Exam : **DP-203**

Title : Data Engineering on Microsoft Azure

Vendor : Microsoft

Version : V13.75

NO.1 You need to design a data retention solution for the Twitter teed data records. The solution must meet the customer sentiment analytics requirements.
Which Azure Storage functionality should you include in the solution?
A. time-based retention
B. change feed
C. soft delete
D. lifecycle management
Answer: D
==========
Topic 1, Contoso
Transactional Date
Contoso has three years of customer, transactional, operation, sourcing, and supplier data comprised of 10 billion records stored across multiple on-premises Microsoft SQL Server servers. The SQL server instances contain data from various operational systems. The data is loaded into the instances by using SQL server integration Services (SSIS) packages.
You estimate that combining all product sales transactions into a company-wide sales transactions dataset will result in a single table that contains 5 billion rows, with one row per transaction.
Most queries targeting the sales transactions data will be used to identify which products were sold in retail stores and which products were sold online during different time period. Sales transaction data that is older than three years will be removed monthly.
You plan to create a retail store table that will contain the address of each retail store. The table will be approximately 2 MB. Queries for retail store sales will include the retail store addresses.
You plan to create a promotional table that will contain a promotion ID. The promotion ID will be associated to a specific product. The product will be identified by a product ID. The table will be approximately 5 GB.
Streaming Twitter Data
The ecommerce department at Contoso develops and Azure logic app that captures trending Twitter feeds referencing the company's products and pushes the products to Azure Event Hubs.
Planned Changes
Contoso plans to implement the following changes:
* Load the sales transaction dataset to Azure Synapse Analytics.
* Integrate on-premises data stores with Azure Synapse Analytics by using SSIS packages.
* Use Azure Synapse Analytics to analyze Twitter feeds to assess customer sentiments about products.
Sales Transaction Dataset Requirements
Contoso identifies the following requirements for the sales transaction dataset:
* Partition data that contains sales transaction records. Partitions must be designed to provide efficient loads by month. Boundary values must belong: to the partition on the right.
* Ensure that queries joining and filtering sales transaction records based on product ID complete as quickly as possible.
* Implement a surrogate key to account for changes to the retail store addresses.
* Ensure that data storage costs and performance are predictable.
* Minimize how long it takes to remove old records.
Customer Sentiment Analytics Requirement
Contoso identifies the following requirements for customer sentiment analytics:

* Allow Contoso users to use PolyBase in an A/ure Synapse Analytics dedicated SQL pool to query the content of the data records that host the Twitter feeds. Data must be protected by using row-level security (RLS). The users must be authenticated by using their own A/ureAD credentials.
* Maximize the throughput of ingesting Twitter feeds from Event Hubs to Azure Storage without purchasing additional throughput or capacity units.
* Store Twitter feeds in Azure Storage by using Event Hubs Capture. The feeds will be converted into Parquet files.
* Ensure that the data store supports Azure AD-based access control down to the object level.
* Minimize administrative effort to maintain the Twitter feed data records.
* Purge Twitter feed data records;itftaitJ are older than two years.

Data Integration Requirements

Contoso identifies the following requirements for data integration:

Use an Azure service that leverages the existing SSIS packages to ingest on-premises data into datasets stored in a dedicated SQL pool of Azure Synaps Analytics and transform the data.

Identify a process to ensure that changes to the ingestion and transformation activities can be version controlled and developed independently by multiple data engineers.

NO.2 You need to ensure that the Twitter feed data can be analyzed in the dedicated SQL pool. The solution must meet the customer sentiment analytics requirements.

Which three Transaction-SQL DDL commands should you run in sequence? To answer, move the appropriate commands from the list of commands 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.

Commands

- CREATE EXTERNAL DATA SOURCE
- CREATE EXTERNAL FILE FORMAT
- CREATE EXTERNAL TABLE
- CREATE EXTERNAL TABLE AS SELECT
- CREATE DATABASE SCOPED CREDENTIAL

Answer Area

Answer:

Commands

- CREATE EXTERNAL DATA SOURCE
- CREATE EXTERNAL FILE FORMAT
- CREATE EXTERNAL TABLE
- CREATE EXTERNAL TABLE AS SELECT
- CREATE DATABASE SCOPED CREDENTIAL

Answer Area

- CREATE EXTERNAL DATA SOURCE
- CREATE EXTERNAL FILE FORMAT
- CREATE EXTERNAL TABLE AS SELECT

Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/develop-tables-external-tables

NO.3 You need to implement an Azure Synapse Analytics database object for storing the sales transactions dat a. The solution must meet the sales transaction dataset requirements.

What solution must meet the sales transaction dataset requirements.
What should you do? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Transact-SQL DDL command to use:

- CREATE EXTERNAL TABLE
- CREATE TABLE
- CREATE VIEW

Partitioning option to use in the WITH clause of the DDL statement:

- FORMAT_OPTIONS
- FORMAT_TYPE
- RANGE LEFT FOR VALUES
- RANGE RIGHT FOR VALUES

Answer:

Transact-SQL DDL command to use:

- CREATE EXTERNAL TABLE
- **CREATE TABLE**
- CREATE VIEW

Partitioning option to use in the WITH clause of the DDL statement:

- FORMAT_OPTIONS
- FORMAT_TYPE
- RANGE LEFT FOR VALUES
- **RANGE RIGHT FOR VALUES**

Reference:
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-table-azure-sql-data-warehouse

NO.4 You need to design the partitions for the product sales transactions. The solution must meet the sales transaction dataset requirements.
What should you include in the solution? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

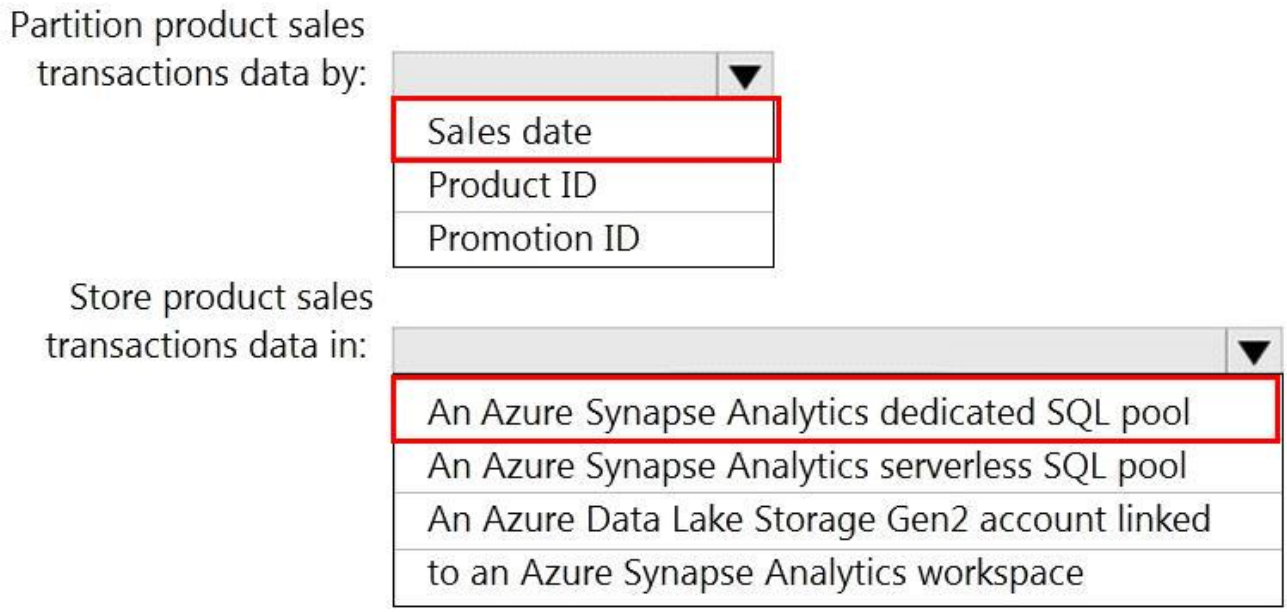
Partition product sales transactions data by:

- Sales date
- Product ID
- Promotion ID

Store product sales transactions data in:

- An Azure Synapse Analytics dedicated SQL pool
- An Azure Synapse Analytics serverless SQL pool
- An Azure Data Lake Storage Gen2 account linked to an Azure Synapse Analytics workspace

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-overview-what-is

NO.5 You need to design a data retention solution for the Twitter feed data records. The solution must meet the customer sentiment analytics requirements.
Which Azure Storage functionality should you include in the solution?

A. change feed

B. soft delete

C. time-based retention

D. lifecycle management

Answer: D

Explanation:
Scenario: Purge Twitter feed data records that are older than two years.
Data sets have unique lifecycles. Early in the lifecycle, people access some data often. But the need for access often drops drastically as the data ages. Some data remains idle in the cloud and is rarely accessed once stored. Some data sets expire days or months after creation, while other data sets are actively read and modified throughout their lifetimes. Azure Storage lifecycle management offers a rule-based policy that you can use to transition blob data to the appropriate access tiers or to expire data at the end of the data lifecycle.
Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/lifecycle-management-overview This is a case study. Case studies are not timed separately. You can use as much exam time as you would like to complete each case. However, there may be additional case studies and sections on this exam. You must manage your time to ensure that you are able to complete all questions included on this exam in the time provided.
To answer the questions included in a case study, you will need to reference information that is provided in the case study. Case studies might contain exhibits and other resources that provide more information about the scenario that is described in the case study. Each question is independent of the other questions in this case study.

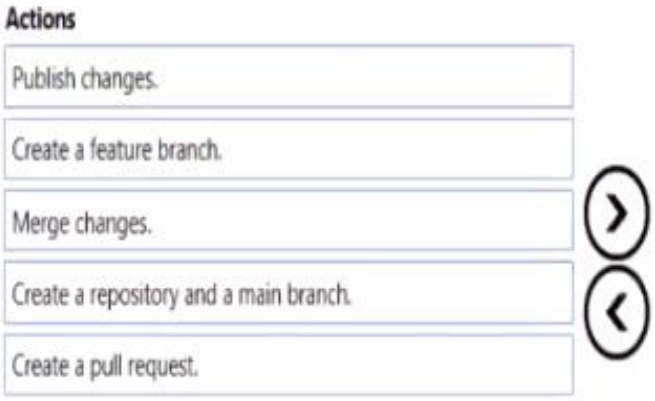
At the end of this case study, a review screen will appear. This screen allows you to review your answers and to make changes before you move to the next section of the exam. After you begin a new section, you cannot return to this section.
To start the case study
To display the first question in this case study, click the Next button. Use the buttons in the left pane to explore the content of the case study before you answer the questions. Clicking these buttons displays information such as business requirements, existing environment, and problem statements. If the case study has an All Information tab, note that the information displayed is identical to the information displayed on the subsequent tabs. When you are ready to answer a question, click the Question button to return to the question.
Overview
Litware, Inc. owns and operates 300 convenience stores across the US. The company sells a variety of packaged foods and drinks, as well as a variety of prepared foods, such as sandwiches and pizzas.
Litware has a loyalty club whereby members can get daily discounts on specific items by providing their membership number at checkout.
Litware employs business analysts who prefer to analyze data by using Microsoft Power BI, and data scientists who prefer analyzing data in Azure Databricks notebooks.

NO.6 You need to implement the surrogate key for the retail store table. The solution must meet the sales transaction dataset requirements.
What should you create?
A. a table that has an IDENTITY property
B. a system-versioned temporal table
C. a user-defined SEQUENCE object
D. a table that has a FOREIGN KEY constraint
Answer: A
Explanation:
Scenario: Implement a surrogate key to account for changes to the retail store addresses.
A surrogate key on a table is a column with a unique identifier for each row. The key is not generated from the table data. Data modelers like to create surrogate keys on their tables when they design data warehouse models. You can use the IDENTITY property to achieve this goal simply and effectively without affecting load performance.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-identity

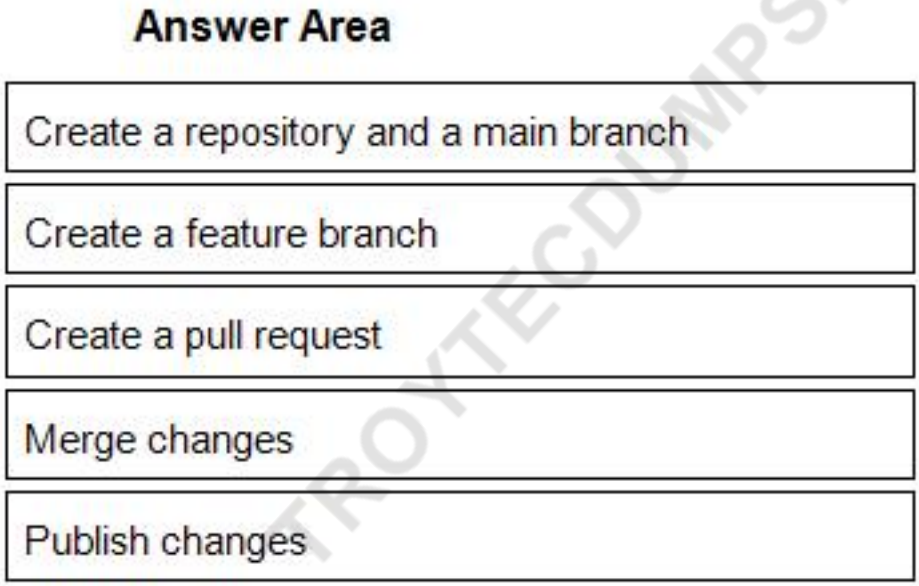
NO.7 You need to integrate the on-premises data sources and Azure Synapse Analytics. The solution must meet the data integration requirements.
Which type of integration runtime should you use?
A. Azure-SSIS integration runtime
B. self-hosted integration runtime
C. Azure integration runtime
Answer: C

NO.8 You need to implement versioned changes to the integration pipelines. The solution must

meet the data integration requirements.
In which order should you perform the actions? To answer, move all actions from the list of actions to the answer area and arrange them in the correct order.

