

# Microsoft MCSA Certification 70-768 Exam



> Vendor: Microsoft

> Exam Code: 70-768

> Exam Name: Developing SQL Data Models

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# Case Study #1 (QUESTION 1 - QUESTION 3) Background

Wide World Importers imports and sells clothing. The company has a multidimensional Microsoft SQL Server Analysis Services instance. The server has 80 gigabytes (GB) of available physical memory. The following installed services are running on the server:

- \* SQL Server Database Engine
- \* SQL Server Analysis Services (multidimensional)

The database engine instance has been configured for a hard cap of 50 GB, and it cannot be lowered. The instance contains the following cubes: SalesAnalysis, OrderAnalysis. Reports that are generated based on data from the OrderAnalysis cube take more time to complete when they are generated in the afternoon each day. You examine the server and observe that it is under significant memory pressure. Processing for all cubes must occur automatically in increments. You create one job to process the cubes and another job to process the dimensions. You must configure a processing task for each job that optimizes performance. As the cubes grown in size, the overnight processing of the cubes often do not complete during the allowed maintenance time window.

# Sales Analysis

The SalesAnalysis cube is currently being tested before being used in production. Users report that day name attribute values are sorted alphabetically. Day name attribute values must be sorted chronologically. Users report that they are unable to query the cube while any cube processing operations are in progress. You need to maximize data availability during cube processing and ensure that you process both dimensions and measures.

# Order Analysis

The OrderAnalysis cube is used for reporting and ad-hoc queries from Microsoft Excel. The data warehouse team adds a new table named Fact. Transaction to the cube. The Fact. Transaction table includes a column named Total Including Tax. You must add a new measure named Transactions ? Total Including Tax to the cube. The measure must be calculated as the sum of the Total Including Tax column across any selected relevant dimensions.

### **Finance**

The Finance cube is used to analyze General Ledger entries for the company.

### Requirements

You must minimize the time that it takes to process cubes while meeting the following requirements:

- The Sales cube requires overnight processing of dimensions, cubes, measure groups, and partitions.
- The OrderAnalysis cube requires overnight processing of dimensions only.
- The Finance cube requires overnight processing of dimensions only.

# **QUESTION 1**

# Drag and Drop Question

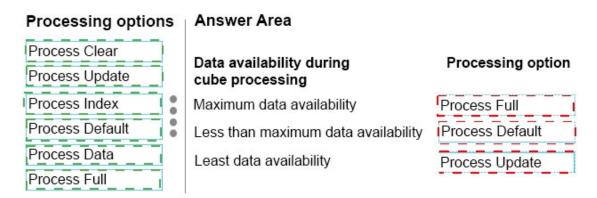
You need to resolve the issues that the users report. Which processing options should you use? To answer, drag the appropriate processing option to the correct location or locations. Each processing option may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.



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### Processing options Answer Area Process Clear Data availability during Processing option Process Update cube processing Process Index Maximum data availability Processing option Process Default Less than maximum data availability Processing option Process Data Least data availability Processing option Process Full

### **Answer:**



### **Explanation:**

Box1: Process Full

When Process Full is executed against an object that has already been processed, Analysis Services drops all data in the object, and then processes the object. This kind of processing is required when a structural change has been made to an object, for example, when an attribute hierarchy is added, deleted, or renamed.

Box 2: Process Default

Detects the process state of database objects, and performs processing necessary to deliver unprocessed or partially processed objects to a fully processed state. If you change a data binding, Process Default will do a Process Full on the affected object.

Box 3: Process Update

Forces a re-read of data and an update of dimension attributes. Flexible aggregations and indexes on related partitions will be dropped.

### **QUESTION 2**

You need to configure the server to optimize the afternoon report generation based on the OrderAnalysis cube. Which property should you configure?

- A. LowMemoryLimit
- B. VertiPaqPagingPolicy
- C. TotalMemoryLimit
- D. VirtualMemoryLimit

**Answer:** A



# **Explanation:**

LowMemoryLimit: For multidimensional instances, a lower threshold at which the server first begins releasing memory allocated to infrequently used objects. From scenario: Reports that are generated based on data from the OrderAnalysis cube take more time to complete when they are generated in the afternoon each day. You examine the server and observe that it is under significant memory pressure.

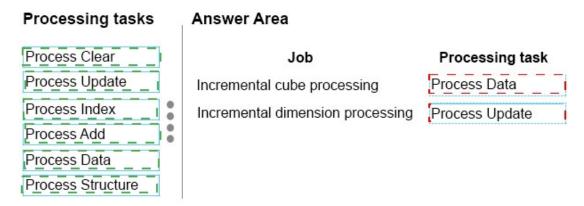
# **QUESTION 3**

Drag and Drop Question

You need to create the cube processing job and the dimension processing job. Which processing task should you use for each job? To answer, drag the appropriate processing tasks to the correct locations. Each processing task may be used once, more than once, or not at all. You may need to drag the split bar between panes or scroll to view content.

Processing tasks		Answer Area	
Process Clear		Job	Processing task
Process Update		Incremental cube processing	Processing task
Process Index	0	Incremental dimension processing	Processing task
Process Add			
Process Data			
Process Structure			

### **Answer:**



# **Explanation:**

Box 1: ProcessData

Processes data only without building aggregations or indexes. If there is data is in the partitions, it will be dropped before re-populating the partition with source data.

Box 2: Process Update

Forces a re-read of data and an update of dimension attributes. Flexible aggregations and indexes on related partitions will be dropped.

https://docs.microsoft.com/en-us/sql/analysis-services/multidimensional-models/processing-options-and-settings-analysis-services

# Case Study #2 (QUESTION 4 - QUESTION 6)



# **Background**

Wide World Importers has multidimensional cubes named SalesAnalysis and ProductSales. The SalesAnalysis cube is refreshed from a relational data warehouse. You have a Microsoft SQL Server Analysis Services instance that is configured to use tabular mode. You have a tabular data model named CustomerAnalysis.

