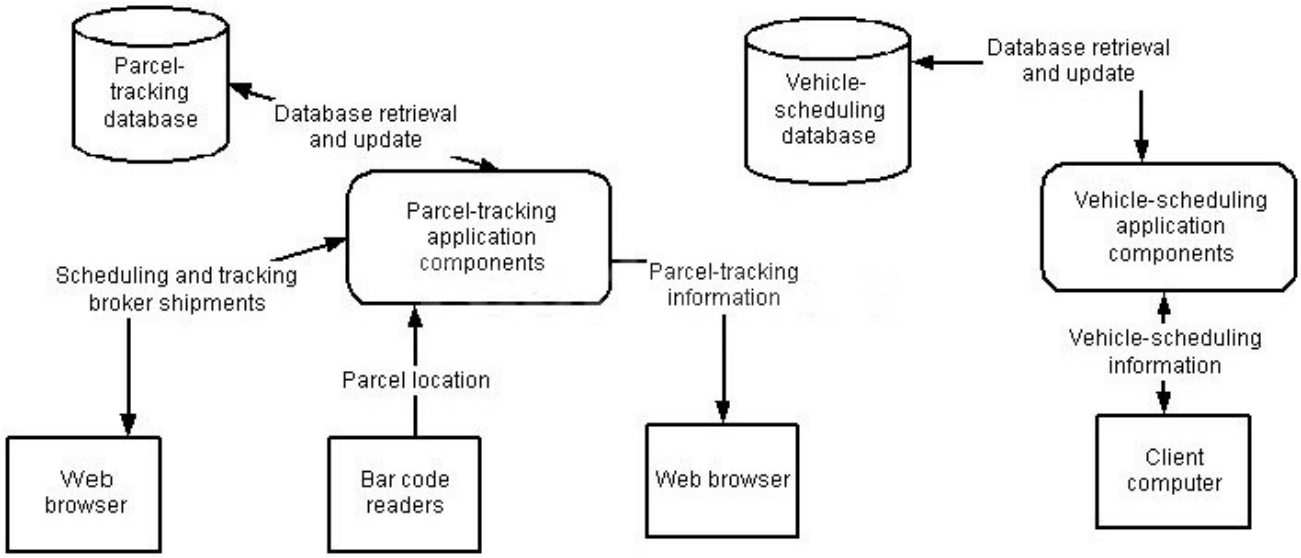
H.Use cases for tracking shipments

Answer: CEFH

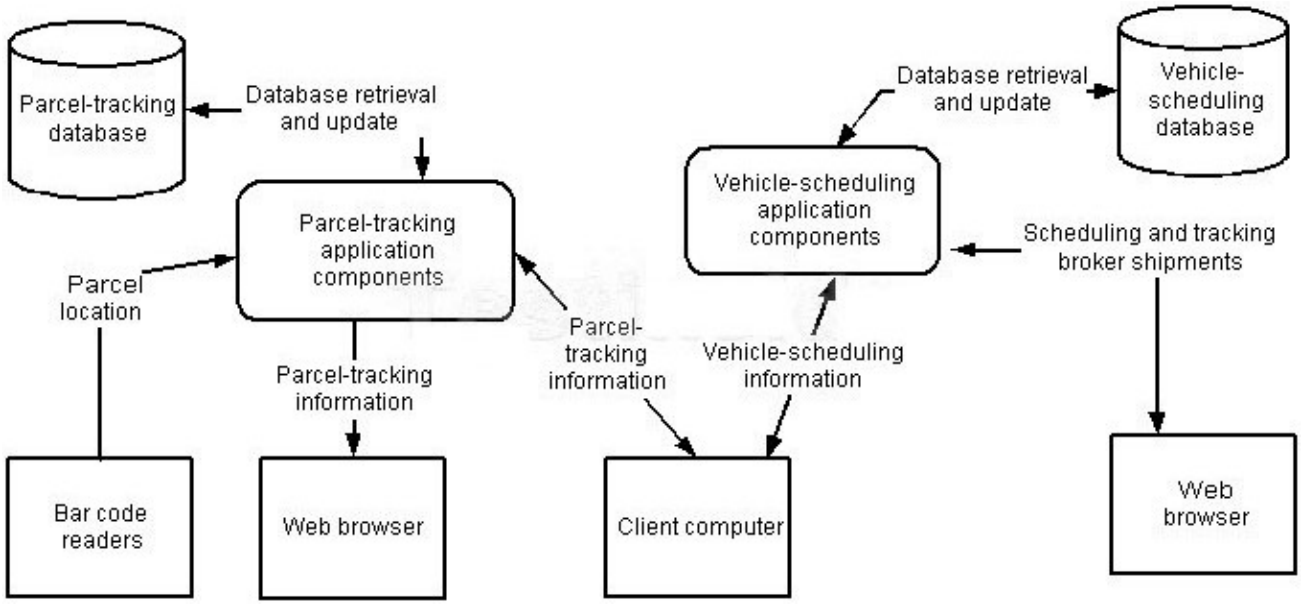
Question 11