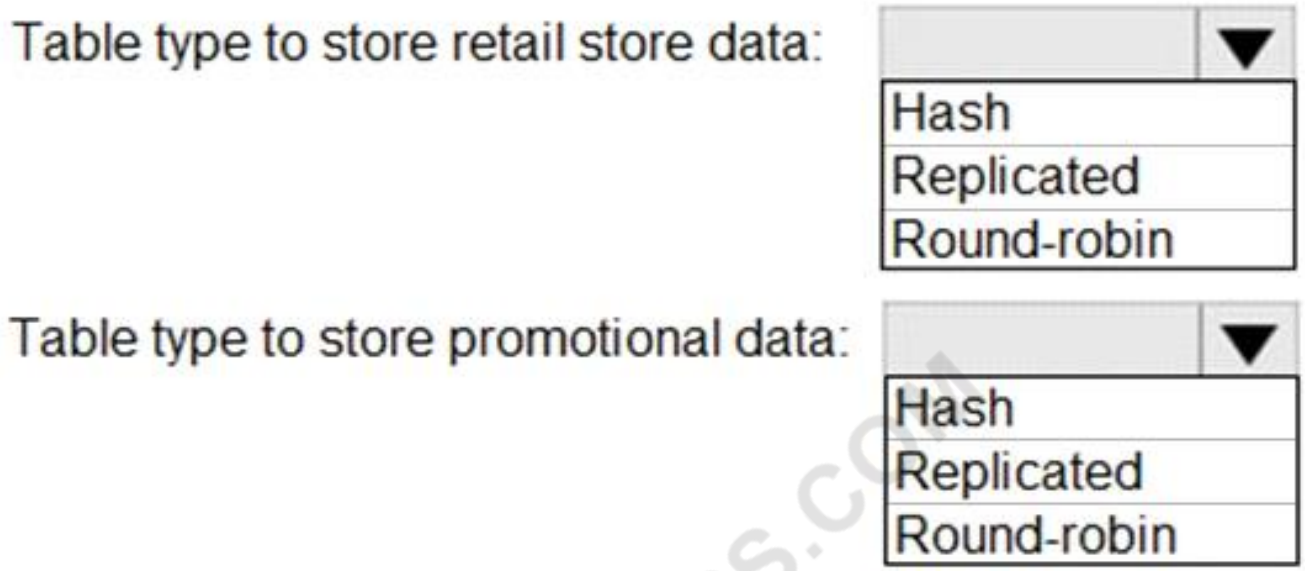


Answer:



1 - Create a repository and a main branch
2 - Create a feature branch
3 - Create a pull request
4 - Merge changes
5 - Publish changes
Reference:
https://docs.microsoft.com/en-us/azure/devops/pipelines/repos/pipeline-options-for-git

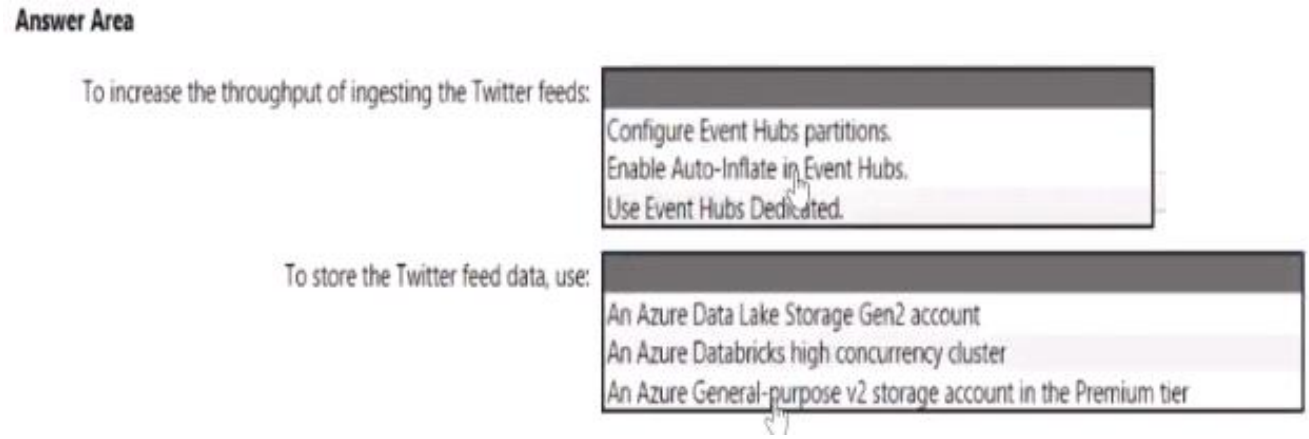
NO.9 You need to design an analytical storage solution for the transactional dat a. The solution must meet the sales transaction dataset requirements.
What should you include in the solution? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



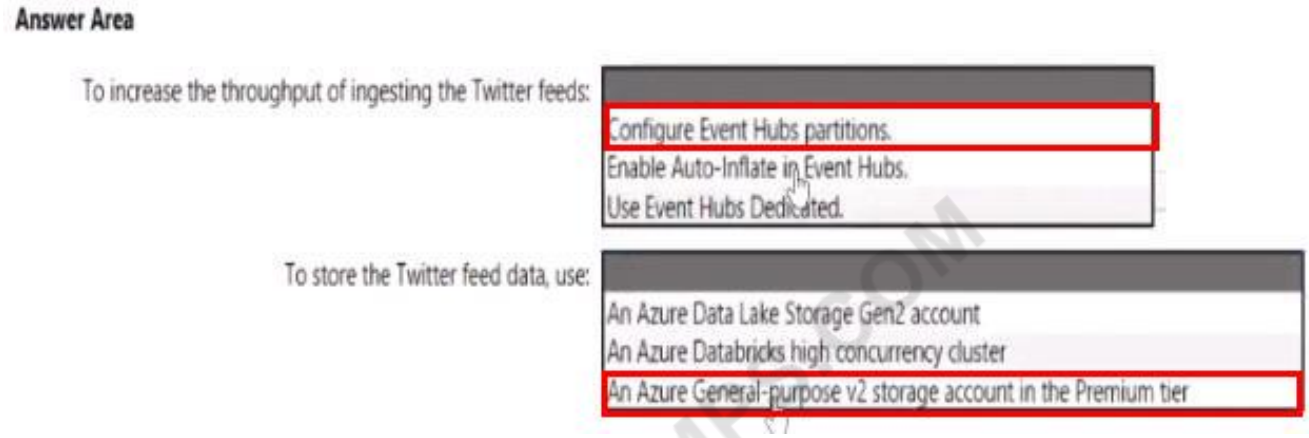
Answer:

Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-distribute

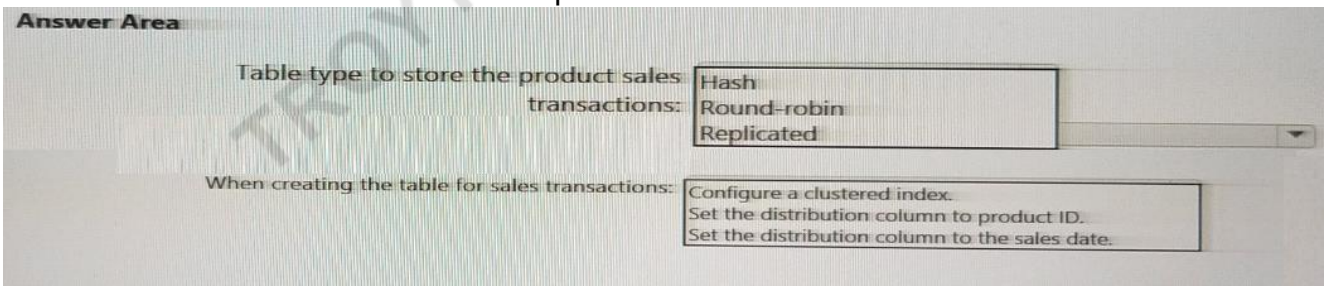
NO.10 You need to design a data ingestion and storage solution for the Twitter feeds. The solution must meet the customer sentiment analytics requirements.
What should you include in the solution To answer, select the appropriate options in the answer area NOTE Each correct selection b worth one point.



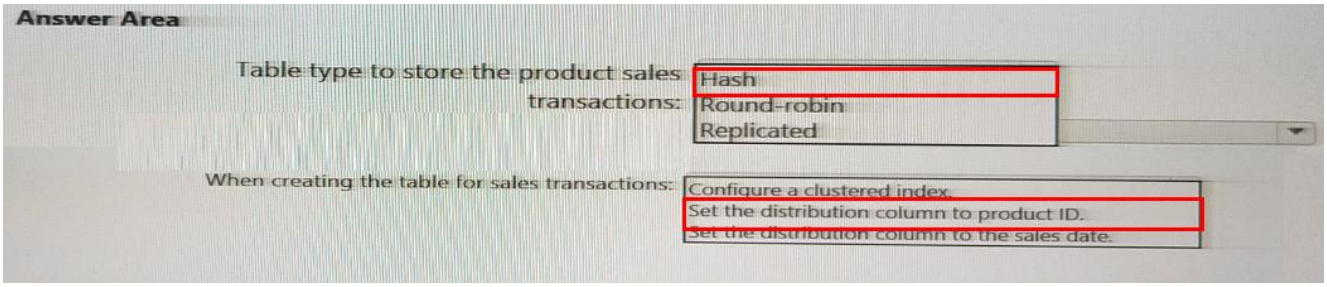
Answer:



NO.11 You need to design a data storage structure for the product sales transactions. The solution must meet the sales transaction dataset requirements.
What should you include in the solution? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



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Topic 2, Litware, inc.
Requirements

Business Goals
Litware wants to create a new analytics environment in Azure to meet the following requirements:
See inventory levels across the stores. Data must be updated as close to real time as possible.
Execute ad hoc analytical queries on historical data to identify whether the loyalty club discounts increase sales of the discounted products.
Every four hours, notify store employees about how many prepared food items to produce based on historical demand from the sales data.
Technical Requirements
Litware identifies the following technical requirements:
Minimize the number of different Azure services needed to achieve the business goals.
Use platform as a service (PaaS) offerings whenever possible and avoid having to provision virtual machines that must be managed by Litware.
Ensure that the analytical data store is accessible only to the company's on-premises network and Azure services.
Use Azure Active Directory (Azure AD) authentication whenever possible.
Use the principle of least privilege when designing security.
Stage Inventory data in Azure Data Lake Storage Gen2 before loading the data into the analytical data store. Litware wants to remove transient data from Data Lake Storage once the data is no longer in use. Files that have a modified date that is older than 14 days must be removed.
Limit the business analysts' access to customer contact information, such as phone numbers, because this type of data is not analytically relevant.
Ensure that you can quickly restore a copy of the analytical data store within one hour in the event of corruption or accidental deletion.
Planned Environment
Litware plans to implement the following environment:
The application development team will create an Azure event hub to receive real-time sales data, including store number, date, time, product ID, customer loyalty number, price, and discount amount, from the point of sale (POS) system and output the data to data storage in Azure.
Customer data, including name, contact information, and loyalty number, comes from Salesforce, a SaaS application, and can be imported into Azure once every eight hours. Row modified dates are not trusted in the source table.
Product data, including product ID, name, and category, comes from Salesforce and can be imported into Azure once every eight hours. Row modified dates are not trusted in the source table.
Daily inventory data comes from a Microsoft SQL server located on a private network.
Litware currently has 5 TB of historical sales data and 100 GB of customer data. The company expects approximately 100 GB of new data per month for the next year.
Litware will build a custom application named FoodPrep to provide store employees with the calculation results of how many prepared food items to produce every four hours.
Litware does not plan to implement Azure ExpressRoute or a VPN between the on-premises network and Azure.

NO.12 You have an Azure Stream Analytics job.
You need to ensure that the job has enough streaming units provisioned
You configure monitoring of the SU % Utilization metric.
Which two additional metrics should you monitor? Each correct answer presents part of the solution.
NOTE Each correct selection is worth one point

A. Out of order Events
B. Late Input Events
C. Baddogged Input Events
D. Function Events
Answer: C

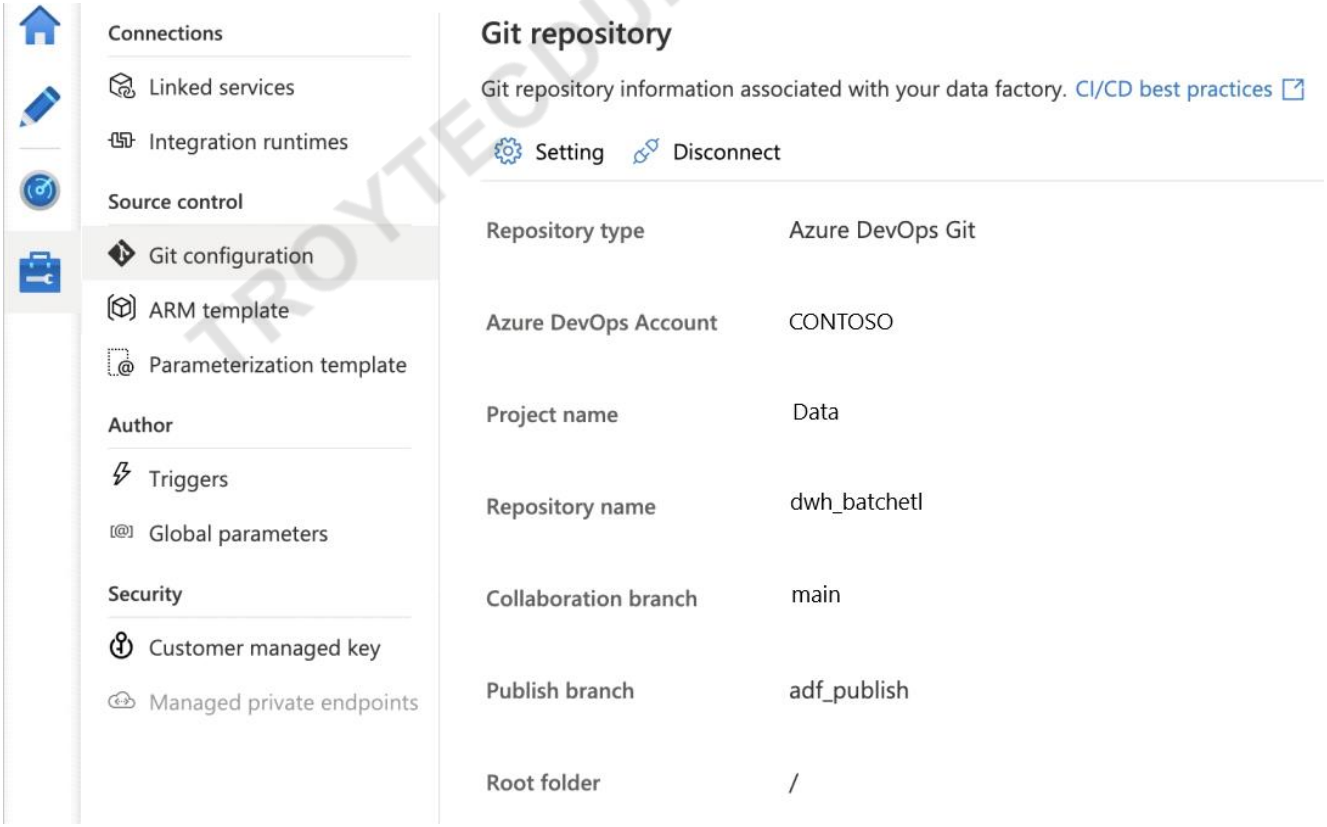
NO.13 You have an Azure Stream Analytics job that receives clickstream data from an Azure event hub.
You need to define a query in the Stream Analytics job. The query must meet the following requirements:
Count the number of clicks within each 10-second window based on the country of a visitor.
Ensure that each click is NOT counted more than once.
How should you define the Query?
A. SELECT Country, Avg(*) AS Average
FROM ClickStream TIMESTAMP BY CreatedAt
GROUP BY Country, SlidingWindow(second, 10)
B. SELECT Country, Count(*) AS Count
FROM ClickStream TIMESTAMP BY CreatedAt
GROUP BY Country, TumblingWindow(second, 10)
C. SELECT Country, Avg(*) AS Average
FROM ClickStream TIMESTAMP BY CreatedAt
GROUP BY Country, HoppingWindow(second, 10, 2)
D. SELECT Country, Count(*) AS Count
FROM ClickStream TIMESTAMP BY CreatedAt
GROUP BY Country, SessionWindow(second, 5, 10)
Answer: B
Explanation:
Tumbling window functions are used to segment a data stream into distinct time segments and perform a function against them, such as the example below. The key differentiators of a Tumbling window are that they repeat, do not overlap, and an event cannot belong to more than one tumbling window.
Example:
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.14 You are monitoring an Azure Stream Analytics job.
You discover that the Backlogged Input Events metric is increasing slowly and is consistently non-zero.
You need to ensure that the job can handle all the events.
What should you do?
A. Change the compatibility level of the Stream Analytics job.
B. Increase the number of streaming units (SUs).
C. Remove any named consumer groups from the connection and use $default.
D. Create an additional output stream for the existing input stream.
Answer: B