# **Sales Analysis**

The SalesAnalysis cube contains a fact table named CoffeeSale loaded from a table named FactSale in the data warehouse. The time granularity within the cube is 15 minutes. The cube is processed every night at 23:00. You determine that the fact table cannot be fully processed in the expected time. Users have reported slow query response times. The SalesAnalysis model contains tables from a SQL Server database named SalesDB. You set the DirectQueryMode option to DirectQuery. Data analyst access data from a cache that is up to 24 hours old. Data analyst report performance issues when they access the SalesAnalysis model. When analyzing sales by customer, the total of all sales is shown for every customer, instead of the customer's sales value. When analyzing sales by product, the correct totals for each product are shown.

# **Customer Analysis**

You are redesigning the CustomerAnalysis tabular data model that will be used to analyze customer sales. You plan to add a table named CustomerPermission to the model. This table maps the Active Directory login of an employee with the CustomerId keys for all customers that the employee manages. The CustomerAnalysis data model will contain a large amount of data and needs to be shared with other developers even if a deployment fails. Each time you deploy a change during development, processing takes a long time. Data analysts must be able to analyze sales for financial years, financial quarters, months, and days. Many reports are based on analyzing sales by month.

### **Product Sales**

The ProductSales cube allows data analysts to view sales information by product, city, and time. Data analysts must be able to view ProductSales data by Year to Date (YTD) as a measure. The measure must be formatted as currency, associated with the Sales measure group, and contained in a folder named Calculations.

# Requirements

You identify the following requirements:

- Data available during normal business hours must always be up-to-date.
- Processing overhead must be minimized.
- Query response times must improve.
- $\mbox{All}$  queries that access the SalesAnalysis model must use cached data by default.
- Data analysts must be able to access data in near real time.

### **QUESTION 4**

# Drag and Drop Question

You need to configure the SalesAnalysis cube to correct the sales analysis by customer calculation. Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.



# Actions

# Answer Area

Configure a relationship between the Customer dimension and the Sales measure group. Use Month as the granularity.

Open the dimention editor, and open the Dimension Usage tab.

Configure a relationship between the Customer dimension and the Sales measure group. Use Day as the granularity.

Open the dimension editor for the Customer dimension.

Open the cube editor, and open the Dimension Usage tab.

Reprocess the Product dimension.

Reprocess the cube.

Deploy the project changes.





**Answer:** 



Actions	Answer Area	
Configure a relationship between the Customer dimension and the Sales measure group. Use Month as the granularity.	Open the cube editor, and open the Dimension Usage tab.	
Open the dimention editor, and open the Dimension Usage tab.	Configure a relationship between the Customer dimension and the Sales measure group. Use Day as the granularity.	
Configure a relationship between the Customer dimension and the Sales measure group. Use Day as the granularity.	Reprocess the cube.	$\triangle$
Open the dimension editor for the Customer dimension.	Deploy the project changes.	Ö
Open the cube editor, and open the Dimension Usage tab.		
Reprocess the Product dimension.		
Reprocess the cube.		
Deploy the project changes.		

# **Explanation:**

Step 1: Open the cube editor, and open the Dimension Usage tab.

Step 2: Configure a relationship between the Customer dimension and the Sales measure group. Use Day as the granularity. From scenario: The SalesAnalysis cube contains a fact table named CoffeeSale loaded from a table named FactSale in the data warehouse. The time granularity within the cube is 15 minutes. The cube is processed every night at 23:00. You determine that the fact table cannot be fully processed in the expected time. Users have reported slow query response times

Step 3: Reprocess the cube.

Step 4: Deploy the project changes.

# **QUESTION 5**

Drag and Drop Question

You need to configure the CoffeeSale fact table environment. Which four actions should you perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order. NOTE: More than one order of answer choices is correct. You will receive credit for any of the correct orders you select.



# Actions

Set the storage mode for the latest partition to ROLAP, and set the storage mode for all other partitions to MOLAP.

Alter the processing job to run every half during the day.

Alter the client application that queries the cube to query the dimensional data warehouse directly for current day data.

Set the storage mode for all pratitions to ROLAP.

Test that the cube meets the functional requirement for data currency and query performance.

Partition the CoffeSale fact table.

Set the storage mode for all partitions to HOLAP.

Alter the processing job to ensure that it rearranges the partition structure each evening.

### **Answer Area**



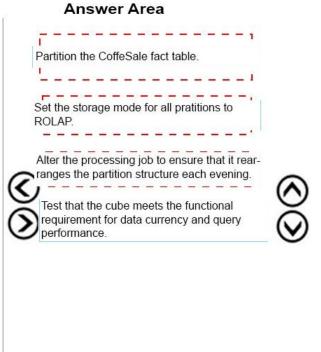


# Answer:



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# Actions Set the storage mode for the latest partition ito ROLAP, and set the storage mode for all other partitions to MOLAP. Alter the processing job to run every half during the day. Alter the client application that gueries the cube to guery the dimensional data warehouse directly for current day data. Set the storage mode for all pratitions to ROLAP. Test that the cube meets the functional requirement for data currency and query performance. Partition the CoffeSale fact table. Set the storage mode for all partitions to Alter the processing job to ensure that it rearranges the partition structure each evening.



### **Explanation:**

Step 1: Partition the CoffeSale facto table.

Step 2: Set the storage mode for all partitions to HOLAP. Partitions stored as HOLAP are smaller than the equivalent MOLAP partitions because they do not contain source data and respond faster than ROLAP partitions for queries involving summary data.

Step 3: Alter the processing job to ensure that it rearranges the partition structure each evening.

Step 4: Test that the cube meets the functional requirement for data currency and query performance. From scenario: Data analysts must be able to analyze sales for financial years, financial quarters, months, and days. Many reports are based on analyzing sales by month. The SalesAnalysis cube contains a fact table named CoffeeSale loaded from a table named FactSale in the data warehouse. The time granularity within the cube is 15 minutes. The cube is processed every night at 23:00. You determine that the fact table cannot be fully processed in the expected time. Users have reported slow query response times.

https://docs.microsoft.com/en-us/sql/analysis-services/multidimensional-models-olap-logical-cube-objects/partitions-partition-storage-modes-and-processing

### **QUESTION 6**

**Hotspot Question** 

You need to configure the project option settings to minimize deployment time for the CustomerAnalysis data model. What should you do? To answer, select the appropriate setting from each list in the answer area.



