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2005**

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Total No of Questions:-90

Case Study #1: A. Datum Corporation

BACKGROUND

Company Overview

A.Datum Corporation provides online survey services. These services include creation. Survey execution ,and survey reporting.

The company sells aggregated survey results to third-party subscribers. These results do not contain any personally identifiable information.

Physical Locations

A.Datum corporation is an international company that has offices in London, Seattle, and Sydney. Customers and survey participants are located worldwide.

Planned Changes

The company will be migration all existing applications to SQL Server 2005.

A survey application named APP1 will be modified to provide automatic customer notification when survey results are available.

A new application named APP2 will be created to enable analysis of demographics of survey participants. This application must allow filtering based on a variety of criteria. One specific criterion that must be used for filtering is the participant's age at the time of survey completion. SQL Server 2005 will be the database system that must be used for all new development.

Problem Statements

Creating new reports for customers is a time-consuming process that currently requires custom development, because developers must understand the underlying database design.

Customers do not currently have the ability to create ad hoc reports on their survey data.

Customers want to be able to perform minor changes to reports; they do not want to wait for A.Datum Corporation developers to make those changes.

EXISTING ENVIRONMENT

Existing Application Environment

A.Datum Corporation is currently running SQL Server 2000 Enterprise Edition with Service pack 3a. SQL Server is hosted on computers that run Microsoft Windows Server 2003 with Service Pack 1.

APP1 is a Web-based application that is used by customers and survey participants.

Internal analysts view data by using a smart client application named APP3 to perform their analyses.

Existing Supporting Infrastructure

A.Datum Corporation purchases information about potential survey participants from multiple business partners. These partners use File Transfer Protocol(FTP) to send XML files that contain the information.

The current database server is named Server3.It is utilizing 25 percent of its allocated disk space. The Participant table in the current database contains approximately 15 million rows.

BUSINESS REQUIREMENTS

General Requirements

Individual customers must receive and view only their own data.

APP2 must allow viewing and analysis of demographic data on survey participants.

Reports

Customers might want to see their reports in multiple formats, including HTML, PDF, Microsoft Excel, comma-separated values (CSV), and TIFF.

In customer reports, dates should be displayed in the calendar format that is native to the user of the report. This formatting should not affect the time needed to produce the report.

Reports must be available on demand or run as a scheduled service. Customers might want A Datum Corporation to send reports to them automatically by e-mail

Customers must not be required to understand the underlying database design in order to perform ad hoc reporting on their survey data.

Customers have requested a new report named Results that lists each survey question and the names of the first five participants who selected each answer. The desired output display is shown in the following table.

Running the report must consume as few CPU cycles as possible on the A.Datum Corporation servers.

Internal analysts need to view customer reports in APP3. Analysts must not be able to modify these reports.

Analysts must not be granted unnecessary privileges.

Aggregated survey results must be made available to subscribers in XML file format. The files will be transmitted to the subscribers by using FTP. The results will contain both element-centric and attribute-centric data.

Views

The company's marketing department wants to measure the value of the data on potential participants that is purchased from business partners. The marketing department requires a view of the data that contains all potential participants to whom surveys were distributed and the names of surveys that the participants have submitted. Some potential participants might not have submitted any surveys. But they should be included in the view. The Participant table should contain all potential participants. The Survey table should contain all surveys that were submitted.

Performance

Queries must return data in three seconds or less. This performance metric must be met even in cases where the database exceeds one terabyte in size.

As part of the upgrade to SQL Server 2005, baseline database performance metrics must be developed. A performance monitoring process must be established that will allow the company to track database performance over time against the baseline measurements.

Availability

APP1 must be available to customers and survey participants 24 hours per day, seven days per week. A monthly two-hour downtime will be scheduled for maintenance activities.

TECHNICAL REQUIREMENTS

Security

Aggregate data files that are produced for third-party subscribers will contain a unique subset of the data for each subscriber. A history of the data that was distributed to each subscriber must be maintained.

Maintainability

The upgrade must fulfill the following requirements:

- All SQL Server 2005 functionality must be enabled.
- All stored procedures must continue to function as designed
- The test team must validate the migration within a two-day test period.
- The test team is familiar with Transact-SQL test execution; however, they are not trained on the new SQL Server management tools

- The test results after the upgrade must be compared to the test results that occurred prior to the upgrade.
- The database control strategy must ensure that authorized changes are applied to all the databases only during the monthly maintenance periods.
- The database control strategy must minimize any permission resets that occur as a result of changes that are made to the production database.

Data

- The XML files that contain data on potential survey participants often contain duplicate records that vary slightly. An example of this variation is shown in the table below. This data must be standardized to minimize the number of duplicate participant records. The XML representation of the data must be stored in the database. when any of the data is updated, the XML representation of the data must be kept up-to-date.
- The data on potential survey participants must be imported into a staging database named DB1.
- Historical survey data must be retained for an indefinite period.

An example of duplicate data for a single participant is shown in the following table.

Case Study #1, A. Datum Corporation (Questions)

Question: 1

You are designing a performance monitoring plan for the database that supports APP1. You need to monitor only necessary indicators. Which indicator or indicators should you include in the baseline?

(Choose all that apply.)

- A. response times for frequently used queries
- B. database backup and restore completion times
- C. disk I/O
- D. CPU utilization
- E. network packet size
- F. SOAP requests failed
- G. HTTP authenticated requests

Answer: A, C, D

Question: 2

You need to ensure that survey customers are automatically notified when their survey results are available. You must also ensure that customers can manage their own recipient lists. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a Subscription Management interface that will allow customers to modify their recipient lists.
- B. Create a custom Notification Services Content Formatter to send an e-mail message to customers when their survey results are available.
- C. Create a custom Notification Services Event Provider to send an e-mail message to customers when their survey results are available.
- D. Create a Notification Services custom delivery protocol to send an e-mail message to customers when their survey results are available.
- E. Create Notification Services Event rules to send an e-mail message to customers when their survey results are available.

Answer: A, E

Question: 3

You need to cleanse and standardize the data on potential survey participants prior to inserting it into the staging database. What should you do?

- A. Import the data into a staging table by using the OPENROWSET BULK statement. Execute a Transact-SQL stored procedure to cleanse the data and to insert the data into the database.
- B. Import the data into a staging table by using the BULK INSERT statement. Execute a Transact-SQL stored procedure to cleanse the data and to insert the data into the database.
- C. Create a SQL Server Integration Services (SSIS) package to import, standardize, and cleanse the data.
- D. Create a CLR stored procedure to import the data into a staging table, to cleanse and standardize the data, and to insert the data into the database.

Answer: C

Question: 4

You need to provide ad hoc reporting capabilities to fulfill business requirements. What should you do?

- A. Create a SQL Server Reporting Services (SSRS) report. Enable customers to modify the report by using Report Builder.
- B. Create an ASP.NET application that will enable customers to view and modify reports by calling the SQL Server Reporting Services (SSRS) API.
- C. Create an ASP.NET application that will enable customers to view and modify reports by using a SQL Server Reporting Services (SSRS) ActiveX control.
- D. Create a SQL Server Reporting Services (SSRS) Report Model. Enable customers to modify reports based on the model by using Report Builder.

Answer: D

Question: 5

You are upgrading the database servers that are used by all of the company's applications. As the first step in the upgrade, you upgrade the development database servers. You need to verify that the upgrade of the database servers did not introduce any errors into the databases. What should you do?

- A. Execute unit test scripts for each stored procedure in each database.
- B. Execute the stored procedures in the SQL Server Management Studio debugger, and verify the results.
- C. Set the database compatibility level on the database servers to 80.
- D. Execute the application user interface test scripts to verify proper operation.

Answer: A

Question: 6

You need to provide analyst reporting capabilities that fulfill the business requirements. What should you do?

- A. Add a Report Viewer control to APP3.
- B. Add an Internet Explorer ActiveX control to APP3. Set the controls URL to the A. Datum Corporation Report Manager.
- C. Create a hyperlink in APP3 that references the Report Manager.
- D. Create a proxy class to the Report Server Web service.

Answer: A

Question: 7

You receive updates to data on potential survey participants. You need to create a stored procedure to synchronize the updated information with the XML representation of the data on

potential survey participants that is stored in the database. What should you do?

- A - Update the XML representation by using the OPENXML statement.
- B - Update the XML representation by using the modify() method.
- C - Update the XML representation by using the nodes() method.
- D - Update the XML representation by using the value() method.

Answer: B

Question: 8

You need to design a view to fulfill the marketing department requirements. What should you do?

- A. Join the Participant table to the Survey table by using a left outer join operator.
- B. Join the Participant table to the Survey table by using a full outer join operator.
- C. Join the Participant table to the Survey table by using an inner join operator.
- D. Join the Participant table to the Survey table by using a join operator.

Answer: A

Question: 9

You need to design a database object for APP2 that returns demographic data. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a computed column named Age that is calculated from the participants date of birth and the date of the survey.
- B. Create a view that includes a computed column named Age that is calculated from the participants date of birth and the date of the survey.
- C. Create a user-defined function that calculates and returns the participants age on the date of the survey.
- D. Create a parameterized stored procedure that returns the participants age on the date of the survey.
- E. Create an index on the Age column.

Answer: A, E

Question: 10

You need to design the new report named Results. What should you do?

- A - Create a correlated subquery to produce a report that has concatenated respondent names.
- B - Create a table-valued function to produce a report that has concatenated respondent names.
- C - Create a user-defined aggregation to produce a report that has concatenated respondent names.
- D - Create a common table expression (CTE) query to produce the report.

Answer: C

Question: 11

You need to control inadvertent changes to the database objects on the production database servers. What should you do?

- A - Create DDL triggers to roll back changes to database objects. Disable the DDL triggers during maintenance activities.
- B - Revoke all CREATE, ALTER, and DROP permissions in the databases.
- C - Maintain all source code in a source code management tool.
- D - Script all database objects to individual text files.

