

Exam 70-300 study material

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Free 70-300 Exam Preparation Questions

Exam 70-300: Analyzing Requirements and Defining Microsoft .NET Solution Architectures

Question: 1

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

Explanation:

- 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: 2

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™ for development and test databases
- D. Web servers for development and test Web services
- E. A Microsoft® Visual SourceSafe™ (VSS) server to maintain the source code control database or databases
- F. Developer workstations

Answer: A, B, C, D, E, F

Explanation:

- Developer workstations
- A Microsoft® Visual SourceSafe™ (VSS) server to maintain the source code control database or databases
- A backup server to maintain VSS database backups
- Computers running Microsoft SQL Server™ 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 support 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 & Answers

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

Explanation:

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

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 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.

Answer: A, B

Explanation:

IIS 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

Explanation:

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?
- Enterprise templates
- Solutions
- VSS
- Inherit from a base class that meets the above.

Answer: A

Explanation:

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

Explanation:

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

Explanation:

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

Explanation:

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

Explanation:

- 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: B

Explanation:

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

Explanation:

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 ® 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

Explanation:

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 ASPCompat
- D. Turn On Option Strict and Explicit

Answer: A

Explanation:

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

Explanation:

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 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

Explanation:

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

Explanation:

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

Explanation:

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, C

Explanation:

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)

- E. Implement destructors
- F. Develop finalize methods
- G. Implement IDisposable interface
- H. Implement constructors

Answer: C

Explanation:

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 Explanation:

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

Explanation:

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)
- Use the Visual Studio .NET Automation object
- Use the Solution Build object
- Use a custom script
- Use Enterprise Templates

Answer: B

Explanation:

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, D

Explanation:

- 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/en-us/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: 25

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

Explanation:

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

Explanation:

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.

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