Your development team creates four different logical designs for the solution. Which design should you use?

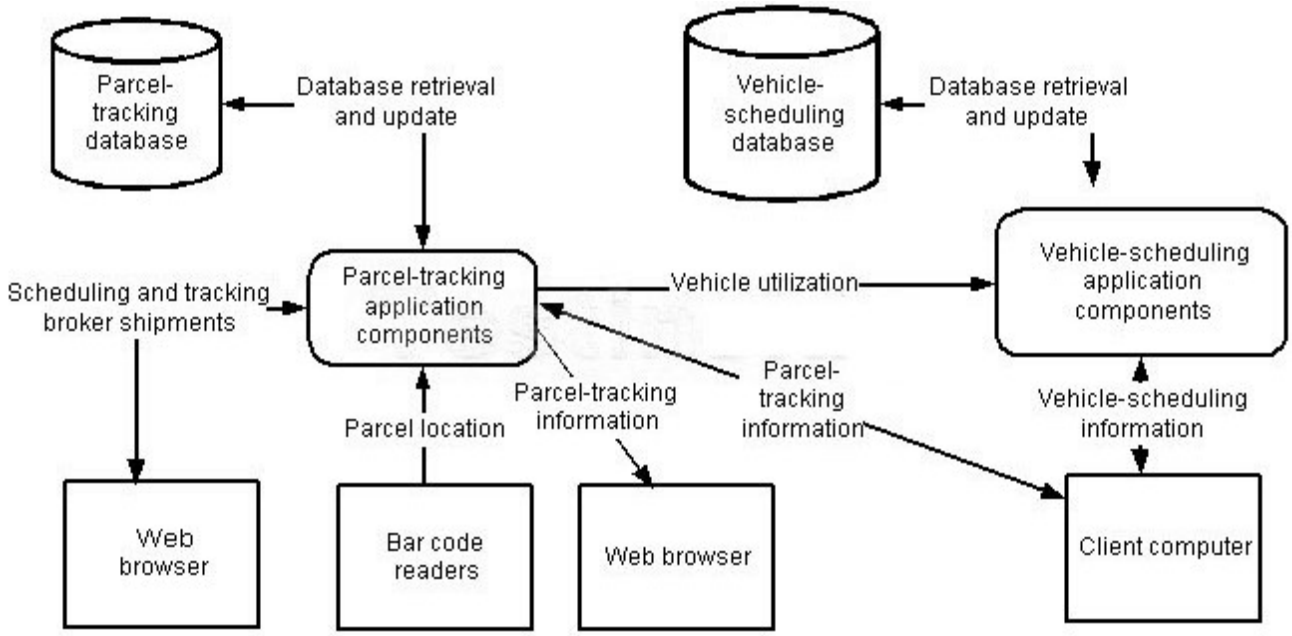
Design A (exhibit):