Answer: A

Question: 12

You need to ensure that survey customers are automatically notified when their survey results are available. You must also ensure that customers can manage their own recipient lists. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a Subscription Management interface that will allow customers to modify their recipient lists.
- B. Create a custom Notification Services Content Formatter to send an e-mail message to customers when their survey results are available.
- C. Create a custom Notification Services Event Provider to send an e-mail message to customers when their survey results are available.
- D. Create a Notification Services custom delivery protocol to send an e-mail message to customers when their survey results are available.
- E. Create Notification Services Event rules to send an e-mail message to customers when their survey results are available.

Answer: A, E

Case Study #2, Woodgrove Bank**BACKGROUND****Company Overview**

Woodgrove Bank is a large consumer bank that has one million customers in 10 cities.

Planned Changes

The company is developing a system for remote banking. Dedicated PC terminals that customers can use to perform many of their banking functions, such as paying bills and applying for loans, will be placed throughout the cities where Woodgrove Bank is active.

Problem Statement

The company wants a solution to be designed that will use SQL Server 2005 to manage the data that is used by the customer terminals.

EXISTING ENVIRONMENT**Existing Application Environment**

The company's main banking system is a proprietary application. The new terminal personal banking system will use SQL Server 2005 to host all information about the accounts.

BUSINESS REQUIREMENTS**Terminals**

The company has the following requirements for the new terminals:

- The terminals need to support third-party advertisements that will be displayed while a customer is using the terminals.
- The advertisers must be able to retrieve real-time statistics on the display of their ads any time, directly from their own systems.
- The entire terminal application must support more than one language, and it must be possible to add more languages without changing the database structure.

Multiple Language Support

The company has the following requirements for the new application's user interface (UI) elements:

- Each UI textual element will have only one description of the element's purpose, and it will

be in English, For example, the text Save, regardless of language, should have the following description: The text displayed on buttons used to save changes.

- The text for every element can exist in one or more languages.
- The database design must conform to third normal form(3NF)

Storage of Customer Information

The database table that stores information about customers has the schema that is shown in the following table.

In the **Bank.Customers** table, the following requirements must be fulfilled:

- First names and surnames must not be empty strings.
- The phone number must be a null value or in a valid format.
- An existing phone number must not be changed from a valid format to an invalid format or to a null value.
- The minimum amount of Transact-SQL program code must be used.

Reporting

One of the most common tasks for the new application will be to display account information, including the current balance. Bank personnel often require long lists of this information, and the report generation must be fast.

Currently in the database design, this account information is stored as shown in the following table. The response time for running a report must be less than five seconds, and the data that is displayed must not be older than four hours. Because the transactions table is heavily used to by the application, this reporting solution must have minimum impact on the OLTP performance. Bank personnel also need to create up-to-date reports, which contain the most current data available, for usage of specific terminals. These reports must run as quickly as possible. The company's financial department must be able to create reports that contain aggregated calculations on accounts and their transactions. These reports are created against the database by using Microsoft Excel.

Customers want to continue to use their current Excel spreadsheets.

Loans Requests and Loan Responses

The storage of loan requests and loan responses for customers must be designed to fulfill the following requirements:

- Each loan request will have one or more customers applying for the loan, and the request must contain the amount of money desired.
- When a customer requests a quote for a loan from the terminal, a time-consuming process is started that might take up to one minute to complete. The customer should immediately receive a message that this process has begun and that he or she can check the loan page again later. During this time the application must be available for other tasks.
- Each loan request will have zero or more loan responses, which must contain a message and the outcome of the loan request (approved or denied)
- The response message must be an XHTML document that contains up to 40,000 characters, with only certain tags allowed. In addition, it must be possible to easily retrieve specific portions of the message.
- The design must conform to 3NF.

TECHNICAL REQUIREMENTS

Security

The solution design must fulfill the following security requirements:

- Each customer terminal will connect to the closest SQL Server 2005 installation by using Windows authentication through a Windows security group named Bank Terminals.
- Members of the Bank Terminals group must be able to execute all user-defined functions and stored procedures that exist in the database named WoodgroveBanking under a schema named Bank.

Members should have minimal permissions on the underlying tables.

- The Bank schema will be owned by the dbo user.

- Permissions should not be granted directly to database users.

Database Change Security

The design for changes to the database must fulfill the following requirements:

- When new objects are added to the database, permissions must require minimal changes. The solution must ensure that when changes are made to database or server settings, the minimum privileges are granted to users.
- All schema changes to objects in the WoodgroveBanking database must be logged; and any attempt to add, alter, or remove columns from a table must by default be prohibited for all users including administrators.

Case Study 2: Woodgrove Bank (Questions)

Question: 1

You need to design the storage of the application texts for UI elements to fulfill the requirements. Which table and column design should you use?

- A. Languages (LanguageID, Name)Elements (ElementID, Description)ElementLanguages (ElementID, LanguageID, Text)
- B. Languages (LanguageID, Name)Elements (ElementID, LanguageID, Description, Text)
- C. Languages (LanguageID, Name)ElementTexts (LanguageID, Text)ElementDescriptions (ElementID, Description)
- D. Languages (LanguageID, Name)Elements (ElementID, Description, Text)

Answer: A

Question: 2

You need to ensure that the stored procedure that inserts new loan requests can access data in tables that are stored in another database on the same SQL Server instance. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Ensure that the stored procedure and the tables are owned by users that are associated with the same SQL Server login.
- B. Ensure that the stored procedure and the tables are owned by the same database user.
- C. Ensure that the stored procedure and the tables use the same database schema.
- D. Configure the multiuser database option on both databases.
- E. Configure the cross-database ownership chaining option on both databases.

Answer: A,E

Question: 3

You are designing the loan application process for the customer terminals. You need to design a Transact-SQL stored procedure that fulfills the business and technical requirements. Which type of Transact-SQL stored procedure should you use?

- A. one that uses an internal SQL Server Web service endpoint
- B. one that runs a SQL Server Integration Services (SSIS) package
- C. one that uses Service Broker
- D. one that runs a user-defined function

Answer: C

Question: 4

You need to design the retrieval of advertising statistics without compromising security. What should you do?

- A. Design a Notification Services solution that sends the advertising statistics to specified subscribers by e-mail.
- B. Design a SQL Server Web service that runs a stored procedure to return the statistics on a call from the advertisers application.
- C. Design a Database Mail solution that sends the advertising statistics to e-mail addresses that are specified in a table.
- D. Design a stored procedure to return the statistics on a call from the advertisers application.
- E. Design a user-defined function to return the statistics on a call from the advertisers application.

Answer: B

Question: 5

You need to design the storage of the loan response message. Which actions or actions should you perform? (Choose all that apply.)

- A. Use the xml data type to store the message.
- B. Use a user-defined data type to store the message.
- C. Use the nvarchar(max) data type to store the message.
- D. Use a check constraint to validate that the correct tags are used.
- E. Use an XML schema definition (XSD) to validate that the correct tags are used.
- F. Use a foreign key constraint to validate that the correct tags are used.

Answer: A, E

Question: 6

You need to design the restrictions on the Bank.Customers table. Which three actions should you perform? (Each correct answer presents part of the solution. Choose three.)

- A. Design a trigger that verifies that the first names and surnames are not empty strings.
- B. Design a check constraint that verifies that the first names and surnames are not empty strings.
- C. Design a check constraint that uses a CLR user-defined function to verify that either the phone number is a null value or the format of the phone number is valid.
- D. Design a trigger that uses a CLR user-defined function to verify that either the phone number is a null value or the format of the phone number is valid.
- E. Design a check constraint that ensures that the phone number cannot be changed from a valid format to a null value or to an invalid format.
- F. Design a trigger that ensures that the phone number cannot be changed from a valid format to a null value.

Answer: B, C, F

Question: 7

You need to design the database permissions for access from the terminals to the database server. Which action or actions should you perform? (Choose all that apply.)

- A. Create a database role named BankTerminals.
- B. Grant the BankTerminals role the Execute permission for the WoodgroveBanking database.
- C. Grant database access to the Windows Bank Terminals group, and add the group to the BankTerminals role.
- D. Grant the BankTerminals role the Execute permission for the Bank schema.
- E. Grant the Windows Bank Terminals group the Execute permission for the Bank schema.

F. Grant the BankTerminals role the Execute permission for all stored procedures and userdefined functions in the Bank schema.

Answer: A, C, D

Question: 8

The stored procedures in the Bank schema use dynamic SQL to issue SELECT statements against tables in the Bank schema and against tables in other schemas within the database. You need to manage permissions for some of the stored procedures in the Bank schema. What should you do?

- A. Mark these stored procedures with the EXECUTE AS CALLER attribute, and grant the SELECT permission for the tables that are accessed by using dynamic SQL to the appropriate role or user only.
- B. Mark these stored procedures with the EXECUTE AS CALLER attribute.
- C. Mark these stored procedures with the EXECUTE AS OWNER attribute1 and grant the SELECT permission for the tables that are accessed by using dynamic SQL to the appropriate role or user only.
- D. Mark these stored procedures with the EXECUTE AS OWNER attribute.

Answer: D

Question: 9

You need to design the logging of schema changes, and you also need to prevent changes to tables. Your design must fulfill all requirements. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A - Design an event notification to log all schema changes to a table.
- B - Design a Service Broker service to log all schema changes to a table.
- C - Design a database trigger to log all schema changes to a table.
- D - Design a database trigger to roll back ALTER TABLE statements.
- E - Design a stored procedure to roll back ALTER TABLE statements.

Answer: D, E

Case Study #3, Trey Research

BACKGROUND

Company Overview

Trey Research performs analysis of research data for corporate customers. The company has a main office and 38 branch offices.

Planned Changes

The company is developing a new SQL Server 2005-based application solution that will be deployed to existing servers at all branch offices.

EXISTING ENVIRONMENT

Existing Application Environment

A SQL Server 2000-based application is currently deployed to servers at branch offices. It will be replaced by the new SQL Server 2005-based application solution.