# **Answer Area**

# Location Setting Processing option ▼ Default<br/>Do not process<br/>Full Transactional deployment ▼ False<br/>True

### Answer:

# Answer Area

Location	Setting
Processing option	▼
	Default
	Do not process
	Full
Transactional deployment	
	False
	True

# **Explanation:**

Scenario:

Box 1, Processing option: Default

Process Default detects the process state of database objects, and performs processing necessary to deliver unprocessed or partially processed objects to a fully processed state. If you change a data binding, Process Default will do a Process Full on the affected object. Note: Processing Method This setting controls whether the deployed objects are processed after deployment and the type of processing that will be performed. There are three processing options:

- Default processing (default)
- Full processing
- None

Box 2, Transactional deployment: False

If this option is False, Analysis Services deploys the metadata changes in a single transaction, and deploys each processing command in its own transaction. From scenario: The CustomerAnalysis data model will contain a large amount of data and needs to be shared with other developers even if a deployment fails. Each time you deploy a change during development, processing takes a long time.



https://docs.microsoft.com/en-us/sql/analysis-services/multidimensional-models/deployment-script-files-specifying-processing-options

# Case Study #3 (QUESTION 7 - QUESTION 9) Background

You are a developer for a Seattle-based company. The company is expanding globally. Many company employees speak fluent Mandarin and read Simplified Chinese. You have six tabular data models that are deployed to two instances of Microsoft SQL Server Analysis Services (SSAS). Users report that the query takes a long time to complete. You are planning the disk space allocations for a new Microsoft SQL Server Analysis Services deployment. You plan to move several relational data file databases to the new SSAS instance. The databases require a total of 10 GB of disk space. You also plan to deploy Cubes and Aggregations and use Object Processing. Cubes will have small fact tables and few dimension members. No unnecessary aggregations will be created. You plan to process an entire cube in a single transaction.

### **Data Models**

One of the data models is named CustomerSales. This data model contains eight tables. The model includes a table named Sales that defines several measures, including a measure named PriorYearSales. The PriorYearSales measure is referenced by other measures, and is not intended to be analyzed directly by users. You must translate the metadata for all fata the CustomerSales data model to Simplifies Chinese. Team members from the Shanghai office assist with identifying appropriate translations. A data model named OrderAnalysis is deployed to one of the SSAS instances. Order data is loaded into the OrderAnalysis data as part of an overnight process. You observe that the model is not up-to-date. The business analysis team uses a variety of client applications to issue MDX queries against OrderAnalysis. Order data must be completely up-to-date. The OrderAnalysis model has two user-defined hierarchies that are defined in a table named Order. New customers are only added once per day. The overnight process is sufficiently up-to-date for the Customer data to provide optimal performance while achieving the data currency goals whenever possible.

# Databases

You deploy a database named DB1 to an SSAS instance as a project by using SQL Server Data Tools. Data analysts report that they cannot access near real time data from the SSAS SalesAnalysis model from DB1. You discover that the project has been deployed with the Direct Query Mode option set to OFF. Most queries that use the SalesAnalysis data model use data from a table named FactInternetSales that is 20 gigabyte (GB) in size. Cached data must be available for the FactInternetSales table. All queries accessing the SalesAnalysis model must be executed in near real time.

# **QUESTION 7**

A database named DB2 uses the InMemory query mode. Users frequently run the following query:

You need to ensure no users see the PriorYearSales measure in the field list for the Sales table. What should you do?

A. Create a perspective, and ensure that the PriorYearSales measure is not added to the perspective. Ensure that users connect to the model by using the perspective.



- B. Set the Display Folder property for PriorYearSales toHidden.
- C. Remove the PriorYearSales measure from the default field set of the Sales table.
- D. Create a role using Read permissions, and define a DAX expression to filter out the PriorYearSales measure. Add all users to the role.

# Answer: A Explanation:

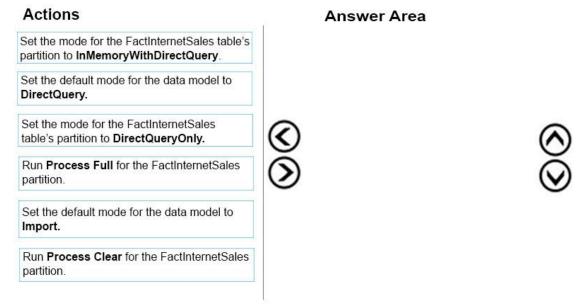
Using perspectives in the data model might help you expose a subset of tables, columns, and measures that are useful for a particular type of analysis. Usually, every user needs only a subset of data you create, and showing him or her the model through perspectives can offer a better user experience. From scenario: The PriorYearSales measure is referenced by other measures, and is not intended to be analyzed directly by users.

### **QUESTION 8**

**Drag and Drop Question** 

A database named DB2 uses the InMemory query mode. Users frequently run the following query:

You need to reconfigure the SSAS instance that hosts DB1. Which three actions should perform in sequence? To answer, move the appropriate actions from the list of actions to the answer area and arrange them in the correct order.



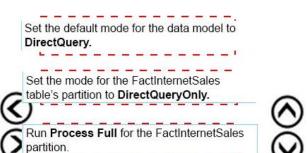
### Answer:



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Answer Area

# Set the mode for the FactInternetSales table's partition to InMemoryWithDirectQuery. Set the default mode for the data model to DirectQuery. Set the mode for the FactInternetSales table's partition to DirectQueryOnly. Run Process Full for the FactInternetSales partition. Set the default mode for the data model to Import.



# **Explanation:**

partition

Step 1: Set the default mode for the data model to DirectQuery. You discover that the project has been deployed with the Direct Query Mode option set to OFF.

Step 2: Set the mode for the FactInternetSales table's partition to DirectQueryOnly. Initially, even DirectQuery models are always created in memory. The default query mode for the workspace database is also set toDirectQuery with In-Memory. This hybrid working mode lets you use the cache of imported data for improved performance during the model design process, while validating the model against DirectQuery requirements. From scenario: Most queries that use the SalesAnalysis data model use data from a table named FactInternetSales that is 20 gigabyte (GB) in size. Cached data must be available for the FactInternetSales table. All queries accessing the SalesAnalysis model must be executed in near real time.