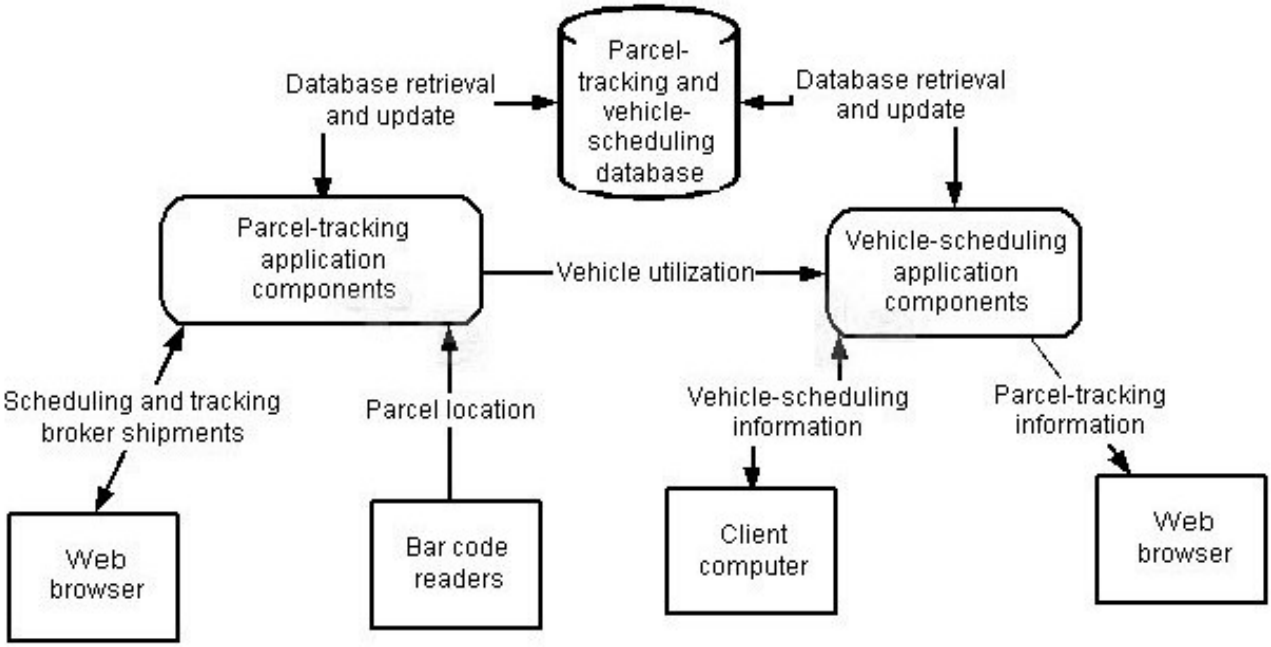
Design B (exhibit):



Design C (exhibit):



Design D (exhibit):