BUSINESS REQUIREMENTS

General Requirements

Aggregated data from a table named Cust_Data is queried frequently. The aggregated value must be updated each time rows in the Cust_Data table are added or changed. Data in the table changes infrequently. The table includes four columns that contain numeric data. This data needs

to be combined into a column named Cust_CalcData by using a mathematical algorithm. Users occasionally need to run queries that select data from both current and archived data. Old data will be moved to an archival table, and the users should not be required to consider this fact when they issue queries.

The users must have the flexibility of building their own queries.

Management has purchased a COM component that performs complex calculations. Neither the source code nor a specification for the calculations used in this component is available.

The Results table contains a column named ComplexCalc that must contain a value that is calculated by the COM component. The column must always be kept up-to-date as data is inserted and updated in the Results table. The table is heavily queried by queries that return the ComplexCalc column. However, the table is updated infrequently.

Some long-running reports will be processed asynchronously. Two Service Broker services will be created. One will process reports for customers, and the other will process reports that are used by employees. Customer and employee reports must be able to run in parallel. Six client applications will be able to submit requests for these reports, and the application users will receive the completed reports by e-mail.

Performance

The new application solution must not add more than 40 percent processor or disk overhead to branch office servers. When servers are in production, server administrators must be able to identify when the server hardware is approaching full utilization.

A view named Research_Aggr will be migrated to the new application solution. This view produces aggregations on a large amount of data and is used frequently to read data, but not to change or add data. The view is usually queried by using an ORDER BY or WHERE clause, which usually specifies the Data1 or Data2 columns of the view. These columns are calculated by using deterministic functions.

SQL Server Reporting Services (SSRS) will be used for on-demand reports. The number of columns that will be produced by these reports will vary depending on the data that is used by the reports. The performance of these reports is governed by a service level agreement (SLA). If a report fails to fulfill its defined SLA, the company must be able to identify whether the problem is caused by the report itself or by the underlying data source.

The amount of new research data from customers can be very large. This data will be imported by using SQL Server Integration Services (SSIS) packages. The packages must be tested to ensure that the likelihood of their failure in production is as low as possible. The execution of these packages in production must not negatively affect end-user response times during business hours. Neither the customer data nor the research data contains any confidential information.

TECHNICAL REQUIREMENTS

Security

Branch office database administrators will need to have both user and administrator access to SQL Server 2005.

However, they must not be able to view the source code of database objects such as stored procedures or triggers.

Changes that are made to the database schema on any branch office server must be documented in an e-mail message that is sent to the main office.

Maintainability

Business logic must be centralized in SQL Server 2005 to the greatest degree possible. However, when possible, the use of server-side code should be minimized.

Notification Services will be used to send notices to company managers. The size of the Notification Services database must be minimized.

Case Study #3, Trey Research (Questions)

Question: 1

You need to ensure that old data and current data can be queried according to the business requirements. What should you do?

- A. Specify a view based on the archival data table and current data tables.
- B. Specify that the data must be queried by using a stored procedure.
- C. Specify that both the archival data table and the current data tables must have indexes created on the same columns.
- D. Specify that a SQL Server Agent job must be used to copy current data into the archival data table each night.

Answer: A

Question: 2

You need to design the Service Broker queues that will be used to submit requests for longrunning reports. Your solution must minimize complexity of using the queues by applications. What should you do?

- A. Specify one queue for each client application that can submit report requests.
- B. Specify one queue for each of the two report-generation services.
- C. Specify one queue for all long-running report requests.
- D. Specify eight queues: One for each service, and one for each client application.

Answer: B

Question: 3

You need to ensure that database schema changes in branch offices result in the proper notifications. What should you do?

- A. Install Notification Services on all branch office servers, and configure Notification Services to use a local notifications database.
- B. Specify that all SQL Server log files must be archived and sent by e-mail to the main office.
- C. Implement DML triggers that use Database Mail to send an e-mail message about the DML activity.
- D. Implement DDL triggers that use Database Mail to send an e-mail message about the DDL activity.

Answer: D

Question: 4

You need to ensure that the Cust_CalcData column is implemented appropriately. What should you do?

- A. Specify that the Cust_CalcData column must be implemented as a computed column of the table.
- B. Specify that the Cust_CalcData column must be indexed using a non-clustered index.
- C. Specify that the Cust_CalcData column must be implemented as a column that uses a userdefined data type.
- D. Specify that the Cust_CalcData column must be updated by a SQL Server Agent job that runs nightly.

Answer: A

Question: 5

You need to ensure that the testing of the SSIS packages fulfills the business requirements. What should you do?

- A. Specify that packages must be run, using standard sample data, on a test server.
- B. Specify that packages must be run on the production database.
- C. Specify that the packages must be run, using actual customer data, on a test server that

contains a copy of the production database.

D. Specify that packages must be run on the production database after a full backup of the production database is made.

Answer: C

Question: 6

You need to ensure that the performance of the Research_Aggr view is optimized. What should you do?

A. Specify that access to the view must be made only through a stored procedure.

B. Specify that indexes must be created on the views Data1 and Data2 columns.

C. Specify that indexes must be created on the base table columns that contain the data that is used by the calculations in the Data1 and Data2 columns.

D. Specify that indexes that are present on the view must be rebuilt each month, with a fill factor of 50 percent.

Answer: B

Question: 7

You need to ensure that the process for identifying when the server hardware is approaching full utilization fulfills the business requirements. What should you do?

A. Use SQL Trace to log the activity on the servers to a log file.

B. Use Performance Logs and Alerts to log the activity on the servers to a log file.

C. Instruct the end users to report when application response time decreases.

D. Check the Windows event log for errors or warnings that are produced due to high utilization.

Answer: B

Question: 8

Currently the ComplexCalc column in the Results table is updated by a Transact-SQL trigger that calls the COM component by using the sp_OA* extended stored procedures. You want to migrate this process to a solution that does not use sp_OA* and that requires the minimum amount of development and testing time. What should you do?

A. Write a new extended stored procedure in Microsoft Visual C++ to call the COM component. Write a Transact-SQL trigger that calls this extended stored procedure to update the ComplexCalc column.

B. Rewrite the COM component in a managed code language. Write a managed trigger to call the new managed component to update the ComplexCalc column.

C. Create a stored procedure in a managed code language to call the COM component and insert the data into the ComplexCalc column or update the ComplexCalc column.

D. Create a user-defined function in a managed code language to call the COM component. Write a Transact-SQL trigger to call the new managed function to update the ComplexCalc column.

Answer: D

Question: 9

You need to ensure that SSIS packages that are used to import new customer data do not create unacceptable performance. What should you do?

A. While packages are running, modify the thread priority of the SQL Server Agent service to Low.

B. While packages are running, modify the thread priority of the SQL Server service to Low.

- C. Specify that packages must be designed to use only a single thread of operation.
- D. Schedule packages to run outside of normal office hours.

Answer: D

Question: 10

You need to minimize the size of the Notification Services database. What should you do?

- A. Specify a one-day retention period for alerts and notifications in the Notification Services database.
- B. Specify that the Notification Services database must receive a full backup once each week.
- C. For the Notification Services database, specify a recovery model that truncates transaction logs on a regular basis.
- D. Design a maintenance plan for the Notification Services database that shrinks the database monthly.

Answer: A

Question: 11

You need to create a performance testing plan to ensure that the new application solutions overhead is within allowable limits. What should you do?

- A. Measure pagefile utilization before and after installing the new application solution.
- B. Measure end-user response times in the existing solution and in the new solution.
- C. Measure the response times of key queries in the existing solution and in the new solution.
- D. Measure CPU counters and disk performance counters before and after installing the new application solution.

Answer: D

Question: 12

You need to ensure that on-demand reports fulfill the business requirements. What should you do?

- A. Design the reports to use a matrix.
- B. Design the reports to use a list.
- C. Design the reports to use a table without a grouping level.
- D. Design the reports to use a table with a grouping level.

Answer: A

Question: 13

You need to ensure that branch office database administrators cannot view the source code of database objects. What should you do?

- A - Specify that the database permissions on database objects must deny all access to the administrators.
- B - Specify that all database objects must be stored in a secondary database file. Configure NTFS permissions on this file to deny access to the administrators.
- C - Specify that all database objects must be encrypted.
- D - Specify that all database objects must be written in managed code.

Answer: C

Question: 14

You need to implement the ComplexCalc column in the Results table while maintaining the best

possible performance. What should you do?

- A - Specify that a managed function must be created to call the ODM component. Implement the ComplexCalc column as a computed column that calls the function.
- B - Deploy the ODM component together with all client applications.
- C - Specify that a managed code trigger must be created to update the Oomplex0alc column. Design the trigger to call the ODM component.
- D - Create a CLR user-defined data type to store the Complexoalc column. Implement the type by using manual serialization and call the ODM component in the types Read method.

Answer: C

Case Study #4, Wide World Importers

BACKGROUND

Company Overview

Wide World Importers imports products from around the world. Each product or group of products is imported only to fulfill a customer order.

Wide World Importers has a single location in New York City. However, the company works with shipping and handling partners that are located around the world.

Planned Changes

The company is implementing a new SQL Server 2005-based application to track import products and to facilitate communications with customers and partners.

EXISTING ENVIRONMENT

Existing Application Environment

The existing solution is based on SQL Server 7.0.

Existing Supporting Infrastructure

The company has a high-speed Internet connection, which is used for all external communications.

Wide World Importers uses an Active Directory domain for authentication. The new SQL Server 2005 solution will be included in that domain, and all internal users will gain access to the solution by authenticating to the domain.

BUSINESS REQUIREMENTS

General Application Solution Requirements

Customers will place orders for import products by using their own custom applications, which run locally at their locations. These applications must submit product import orders over the Internet and must receive a confirmation without delay.

The status of the import products must be tracked. Status includes conditions such as the following:

- In customs
- Cleared customs
- Delivered

The current design is implemented as shown in the following display.

In the new design, only the current status of the import product must be stored in the **ImportProduct** table. For all import products the entire status history must be kept, including the date of each status change. The ImportProduct table must also store the monetary value of the product in its original currency. When the value is retrieved, it must be convertible to any other currency.