Step 3: Run Process Full for the FactInternetSales partition. When Process Full is executed against an object that has already been processed, Analysis Services drops all data in the object, and then processes the object. This kind of processing is required when a structural change has been made to an object, for example, when an attribute hierarchy is added, deleted, or renamed

### **QUESTION 9**

**Hotspot Question** 

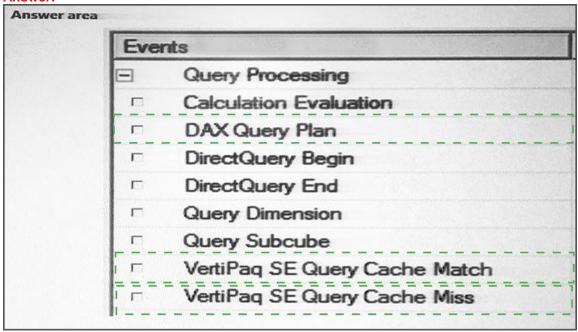
A database named DB2 uses the InMemory query mode. Users frequently run the following query:

You need to configure SQL Server Profiler to determine why the query is performing poorly. Which three event should you monitor on the SQL Server Profiler trace events configuration page? To answer, select the appropriate options in the answer area.



Eve	nts	
□ Query Processing		
	Calculation Evaluation	
	DAX Query Plan	
	DirectQuery Begin	
	DirectQuery End	
	Query Dimension	
	Query Subcube	
г	VertiPaq SE Query Cache Match	
Π.	VertiPaq SE Query Cache Miss	

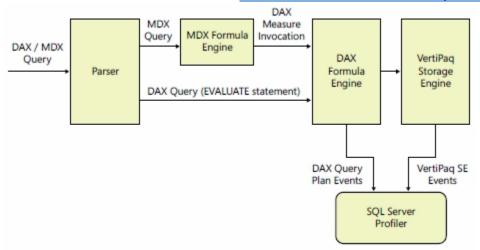
### **Answer:**



# **Explanation:**

By using SQL Profiler, you can intercept two classes of trace events from Analysis Services, DAX Query Plan and DirectQuery events, both generated by the DirectQuery engine. Here, in this scenario we have a DAX Query. DAX Query Plan events are generated by the DAX formula. By using the In-Memory mode, you store a copy of data in the xVelocity (VertiPaq) storage engine. Figure: This is how a query is executed by using In-Memory mode.





### **QUESTION 10**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You have an existing multidimensional cube that provides sales analysis. The users can slice by date, product, location, customer, and employee. The management team plans to evaluate sales employee performance relative to sales targets. You identify the following metrics for employees. You need to implement the KPI based on the Status expression.

Solution: You design the following solution:

```
Case
    WHEN ([Measures].[Total Including Tax]) / (SUM([Date].{Calendar Year].Cur-
rentMember.Lag(1), [Measures].[Total Including Tax])) > 0.9
    THEN 1
    WHEN ([Measures].[Total Including Tax]) / (SUM([Date].{Calendar Year].Cur-
rentMember.Lag(1), [Measures].[Total Including Tax])) <= 0.9
    AND
        [Measures].[Total Including Tax]) / (SUM([Date].{Calendar Year].Cur-
rentMember.Lag(1), [Measures].[Total Including Tax])) > 0.74
    THEN 0
    ELSE -1
END
```

Does the solution meet the goal?

A. Yes

B. No

### **Answer:** B

# **QUESTION 11**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You deploy a tabular data model to an instance of Microsoft SQL Server Analysis Services (SSAS). The model uses an in-memory cache to store and query data. The data set is already the same size as the available RAM on the server. Data volumes are likely to continue to increase rapidly. Your data model contains multiple calculated tables. The data model must begin processing each day at 2:00 and processing should be complete by 4:00 the same day. You observe that the data



processing operation often does not complete before 7:00. This is adversely affecting team members. You need to improve the performance.

Solution: Install solid-state disk drives to store the tabular data model.

Does the solution meet the goal?

A. Yes

B. No

# Answer: B Explanation:

By default, tabular models use an in-memory cache to store and query data. When tabular models query data residing in-memory, even complex queries can be incredibly fast. However, there are some limitations to using cached data. Namely, large data sets can exceed available memory, and data freshness requirements can be difficult if not impossible to achieve on a regular processing schedule. DirectQuery overcomes these limitations while also leveraging RDBMS features making query execution more efficient.

With DirectQuery:

- Data is up-to-date, and there is no extra management overhead of having to maintain a separate copy of the data (in the in-memory cache). Changes to the underlying source data can be immediately reflected in queries against the data model.
- Datasets can be larger than the memory capacity of an Analysis Services server.
- DirectQuery can take advantage of provider-side query acceleration, such as that provided by xVelocity memory optimized column indexes.
- Security can be enforced by the back-end database, using row-level security features from the database (alternatively, you can use row-level security in the model via DAX).
- If the model contains complex formulas that might require multiple queries, Analysis Services can perform optimization to ensure that the query plan for the query executed against the back-end database will be as efficient as possible.

https://docs.microsoft.com/en-us/sql/analysis-services/tabular-models/directquery-mode-ssas-tabular

# **QUESTION 12**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

A company has an e-commerce website. When a customer places an order, information about the transaction is inserted into tables in a Microsoft SQL Server relational database named OLTP1. The company has a SQL Server Analysis Services (SSAS) instance that is configured to use Tabular mode. SSAS uses data from OLTP1 to populate a data model. Sales analysts build reports based on the SSAS model. Reports must be able to access data as soon as it is available in the relational database. You need to configure and deploy an Analysis Services project to the Analysis Services instance that allows near real-time data source access.

Solution: In the Deployment Option property for the report, you set the Query Mode to InMemory. Does the solution meet the goal?

A. Yes

B. No

# Answer: B Explanation:

With InMemory the queries can use the cache only. https://msdn.microsoft.com/en-us/library/hh230898(v=sql.120).aspx

### **QUESTION 13**



Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You have a Microsoft SQL Server Analysis Services (SSAS) multidimensional database that stores customer and order data for customers in the United States only. The database contains the following objects:

Туре	Name	Content
Measure	Reseller Average Unit Price	the average unit price of sales
Dimension	Geography	the location of resellers
Hierarchy	Geography.State-Province	the state or province where the reseller is located
Member	Geography.State-Province.&[WA]&[US], Geography.State-Province.&[GA]&[US]	a specific state and country/region

You must create a KPI named Large Sales Target that uses the Traffic Light indicator to display status. The KPI must contain:

Expression type	Description the reseller average unit price	
Value		
Goal	the average reseller average unit price for US states other than Colorado (CO)	
Status	a green indicator if the value is at least 10 percent above the goal, a red indicator if the value is 15 percent or more below the goal, and a yellow indicator for other values	
Trend	the value for trend is always 0	

You need to create the KPI.