Explanation:
Backlogged Input Events: Number of input events that are backlogged. A non-zero value for this metric implies that your job isn't able to keep up with the number of incoming events. If this value is slowly increasing or consistently non-zero, you should scale out your job. You should increase the Streaming Units.
Note: Streaming Units (SUs) represents the computing resources that are allocated to execute a Stream Analytics job. The higher the number of SUs, the more CPU and memory resources are allocated for your job.
Reference:
https://docs.microsoft.com/bs-cyrl-ba/azure/stream-analytics/stream-analytics-monitoring

NO.15 You have an Azure Data Lake Storage Gen2 account named adls2 that is protected by a virtual network.
You are designing a SQL pool in Azure Synapse that will use adls2 as a source.
What should you use to authenticate to adls2?
A. a shared access signature (SAS)
B. a shared key
C. an Azure Active Directory (Azure AD) user
D. a managed identity
Answer: D

NO.16 You configure version control for an Azure Data Factory instance as shown in the following exhibit.



Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.
NOTE: Each correct selection is worth one point.

Azure Resource Manager (ARM) templates for the pipeline assets are stored in **[answer choice]**

- /
- adf_publish
- main
- Parameterization template

A Data Factory Azure Resource Manager (ARM) template named `contososales` can be found in **[answer choice]**

- /
- /contososales
- /dwh_batchetl/adf_publish/contososales
- /main

Answer:

Azure Resource Manager (ARM) templates for the pipeline assets are stored in **[answer choice]**

- /
- **adf_publish**
- main
- Parameterization template

A Data Factory Azure Resource Manager (ARM) template named `contososales` can be found in **[answer choice]**

- /
- /contososales
- **/dwh_batchetl/adf_publish/contososales**
- /main

Reference:
https://docs.microsoft.com/en-us/azure/data-factory/source-control

NO.17 You plan to create an Azure Data Lake Storage Gen2 account
You need to recommend a storage solution that meets the following requirements:
* Provides the highest degree of data resiliency
* Ensures that content remains available for writes if a primary data center fails What should you include in the recommendation? To answer, select the appropriate options in the answer area.

Answer Area

Replication mechanism: [ ]

Failover process: [ ]

Answer:

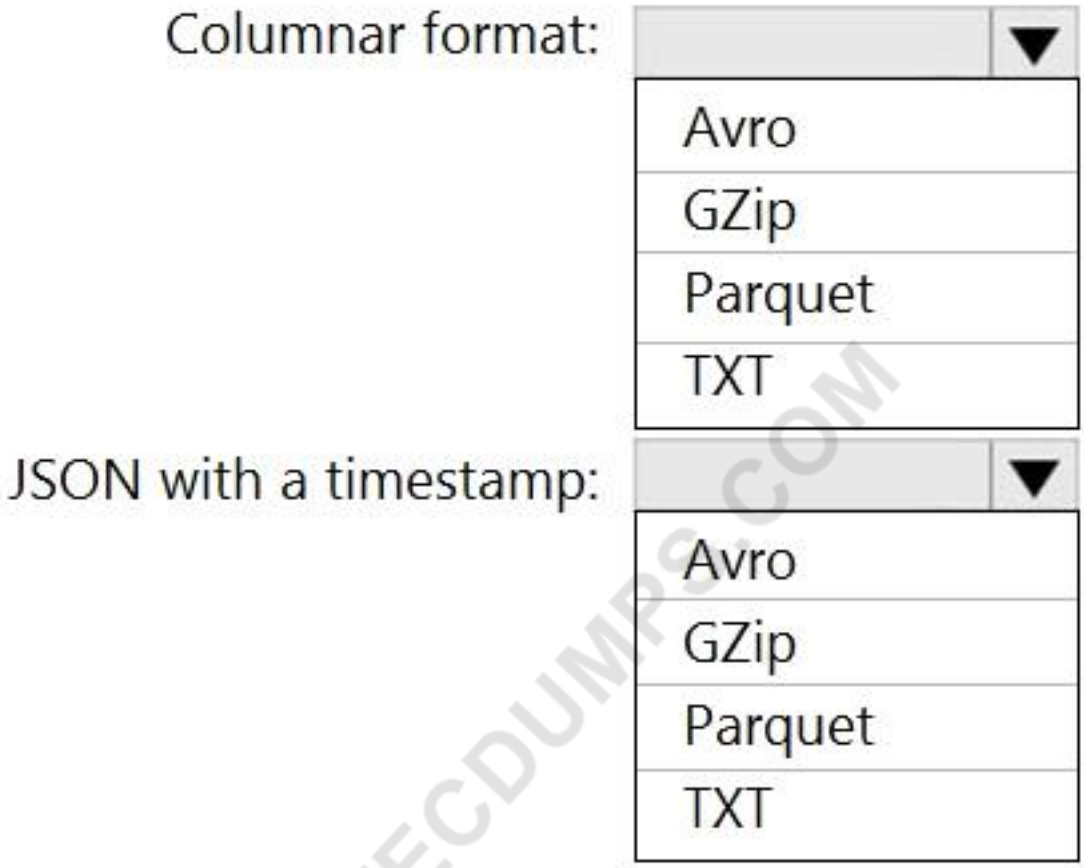
Answer is below

Answer Area

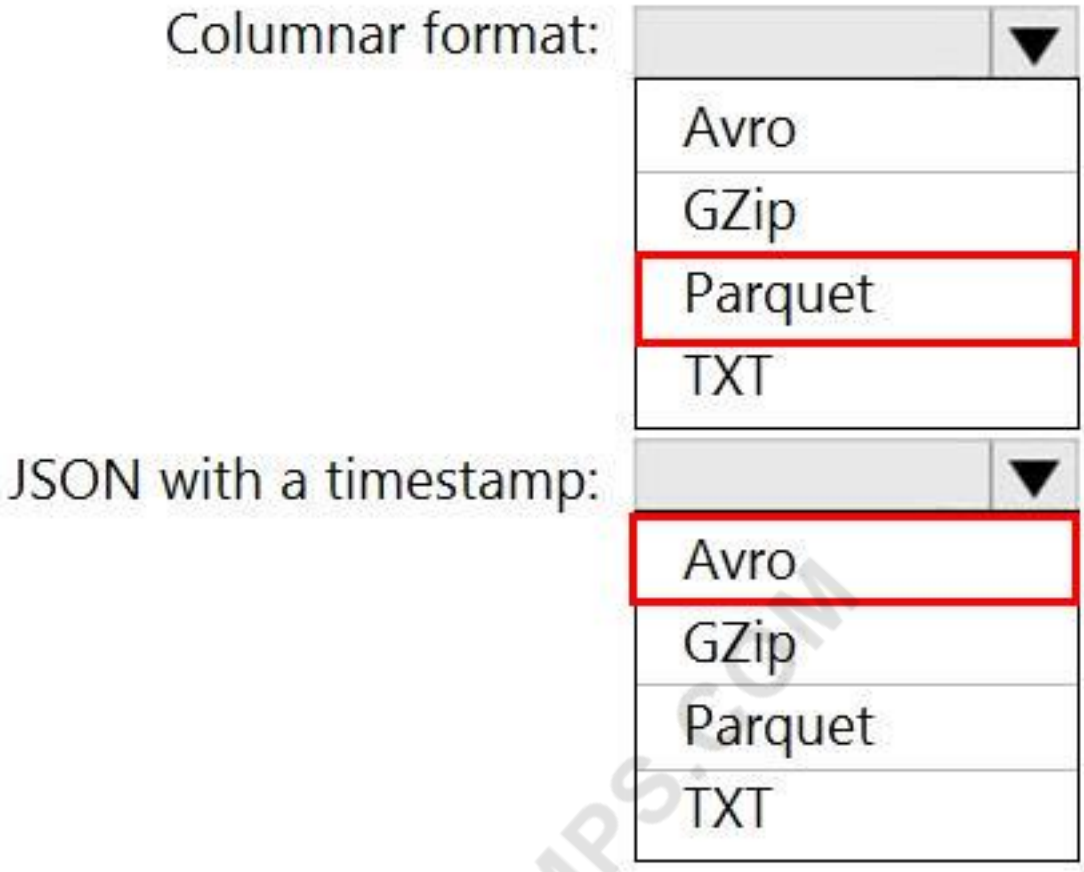
Replication mechanism: Zone-redundant storage (ZRS)

Failover process: Failover manually initiated by the customer

NO.18 You need to output files from Azure Data Factory.
Which file format should you use for each type of output? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://www.datanami.com/2018/05/16/big-data-file-formats-demystified

NO.19 You have an enterprise data warehouse in Azure Synapse Analytics.
Using PolyBase, you create an external table named [Ext].[Items] to query Parquet files stored in Azure Data Lake Storage Gen2 without importing the data to the data warehouse.
The external table has three columns.
You discover that the Parquet files have a fourth column named ItemID.
Which command should you run to add the ItemID column to the external table?

A.
```
ALTER EXTERNAL TABLE [Ext].[Items]
  ADD [ItemID] int;
```

B.
```
DROP EXTERNAL FILE FORMAT parquetfile1;
CREATE EXTERNAL FILE FORMAT parquetfile1
WITH (
     FORMAT_TYPE = PARQUET,
     DATA_COMPRESSION = 'org.apache.hadoop.io.compress.SnappyCodec'
);
```

C.
```
DROP EXTERNAL TABLE [Ext].[Items]
CREATE EXTERNAL TABLE [Ext].[Items]
([ItemID] [int] NULL,
 [ItemName] nvarchar(50) NULL,
 [ItemType] nvarchar(20) NULL,
 [ItemDescription] nvarchar(250))
WITH
(
     LOCATION= '/Items/',
          DATA_SOURCE = AzureDataLakeStore,
          FILE_FORMAT = PARQUET,
          REJECT_TYPE = VALUE,
          REJECT_VALUE = 0
);
```

D.
```
ALTER TABLE [Ext].[Items]
ADD [ItemID] int;
```

A. Option A
B. Option B
C. Option C
D. Option D
Answer: C
Explanation:
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-external-table-transact-sql

NO.20 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this scenario, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have an Azure Storage account that contains 100 GB of files. The files contain text and numerical values. 75% of the rows contain description data that has an average length of 1.1 MB.
You plan to copy the data from the storage account to an enterprise data warehouse in Azure Synapse Analytics.
You need to prepare the files to ensure that the data copies quickly.
Solution: You convert the files to compressed delimited text files.
Does this meet the goal?
A. Yes

B. No

Answer: A

Explanation:

All file formats have different performance characteristics. For the fastest load, use compressed delimited text files.

Reference:

https://docs.microsoft.com/en-us/azure/sql-data-warehouse/guidance-for-loading-data

NO.21 You need to design a solution that will process streaming data from an Azure Event Hub and output the data to Azure Data Lake Storage. The solution must ensure that analysts can interactively query the streaming data.

What should you use?

A. event triggers in Azure Data Factory

B. Azure Stream Analytics and Azure Synapse notebooks

C. Structured Streaming in Azure Databricks

D. Azure Queue storage and read-access geo-redundant storage (RA-GRS)

Answer: B

NO.22 You have an Azure Synapse Analytics dedicated SQL pool.

You run PDW_SHOWSPACEUSED(dbo,FactInternetSales'); and get the results shown in the following table.

ROWS	RESERVED_SPACE	DATA_SPACE	INDEX_SPACE	UNUSED_SPACE	PDW_NODE_ID	DISTRIBUTION_ID
694	2776	616	48	2112	1	1
407	2704	576	48	2080	1	2
53	2376	512	16	1848	1	3
58	2376	512	16	1848	1	4
168	2632	528	32	2072	1	5
195	2696	536	32	2128	1	6
5995	3464	1424	32	2008	1	7
0	2232	496	0	1736	1	8
264	2576	544	40	1992	1	9
3008	3016	960	32	2024	1	10
...	...	...	...	...	...	...
1550	2832	752	48	2032	1	50
1238	2832	696	40	2096	1	51
192	2632	528	32	2072	1	52
1127	2760	680	48	2040	1	53
1244	3032	704	64	2264	1	54
409	2632	568	32	2032	1	55
0	2232	496	0	1736	1	56
1437	2832	728	40	2064	1	57
0	2232	496	0	1736	1	58
384	2632	560	32	2040	1	59
225	2760	544	40	2184	1	60

Which statement accurately describes the dbo,FactInternetSales table?

A. The table contains less than 1,000 rows.
B. All distribution contain data.
C. The table is skewed.
D. The table uses round-robin distribution.
Answer: C
Explanation:
Data skew means the data is not distributed evenly across the distributions.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-distribute

NO.23 You have an Azure Data Factory pipeline that is triggered hourly.
The pipeline has had 100% success for the past seven days.
The pipeline execution fails, and two retries that occur 15 minutes apart also fail. The third failure returns the following error.

```
ErrorCode=UserErrorFileNotFound,'Type=Microsoft.DataTransfer.Common.Shared.HybridDeliveryException,Message=ADLS Gen2 operation failed for:
Operation returned an invalid status code 'NotFound'. Account: 'contosoproduksouth'. FileSystem: wwi. Path:
'BIKES/CARBON/year=2021/month=01/day=10/hour=06'. ErrorCode: 'PathNotFound'. Message: 'The specified path does not exist.'. RequestId: '6d269b78-
901f-001b-4924-e7a7bc000000'. TimeStamp: 'Sun, 10 Jan 2021 07:45:05
```

What is a possible cause of the error?
A. From 06.00 to 07:00 on January 10.2021 there was no data in w1/bikes/CARBON.
B. The parameter used to generate year.2021/month=0/day=10/hour=06 was incorrect
C. From 06:00 to 07:00 on January 10,2021 the file format of data wi/BiKES/CARBON was incorrect
Answer: C

NO.24 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You are designing an Azure Stream Analytics solution that will analyze Twitter data.
You need to count the tweets in each 10-second window. The solution must ensure that each tweet is counted only once.
Solution: You use a hopping window that uses a hop size of 5 seconds and a window size 10 seconds.
Does this meet the goal?
A. Yes
B. No
Answer: B
Explanation:
Instead use a tumbling window. Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals.
Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

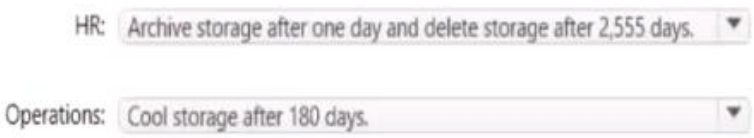
NO.25 You are designing an Azure Data Lake Storage Gen2 container to store data for the human

resources (HR) department and the operations department at your company. You have the following data access requirements:
* After initial processing, the HR department data will be retained for seven years.
* The operations department data will be accessed frequently for the first six months, and then accessed once per month.
You need to design a data retention solution to meet the access requirements. The solution must minimize storage costs.