A.Design A

B.Design B

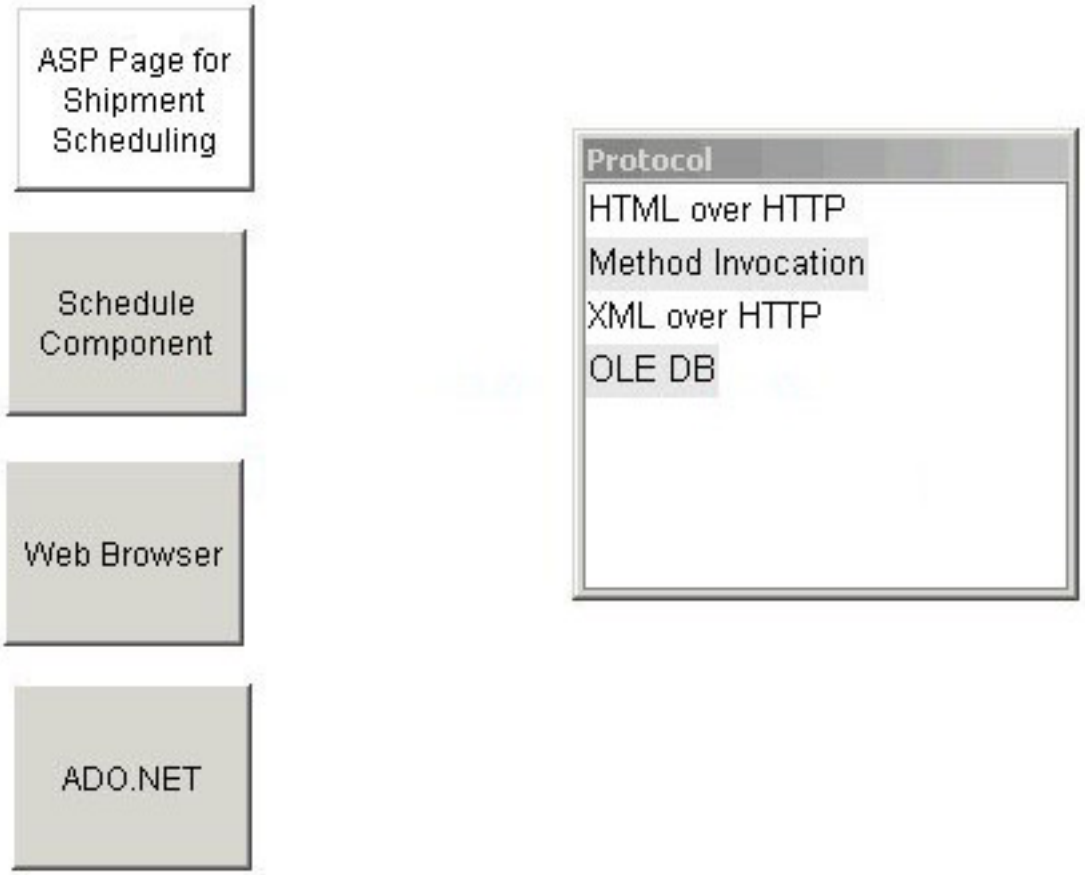
C.Design C

D.Design D

Answer: C

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)