Solution: You set the value of the Status expression to:

Does the solution meet the goal?

A. Yes

B. No

**Answer:** B

### **QUESTION 14**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You have a Microsoft SQL Server Analysis Services (SSAS) multidimensional database that stores customer and order data for customers in the United States only. The database contains the following objects:



Туре	Name	Content
Measure Reseller Average Unit Price		the average unit price of sales
Dimension	Geography	the location of resellers
Hierarchy	Geography.State-Province	the state or province where the reseller is located
Member	Geography.State-Province.&[WA]&[US], Geography.State-Province.&[GA]&[US]	a specific state and country/region

You must create a KPI named Large Sales Target that uses the Traffic Light indicator to display status. The KPI must contain:

Expression type	Description	
Value	the reseller average unit price	
Goal	the average reseller average unit price for US states other than Colorado (CO)	
Status	a green indicator if the value is at least 10 percent above the goal, a red indicator if the value is 15 percent or more below the goal, and a yellow indicator for other values	
Trend	the value for trend is always 0	

You need to create the KPI.

Solution: You set the value of the Status expression to:

Does the solution meet the goal?

- A. Yes
- B. No

### Answer: B

# **QUESTION 15**

You are responsible for installing new database server instances. You must install Microsoft SQL Server Analysis Services (SSAS) to support deployment of the following projects. You develop both projects by using SQL Server Data Tools. You need to install the appropriate services to support both projects. Which two actions should you perform? Each correct answer presents part of the solution.

- A. Install one tabular instance of SSAS and enable the Data Mining Extensions.
- B. Install one multidimensional instance of SSAS.
- C. Install one tabular instance of SSAS.
- D. Install a multidimensional instance and a Power Pivot instance of SSAS on the same server.
- E. Install two separate tabular instances of SSAS.

**Answer: BC** 



# **Explanation:**

Analysis Services can be installed in one of three server modes: Multidimensional and Data Mining (default), Power Pivot for SharePoint, and Tabular.

https://docs.microsoft.com/en-us/sql/analysis-services/comparing-tabular-and-multidimensional-solutions-ssas

### **QUESTION 16**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You have a Microsoft SQL Server Analysis Services (SSAS) multidimensional database that stores customer and order data for customers in the United States only. The database contains the following objects:

Type	Name	Content
Measure	Reseller Average Unit Price	the average unit price of sales
Dimension	Geography	the location of resellers
Hierarchy	Geography.State-Province	the state or province where the reseller is located
Member	Geography.State-Province.&[WA]&[US], Geography.State-Province.&[GA]&[US]	a specific state and country/region

You must create a KPI named Large Sales Target that uses the Traffic Light indicator to display status. The KPI must contain:

Expression type	Description	
Value	the reseller average unit price	
Goal	the average reseller average unit price for US states other than Colorado (CO)	
Status	a green indicator if the value is at least 10 percent above the goal, a red indicator if the value is 15 percent or more below the goal, and a yellow indicator for other values	
Trend	the value for trend is always 0	

You need to create the KPI.

Solution: You set the value of the Status expression to:

Does the solution meet the goal?

A. Yes B. No

**Answer:** A

### **QUESTION 17**



Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

A company has an e-commerce website. When a customer places an order, information about the transaction is inserted into tables in a Microsoft SQL Server relational database named OLTP1. The company has a SQL Server Analysis Services (SSAS) instance that is configured to use Tabular mode. SSAS uses data from OLTP1 to populate a data model. Sales analysts build reports based on the SSAS model. Reports must be able to access data as soon as it is available in the relational database. You need to configure and deploy an Analysis Services project to the Analysis Services instance that allows near real-time data source access.

Solution: In the Deployment Option property for the report, you set the Query Mode to InMemory with DirectQuery.

Does the solution meet the goal?

- A. Yes
- B. No

# Answer: B Explanation:

With In Memory with DirectQuery: Queries use the cache by default, unless otherwise specified in the connection string from the client.

https://msdn.microsoft.com/en-us/library/hh230898(v=sql.120).aspx

### **QUESTION 18**

Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution. Determine whether the solution meets the stated goals.

You have an existing multidimensional cube that provides sales analysis. The users can slice by date, product, location, customer, and employee. The management team plans to evaluate sales employee performance relative to sales targets. You identify the following metrics for employees. You need to implement the KPI based on the Status expression.

Solution: You design the following solution:

```
Case

WHEN KpiValue ("Employee Sales") / KpiGoal("Employee Sales") >= .90

THEN 1

WHEN KpiValue ("Employee Sales") / KpiGoal("Employee Sales") < .90

AND

KpiValue ("Employee Sales") / KpiGoal("Employee Sales") > .74

THEN 0

ELSE -1

END
```

Does the solution meet the goal?

- A. Yes
- B. No

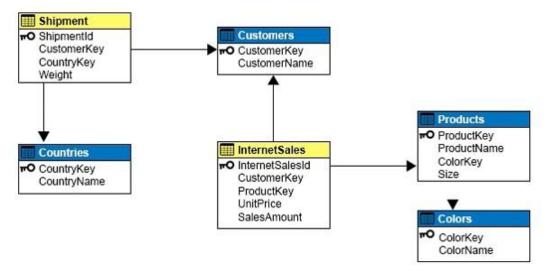
### **Answer:** A

### **QUESTION 19**

Note: This question is part of a series of questions that use the same or similar answer choices. An answer choice may be correct for more than one question in the series. Each question is independent of the other questions in this series. Information and details provided in a question apply only to that question.



You have a Microsoft SQL Server Analysis Services (SSAS) instance that is configured to use multidimensional mode. You create the following cube:



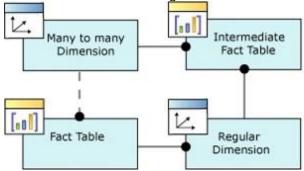
You need to create a new dimension that allows users to list shipments by the country where the product is shipped. Which relationship type should you use between the Shipment table and the new dimension?