Answer:

Answer is below

Answer Area



NO.26 You have an Azure Active Directory (Azure AD) tenant that contains a security group named Group1. You have an Azure Synapse Analytics dedicated SQL pool named dw1 that contains a schema named schema1.
You need to grant Group1 read-only permissions to all the tables and views in schema1. The solution must use the principle of least privilege.
Which three 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

- Create a database role named Role1 and grant Role1 `SELECT` permissions to schema1.
- Create a database role named Role1 and grant Role1 `SELECT` permissions to dw1.
- Assign the Azure role-based access control (Azure RBAC) Reader role for dw1 to Group1.
- Create a database user in dw1 that represents Group1 and uses the `FROM EXTERNAL PROVIDER` clause.
- Assign Role1 to the Group1 database user.

Answer Area

Answer:

Actions	Answer Area
Create a database role named Role1 and grant Role1 SELECT permissions to schema1.	Create a database role named Role1 and grant Role1 SELECT permissions to schema1.
Create a database role named Role1 and grant Role1 SELECT permissions to dw1.	Assign Role1 to the Group1 database user.
Assign the Azure role-based access control (Azure RBAC) Reader role for dw1 to Group1.	Assign the Azure role-based access control (Azure RBAC) Reader role for dw1 to Group1.
Create a database user in dw1 that represents Group1 and uses the FROM EXTERNAL PROVIDER clause.	
Assign Role1 to the Group1 database user.	

Reference:
https://docs.microsoft.com/en-us/azure/data-share/how-to-share-from-sql

NO.27 You develop data engineering solutions for a company.
A project requires the deployment of data to Azure Data Lake Storage.
You need to implement role-based access control (RBAC) so that project members can manage the Azure Data Lake Storage resources.
Which three actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Assign Azure AD security groups to Azure Data Lake Storage.

B. Configure end-user authentication for the Azure Data Lake Storage account.

C. Configure service-to-service authentication for the Azure Data Lake Storage account.

D. Create security groups in Azure Active Directory (Azure AD) and add project members.

E. Configure access control lists (ACL) for the Azure Data Lake Storage account.

Answer: A,D,E
Reference:
https://docs.microsoft.com/en-us/azure/data-lake-store/data-lake-store-secure-data

NO.28 You need to design an Azure Synapse Analytics dedicated SQL pool that meets the following requirements:
Can return an employee record from a given point in time.
Maintains the latest employee information.
Minimizes query complexity.
How should you model the employee data?

A. as a temporal table

B. as a SQL graph table

C. as a degenerate dimension table

D. as a Type 2 slowly changing dimension (SCD) table

Answer: D
Explanation:
A Type 2 SCD supports versioning of dimension members. Often the source system doesn't store versions, so the data warehouse load process detects and manages changes in a dimension table. In this case, the dimension table must use a surrogate key to provide a unique reference to a version of

the dimension member. It also includes columns that define the date range validity of the version (for example, StartDate and EndDate) and possibly a flag column (for example, IsCurrent) to easily filter by current dimension members.
Reference:
https://docs.microsoft.com/en-us/learn/modules/populate-slowly-changing-dimensions-azure-synapse-analytics-pipelines/3-choose-between-dimension-types

NO.29 You have an Azure Synapse Analytics dedicated SQL pool that contains the users shown in the following table.

Name	Role
User1	Server admin
User2	db_datereader

User1 executes a query on the database, and the query returns the results shown in the following exhibit.

```
1  SELECT c.name,
2      tbl.name as table_name,
3      typ.name as datatype,
4      c.is_masked,
5      c.masking_function
6  FROM sys.masked_columns AS c
7  INNER JOIN sys.tables AS tbl ON c.[object_id] = tbl.[object_id]
8  INNER JOIN sys.types typ ON c.user_type_id = typ.user_type_id
9  WHERE is_masked = 1;
10
```

Results Messages

	name	table_name	datatype	is_masked	masking_function
1	BirthDate	DimCustomer	date	1	default()
2	Gender	DimCustomer	nvarchar	1	default()
3	EmailAddress	DimCustomer	nvarchar	1	email()
4	YearlyIncome	DimCustomer	money	1	default()

User1 is the only user who has access to the unmasked data.
Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.
NOTE: Each correct selection is worth one point.

When User2 queries the YearlyIncome column, the values returned will be **[answer choice]**.

- a random number
- the values stored in the database
- XXXX
- 0

When User1 queries the BirthDate column, the values returned will be **[answer choice]**.

- a random date
- the values stored in the database
- XXXX
- 1900-01-01

Answer:

When User2 queries the YearlyIncome column, the values returned will be **[answer choice]**.

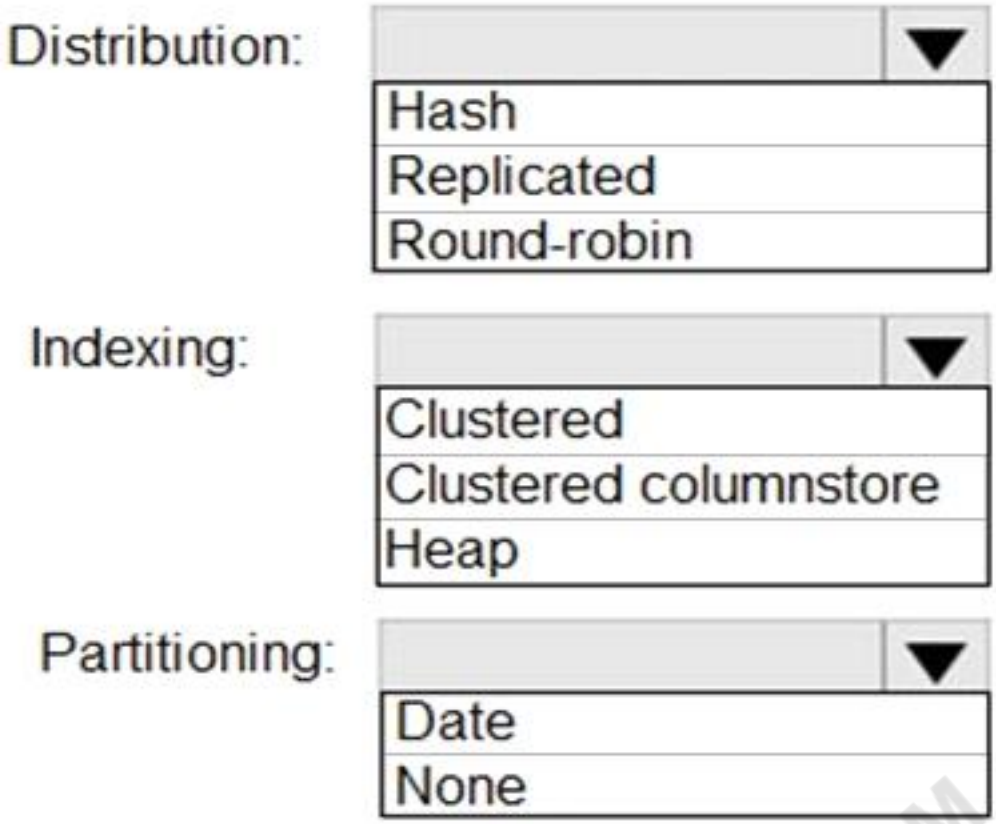
- a random number
- the values stored in the database
- XXXX
- 0 (selected)

When User1 queries the BirthDate column, the values returned will be **[answer choice]**.

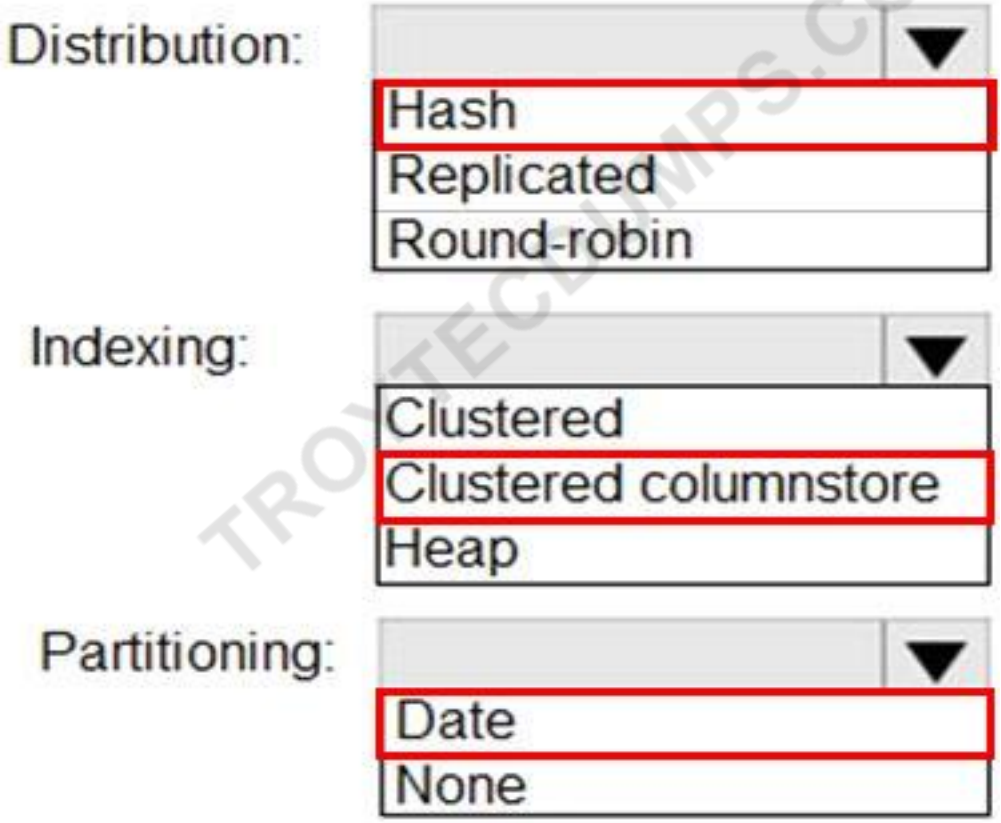
- a random date
- the values stored in the database (selected)
- XXXX
- 1900-01-01

Reference:
https://docs.microsoft.com/en-us/azure/azure-sql/database/dynamic-data-masking-overview

NO.30 You have a SQL pool in Azure Synapse.
You plan to load data from Azure Blob storage to a staging table. Approximately 1 million rows of data will be loaded daily. The table will be truncated before each daily load.
You need to create the staging table. The solution must minimize how long it takes to load the data to the staging table.
How should you configure the table? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-partition
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-

tables-distribute

NO.31 You have a table in an Azure Synapse Analytics dedicated SQL pool. The table was created by using the following Transact-SQL statement.

```
CREATE TABLE [dbo].[DimEmployee](
   [EmployeeKey] [int] IDENTITY(1,1) NOT NULL,
   [EmployeeID] [int] NOT NULL,
   [FirstName] [varchar](100) NOT NULL,
   [LastName] [varchar](100) NOT NULL,
   [JobTitle] [varchar](100) NULL,
   [LastHireDate] [date] NULL,
   [StreetAddress] [varchar](500) NOT NULL,
   [City] [varchar](200) NOT NULL,
   [StateProvince] [varchar](50) NOT NULL,
   [Portalcode] [varchar](10) NOT NULL
   )
```

You need to alter the table to meet the following requirements:
Ensure that users can identify the current manager of employees.
Support creating an employee reporting hierarchy for your entire company.
Provide fast lookup of the managers' attributes such as name and job title.
Which column should you add to the table?

A. [ManagerEmployeeID] [int] NULL

B. [ManagerEmployeeID] [smallint] NULL

C. [ManagerEmployeeKey] [int] NULL

D. [ManagerName] [varchar](200) NULL

Answer: A

Explanation:
Use the same definition as the EmployeeID column.
Reference:
https://docs.microsoft.com/en-us/analysis-services/tabular-models/hierarchies-ssas-tabular

NO.32 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution. After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You plan to create an Azure Databricks workspace that has a tiered structure. The workspace will contain the following three workloads:
A workload for data engineers who will use Python and SQL.
A workload for jobs that will run notebooks that use Python, Scala, and SOL.
A workload that data scientists will use to perform ad hoc analysis in Scala and R.
The enterprise architecture team at your company identifies the following standards for Databricks

environments:
The data engineers must share a cluster.
The job cluster will be managed by using a request process whereby data scientists and data engineers provide packaged notebooks for deployment to the cluster.
All the data scientists must be assigned their own cluster that terminates automatically after 120 minutes of inactivity. Currently, there are three data scientists.
You need to create the Databricks clusters for the workloads.
Solution: You create a Standard cluster for each data scientist, a Standard cluster for the data engineers, and a High Concurrency cluster for the jobs.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
We need a High Concurrency cluster for the data engineers and the jobs.
Note: Standard clusters are recommended for a single user. Standard can run workloads developed in any language: Python, R, Scala, and SQL.
A high concurrency cluster is a managed cloud resource. The key benefits of high concurrency clusters are that they provide Apache Spark-native fine-grained sharing for maximum resource utilization and minimum query latencies.
Reference:
https://docs.azuredatabricks.net/clusters/configure.html

NO.33 You plan to ingest streaming social media data by using Azure Stream Analytics. The data will be stored in files in Azure Data Lake Storage, and then consumed by using Azure Datiabricks and PolyBase in Azure Synapse Analytics.
You need to recommend a Stream Analytics data output format to ensure that the queries from Databricks and PolyBase against the files encounter the fewest possible errors. The solution must ensure that the tiles can be queried quickly and that the data type information is retained.
What should you recommend?

A. Parquet

B. Avro

C. CSV

D. JSON

Answer: A

Explanation:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-define-outputs

NO.34 You are designing an Azure Databricks table. The table will ingest an average of 20 million streaming events per day.
You need to persist the events in the table for use in incremental load pipeline jobs in Azure Databricks. The solution must minimize storage costs and incremental load times.
What should you include in the solution?