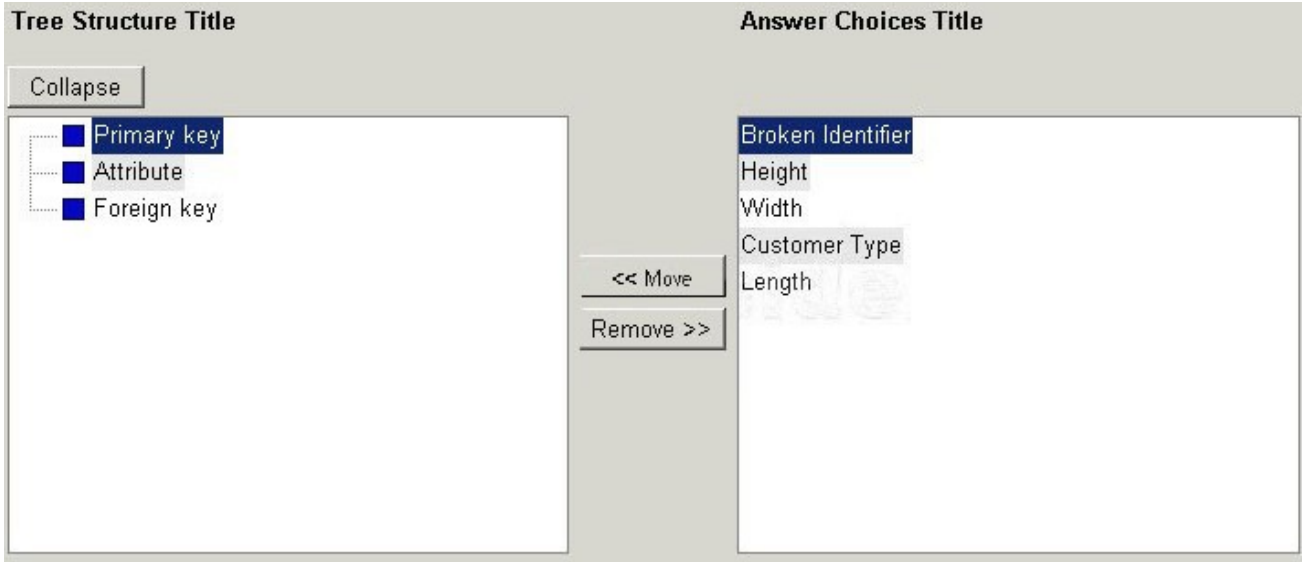


Answer:

Question 13

The parcel-tracking application uses a table named Parcel. You need to modify the schema for this table to support the requirements of your solution. Create a diagram thet illustrates your modifications.

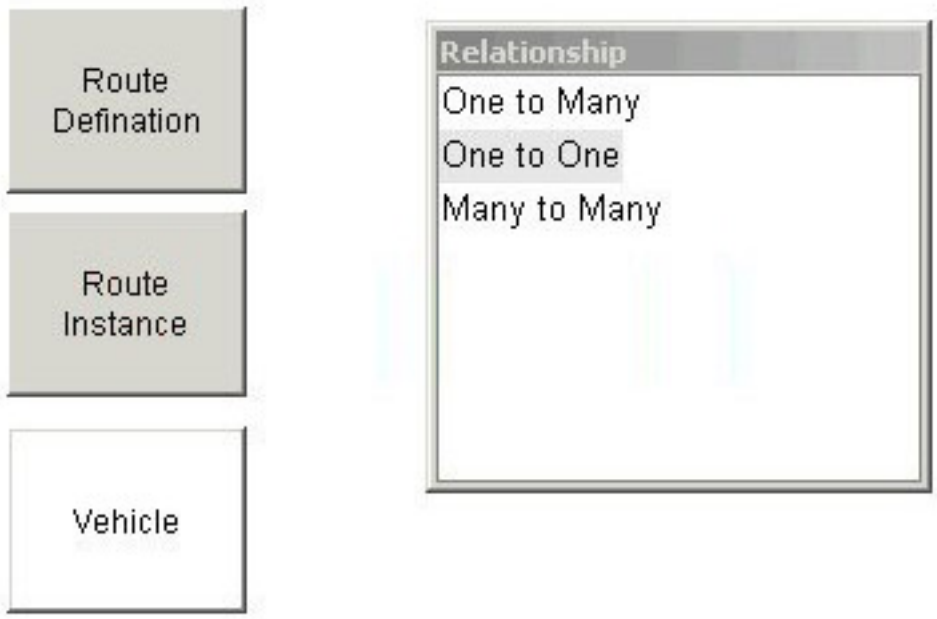
Move the appropriate data elements to the appropriate location in the schema. (Use only data elements that apply. You need to reuse data elements)



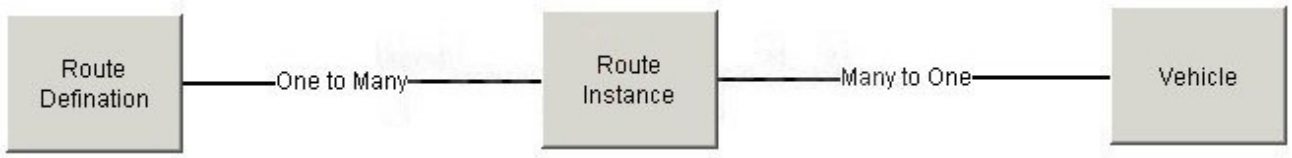
Answer:

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)


Route Defination
Route Instance
Vehicle
Relationship
One to Many
One to One
Many to Many

Answer:


Route Defination
One to Many
Route Instance
Many to One
Vehicle