The proposed design for import product status is shown in the following display.

The new database design must conform to third normal form (3NF).

Customs officials must receive information about new import products. They should receive this information as soon as the data is entered into the Wide World Importers database. The customs officials?? only Internet access is through e-mail.

Government regulations state that data for import products must be kept for a minimum of 10 years. However, storage on the Wide World Importers production database server will be able to handle only a maximum of two years worth of data.

Availability

The database solution must maximize availability. The company has purchased hardware that has redundant components.

TECHNCIAL REQUIREMENTS

Security

The company firewall accepts incoming connections from the Internet only on TCP port 443.

Outgoing connections are allowed on all ports.

The company is required to keep an audit history of all access, including reads, additions, and changes to all tables, with the exception of the audit tables.

All audit tables must be readable by only the company auditors. Company auditors must be able to run ad hoc SELECT queries to create reports by using their own custom tools.

Government auditors require periodic access to all auditing information. However, Wide World Importers policy does not allow government auditors or any other external users to have domain user accounts. The auditors will perform their audits from their government offices.

Company policy states that only database administrators can have direct access to tables within the database.

Users who are not members of the domain will not be allowed access to the database server.

Maintainability

Company change-control policies state that all changes to database object definitions must be audited. This audit information must be kept permanently.

A variety of interfaces will be used to add, change, and remove data from the database.

Whenever data is changed or deleted, no orphan records must be left in the database.

Interoperability

Some customers want to be able to download product status information and to import that information into their own database systems.

Shipping and handling partners send product status updates by using the Internet. These updates include product status information, and date and time information that must be accurate to the second. The product status information must also be given an ID that is unique between partners.

The status information differs from partner to partner, and is often sent in the partner's local language. All of this information must be stored in the Wide World Importers database.

Case Study 4: Wide World Importers (Questions)

Question: 1

You need to ensure that access by government auditors to auditing information will fulfill all business and technical requirements. What should you do?

A. Replicate auditing information to a stand-alone SQL Server 2005 database server that is on the outside of the company firewall. Grant the auditors select permissions for the replicated audit information.

B. Replicate auditing information to a stand-alone SQL Server 2005 server that is on the inside of the company firewall. Grant the auditors select permission for the replicated audit information.

C. Use SQL Server Authentication for the auditors. Create a database role named GrantAudit that has select permissions for all audit tables. Assign this role to the auditors.Ensure that no other user has select permission for audit tables.

D. Use SQL Server Authentication for the auditors. Grant the auditors select permissions for all audit tables.
Deny select permission on all audit tables to public.

Answer: A

Question: 2

You need to design a process by which customers can access import product status over the Internet.

Your solution must fulfill all business and technical requirements. What should you do?

- A. Design a SQL Server Reporting Services (SSRS) solution that sends import product status reports to customers in e-mail messages.
- B. Design a parameterized stored procedure that provides import product status information to customers.
- C. Design a Web service that provides import product status information to customers.
- D. Design a Notification Services solution that sends customers an e-mail message when import product status is updated.

Answer: C

Question: 3

You need to ensure that change-control policies are enforced. Your solution must fulfill all business and technical requirements. What should you do?

- A. Design DDL triggers that write auditing information to a table.
- B. Require all proposed database object changes to be scripted, and require the scripts to be checked in to a source-control solution.
- C. Enable SQL Server auditing on all tables and stored procedures. Back up audit logs to a separate server.
- D. Create a table to store auditing information. Design stored procedures that perform all database object changes, and write auditing information to the new table.

Answer: A

Question: 4

You need to ensure that access by company auditors to auditing information fulfills all business and technical requirements. What should you do?

- A. Create audit tables for each table that contains import product data. Create triggers on each table that contains import product data. Within each trigger, write the data to the corresponding audit table. Grant the auditors the Read permission for the audit tables. Deny all other users access to the audit tables.
- B. Modify each table that needs to be audited. Add a column to store the ID of the user who is querying the table. Add another column to store the date and time the data was accessed. Grant the auditors the Read permission for the audit tables.
- C. Create audit tables for each table that contains import product data. Deny DML access to tables that contain the import product data. Allow access to those tables only through stored procedures. Within the stored procedures, add logic to log the activities and write this information into the audit tables. Grant the auditors read access to the audit tables through views.
- D. Create a view on each table that contains import product data. Within the view definitions, expose userfriendly columns such as names, but do not expose internal data such as customer IDs. Deny auditors access to the tables. Grant only the auditors read access to the views.

Answer: C

Question: 5

You need to design the storage and currency conversions for the monetary value of import products.

What should you do?

- A. Store the original value in a column defined as a money data type. Create a user-defined function to handle currency conversions.
- B. Store the original value in a column defined as a decimal data type. Create a user-defined function to handle currency conversions.
- C. Store the original value in a column defined as a money data type. Create a computed column that calculates the value in another currency.
- D. Store the original value in a column defined as a CLR user-defined type. Create a method on the user-defined type to handle currency conversions.

Answer: D

Case Study #5, Contoso, Ltd.

BACKGROUND

Company overview

Contoso, Ltd., hosts a very popular Internet magazine Web site.

Planned Changes

The company is in the process of developing a gaming community that will be a new part of the Web site. Community members will be able to play multiple online games and participate in discussion forums. The site currently receives more than 10 million visits per month. It is forecast that 20 percent of the visitors will become active members of the community.

A solution needs to be designed that will use SQL Server 2005 to manage all the member and game information for the community.

EXISTING ENVIRONMENT

Existing Application Environment

The company's database servers run Microsoft Windows Server 2003 Enterprise Edition and SQL Server 2005 Enterprise Edition. One database server functions as the production online transaction processing (OLTP) server, which contains the community database. A data warehouse server collects and stores information from the OLTP server for analysis. The OLTP server is a 16-processor computer with 32 GB of memory. Ten Web servers in the Web farm access the OLTP server and host the Web site.

BUSINESS REQUIREMENTS

General Requirements

The database must store all member information, including the following information:

- Each member's credentials, demographic information, and contact information.
- Names of games the member plays.
- Information about the character within each game that is played. Each member is allowed only one character per game.
- Game scores for each game.
- Forums in which the member participates.

All tables that will store member, forum, and game information should use a schema named Community, which will be owned by the dbo user. The objects that contain financial information should use a schema named Financial, which will be owned by the user named Cfo.

Site Member Information

In the table that stores game scores for members, there might be multiple scores for each member in any game.

The table will be heavily queried for scores that are aggregated by member, or by member and game. Response times on these queries must be minimized. Query performance is substantially more important than insert performance.

Member information will be continuously retrieved by internal and external applications. Data will be retrieved on a per-member basis, and it will be requested up to 100 times per minute. The retrieved data must include information about the member, in addition to which forums the member participates in and statistics about the games the member is playing. The information must be returned as one result and should not contain duplicate values.

Game Character Information

The possible attributes for characters that are associated with a game change frequently, and the attributes that are actually used can be changed over time.

The information that needs to be stored about characters might be from several bytes to several kilobytes in size. This data must be easily searchable directly in the database by using Transact-SQL. Members will be able to create and delete a single character in each game they play.

No Character should be deleted unless a certain routine is run to verify that the character can be deleted from a game. Several external consultants who create stored procedures might not be aware of this routine. If this routine is not run, a game might not function properly. The routine might need to verify complex string values, and it performs advanced calculation.

Other Information

Company sales personnel will need to create SQL Server Reporting Services (SSRS) reports on the usage of the gaming community. These reports will be run directly against the production server, usually by no more than one employee at a time. The data that is used to produce the report can be up to one hour old.

All source code for the project must be stored in Microsoft Visual SourceSafe (VSS) and must not be visible in the SQL Server database. The latest version of any routine, including those written in Transact-SQL, must always be found in VSS.

All database access routines that change and then select the data that was changed must not return phantom rows.

Performance

Database performance measures must be automatically monitored and stored. These measures include CPU utilization and how often stored procedures are executed from the application layer. This data will be used by the support engineers to find and resolve bottlenecks.

The database must be designed to minimize query response times and locking and blocking issues.

Availability

Because the Web site will be used 24 hours per day, changes to the application must be deployed with minimum system downtime. The service level agreement (SLA) will state that the site is not allowed to stop responding for more than one minute per day. Games will be added frequently; adding games must not negatively affect the availability of the site.

TECHNICAL REQUIREMENTS

Security

Security is a high priority for Contoso, Ltd. All access to the OLTP production database must be made through stored procedures. Direct access to tables will not be allowed.

All stored procedures that only need to retrieve data will be created by using the WITH EXECUTE AS OWNER option.

Maintainability

All upgrades to the databases schema should be made backwards-compatible if possible. Upgrades should require only minimal changes to existing code. As the database is being developed, database design changes must not break existing database access routines.

Company Overview

Contoso, Ltd., hosts a very popular Internet magazine Web site.

Planned changes

The company is in the process of developing a gaming community that will be a new part of the Web site.

Community members will be able to play multiple online games and participate in discussion forums. The site currently receives more than 10 million visits per month. It is forecast that 20 percent of the visitors will become active members of the community.

A solution needs to be designed that will use SQL Server 2005 to manage all the member and game information for the community.

Case Study #5, Contoso, Ltd. (Questions)

Question: 1

You need to design the retrieval of member information to fulfill the business requirements. What should you do?

- A. Design a view to retrieve the information.
- B. Design a stored procedure to retrieve the information as a result set.
- C. Design a stored procedure to retrieve the information as an XML document.
- D. Design a SQL Server Reporting Services (SSRS) report that contains the information.
- E. Design a SQL Server Integration Services (SSIS) package that writes the information to a file.

Answer: C

Question: 2

You are developing a stored procedure named Community.usp_ScoreInsertMultiple. This stored procedure will be used to write the scores of one or more players for one or more games to a database table named Community.MemberGameScores. One row should be inserted for each player/game combination. You need to accomplish this goal in a single call to the database. What should you do?