- A. no relationship
- B. regular
- C. fact
- D. referenced
- E. many-to-many
- F. data mining

# Answer: E Explanation:

# Many to Many Dimension Relationships.

In most dimensions, each fact joins to one and only one dimension member, and a single dimension member can be associated with multiple facts. In relational database terminology, this is referred to as a one-to-many relationship. However, it is frequently useful to join a single fact to multiple dimension members. For example, a bank customer might have multiple accounts (checking, saving, credit card, and investment accounts), and an account can also have joint or multiple owners. The Customer dimension constructed from such relationships would then have multiple members that relate to a single account transaction.



https://docs.microsoft.com/en-us/sql/analysis-services/multidimensional-models-olap-logical-cube-objects/dimension-relationships

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### **QUESTION 20**

### **Hotspot Question**

You are deploying a multidimensional Microsoft SQL Server Analysis Services (SSAS) project. You add two new role-playing dimensions named Picker and Salesperson to the cube. Both of the cube dimensions are based upon the underlying dimension named Employee in the data source view. Users report that they are unable to differentiate the Salesperson attributes from the Picker attributes. You need to ensure that the Salesperson and Picker attributes in each dimension use unique names. In the table below, identify an option that you would use as part of the process to alter the names of the attributes for each of the dimensions. NOTE: Make only one selection in each column.

Option	Dimension Picker	Dimension Salesperson
Create a second data source view.	0	0
Rename the Employee dimension.	0	0
Create a new named query for both dimensions.	0	0
Answer:		
Answer Area Option	Dimension Picker	Dimension Salesperson
Create a second data source view.	0	0
Rename the Employee dimension.	0	0
Create a new named query for both dimensions.	[0]	

# **Explanation:**

A named query is a SQL expression represented as a table. In a named query, you can specify an SQL expression to select rows and columns returned from one or more tables in one or more data sources. A named query is like any other table in a data source view (DSV) with rows and relationships, except that the named query is based on an expression. A named query lets you extend the relational schema of existing tables in DSV without modifying the underlying data source. https://docs.microsoft.com/en-us/sql/analysis-services/multidimensional-models/define-named-queries-in-a-data-source-view-analysis-services

### **QUESTION 21**

You are building a Microsoft SQL Server Analysis Services multidimensional model over a SQL Server database. In a cube named OrderAnalysis, there is a standard cube dimension named Stock Item. This dimension has the following attributes:

- Users report that the attributes Stock Item Key and Photo are distracting and are not providing any value.
- They have asked for the attributes to be removed. However, these attributes are needed by other cubes.



You need to hide the specified attributes from the end users of the OrderAnalysis cube. You do not want to change the structure of the dimension. Which change should you make to the properties for the Stock Item Key and Photo attributes?

- A. Set the AttributeHierarchyVisible property to False.
- B. Set the AttributeHierarchyEnabledproperty to False.
- C. Set the AttributeVisibility property to Hidden.
- D. Set the Usage property to Regular.
- E. Set the AttributeHierarchyDisplayFolder property to Hidden.

# Answer: A Explanation:

The value of the AttributeHierarchyEnabled property determines whether an attribute hierarchy is created. If this property is set to False, the attribute hierarchy is not created and the attribute cannot be used as a level in a user hierarchy; the attribute hierarchy exists as a member property only. However, a disabled attribute hierarchy can still be used to order the members of another attribute. If the value of the AttributeHierarchyEnabled property is set to True, the value of the AttributeHierarchyVisible property determines whether the attribute hierarchy is visible independent of its use in a user-defined hierarchy.

https://technet.microsoft.com/en-us/library/ms166717(v=sql.110).aspx

### **QUESTION 22**

You are optimizing a Microsoft SQL Server Analysis Services (SSAS) multidimensional model over a SQL Server database. You have a table named City which has several dimensions that do not contain a space in their names. One dimension is named SalesTerritory rather than Sales Territory. You need to ensure that Report developers can drag the attribute name to the report rather than having to re-label the attributes by implementing spaces. You must minimize administrative effort and not break any upstream processes. What should you do?

- A. In the SQL Server database, run the system procedure sp\_rename to rename the columns in the base tables with the target name.
- B. In SQL Server Management Studio, navigate to the City table, expand the columns, press F2, and rename the columns in the base tables.
- C. In the SQL Server database, implement a SYNONYM.
- D. In the SQL Server database, implement a view over the City table that aliases the columns in the tables.

### Answer: D

# **QUESTION 23**

Note: This question is part of a series of questions that use the same or similar answer choices. An answer choice may be correct for more than one question in the series. Each question is independent of the other questions in this series. Information and details provided in a question apply only to that question.

You administer a Microsoft SQL Server Analysis Services (SSAS) tabular model for a travel agency that specializes in vacation packages. Vacation bookings and packages are stored in a SQL Server database. You use the model as the basis for customer emails that highlight vacation packages that are currently underbooked, or projected to be underbooked. The company plans to incorporate cruise ship vacation packages. Cruise ship vacation packages include new features such as region availability and cruise line specialties that require changes to the tabular model. You must ensure that the tabular model reflects the new vacation packages. You need to configure the tabular data model. What should you do?

A. Ensure that DirectQuery is enabled for the model.



- B. Ensure that DirectQuery is disabled for the model.
- C. Ensure that the Transactional Deployment property is set to True.
- D. Ensure that the Transactional Deployment property is set to False.
- E. Process the model in Process Full mode.
- F. Process the model in Process Data mode.
- G. Process the model in Process Defrag mode.

# Answer: E Explanation:

Process Full processes an Analysis Services object and all the objects that it contains. When Process Full is executed against an object that has already been processed, Analysis Services drops all data in the object, and then processes the object. This kind of processing is required when a structural change has been made to an object, for example, when an attribute hierarchy is added, deleted, or renamed.

### **QUESTION 24**

**Hotspot Question** 

A company has a multidimensional cube that is used for analyzing sales data. You add a new measure named Transaction ?Total Including Tax and include the Supplier, Payment Method, and Transaction Type dimensions in the data model. The Transaction ?Total Including Tax measure uses the existing Customer and Date dimensions. When users have queried the new measure in the past, they saw results as shown in the existing query output exhibit. (Click the Exhibit button.)