A. Partition by DateTime fields.

B. Sink to Azure Queue storage.

C. Include a watermark column.

D. Use a JSON format for physical data storage.

Answer: A

Explanation:

The Databricks ABS-AQS connector uses Azure Queue Storage (AQS) to provide an optimized file source that lets you find new files written to an Azure Blob storage (ABS) container without repeatedly listing all of the files.

This provides two major advantages:

Lower latency: no need to list nested directory structures on ABS, which is slow and resource intensive.

Lower costs: no more costly LIST API requests made to ABS.

Reference:

https://docs.microsoft.com/en-us/azure/databricks/spark/latest/structured-streaming/aqs

NO.35 You have two Azure Data Factory instances named ADFdev and ADFprod. ADFdev connects to an Azure DevOps Git repository.

You publish changes from the main branch of the Git repository to ADFdev.

You need to deploy the artifacts from ADFdev to ADFprod.

What should you do first?

A. From ADFdev, modify the Git configuration.

B. From ADFdev, create a linked service.

C. From Azure DevOps, create a release pipeline.

D. From Azure DevOps, update the main branch.

Answer: C

Explanation:

In Azure Data Factory, continuous integration and delivery (CI/CD) means moving Data Factory pipelines from one environment (development, test, production) to another.

Note:

The following is a guide for setting up an Azure Pipelines release that automates the deployment of a data factory to multiple environments.

In Azure DevOps, open the project that's configured with your data factory.

On the left side of the page, select Pipelines, and then select Releases.

Select New pipeline, or, if you have existing pipelines, select New and then New release pipeline.

In the Stage name box, enter the name of your environment.

Select Add artifact, and then select the git repository configured with your development data factory.

Select the publish branch of the repository for the Default branch. By default, this publish branch is adf_publish.

Select the Empty job template.

Reference:

https://docs.microsoft.com/en-us/azure/data-factory/continuous-integration-deployment

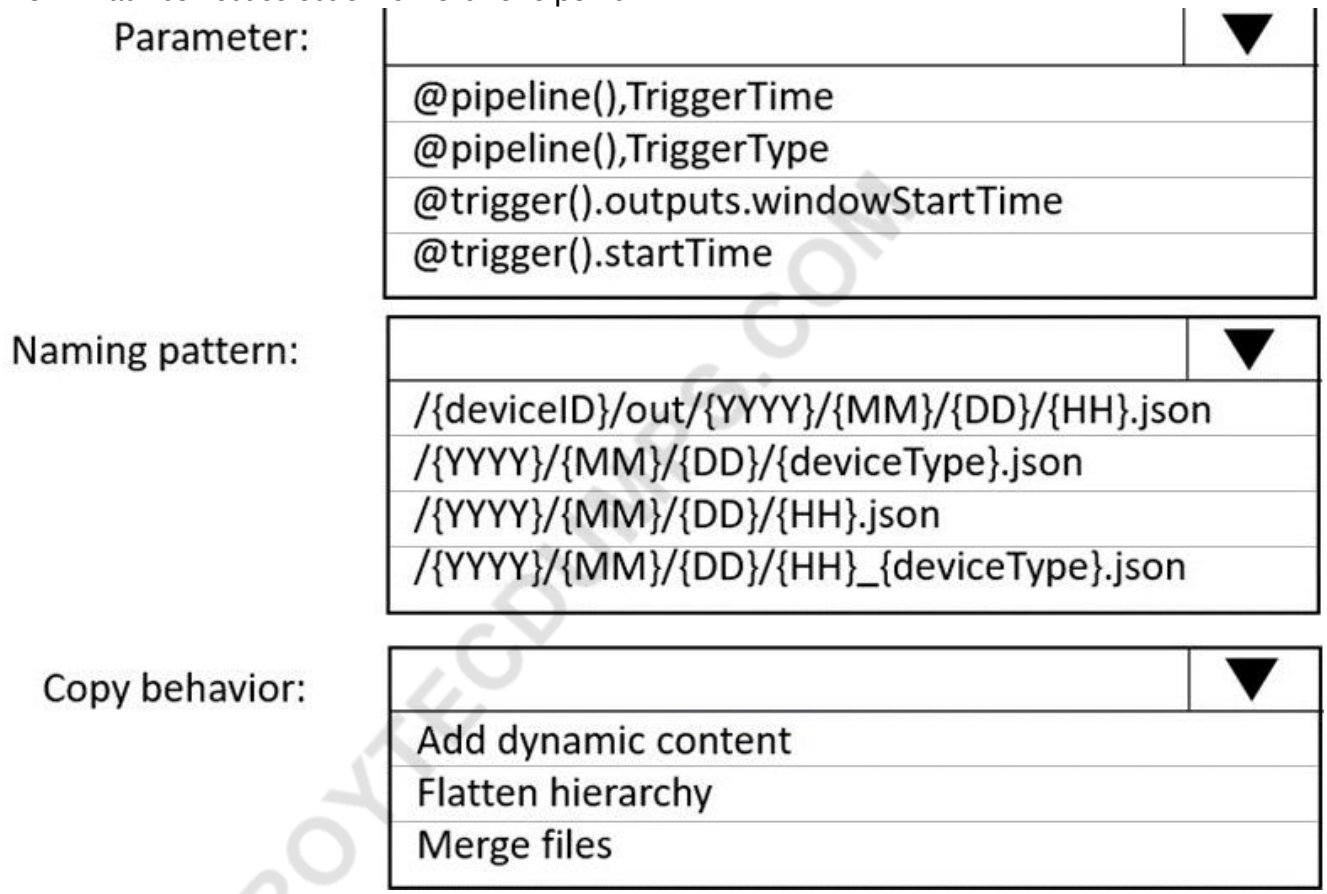
NO.36 You are building an Azure Data Factory solution to process data received from Azure Event Hubs, and then ingested into an Azure Data Lake Storage Gen2 container.

The data will be ingested every five minutes from devices into JSON files. The files have the following naming pattern.

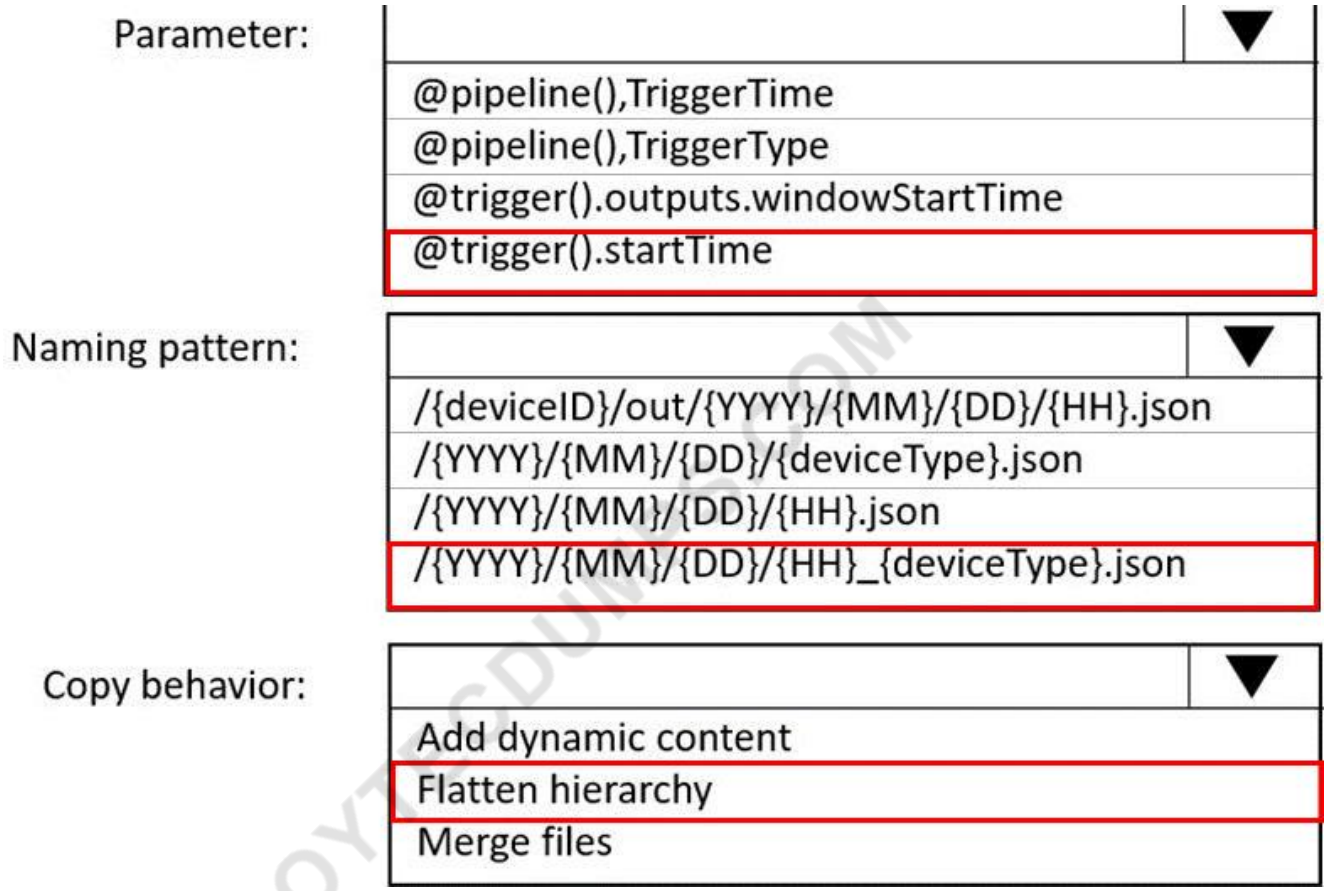
/{deviceType}/in/{YYYY}/{MM}/{DD}/{HH}/{deviceID}_{YYYY}{MM}{DD}HH}{mm}.json You need to prepare the data for batch data processing so that there is one dataset per hour per deviceType. The solution must minimize read times.

How should you configure the sink for the copy activity? To answer, select the appropriate options in the answer area.

NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipeline-execution-triggers
https://docs.microsoft.com/en-us/azure/data-factory/connector-file-system

NO.37 A company purchases IoT devices to monitor manufacturing machinery. The company uses an IoT appliance to communicate with the IoT devices.
The company must be able to monitor the devices in real-time.
You need to design the solution.
What should you recommend?

A. Azure Stream Analytics cloud job using Azure PowerShell

B. Azure Analysis Services using Azure Portal

C. Azure Data Factory instance using Azure Portal

D. Azure Analysis Services using Azure PowerShell

Answer: A

Explanation:
Stream Analytics is a cost-effective event processing engine that helps uncover real-time insights from devices, sensors, infrastructure, applications and data quickly and easily.
Monitor and manage Stream Analytics resources with Azure PowerShell cmdlets and powershell scripting that execute basic Stream Analytics tasks.
Reference:
https://cloudblogs.microsoft.com/sqlserver/2014/10/29/microsoft-adds-iot-streaming-analytics-data-production-and-workflow-services-to-azure/

NO.38 Note: This question is part of a series of questions that present the same scenario. Each

question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You are designing an Azure Stream Analytics solution that will analyze Twitter data.
You need to count the tweets in each 10-second window. The solution must ensure that each tweet is counted only once.
Solution: You use a session window that uses a timeout size of 10 seconds.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
Instead use a tumbling window. Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals.
Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.39 You are designing a highly available Azure Data Lake Storage solution that will induce geo-zone-redundant storage (GZRS).
You need to monitor for replication delays that can affect the recovery point objective (RPO).
What should you include m the monitoring solution?

A. Last Sync Time

B. Average Success Latency

C. Error errors

D. availability

Answer: A

Explanation:
Because geo-replication is asynchronous, it is possible that data written to the primary region has not yet been written to the secondary region at the time an outage occurs. The Last Sync Time property indicates the last time that data from the primary region was written successfully to the secondary region. All writes made to the primary region before the last sync time are available to be read from the secondary location. Writes made to the primary region after the last sync time property may or may not be available for reads yet.
Reference:
https://docs.microsoft.com/en-us/azure/storage/common/last-sync-time-get

NO.40 You have an Azure data factory.
You need to examine the pipeline failures from the last 60 days.
What should you use?

A. the Activity log blade for the Data Factory resource

B. the Monitor & Manage app in Data Factory

C. the Resource health blade for the Data Factory resource

D. Azure Monitor

Answer: D

Explanation:
Data Factory stores pipeline-run data for only 45 days. Use Azure Monitor if you want to keep that data for a longer time.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor

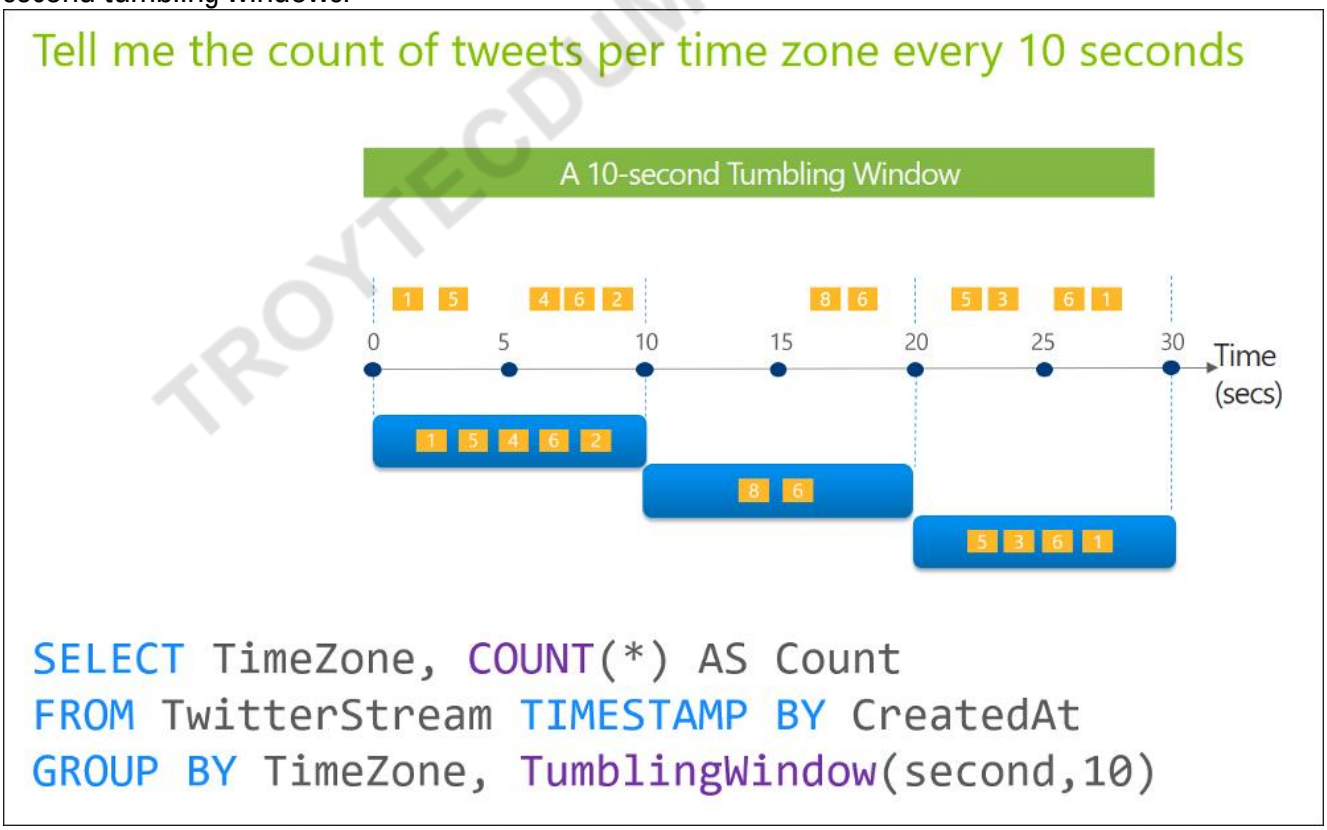
NO.41 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You are designing an Azure Stream Analytics solution that will analyze Twitter data.
You need to count the tweets in each 10-second window. The solution must ensure that each tweet is counted only once.
Solution: You use a tumbling window, and you set the window size to 10 seconds.
Does this meet the goal?