- A. Create a user-defined type named PlayerScoresType. Use PlayerScoresType as a parameter to the stored procedure.
- B. Create a user-defined aggregate named PlayerScoresAggregate. Use PlayerScoresAggregate as a parameter to the stored procedure.
- C. Add an nvarchar(max) parameter, and send the scores as a comma-delimited list.
- D. Add an xml parameter, and provide the scores to the stored procedure in XML format.

Answer: D

Question: 3

You are designing a stored procedure in the Community schema that will retrieve data from tables in the Community schema and in the Financial schema. You know that at least one query against the Financial schema will need to use dynamic SQL. You need to use only the minimum permissions that are required by the applications user to execute this stored procedure. Which permission or permissions should you use? (Choose all that apply.)

- A. EXECUTE permission on the stored procedure and SELECT permission on the Financial

table that the dynamic SQL query will use

- B. EXECUTE permission on the stored procedure and SELECT permission on all of the Financial tables that are used in the stored procedure
- C. EXECUTE permission on the stored procedure only
- D. EXECUTE permission on the stored procedure and SELECT permission on all of the Community tables that are used in the stored procedure

Answer: C

Question: 4

You are developing the SQL Server Integration Services (SSIS) package that will load the data warehouse server for the gaming community. You need to ensure that in the event of a package failure, the remaining load time is as short as possible when restarting the package. You must also ensure that no duplicate data is loaded. Which action or actions should you perform? (Choose all that apply.)

- A. Set the TransactionOption property of the package to Required.
- B. Set the TransactionOption property of each task to Required.
- C. Set the package to create a database snapshot after each successful task.
- D. Use package checkpoints.
- E. Set the package to restart at the last database snapshot.

Answer: B, D

Question: 5

You need to design the deletion of characters to comply with the application requirements. What should you do?

- A. Design a stored procedure that verifies that the character can be deleted and then deletes it.
- B. Design a user-defined function that verifies that the character can be deleted.
- C. Design a trigger that checks whether the character should not be deleted and ensures that it is not deleted.
- D. Design a view that shows only characters that can be deleted. Always delete characters through this view.

Answer: C

Question: 6

When the community is in production, sales representatives will need to generate the gaming community usage report. The report was designed by using SSRS, and it uses both query and filter parameters. You need to minimize response time when the representatives browse this report, and you need to minimize the impact on the overall performance of the production servers. What should you do?

- A. Create snapshots of the report every hour, and render the report from the snapshot.
- B. Enable session caching for the report with a timeout of 60 minutes.
- C. Create an indexed view that covers the reports query.
- D. Create new indexes on all tables that are used by this report. In these indexes, include all columns that are referenced in the reports query.

Answer: B

Question: 7

You need to design a strategy for modifying database objects that will fulfill the business requirements. What should you do?

- A. Specify a default value, and specify that null values are allowed for new table columns.Specify that the order of columns cannot be changed.Specify that the return type of user-defined functions cannot be changed.
- B. Specify that null values are not allowed for new table columns.Specify that columns cannot be added to existing views.Specify that new parameters for existing user-defined functions must be added at the end of the parameter list.
- C. Specify that null values are not allowed for new table columns.Specify that new parameters for existing stored procedures must be added at the end of the parameter list.Specify that when the return type for a userdefined function is changed, only a larger data type can be used.
- D. Specify that null values are allowed for new table columns.Specify that the order of columns cannot be changed.Specify that new parameters for existing user-defined functions must be added at the end of the parameter list.

Answer: A

Question: 8

You need to design database performance monitoring to fulfill the business and technical requirements. What should you do?

- A. Use SQL Server Profiler to monitor database activity. Use System Monitor to monitor server performance.
- B. Use the SQL Trace stored procedures to monitor database activity. Use Performance Logs and Alerts to monitor server performance.
- C. Use a SQL Server Integration Services (SSIS) package to monitor database activity and to monitor server performance.
- D. Use the SQL Trace stored procedures to monitor database activity. Use System Monitor to monitor server performance.

Answer: B

Question: 9

You are designing the function that will be used to verify whether a members character in game can be deleted. What should you do?

- A. Design the function as a stored procedure in a .NET Framework language.
- B. Design the function as a stored procedure in Transact-SQL.
- C. Design the function as a user-defined function in a .NET Framework language.
- D. Design the function as a user-defined function in Transact-SQL.

Answer: C

Question: 10

You need to design the storage of character information as specified in the business and technical requirements. What should you do?

- A. Create a user-defined type (UDT) that can handle storing the information for a character in any game, and load it into the database. Store the information for the characters in a column named CharacterInformation by using the UDT, as shown in the following table.Community.MemberGameCharactersMemberIDGameIDCharacterInformationINTINT(T he UDT)
- B. Store the information about the members characters in a column named CharacterInformation with the xml data type, as shown in the following table.Community.MemberGameCharactersMemberIDGameIDCharacterInformationINTINTXML

- C. For each game, create a single table that associates that games members with their character information in that specific game.
- D. Store the information about the members characters in a column named CharacterInformation with the nvarchar(max) data type, as shown in the following table.
- | Community.MemberGameCharacters | MemberID | GameID | CharacterInformation |
|--------------------------------|----------|--------|----------------------|
| INT | INT | INT | NVARCHAR(max) |
- E. Store the information about the members characters in a column named CharacterInformation with the varchar(max) data type, as shown in the following table.
- | Community.MemberGameCharacters | MemberID | GameID | CharacterInformation |
|--------------------------------|----------|--------|----------------------|
| INT | INT | INT | VAR HARCHAR(max) |

Answer: B

Case Study 6: Proseware, Inc.

BACKGROUND

Company Overview

Proseware, Inc., publishes an online technical magazine that provides articles on a variety of highly technical topics. Authors who write articles for the magazine are independent contractors. Editors who edit and approve articles are either independent contractors or company employees.

Physical Locations

The company's main office is located in Seattle. Branch offices are located in London, Sydney, and Tokyo.

Planned Changes

The company plans to upgrade all of its SQL Server database servers to SQL Server 2005. The search page in the application named TechLibrary will be redesigned to improve performance and security.

Problem Statement

Customers who view articles from outside the United States report that it takes too long to display pages from the articles.

EXISTING ENVIRONMENT

Existing Application Environment

Currently the TechLibrary application allows users to subscribe to its services, manage their accounts, and view and search for articles.

The database that is used for TechLibrary is not normalized. The company plans to normalize the database design. An example of the current TechLibrary data is shown in the following table.

All article data is maintained at the main office in Seattle.

Keywords that are associated with an article are entered by the author, and they are not validated against domain values. The authors currently interact with editors by sending compressed files by e-mail for review and editing.

Existing Supporting Infrastructure

The company's SQL Server database servers currently run SQL Server 2000 Enterprise Edition on Microsoft Windows Server 2003 with Service Pack 1.

BUSINESS REQUIREMENTS

General Requirements

Proseware, Inc., will create an online submission tool for use by authors. This tool will be named AuthTool.

Authoring Requirements

- Authors must be able to associate only approved keywords with their articles, and they might associate multiple key words with each article.
- Authors might author more than one article.
- Articles might have multiple authors.
- AuthToole must provide for secure transmission of article text.
- AuthToole must provide for secure transmission of editor comments back to the authors.
- AuthTool will not access the database directly.

Viewing and Reporting Requirements

- When an article is retrieved by a customer for viewing, the article and the customer must be logged to a table for reporting purposes.
- An article activity reporting module must allow interactive querying of article, author, and customer information.
- Example: Display all articles viewed by male readers, in the USA, who have a bachelor's degree.
- The TechLibrary application must present the user with a list of keywords to be used for searching article.

Performance

Customers reports that searching for an article is too slow. Searching for an article must be improved to return results to the user within 15 seconds. Customers generally search on author, title, or keywords. Customers will perform searches on only the relational data.

Authors submit their articles in XML format, which is stored in the database by using the native xml data type.

Editors might want to search for keywords within the articles. When an article is searched for keywords, the native XML data must be queried with out loss of performance.

Availability

The TechLibrary application must be available 24 hours per day, seven days per week. Downtime of two hours per month is scheduled for maintenance.

TECHNICAL REQUIREMENTS

Security

The company has the following requirements:

- Authors must be able to submit article text securely ,over the Internet.
- Each author must be able to view and edit only articles that he or she has written.
- Customers must be able to search on a wide variety of article attributes. This capability must not introduce any security vulnerabilities into the application.

Maintainability

A review of the current database uncovered many orphaned records. The capability must be provided to delete records and to ensure that referential integrity is maintained.

The IT director has mandated that all new database development must conform to the rules for normalization.

Company Overview

Proseware, Inc., publishes an online technical magazine that provides articles on a variety of highly technical topics.

Authors who write articles for the magazine are independent contractors.

Editors who edit and approve articles are either independent contractors or company employees.

Physical Locations

The company's main office is located in Seattle. Branch offices are located in London, Sydney, and Tokyo.

Planned Changes

The company plans to upgrade all of its SQL Server database servers to SQL Server 2005.

The search page in the application named TechLibrary will be redesigned to improve performance and security.

Problem Statement

Customers who view articles from outside the United States report that it takes too long to display pages from the articles.

Case Study #6, Proseware, Inc. (Questions)

Question: 1

You need to design the indexing strategy for the articles that are submitted in XML format by authors.

Which action or actions should you perform? (Choose all that apply.)

- A. Create a VALUE secondary XML index on the xml data column.
- B. Create a PATH secondary XML index on the xml data column.
- C. Create a PROPERTY secondary XML index on the xml data column.
- D. Create a nonclustered index and add the xml data column by using INCLUDE.
- E. Create a primary XML index on the xml data column.

Answer: A, E

Question: 2

You need to ensure that search response time fulfills the business and technical requirements. What should you do?

- A. Create an index or indexes on commonly used columns.
- B. Create a table-valued function that returns commonly used columns.
- C. Create a stored procedure that searches on commonly used columns.
- D. Create a parameterized stored procedure that creates dynamic SQL based on commonly used columns.