E	disting query output			
1	Row Labels -	Total Including Tax	Transactions - Total Including Tax	
2	⊜Americas	\$198,043,439.45	\$2,988,689.65	
3	■ North America	\$198,043,439.45	\$2,988,689.65	
4	<b>⊕United States</b>	\$198,043,439.45	\$2,988,689.65	
5	⊕ External	\$2,529,291.07	\$2,988,689.65	
6	⊕ Far West	\$22,855,077.65	\$2,988,689.65	
7	⊕ Great Lakes	\$23,169,368.53	\$2,988,689.65	
8	⊕ Mideast	\$29,613,677.16	\$2,988,689.65	
9	⊕ New England	\$8,847,961.54	\$2,988,689.65	
10	@ Plains	\$26,796,087.55	\$2,988,689.65	
11	® Rocky Mountain	\$12,734,834.76	\$2,988,689.65	
12	<b>⊕</b> Southeast	\$43,992,233.48	\$2,988,689.65	
13	<b>®</b> Southwest	\$27,504,907.71	\$2,988,689.65	
14	⊕N/A		\$2,988,689.65	
15	Grand Total	\$198,043,439.45	\$2,988,689.65	

The overall total is incorrectly displayed on every row. In addition, the results are no longer formatted correctly. The query result should appear as shown in the desired query output exhibit. (Click the Exhibit button.)



D	esired query output		the same of the sa
1		Total Including Tax	<b>Transactions - Total Including Tax</b>
2	<b>⊕</b> Americas	\$198,043,439.45	
3	■ North America	\$198,043,439.45	
4	<b>⊞ United States</b>	\$198,043,439.45	
5	<b>®External</b>	\$2,529,291.07	
6	⊕ Far West	\$22,855,077.65	
7	⊕ Great Lakes	\$23,169,368.53	
8	<b>® Mideast</b>	\$29,613,677.16	
9	® New England	\$8,847,961.54	
10	@ Plains	\$26,796,087.55	
11	® Rocky Mountain	\$12,734,834.76	
12	<b>⊞Southeast</b>	\$43,992,233.48	
13	● Southwest	\$27,504,907.71	
14	Grand Total	\$198,043,439.45	\$2,988,689.65

You need to ensure the table is displayed correctly. What should you do? Use drop-down menus to select the answer choice that answers each question based on the information presented in the graphic. NOTE: Each correct selection is worth one point.

# **Answer Area**

### Question Answer choice

You need to ensure that queries for the new measure return the expected results. What should you do?

Set the value of the IgnoreUnrelatedDimensions property to True.
Set the value of the IgnoreUnrelatedDimensions property to False.
Set the value of the ErrorConfiguration property to Custom.
Enter a custom MeasureExpression property on the measure.

You need to ensure that the value of the new measure is formatted appropriately as USD. What should you do?



### Answer:



# **Answer Area**

### Question Answer choice You need to ensure that queries for the new measure return the Set the value of the IgnoreUnrelatedDimensions property to True. expected results. What should you Set the value of the IgnoreUnrelatedDimensions property to False. do? Set the value of the ErrorConfiguration property to Custom. Enter a custom MeasureExpression property on the measure. You need to ensure that the value of the new measure is Set the property FormatString = "#,##0.00;-#,##0.00" formatted appropriately as Set the property FormatString = "#,##0.00 %;-#,##0.00 %" USD. What should you do? Set the property FormatString = \$#,##0.00;-\$#,##0.00"

# **Explanation:**

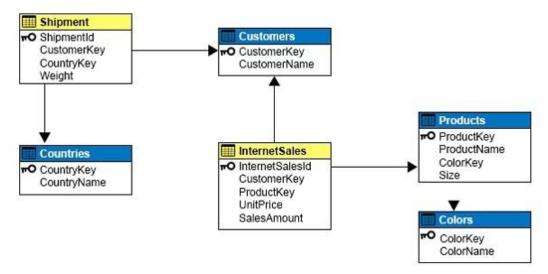
Box 1: Enter a custom MeasureExpression property on the measure.

Calculated measures use MDX expressions to supply their values, instead of binding to columns in a data source. The Expression property contains the MDX expression used to supply the values for a Measure only if the Measure is a calculated measure. Otherwise, this property contains an empty string ("").

### **QUESTION 25**

Note: This question is part of a series of questions that use the same or similar answer choices. An answer choice may be correct for more than one question in the series. Each question is independent of the other questions in this series. Information and details provided in a question apply only to that question.

You have a Microsoft SQL Server Analysis Services (SSAS) instance that is configured to use multidimensional mode. You create the following cube:



Users need to be able to analyze sales by product and color. You need to create the dimension. Which relationship type should you use between the InternetSales table and the new dimension?

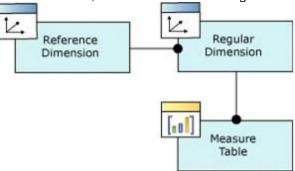
# A. no relationship



- B. regular
- C. fact
- D. referenced
- E. many-to-many
- F. data mining

# **Answer:** D **Explanation:**

A reference dimension relationship between a cube dimension and a measure group exists when the key column for the dimension is joined indirectly to the fact table through a key in another dimension table, as shown in the following illustration.



A reference dimension relationship represents the relationship between dimension tables and a fact table in a snowflake schema design. When dimension tables are connected in a snowflake schema, you can define a single dimension using columns from multiple tables, or you can define separate dimensions based on the separate dimension tables and then define a link between them using the reference dimension relationship setting. The following figure shows one fact table named InternetSales, and two dimension tables called Customer and Geography, in a snowflake schema.



You can create two dimensions related to the InternetSales measure group: a dimension based on the Customer table, and a dimension based on the Geography table. You can then relate the Geography dimension to the InternetSales measure group using a reference dimension relationship using the Customer dimension.

# **QUESTION 26**

Hotspot Question

You are a database administrator in a company that uses Microsoft SharePoint Server for all intranet sites. You are responsible for the installation of new database server instances. You must install Microsoft SQL Server Analysis Server (SSAS) to support deployment of the following projects. You develop both projects by using SQL Server Data Tools. You need to install the appropriate services to support both projects. What should you do? In the table below, select the appropriate services for each project. NOTE: Make only one selection in each column. Each correct selection is worth one point.