A. Yes

B. No

Answer: A

Explanation:
Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals. The following diagram illustrates a stream with a series of events and how they are mapped into 10-second tumbling windows.



Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.42 You have an Azure Synapse Analytics dedicated SQL pool mat contains a table named dbo.Users.
You need to prevent a group of users from reading user email addresses from dbo.Users. What should you use?

A. row-level security

B. column-level security

C. Dynamic data masking

D. Transparent Data Encryption (TDD

Answer: B

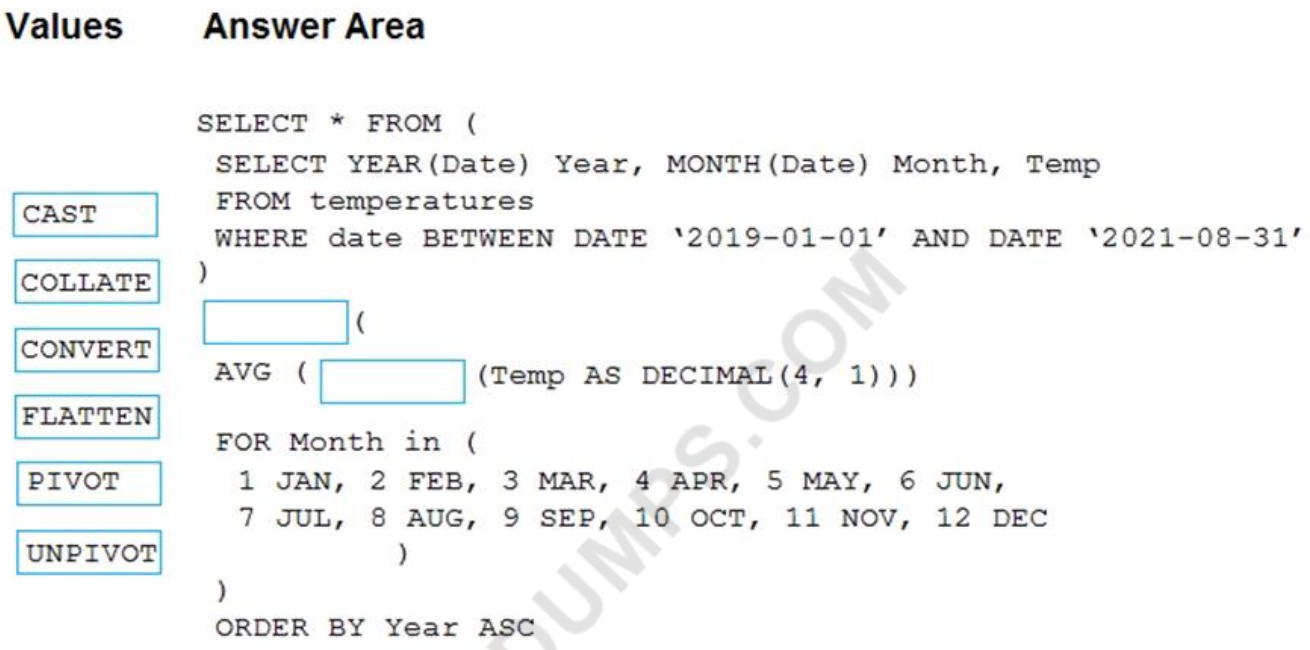
NO.43 You have an Apache Spark DataFrame named temperatures. A sample of the data is shown in the following table.

Date	Temp
...	...
18-01-2021	3
19-01-2021	4
20-01-2021	2
21-01-2021	2
...	...

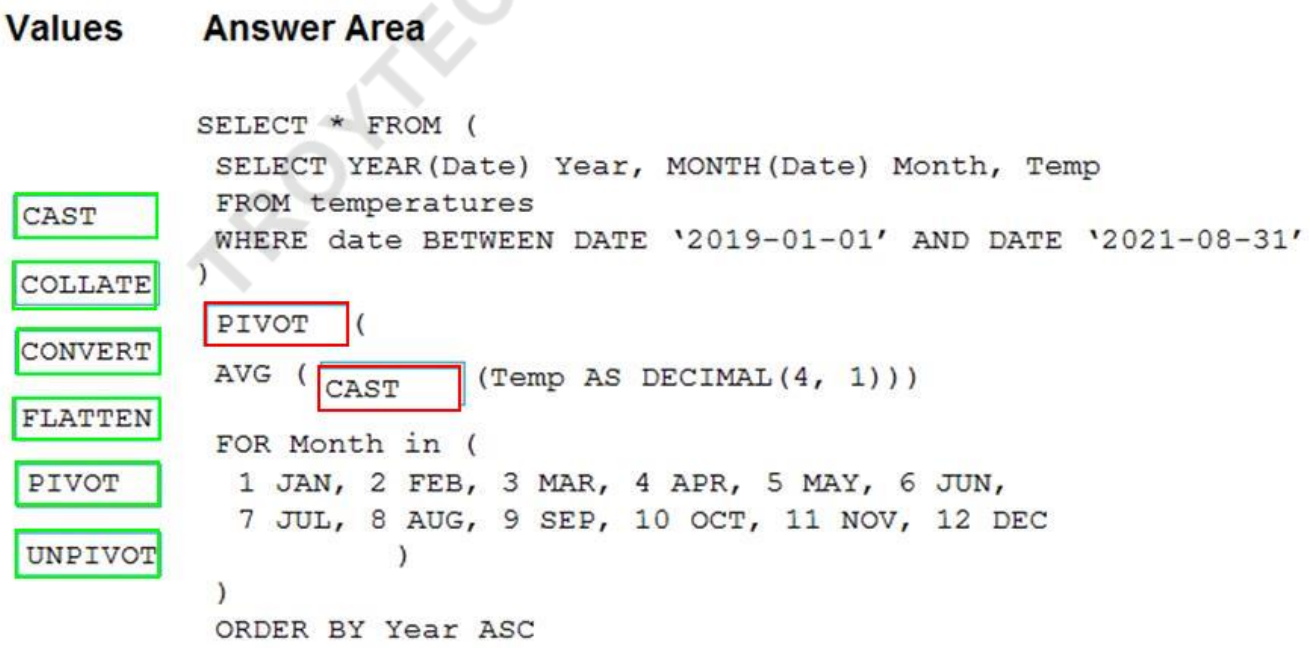
You need to produce the following table by using a Spark SQL query.

Year	JAN	FEB	MAR	APR	MAY
2019	2.3	4.1	5.2	7.6	9.2
2020	2.4	4.2	4.9	7.8	9.1
2021	2.6	5.3	3.4	7.9	9.5

How should you complete the query? To answer, drag the appropriate values to the correct targets. Each value 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.
NOTE: Each correct selection is worth one point.

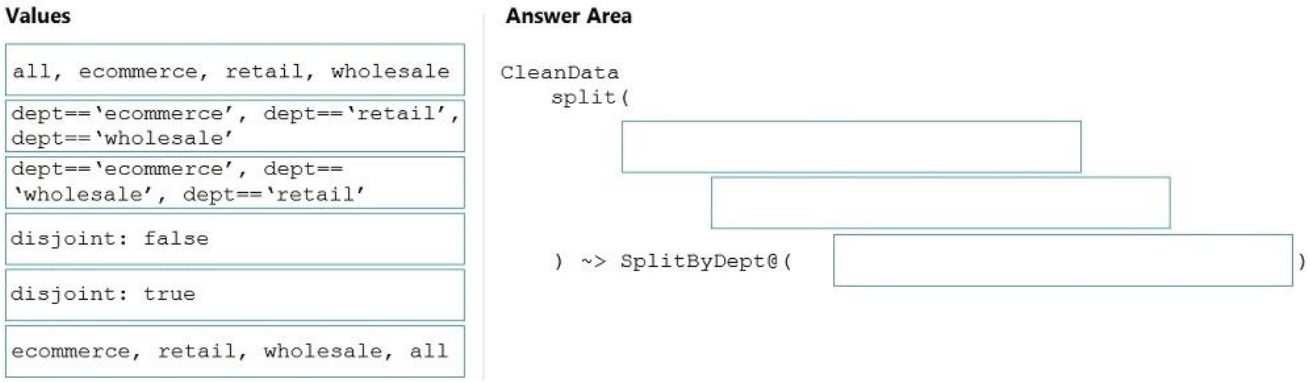


Answer:

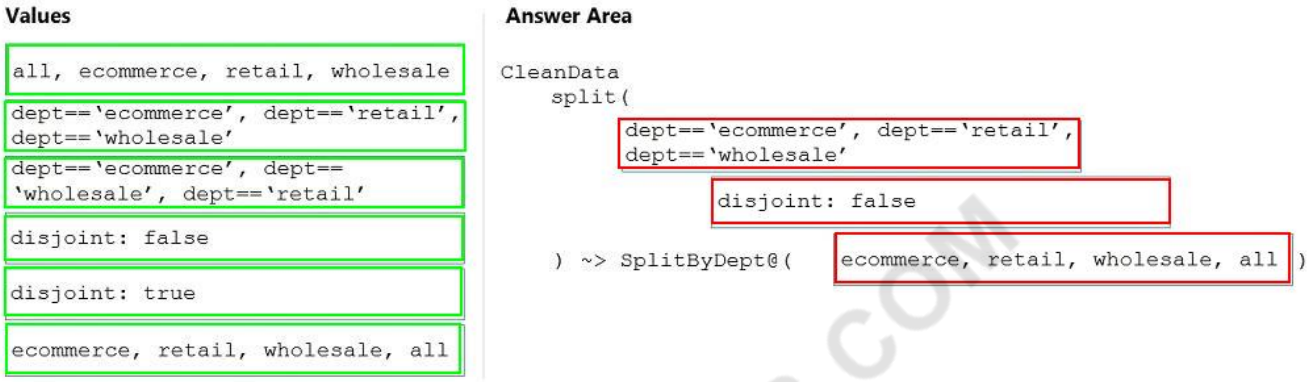


Reference:
https://learnsql.com/cookbook/how-to-convert-an-integer-to-a-decimal-in-sql-server/
https://docs.microsoft.com/en-us/sql/t-sql/queries/from-using-pivot-and-unpivot

NO.44 You need to create an Azure Data Factory pipeline to process data for the following three departments at your company: Ecommerce, retail, and wholesale. The solution must ensure that data can also be processed for the entire company.
How should you complete the Data Factory data flow script? To answer, drag the appropriate values to the correct targets. Each value 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.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/data-factory/data-flow-conditional-split

NO.45 You are designing a solution that will copy Parquet files stored in an Azure Blob storage account to an Azure Data Lake Storage Gen2 account.
The data will be loaded daily to the data lake and will use a folder structure of {Year}/{Month}/{Day}/.
You need to design a daily Azure Data Factory data load to minimize the data transfer between the two accounts.
Which two configurations should you include in the design? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Delete the files in the destination before loading new data.

B. Filter by the last modified date of the source files.

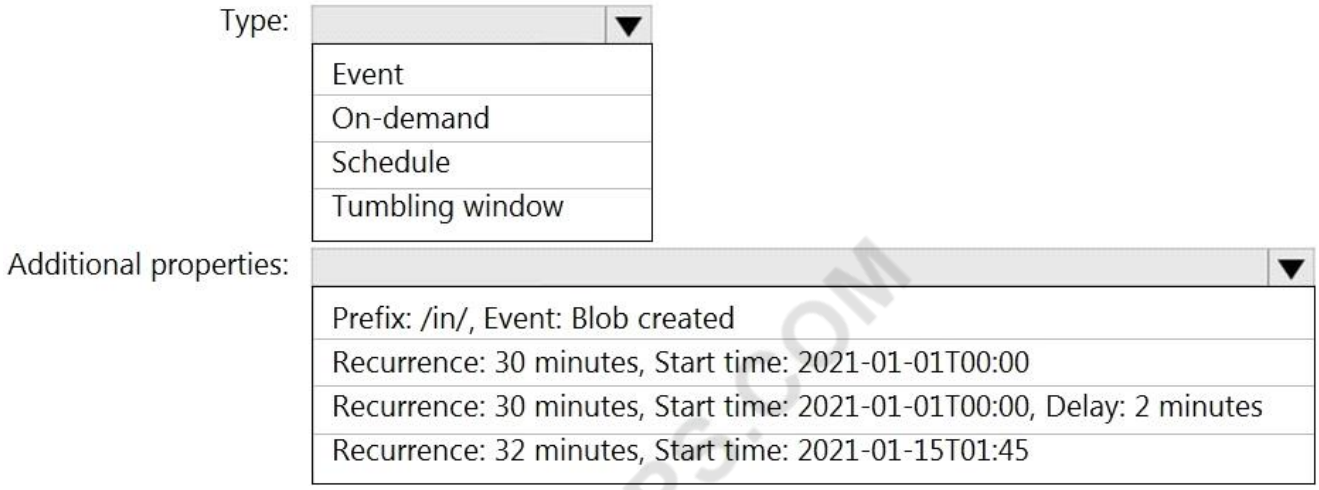
C. Delete the source files after they are copied.