Answer: A

Question: 3

You need to design the article activity reporting module. Which two actions should you perform? (Each correct answer presents part of the solution. Choose two.)

- A. Create a SQL Server mining model on the article activity data.
- B. Create an Analysis Services cube on the article activity data.
- C. Create a SQL Server Reporting Services (SSRS) report to view the data from the mining model.
- D. Provide a SQL Server Reporting Services (SSRS) report to view the data from the cube.
- E. Create a SQL Server Reporting Services (SSRS) data processing extension to view the data from the log table.

Answer: B, D

Question: 4 HOTSPOT

You need to redesign the TechLibrary database schema to fulfill the business and technical requirements.

Which design should you use? To answer, select the appropriate design in the answer area.

Answer:

Question: 5

You need to ensure that authors and editors can securely submit and retrieve in-progress articles. Your solution must minimize performance impact on the database and the servers. What should you do?

- A. Distribute articles to authors and editors by using a Web Services interface.
- B. Distribute articles to authors and editors by using merge replication.
- C. Distribute articles to authors and editors by using transactional replication.
- D. Distribute articles to authors and editors by using SQL Server Integration Services (SSIS).

Answer: A

Question: 6

You need to design a solution to resolve the slow display of article pages. You want to achieve the fastest possible display time. Which action or actions should you perform? (Choose all that apply.)

- A. Create a merge replication publication in the Seattle office.
- B. Create a transactional replication publication in the Seattle office.
- C. Create a Web farm in the Seattle office.
- D. Create a push subscription for each of the offices in London, Sydney, and Tokyo.
- E. Create a pull subscription for each of the offices in London, Sydney, and Tokyo.
- F. Direct users to the nearest server for articles.

Answer: B, D, F

Question: 7

You need to design the portion of AuthTool that submits articles to the database or retrieves editors comments from the database. What should you do?

- A. Create secure Web service methods by using SQL Server 2005 HTTP endpoints.
- B. Create a Service Broker service. Use this service to store data in the database and to return data from the database.
- C. Create stored procedures that use OPENXML to store data in the database, and use FOR XML to return data from the database.
- D. Create annotated XSD schemas for AuthTool. Use these schemas to store data in the database and to return data from the database.

Answer: A

Question: 8

You are working with the application developers to design the new search capability. You need to decide on the appropriate design to use. Which design should you use?

- A. Provide a user interface for the selection of search criteria. Generate dynamic SQL from the user interface selections. Use a SqlCommand object to submit the dynamic SQL query.
- B. Provide a user interface for the selection of search criteria. Pass the options to a stored procedure that builds dynamic SQL. Execute the dynamic SQL with EXEC.
- C. Provide a user interface for the selection of search criteria. Create a parameterized stored procedure that supports optional parameters. Call this stored procedure from the application.
- D. Allow the user to enter query text into a text box. Use a SqlCommand object to submit the query.

Answer: C

Question: 9

You need to design the code to prevent orphaned child records. Which two actions should you perform?

(Each correct answer presents part of the solution. Choose two.)

- A. Create foreign key constraints between each parent table and its child tables.
- B. Specify cascade delete on the parent-child relationship.
- C. Create a DELETE trigger on the parent table and roll back the transaction if child records exist.
- D. Create an INSTEAD OF trigger on the parent table and roll back the delete if child records exist.
- E. Specify cascade update on the parent-child relationship.

Answer: A, B

Question: 10

You need to design the keyword validation logic. What should you do?

- A. Create an INSERT trigger on an article table. Roll back the transaction if the keyword does not exist in a keyword table.
- B. Create a primary key constraint on an article table.
- C. Create a stored procedure to insert data into an article keyword table. Return an error code if the keyword does not exist in a keyword table.
- D. Create a foreign key constraint to a keyword table.

Answer: D

**Case Study #7, Consolidated Messenger
Company Overview**

Consolidated Messenger operates a courier service from a single location in a large North American city. The company has more than 2,000 customers and more than 100 couriers on staff. Couriers receive assignments to pick up and deliver items to and from locations within the city.

Panned Changes

The company plans to expand into three additional cities within the next two years. A new office will be opened in each new city.

The company's existing courier-tracking application is written in Microsoft Access and was designed when the company was much smaller. The application is overwhelmed by the company's current workload. Therefore, it is being replaced with a new application solution written for SQL Server 2005. All client applications will be written in Microsoft Visual Basic.NET.

EXISTING ENVIRONMENT**Existing Application Environment**

The existing application will be replaced.

The primary entities in the new database will be customers, couriers, and assignments. An assignment is given to a specified courier and is associated with a specified customer.

Existing Supporting Infrastructure

All couriers carry Tablet PCs, which connect to the company network through city-wide wireless network connections and virtual private networks (VPNs). The Tablet PCs run all company applications.

BUSINESS REQUIREMENTS

General Application Solution Requirements

Couriers must be notified as quickly as possible of new assignments. Customers must be able to track the status of their pickup and delivery requests, which are called jobs. To track requests, some customers will use an application provided by Consolidated Messenger. Other customers will incorporate status tracking into their own internal applications. One single method for providing tracking status must fulfill the requirements for both of these scenarios.

Customers must be able to view past weekly activity reports. However, customers do not need to view the current week's activity until the current week is completed.

To minimize wireless networking fees and bandwidth utilization, applications that run on the Tablet PCs must minimize connections to the database. E-mail access from Tablet PCs is continuous and within acceptable bandwidth usage.

Performance

Most application queries are for assignments that are related to a specific courier or customer.

The database should be designed to optimize these types of queries.

Little or no additional overhead must be placed on the application solutions performance when customers view past activity reports.

Many reports will need to display the total assignment duration, which is the sum of all the status durations from the time the assignment is received until the time it is completed. The solution must minimize the overhead that is required to provide this data.

Scalability

When the company expands into new cities, the solution must be able to scale to handle the load.

The initial application solution design should include a plan for load balancing the solution across multiple servers, which might be geographically separated.

Users must be able to query all company data no matter which server they are using locally.

Recoverability

The application solution must be designed so that a hardware or file system failure will create only minimal downtime or data loss.

TECHNICAL REQUIREMENTS

Security

Changes to assignments, such as the cancellation of an assignment, must be tracked for auditing purposes.

Currently, company customers are not permitted to connect to the company intranet. The application solution design must not require company customers to connect to the company intranet for any reason.

Users must have minimal permissions in the database, and access to database objects must follow industry best practices.

Maintainability

Active or uncompleted assignments will consist of a row from a header table and one or more rows from a status update table. Completed jobs must retain access to all of this information.

However, because completed job information is queried frequently, the solution should be designed to optimize performance for access to completed-job information.

If a customer or a courier is deleted from the database by an application or database object, referential integrity must be maintained. However, assignments must not be deleted from the database for any reason.

Couriers and customers can be marked as inactive in the database, and various applications and reports will utilize this status when displaying data.

Supporting Infrastructure

All users will access the database through client applications. Users will not need direct access to database objects, and the solution will not contain a middle tier.

Case Study #7, Consolidated Messenger (Questions)

Question: 1

You need to design a reporting infrastructure for customers weekly activity reports. Your solution must fulfill all business and technical requirements. What should you do?

- A. Specify an independent database on the production server that will be queried for all reports. Design a SQL Server Integration Services (SSIS) package that copies data into the reporting database.
- B. Specify an independent database on the production server that will be queried for all reports. Design a replication scheme that copies data into the reporting database.
- C. Specify a stand-alone reporting server that will be queried for reports. Design a weekly replication of data from the production server to the reporting server.
- D. Specify a stand-alone reporting server that will be queried for reports. Design transactional replication to copy data from the production server to the reporting server.

Answer: C

Question: 2

You need to ensure that couriers are notified of new assignments. Your solution must fulfill all business and technical requirements. What should you do?

- A. Specify that Notification Services must be used to send an e-mail message to couriers when they receive new assignments.
- B. Design the client application that is used by couriers to continuously check for new assignments and to alert couriers by means of a dialog box.
- C. Specify that SQL Server Reporting Services (SSRS) must be used, and design a report that displays new assignments for any selected courier.
- D. Install SQL Server 2005 Express Edition on the Tablet PCs, and design transactional replication to copy new assignment data to the Tablet PCs from the main database.
- E. Specify a SQL Server Agent job that runs hourly and sends an e-mail message to each courier with a list of new assignments.

Answer: A

Question: 3

You are designing the application solution. You need to design a method to report on total job times.

Your solution must fulfill all business and technical requirements. What should you do?

- A. Design a trigger that calculates total elapsed time for completed jobs and stores the result in a column.
- B. Design a user-defined function that calculates the total elapsed time for completed jobs.
- C. Design a computed column that contains the total elapsed time for completed jobs.
- D. Design a user-defined aggregate that calculates the total elapsed time for completed jobs.

Answer: A

Question: 4

You need to ensure that deleted customer and courier records are handled appropriately. Your solution must fulfill all business and technical requirements. What should you do?

- 1. Create a design that uses foreign key deletion cascades for deleted customer and courier records.
- 2. Create a design in which the table that contains assignments does not have foreign key constraints.

3. Design a trigger that cancels row deletions and marks the row as inactive instead.
4. Design a trigger that cascades deleted courier and customer records into dependent tables.

Answer: C

Question: 5

You need to design a method for archiving completed job data. Your solution must fulfill all business and technical requirements. What should you do?

- A. On a weekly basis, run a stored procedure that deletes completed-job data from the tables that contain active job data.
- B. Design a partitioned table that partitions completed-job data from active-job data.
- C. Design a SQL Server Agent job that deletes completed-job data from the tables that contain active-job data. Schedule the job to run weekly.
- D. Design a SQL Server Integration Services (SSIS) package that deletes completed-job data from the tables that contain active-job data. Schedule the package to run weekly.

Answer: B

Question: 6

You need to design a method for users and client applications to access data in the database. Your solution must fulfill all business and technical requirements. What should you do?