# **Answer Area**

Action	Project1	Project2
Install one tabular instance of SSAS.	0	0
Install one multidimensional instance of SSAS.	0	0
Install a Power Pivot instance of SSAS.	0	0
Install two separate tabular instances of SSAS.	0	0

# Answer:

# **Answer Area**

Action	Project1	Project2
Install one tabular instance of SSAS.	0	0
Install one multidimensional instance of SSAS.		
Install a Power Pivot instance of SSAS.	0	0
Install two separate tabular instances of SSAS.	0	0

# **Explanation:**

Analysis Services can be installed in one of three server modes: Multidimensional and Data Mining (default), Power Pivot for SharePoint, and Tabular.

# **QUESTION 27**

You are a business analyst for a retail company that uses a Microsoft SQL Server Analysis Services (SSAS) multidimensional database for reporting. The database contains the following objects:

Туре	Name	Content
Measure	Internet Sales Amount	online sales data
Dimension	Date	the date of sales
Hierarchy	Date.Calendar.Calendar Year	the calendar year of the sale
Hierarchy	Date.Calendar.Mount	the month of the sale

You must create a report that shows, for each month, the Internet sales for that month and the total Internet sales for the calendar year up to and including the current month. You create the following MDX statement (Line numbers are included for reference only):



```
01
02 SELECT
03 {([Measures].[Internet Sales Amount]), [Measures].[Goal]} on 0,
04 {[Date].[Calendar].[Month].Members) on 1
05 FROM [Adventure Works];
```

You need to complete the MDX statement to return data for the report. Which MDX segment should you use in line 01?

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# Answer: B Explanation:

The following example returns the sum of the Measures. [Order Quantity] member, aggregated over the first eight months of calendar year 2003 that are contained in the Date dimension, from the Adventure Works cube.

```
Copy
```

```
WITH MEMBER [Date].[Calendar].[First8Months2003] AS Aggregate(
PeriodsToDate(
[Date].[Calendar].[Calendar Year],
[Date].[Calendar].[Month].[August 2003]
)
)
SELECT
[Date].[Calendar].[First8Months2003] ON COLUMNS,
[Product].[Category].Children ON ROWS
FROM
[Adventure Works]
WHERE
[Measures].[Order Quantity]
https://docs.microsoft.com/en-us/sql/mdx/aggregate-mdx
```

# **QUESTION 28**

Note: This question is part of a series of questions that use the same or similar answer choices. An answer choice may be correct for more than one question in the series. Each question is independent of the other questions in this series. Information and details provided in a question apply only to that question.

You are developing Microsoft SQL Server Analysis Services (SSAS) tabular model. The model must meet the following requirements. You need to configure model. What should you do?

- A. Ensure that DirectQuery is enabled for the model.
- B. Ensure that DirectQuery is disabled for the model.
- C. Ensure that the Transactional Deployment property is set to True.
- D. Ensure that the Transactional Deployment property is set to False.
- E. Process the model in Process Full mode.
- F. Process the model in Process Data mode.
- G. Process the model in Process Defrag mode.

# **Answer:** A **Explanation:**

DAX originally emerged from a Power Pivot add-in for Excel, as a formula language extension for creating calculated columns and measures for data analysis (which are also integral elements of



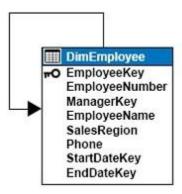
one SSAS Tabular model database, too), but when Microsoft added support for DAX queries in SQL Server 2012, BI experts started "daxing" data from Tabular model databases. That trend continues, because of simplicity and fast query execution (related to DirectQuery mode in SSAS Tabular).

https://www.sqlshack.com/query-ssas-tabular-model-database-using-dax-functions/

### **QUESTION 29**

**Hotspot Question** 

You have a Microsoft SQL Server Analysis Services (SSAS) multidimensional project. You are developing a dimension that uses data from the following table:



The ManagerKey column defines a foreign key constraint that references the EmployeeKey column. The table stores employee history information by using slowly changing dimensions (SCD). Changes to EmployeeName, Phone, or ManagerKey are managed as SCD Type 1 changes. Changes to SalesRegion are managed as SCD Type 2 changes. You create the following attributes, and set the KeyColumns and NameColumn properties to the columns listed in the table below:

Attribute	KeyColumns	NameColumn
Employee	EmployeeKey	EmployeeName
Employee Number	EmployeeNumber	
Phone	Phone	
Manager	ManagerKey	
Sales Region	SalesRegion	

You need to add a parent-child hierarchy to the dimension to enable navigating the organization hierarchy. In the table below, identify the attribute that you must use for each attribute usage type. NOTE: Make only one selection in each column.

# **Answer Area**

Attribute	Key	Parent
Employee	0	0
Employee Number	0	0
Manager	0	0
Phone	0	0
Sales Region	0	0

### Answer:

# **Answer Area**

Attribute	Key	Parent
Employee	0	
Employee Number	0	0
Manager		0
Phone	0	0
Sales Region	0	0

### **Explanation:**

The ManagerKey column, the Manager attribute, defines a foreign key constraint that references the EmployeeKey column, the Employee attribute.

### **QUESTION 30**

Note: This question is part of a series of questions that present the same scenario. Each



question in the series contains a unique solution. Determine whether the solution meets the stated goals.

A company has an e-commerce website. When a customer places an order, information about the transaction is inserted into tables in a Microsoft SQL Server relational database named OLTP1. The company has a SQL Server Analysis Services (SSAS) instance that is configured to use Tabular mode. SSAS uses data from OLTP1 to populate a data model. Sales analysts build reports based on the SSAS model. Reports must be able to access data as soon as it is available in the relational database. You need to configure and deploy an Analysis Services project to the Analysis Services instance that allows near real-time data source access.

Solution: In the Deployment Option property for the report, you set the Query Mode to DirectQuery with InMemory.

Does the solution meet the goal?

A. Yes

B. No

# Answer: A Explanation:

With DirectQuerywithInMemory mode the queries use the relational data source by default, unless otherwise specified in the connection string from the client. https://msdn.microsoft.com/en-us/library/hh230898(v=sql.120).aspx

### **QUESTION 31**

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