D. Specify a file naming pattern for the destination.

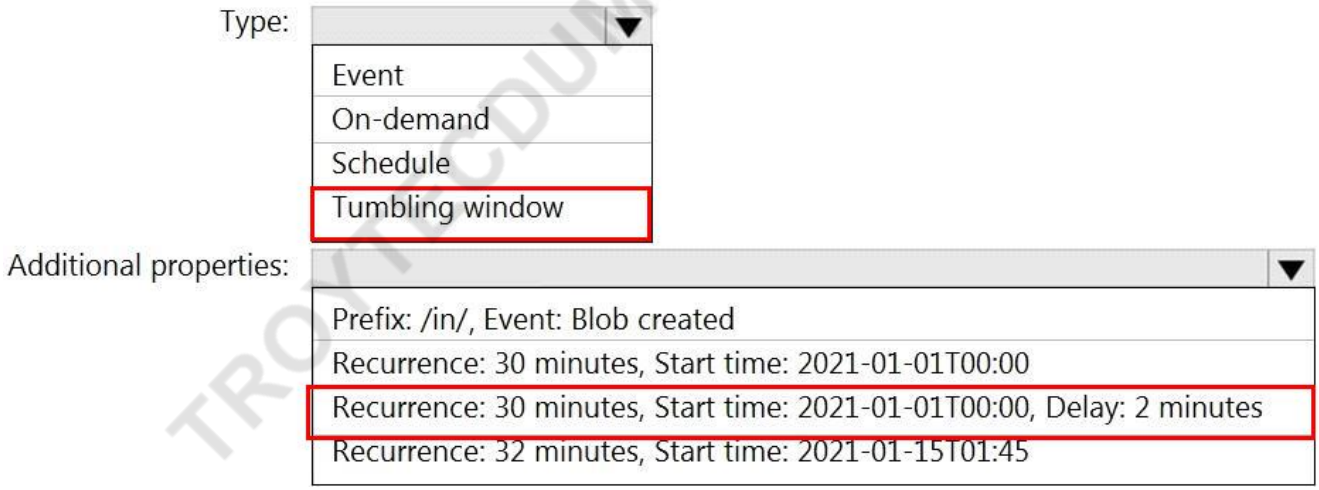
Answer: B,D
Explanation:
Copy data from one place to another. The requirements are : 1- need to minimize transfert and 2 - need to adapte data to the destination folder structure. Filter on LastModifiedDate will copy everything that have changed since the latest load while minimizing the data transfert. Specifying the file naming pattern allows to copy data at the right place to the destination Data Lake.

NO.46 You build an Azure Data Factory pipeline to move data from an Azure Data Lake Storage Gen2 container to a database in an Azure Synapse Analytics dedicated SQL pool.
Data in the container is stored in the following folder structure.
/in/{YYYY}/{MM}/{DD}/{HH}/{mm}

The earliest folder is /in/2021/01/01/00/00. The latest folder is /in/2021/01/15/01/45.
You need to configure a pipeline trigger to meet the following requirements:
Existing data must be loaded.
Data must be loaded every 30 minutes.
Late-arriving data of up to two minutes must he included in the load for the time at which the data should have arrived.
How should you configure the pipeline trigger? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/data-factory/how-to-create-tumbling-window-trigger

NO.47 You have a C# application that process data from an Azure IoT hub and performs complex transformations.
You need to replace the application with a real-time solution. The solution must reuse as much code as possible from the existing application.

A. Azure Databricks
B. Azure Event Grid
C. Azure Stream Analytics
D. Azure Data Factory

Answer: C

Explanation:

Azure Stream Analytics on IoT Edge empowers developers to deploy near-real-time analytical intelligence closer to IoT devices so that they can unlock the full value of device-generated data. UDF are available in C# for IoT Edge jobs Azure Stream Analytics on IoT Edge runs within the Azure IoT Edge framework. Once the job is created in Stream Analytics, you can deploy and manage it using IoT Hub.

Reference:

https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-edge

NO.48 You have an Azure Stream Analytics job that is a Stream Analytics project solution in Microsoft Visual Studio. The job accepts data generated by IoT devices in the JSON format.

You need to modify the job to accept data generated by the IoT devices in the Protobuf format.

Which three actions should you perform from Visual Studio on 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
Change the Event Serialization Format to Protobuf in the input.json file of the job and reference the DLL.	
Add an Azure Stream Analytics Custom Deserializer Project (.NET) project to the solution.	
Add .NET deserializer code for Protobuf to the custom deserializer project.	
Add .NET deserializer code for Protobuf to the Stream Analytics project.	
Add an Azure Stream Analytics Application project to the solution.	

Answer:

Actions	Answer Area
Change the Event Serialization Format to Protobuf in the input.json file of the job and reference the DLL.	Add an Azure Stream Analytics Custom Deserializer Project (.NET) project to the solution.
Add an Azure Stream Analytics Custom Deserializer Project (.NET) project to the solution.	Add .NET deserializer code for Protobuf to the custom deserializer project.
Add .NET deserializer code for Protobuf to the custom deserializer project.	Add an Azure Stream Analytics Application project to the solution.
Add .NET deserializer code for Protobuf to the Stream Analytics project.	
Add an Azure Stream Analytics Application project to the solution.	

Reference:

https://docs.microsoft.com/en-us/azure/stream-analytics/custom-deserializer

NO.49 You have an enterprise data warehouse in Azure Synapse Analytics that contains a table named FactOnlineSales. The table contains data from the start of 2009 to the end of 2012.

You need to improve the performance of queries against FactOnlineSales by using table partitions.

The solution must meet the following requirements:
Create four partitions based on the order date.
Ensure that each partition contains all the orders places during a given calendar year.
How should you complete the T-SQL command? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

```
CREATE TABLE [dbo].FactOnlineSales
([OnlineSalesKey] [int] NOT NULL,
[OrderDateKey] [datetime]    NOT NULL,
[StoreKey] [int]         NOT NULL,
[ProductKey] [int]       NOT NULL,
[CustomerKey] [int]      NOT NULL,
[SalesOrderNumber] [varchar](20) NOT NULL,
[SalesQuantity] [int]    NOT NULL,
[SalesAmount] [money]    NOT NULL,
[UnitPrice]    [money]   NULL)
WITH (CLUSTERED COLUMNSTORE INDEX)
PARTITION ([OrderDateKey] RANGE [ ▼ ] FOR VALUES
                                  RIGHT
                                  LEFT
    ( [ ▼ ] )
      20090101,20121231
      20100101,20110101,20120101
      20090101,20100101,20110101,20120101
```

Answer:

```
CREATE TABLE [dbo].FactOnlineSales
([OnlineSalesKey] [int] NOT NULL,
[OrderDateKey] [datetime]    NOT NULL,
[StoreKey] [int]          NOT NULL,
[ProductKey] [int]        NOT NULL,
[CustomerKey] [int]       NOT NULL,
[SalesOrderNumber] [varchar](20) NOT NULL,
[SalesQuantity] [int]     NOT NULL,
[SalesAmount] [money]     NOT NULL,
[UnitPrice]    [money]    NULL)
WITH (CLUSTERED COLUMNSTORE INDEX)
PARTITION ([OrderDateKey] RANGE [ RIGHT / LEFT ] FOR VALUES
( [ 20090101,20121231 / 20100101,20110101,20120101 / 20090101,20100101,20110101,20120101 ] )
```

Reference:
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-partition-function-transact-sql?view=sql-server-ver15

NO.50 You have an Azure Synapse Analytics dedicated SQL pool that contains a table named Table1.
You have files that are ingested and loaded into an Azure Data Lake Storage Gen2 container named container1.
You plan to insert data from the files into Table1 and azure Data Lake Storage Gen2 container named container1.
You plan to insert data from the files into Table1 and transform the dat a. Each row of data in the files will produce one row in the serving layer of Table1.
You need to ensure that when the source data files are loaded to container1, the DateTime is stored as an additional column in Table1.
Solution: In an Azure Synapse Analytics pipeline, you use a Get Metadata activity that retrieves the DateTime of the files.
Does this meet the goal?

A. Yes

B. No

Answer: B

NO.51 You are planning a streaming data solution that will use Azure Databricks. The solution will stream sales transaction data from an online store. The solution has the following specifications:

* The output data will contain items purchased, quantity, line total sales amount, and line total tax amount.
* Line total sales amount and line total tax amount will be aggregated in Databricks.
* Sales transactions will never be updated. Instead, new rows will be added to adjust a sale.
You need to recommend an output mode for the dataset that will be processed by using Structured Streaming. The solution must minimize duplicate data.
What should you recommend?

A. Append

B. Update

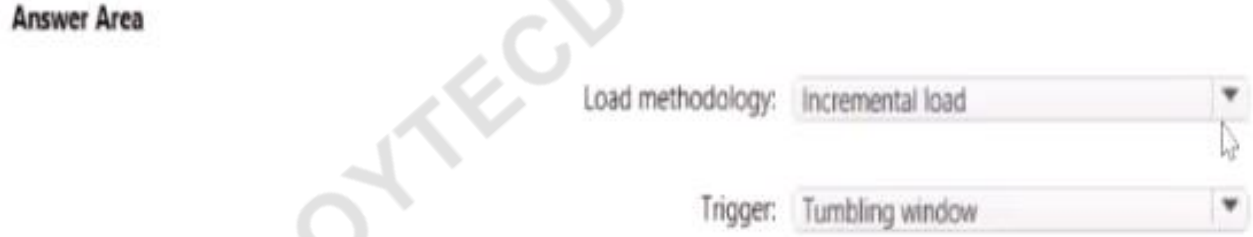
C. Complete

Answer: C

NO.52 You have an Azure Storage account that generates 200.000 new files daily. The file names have a format of (YYY)/(MM)/(DD)/|HH])/(CustornerID).csv.
You need to design an Azure Data Factory solution that will toad new data from the storage account to an Azure Data lake once hourly. The solution must minimize load times and costs.
How should you configure the solution? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

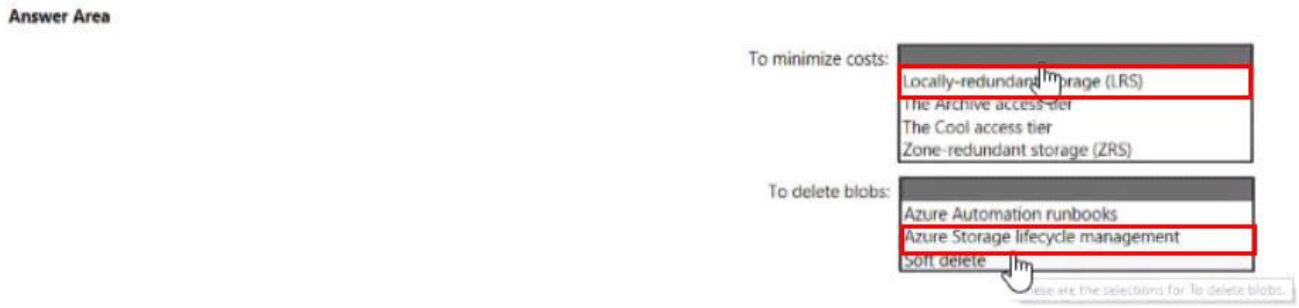
Answer:

Answer as below



NO.53 You have an Azure subscription.
You need to deploy an Azure Data Lake Storage Gen2 Premium account. The solution must meet the following requirements:
* Blobs that are older than 365 days must be deleted.
* Administrator efforts must be minimized.
* Costs must be minimized
What should you use? To answer, select the appropriate options in the answer are a. NOTE Each correct selection is worth one point.

Answer:



NO.54 You are creating a new notebook in Azure Databricks that will support R as the primary language but will also support Scale and SOL Which switch should you use to switch between languages?

A. @<Language>

B. %<Language>

C. Error! Hyperlink reference not valid.

D. Error! Hyperlink reference not valid.

Answer: B

Explanation:

To change the language in Databricks' cells to either Scala, SQL, Python or R, prefix the cell with '%', followed by the language.

%python //or r, scala, sql

Reference:

https://www.theta.co.nz/news-blogs/tech-blog/enhancing-digital-twins-part-3-predictive-maintenance-with-azure-databricks

NO.55 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You are designing an Azure Stream Analytics solution that will analyze Twitter data.

You need to count the tweets in each 10-second window. The solution must ensure that each tweet is counted only once.

Solution: You use a hopping window that uses a hop size of 10 seconds and a window size of 10 seconds.

Does this meet the goal?

A. Yes

B. No

Answer: B

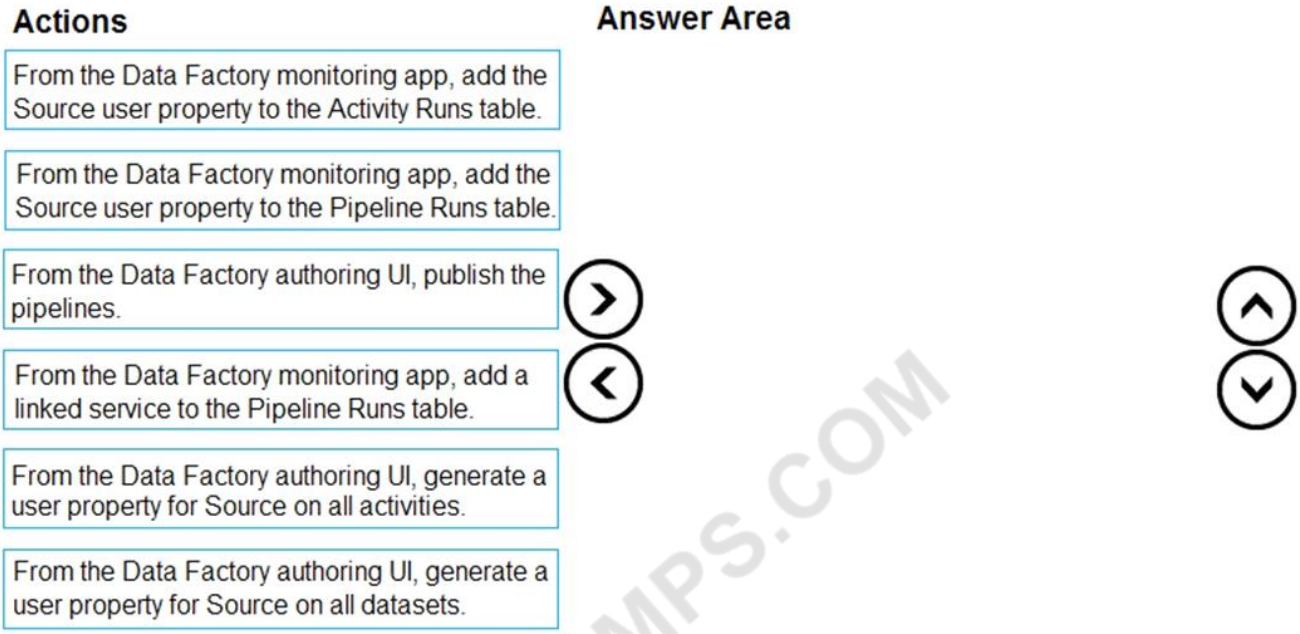
Explanation:

Instead use a tumbling window. Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals.