- A. Specify that stored procedures must be used for all database access.
- B. Specify that an application role must be used for all database access.
- C. Specify that a Windows user group that contains all application users accounts must be added to the db_datareader and db_datawriter fixed database roles.
- D. Specify that a Windows user group that contains all application users accounts must be added to the db_owner fixed database role.

Answer: A

Question: 7

You are designing the application solution. You need to ensure that queries for assignments are optimized. Your solution must fulfill all business and technical requirements. What should you do?

- A. Specify that the tables that contain courier or customer rows must have indexes that have a fill factor of 50 percent.
- B. Specify an index or indexes on the courier ID or customer ID in the assignments table.
- C. Specify that access to courier or customer information must be made only through stored procedures.
- D. Specify that access to courier or customer information must be made only through views.

Answer: B

Question: 8

You need to provide a method for customers to track job status. Your solution must fulfill all business and technical requirements. What should you do?

- A. Specify a SQL Server Reporting Services (SSRS) Web site that displays job statuses. Implement the Web site in an extranet and allow all customers to access the Web site.
- B. Specify that Notification Services must be used to send status notifications to customers by e-mail whenever job statuses change.
- C. Specify a stored procedure that sends status notifications to customers by e-mail when job statuses change. Design a client application that executes the stored procedure and that can

be provided to customers.

D. Specify a Web service that can retrieve job statuses from the database. Design a client application that utilizes the Web service and that can be provided to customers.

Answer: D

Question: 9

You are designing the application solution. You need to specify the base table permissions that will be granted to application users. Your solution must fulfill all business and technical requirements. What should you do?

A. Specify that end users must have no permissions on base tables.

B. Specify that end users must have only read permission on base tables.

C. Specify read and write permissions on base tables for a specific user account that will be used by client applications that connect to the database.

D. Specify all permissions on base tables for a specific user account that will be used by client applications that connect to the database.

Answer: A

Question: 10

You need to design a reporting solution so that customers can view weekly activity reports. Your solution must fulfill all business and technical requirements. What should you do?

A. Design a view that provides weekly activity data. Provide customers with a VPN connection to access the database server, and provide customers with a client application that executes the view and displays the results.

B. Design an ASP.NET Web site that queries the database server to produce weekly activity reports. Place the Web site on the Internet.

C. Specify that SQL Server Reporting Services (SSRS) must be used to create weekly activity reports that are sent to each customer by e-mail.

D. Specify that a SQL Server Reporting Services (SSRS) Web site must be placed in an extranet, and that customers must be given access to that extranet.

E. Design a view that provides weekly activity data. Instruct customers to query the view by submitting HTTPbased queries to a SQL Server computer.

Answer: D

Question: 11

You need to ensure that changes to assignments can be audited. Your solution must fulfill all business and technical requirements. What should you do?

A. Ensure that users have no direct access to the table that contains the assignments.

B. Design DDL triggers for the table that contains the assignments. Design the triggers to write auditing information to a separate table.

C. Design DML triggers for the table that contains the assignments. Design the triggers to write auditing information to a separate table.

D. Design an updatable view that will be used for all changes to the table that contains the assignments.

Answer: C

Question: 12

You need to provide a scalability and load balancing plan for the company's growth. Your solution must fulfill all business and technical requirements. What are two possible ways to achieve this goal? (Each correct answer presents a complete solution. Choose two.)

- A. Plan for the servers at each office to store all data for only that office.
- B. Plan to horizontally partition tables by office, and create a federated database that includes one server in each office, with each server storing the data for that office.
- C. Plan to implement a clustered SQL Server 2005 computer by using Microsoft Cluster Service (MSCS), and to store data for all of the offices on that cluster.
- D. Plan to implement one server for each office, and to implement replication between all of these servers.
- E. Use SQL Server 2005 to partition the database server so that data for each office is stored on a separate partition.

Answer: B, D

Case Study #8, Southridge Video BACKGROUND

Company Overview

Southridge Video is a chain of retail video rental stores. The company has a main office and 32 retail locations

Planned Changes

The company will design and implement a new SQL Server 2005-based solution for tracking video rentals, employee work shifts, store inventory, and other business functions.

EXISTING ENVIRONMENT

Existing Supporting Infrastructure

All stores are connected to the main office by using high-speed WAN connections. WAN connectivity is only 10 percent utilized.

The main office recently installed a new SQL Server 2005 computer, which will contain all company data.

BUSINESS REQUIREMENTS

General Requirements

Late fees on overdue rentals must be calculated after midnight each evening.

Each video title might have multiple copies in inventory. The status of each copy, whether rented or available, must be tracked.

At the end of each month, sales reports must be generated for that month's sales. The definitions for these reports will not change. Users should be able to retrieve the latest generated report on demand. Most users will use Internet Explorer to view the reports. However, some users will need the reports in PDF format.

The current design for the tables that store customer information and rental transactions is shown in the following displays.

One table will be used to store employee information. Another table will be used to store employee work shifts.

If an employee is deleted from the database, that employee's shifts must also be deleted.

Performance

The company wants to maximize the number of data rows that can be stored on database pages. Generation of monthly sales reports must not negatively affect performance on the production database server and must minimize any other performance impact.

The most common queries will be searches for available copies of a given video title, and for customer account balances. The database must be designed to provide the best possible performance for these queries.

TECHNICAL REQUIREMENTS

Security

All changes to customer accounts, inventory, or employee shifts must be logged to a separate auditing table.

Some employees of Southridge Video access the database by using Microsoft Excel to create reports. Users must have a reduced set of permissions when they work through Excel compared to when they log on through the internal video management application.

There must be no direct access to the database server from outside the company network.

Maintainability

The database must be designed to third normal form (3NF) unless it cannot be in 3NF for performance reasons.

All business rules must be enforced and must be centralized in order to simplify long-term maintenance.

Interoperability

A variety of client applications will access the database. These applications include point-of-sale applications that are used by employees, and self-service kiosks that are used by customers.

A Windows client application will also be provided to customers who want to check video title availability from home over the Internet. This client application is named Southridge@Home.

Data about new videos, including description, title, and actors, is provided in an XML format. This data is used for printing video labels and is frequently queried and updated. The same actor names should not be stored on multiple rows.

Case Study #8, Southridge Video (Questions)

Question: 1

You need to design a method for making sales reports available to users, in compliance with the business requirements. Your solution must require the minimum amount of development time. What should you do?

- A. Generate the reports and send them in e-mail messages from the SQL Server 2005 production database server.
- B. Make the reports accessible by means of a SQL Server Reporting Services (SSRS) Web site.
- C. Create the reports as static HTML files that are hosted on a Web site.
- D. Make the reports available by means of an ASP.NET Web site.

Answer: B

Question: 2

You need to design a method for storing the incoming XML-formatted data about new videos. What should you do?

- A. Specify individual columns of the appropriate data type to store the video titles and descriptions, and store actors in a separate table with a many-to-many relationship to the videos. Shred the XML data into the individual columns.
- B. Store the XML data in independent text files on the database servers hard disk. Specify a varchar column to hold the name of the text file for each video.
- C. Specify an nvarchar(max) column to store the raw XML data.
- D. Specify an XML data column to store the data.

Answer: A

Question: 3

You need to ensure that employee shift data is handled properly. Your solution must require the minimum amount of development time. What should you do?

- A. Design a foreign key constraint on the employee shifts table so that only values from the employees table can be used.
- B. Design cascading referential integrity constraints between the employees table and the employee shifts table.
- C. Design an AFTER DELETE trigger on the employees table that deletes corresponding rows from the employee shifts table.
- D. Design an AFTER DELETE trigger on the employee shifts table that deletes corresponding rows from the employees table.

Answer: B

Question: 4

You need to ensure that the rental transactions table does not contain membership numbers that are not currently issued to a customer. You also need to make sure that the table design conforms to third normal form (3NF). What should you do?

- A. Design a check constraint on the MembershipNumber column in the rental transactions table. Design the constraint to accept only data that has a valid format.
- B. Design a check constraint on the MembershipNumber column in the rental transactions table. Design the constraint to verify that the membership number exists in the customers table.
- C. Design a referential integrity relationship between the MembershipNumber column in the rental transactions table and the MembershipNumber column in the customers table.
- D. Remove the MembershipNumber column from the rental transactions table.

Answer: D

Question: 5

You need to design the method for providing monthly sales reports. What should you do?

- A. Design a SQL Server Integration Services (SSIS) package that creates a new table on the same server and copies the data for the sales report to that table.
- B. Design a SQL Server Reporting Services (SSRS) report that runs on the same SQL Server instance as the production database.
- C. At the end of each month, back up the database and restore it on a separate database server, and generate reports on that computer.
- D. At the end of each month, create a database snapshot of the database. Generate reports from that snapshot.

Answer: C

Question: 6

You need to design a method for the Southridge@Home application to retrieve data. What should you do?

- A. Design a Web service that provides the necessary data. Host the Web service on the database server.
- B. Design a Web service that provides the necessary data. Host the Web service on an Internet Web server.
- C. Host the application on an Internet Web server and design it to submit queries to SQL Server by using HTTP.
- D. Host the application on an Internet Web server and design it to submit XPath queries to SQL Server.

Answer: B

Question: 7

You need to provide a method for optimizing the most common database queries. What should you do?

- A. Create an index on the primary key column of the customers table, and on the primary key column of the video titles table.
- B. Create covering indexes for copy availability and customer account balance.
- C. Create a SQL Server Agent job that recalculates database statistics each night.
- D. Create a SQL Server Agent job that rebuilds all indexes weekly, with a 50-percent fill factor.

Answer: B

**Case Study #9, Coho Vineyard & Winery
BACKGROUND**

Company Overview

Coho Vineyard & Winery sells wine in 12 company retail stores in the United States. Each retail store also has a mail-order business that sells and ships wine to individual customers in the same state, and each store provides wine to local distributors. The retail stores also carry wines that are not produced by Coho Vineyard & Winery. The company has a single vineyard, and the company's wine is produced at winery adjacent to the vineyard.

Planned Changes

The company plans to open 10 additional stores during the next year.

Problem Statements

The existing SQL Server database application has several problems that prevent it from fulfilling the company's business requirements. The application needs to be updated or replaced. Item inventory can currently be changed through a variety of means. The current database applications reports and inventory alerts do not accommodate all of these possible types of changes.

Orders for wine are entered at the winery and at the retail stores. Orders can be entered through a variety of client applications. This variety creates data consistency problems because the various applications do not provide the same level of detail for order information.

StoreReports is a view in the existing database at the winery. StoreReports provides aggregated non-inventory data from multiple servers that are located in retail stores. This view is very slow, affecting the service level agreement (SLA) of the client application that uses it.

EXISTING ENVIRONMENT

Existing Application Environment

The existing application solution uses SQL Server 2000, and will be migrated to SQL Server 2005. The SQL Server 2005-based application will be changed to better fulfill business requirements, and these changes might include significant changes to the database schema. Client applications are written in Microsoft Visual Basic 6, Microsoft Visual C++6.0, and Microsoft Visual Basic.NET. Each retail store has its own SQL Server computer and database. All company users are able to connect to all database servers.

Existing Process

The winery fills orders for individual customers, third-party distributors, and the company's retail stores.

When the employees at the stores need inventory from the winery, they place an order by using the process that all other customers use.

The retail stores and the winery maintain independent inventory data, which reflects the inventory that is physically present in each respective location.

Existing Supporting Infrastructure

All company locations are connected by a WAN that is approximately 60 percent utilized.

BUSINESS REQUIREMENTS

General Application Solution Requirements

All inventory database at the company locations must have an identical database schema. All servers will share a common data set for lookup tables, but the database at the winery and each database at the retail stores will contain independent, nonreplicated inventory data.

Inventory data is exported to independent wine distributors in an XML format. Distributors sometimes fail to import this data within a reasonable time, which results in inventory problems. In these situations, distributors often report that the XML data was improperly formatted. The application must retain all exported XML data so that the data can be examined for errors at any time.

All application reports will be created by using SQL Server Reporting Services (SSRS). Complex business rules control which data appears in each report, but the reporting infrastructure must not make ad hoc queries against the database when processing these rules. One planned new report will show the inventory from all stores in a single, consolidated report.

Store managers must immediately receive low-inventory warnings whenever the inventory of any product falls below 10 units. In addition, products whose inventory falls below a specified threshold must immediately be excluded from the exported XML data that is sent to distributors. This inventory threshold is specified in a database table. The inventory table currently contains a bit column. If this bit column is set to zero for a product, the product is excluded from the exported data. Currently this column is not updated consistently as inventory changes. It must be updated consistently.

All inventory queries must return a padded inventory value. This value must be based on a pad that is defined in the database. The padded value helps to accommodate inaccuracies in the company's physical inventory process. The pad is different for each product in inventory and is stored in the Product table.

An accurate inventory can be maintained for some products. These products have a pad of zero. The application must require all orders to be entered with consistent, accurate information.

Performance

SLAs specify maximum response times for each client application feature or function.

TECHNICAL REQUIREMENTS

Security

All access to data must be controlled by SQL Server database objects. Client applications cannot be relied upon to properly implement security.

Maintainability

The company has an existing workflow process for making application code changes. After a peer review and testing process, the release manager physically releases or deploys new code. All business logic must be implemented by code or objects that are contained within the SQL Server database servers or executed on the SQL Server database servers.

Interoperability

A separate legacy database connects to a weather-monitoring system at the vineyard. This database is accessible through Open Database Connectivity (ODBC), but the data is in a difficult-to-use format. The revised database application must periodically copy this weather-monitoring data into a new, easier-to-use table structure within the SQL Server database. This new table structure has already been defined.

Catalog data from suppliers of bottles, corks, and labels is updated frequently. This data is in a simple comma-separated values (CSV) format and needs to be imported into the SQL Server database. Rows that cause an error should be logged to a table for review.

Information about new orders that are sent from the winery or the stores must be delivered

immediately to a stand-alone shipping system, which is installed at the winery and at each store. This system provides a Component Object Model (COM) object for entering data into the system. This system can also read CSV files that contain new orders.

Case Study #9, Coho Vineyard & Winery (Questions)

Question: 1

You need to design a solution for deploying the database to new stores as they are opened. Your solution must minimize the number of steps that are required to make the database ready for use in the production environment. What should you do?

- A. Replicate the database schema and all lookup data from an existing server to new servers.
- B. Detach the database on an existing server, copy the database files to new servers, and attach the copies on the new servers. Reattach the database on the existing server.
- C. Use SQL Server Integration Services (SSIS) to copy the entire database from an existing server to new servers.
- D. Back up the database on an existing server, and restore the backup to new servers.

Answer: A

Question: 2

You need to ensure that products that have an inventory below the specified threshold are not included in the exported XML data that is sent to distributors. Your solution must require the minimum number of changes to any existing database objects. What should you do?

- A. Write a stored procedure that accepts all inventory changes and that removes products from the database when product inventory falls below the specified threshold.
- B. Write a trigger on the inventory table that updates the exclusion bit column whenever inventory changes are made.
- C. Write a SQL Server Agent job that updates the exclusion bit column based on current inventory.
- D. Write a user-defined function that updates the inventory table and the exclusion bit column, and ensure that all database objects that update inventory use the new function.

Answer: B

Question: 3

You need to design a report that provides consolidated inventory information from selected stores. The report must be designed so that it will display aggregated inventory from only those stores that are selected by the user. Your solution must minimize additional network utilization. What should you do?

- A. Use SQL Server Integration Services (SSIS) to copy all inventory data from all servers into a single temporary table. Design the report to use the temporary table as its data source and to filter out data from stores that are not selected.
- B. Implement replication so that all servers contain the inventory data from all other servers. Design the report to use the server that is at the same location as the user who is running the report.
- C. Create a parameterized stored procedure that queries the required inventory data and returns the results in a single result set. Design the report to use the stored procedure as its data source.
- D. On each server, create a view that displays that server's inventory data. Design a report that uses the view from each server as a data source for the report and filters out data from stores that are not selected.

Answer: C

Question: 4

You need to design a solution for importing weather-related data from the legacy system into the new weather database tables. What should you do?

- A. Write a SQL Server Integration Services (SSIS) package to import the data.
- B. Write a Windows Forms application to import the data.
- C. Use the bcp utility to import the data.
- D. Write a managed assembly to import the data.
- E. Write a view that uses linked servers to query the data from the ODBC database.

Answer: A

Question: 5

You need to design a solution for controlling changes to database objects on the SQL Server database servers. Your solution must comply with existing company policies and procedures. What should you do?

- A. Require developers to check in all code changes to a source control database.
- B. Create a single database user account that has permission to change database objects.
- C. Give one developer permissions to change database objects, and enable logging of those changes on the server.
- D. Disable replication of database objects between servers.

Answer: B

Question: 6

You need to ensure that proper business logic is used when data is provided to reports, so that the reports contain the correct data. What should you do?

- A. Write a Windows application that queries the appropriate data and builds a new table containing this data. Program SSRS to use the new table as a data source.
- B. Use SQL Server Integration Services (SSIS) to copy production tables into reporting tables on the same server. Program SSRS to obtain data from the reporting tables.
- C. Program SSRS to obtain data by using appropriate Transact-SQL queries.
- D. Write one or more parameterized stored procedures that return data. Program SSRS to use the stored procedures and the correct parameters to query data for reports.

Answer: D

Question: 7

To improve performance, you need to redesign the StoreReports view, which provides access to aggregated data. What should you do?

- A. Use a language that supports the .NET Framework to rewrite the view as a stored procedure.
- B. Use Transact-SQL to rewrite the view as a stored procedure.
- C. Add indexes to the view.
- D. Add indexes to the underlying tables that constitute the view.

Answer: D

Question: 8

You need to ensure that all orders are entered with complete, consistent, and accurate information. What should you do?

- A. Write a parameterized stored procedure. Modify any application or object that enters orders so that it will enter orders by using the new stored procedure.
- B. Write a COM object that enters orders directly into the appropriate tables. Modify any application or object that enters orders so that it will enter orders by using the new COM object.
- C. Write a managed assembly that enters orders directly into the appropriate tables. Modify any application or object that enters orders so that it will enter orders by using the new assembly.
- D. Modify the permissions of the tables that contain order information so that no end users have direct access to the tables.

Answer: A

Question: 9

You need to ensure that all newly entered orders are communicated to the shipping system. What should you do?

- A. Write a COM object that accepts all orders and inserts them directly into the appropriate database tables and into the shipping system.
- B. Create a CLR stored procedure that is used to enter all orders. Write the stored procedure to enter data into the shipping system by using the COM object.
- C. Create a SQL Server Integration Services (SSIS) package to export all orders into a CSV file that is readable by the shipping system. Schedule the package to run hourly.
- D. Write a trigger on the Order table that inserts the order data into the shipping system.

Answer: B

Question: 10

You need to ensure that store managers receive low-inventory e-mail messages. Your solution must minimize additional processing load on the SQL Server computers. What should you do?

- A. Write a Notification Services event that sends e-mail messages to store managers when lowinventory conditions occur for a product.
- B. Write an SSRS report listing all low-inventory products, and ensure that the report is sent by e-mail to each store manager.
- C. Write a SQL Server Agent job that sends low-inventory messages by e-mail to store managers.
- D. Write a trigger that runs whenever inventory is updated. Program the trigger to use the sp_OA family of stored procedures to launch a COM object that sends low-inventory messages by e-mail to store managers.

Answer: A

Question: 11

You need to ensure that the XML data that is exported to distributors can be reviewed for accuracy at any time. Your solution must create a minimal amount of additional data. What should you do?

- A. Create a stored procedure that generates the XML data, and rerun the stored procedure when the XML data needs to be reviewed.
- B. Create a SQL Server Integration Services (SSIS) package that generates the XML data, and rerun the package when the XML data needs to be reviewed.
- C. Store generated XML data in an XML column within a new archival table.
- D. Create a copy of the complete database each time the XML data is generated.

Answer: C

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