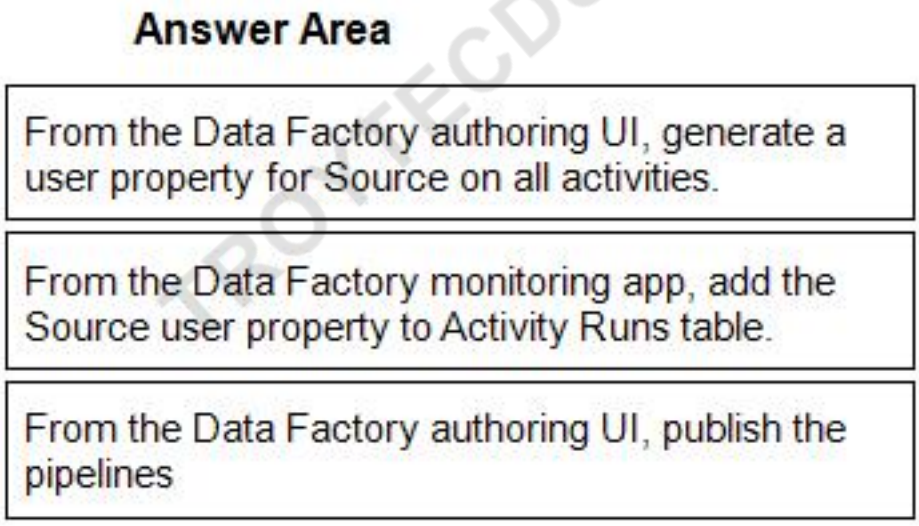
Reference:

https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.56 You plan to monitor an Azure data factory by using the Monitor & Manage app.
You need to identify the status and duration of activities that reference a table in a source database.
Which three actions should you perform in sequence? To answer, move the actions from the list of actions to the answer are and arrange them in the correct order.



Answer:



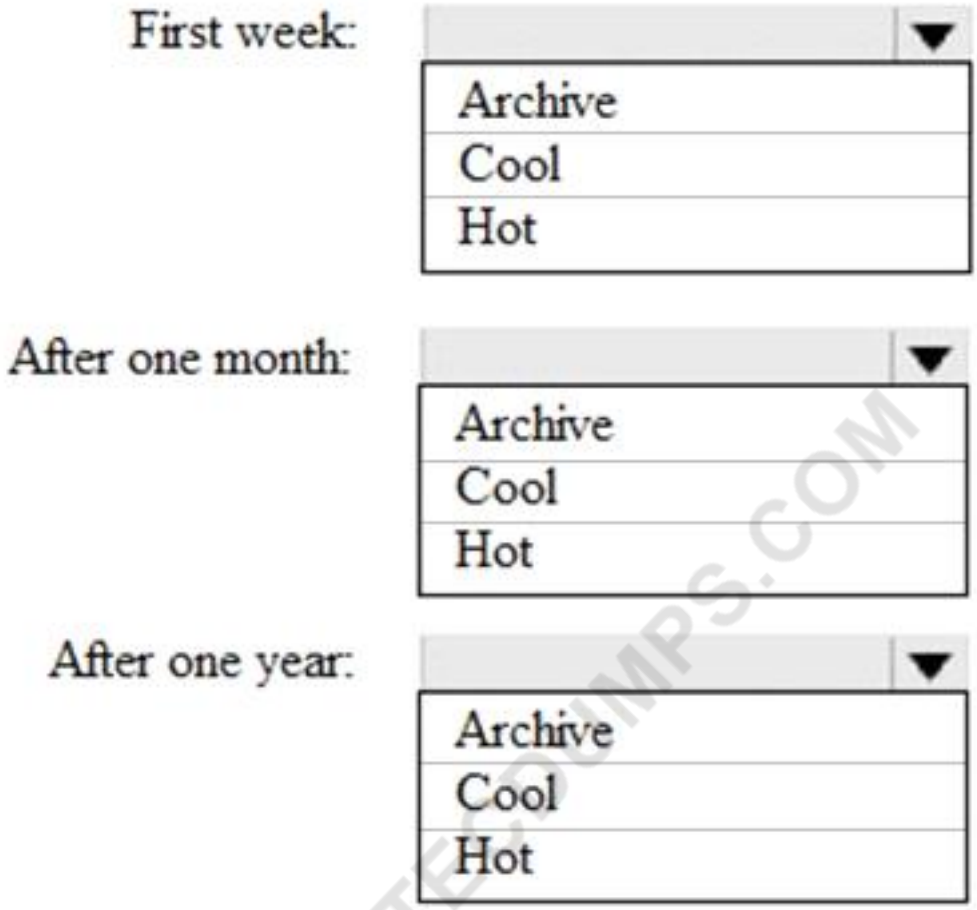
1 - From the Data Factory authoring UI, generate a user property for Source on all activities.
2 - From the Data Factory monitoring app, add the Source user property to Activity Runs table.
3 - From the Data Factory authoring UI, publish the pipelines
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/monitor-visually

NO.57 You are monitoring an Azure Stream Analytics job.
The Backlogged Input Events count has been 20 for the last hour.
You need to reduce the Backlogged Input Events count.
What should you do?
A. Drop late arriving events from the job.

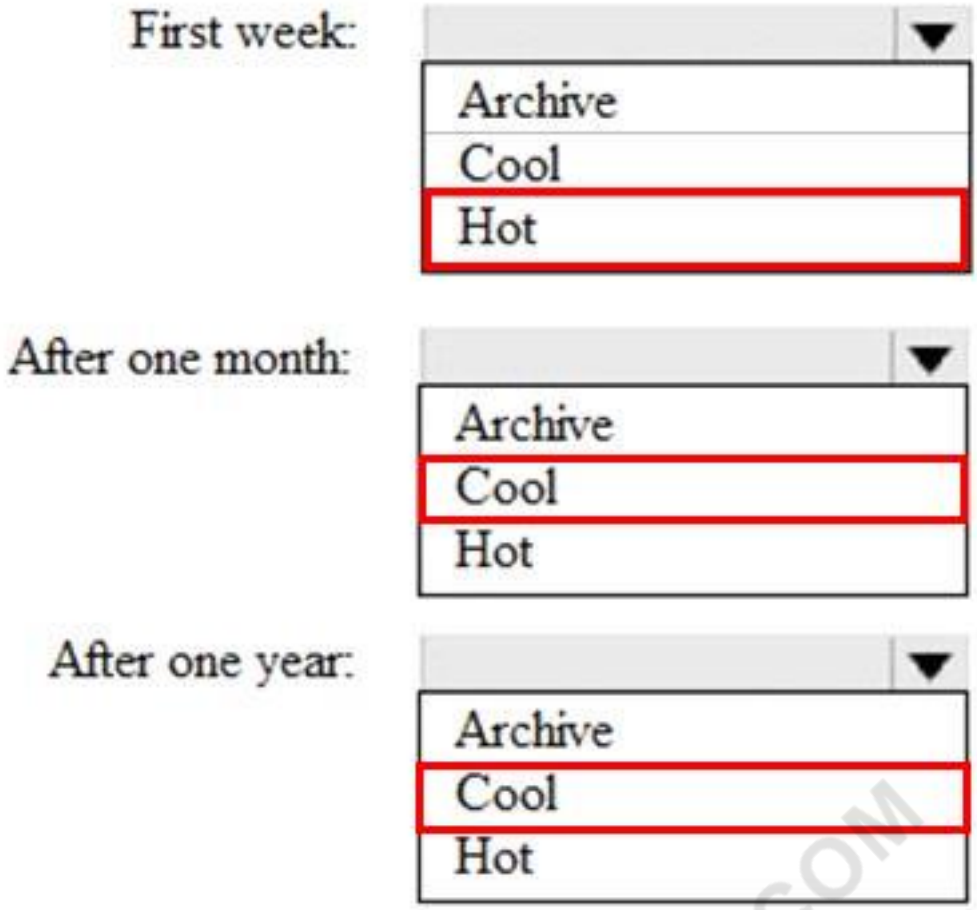
B. Add an Azure Storage account to the job.
C. Increase the streaming units for the job.
D. Stop the job.
Answer: C
Explanation:
General symptoms of the job hitting system resource limits include:
If the backlog event metric keeps increasing, it's an indicator that the system resource is constrained (either because of output sink throttling, or high CPU).
Note: Backlogged Input Events: Number of input events that are backlogged. A non-zero value for this metric implies that your job isn't able to keep up with the number of incoming events. If this value is slowly increasing or consistently non-zero, you should scale out your job: adjust Streaming Units.
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-scale-jobs
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-monitoring

NO.58 You have an Azure data factory.
You need to examine the pipeline failures from the last 180 flays.
What should you use?
A. the Activity tog blade for the Data Factory resource
B. Azure Data Factory activity runs in Azure Monitor
C. Pipeline runs in the Azure Data Factory user experience
D. the Resource health blade for the Data Factory resource
Answer: B

NO.59 You are designing an application that will store petabytes of medical imaging data When the data is first created, the data will be accessed frequently during the first week. After one month, the data must be accessible within 30 seconds, but files will be accessed infrequently. After one year, the data will be accessed infrequently but must be accessible within five minutes.
You need to select a storage strategy for the dat
a. The solution must minimize costs.
Which storage tier should you use for each time frame? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



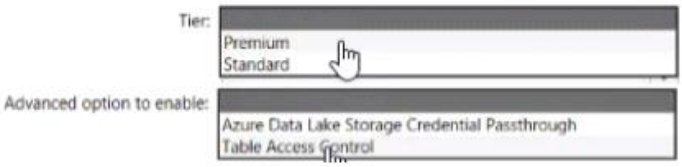
Answer:



Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers

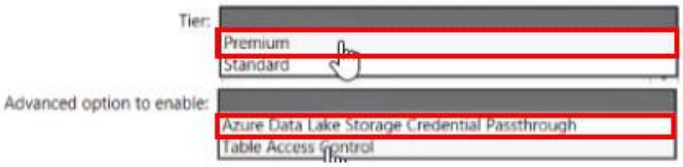
NO.60 You need to implement an Azure Databricks cluster that automatically connects to Azure Data lake Storage Gen2 by using Azure Active Directory (Azure AD) integration. How should you configure the new clutter? To answer, select the appropriate options in the answers are a. NOTE: Each correct selection is worth one point.

Answer Area



Answer:

Answer Area



Explanation:
https://docs.azuredatabricks.net/spark/latest/data-sources/azure/adls-passthrough.html

NO.61 You have a Microsoft SQL Server database that uses a third normal form schema.
You plan to migrate the data in the database to a star schema in an Azure Synapse Analytics

dedicated SQl pool.
You need to design the dimension tables. The solution must optimize read operations.
What should you include in the solution? to answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Transform data for the dimension tables by:

- Maintaining to a third normal form
- Normalizing to a fourth normal form
- Denormalizing to a second normal form

For the primary key columns in the dimension tables, use:

- New IDENTITY columns
- A new computed column
- The business key column from the source sys

Answer:

Transform data for the dimension tables by:

- Maintaining to a third normal form
- Normalizing to a fourth normal form
- **Denormalizing to a second normal form**

For the primary key columns in the dimension tables, use:

- **New IDENTITY columns**
- A new computed column
- The business key column from the source sys

Reference:
https://www.mssqltips.com/sqlservertip/5614/explore-the-role-of-normal-forms-in-dimensional-modeling/
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-identity

NO.62 You have a partitioned table in an Azure Synapse Analytics dedicated SQL pool.
You need to design queries to maximize the benefits of partition elimination.
What should you include in the Transact-SQL queries?
A. JOIN
B. WHERE
C. DISTINCT
D. GROUP BY
Answer: B

NO.63 You use Azure Stream Analytics to receive Twitter data from Azure Event Hubs and to output the data to an Azure Blob storage account.
You need to output the count of tweets during the last five minutes every five minutes. Each tweet must only be counted once.
Which windowing function should you use?
A. a five-minute Session window
B. a five-minute Sliding window

C. a five-minute Tumbling window

D. a five-minute Hopping window that has one-minute hop

Answer: C

Explanation:

Tumbling window functions are used to segment a data stream into distinct time segments and perform a function against them, such as the example below. The key differentiators of a Tumbling window are that they repeat, do not overlap, and an event cannot belong to more than one tumbling window.

Reference:

https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.64 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution. After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You have an Azure Synapse Analytics dedicated SQL pool that contains a table named Table1.

You have files that are ingested and loaded into an Azure Data Lake Storage Gen2 container named container1.

You plan to insert data from the files in container1 into Table1 and transform the dat a. Each row of data in the files will produce one row in the serving layer of Table1.

You need to ensure that when the source data files are loaded to container1, the DateTime is stored as an additional column in Table1.

Solution: You use a dedicated SQL pool to create an external table that has an additional DateTime column.

Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:

Instead use the derived column transformation to generate new columns in your data flow or to modify existing fields.

Reference:

https://docs.microsoft.com/en-us/azure/data-factory/data-flow-derived-column

NO.65 You have a table named SalesFact in an enterprise data warehouse in Azure Synapse Analytics. SalesFact contains sales data from the past 36 months and has the following characteristics:

Is partitioned by month

Contains one billion rows

Has clustered columnstore indexes

At the beginning of each month, you need to remove data from SalesFact that is older than 36 months as quickly as possible.

Which three actions should you perform in sequence in a stored procedure? 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
Switch the partition containing the stale data from SalesFact to SalesFact_Work.	
Truncate the partition containing the stale data.	
Drop the SalesFact_Work table.	
Create an empty table named SalesFact_Work that has the same schema as SalesFact.	
Execute a DELETE statement where the value in the Date column is more than 36 months ago.	
Copy the data to a new table by using CREATE TABLE AS SELECT (CTAS).	

Answer:

Actions	Answer Area
Switch the partition containing the stale data from SalesFact to SalesFact_Work.	Create an empty table named SalesFact_Work that has the same schema as SalesFact.
Truncate the partition containing the stale data.	Switch the partition containing the stale data from SalesFact to SalesFact_Work.
Drop the SalesFact_Work table.	Drop the SalesFact_Work table.
Create an empty table named SalesFact_Work that has the same schema as SalesFact.	
Execute a DELETE statement where the value in the Date column is more than 36 months ago.	
Copy the data to a new table by using CREATE TABLE AS SELECT (CTAS).	

Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-partition

NO.66 You are designing an Azure Databricks interactive cluster. The cluster will be used infrequently and will be configured for auto-termination.
You need to ensure that the cluster configuration is retained indefinitely after the cluster is terminated. The solution must minimize costs.
What should you do?

A. Clone the cluster after it is terminated.

B. Terminate the cluster manually when processing completes.

C. Create an Azure runbook that starts the cluster every 90 days.

D. Pin the cluster.

Answer: D

Explanation:
To keep an interactive cluster configuration even after it has been terminated for more than 30 days,

an administrator can pin a cluster to the cluster list.
Reference:
https://docs.azuredatabricks.net/clusters/clusters-manage.html#automatic-termination

NO.67 You have an enterprise data warehouse in Azure Synapse Analytics named DW1 on a server named Server1.
You need to verify whether the size of the transaction log file for each distribution of DW1 is smaller than 160 GB.
What should you do?
A. On the master database, execute a query against the sys.dm_pdw_nodes_os_performance_counters dynamic management view.
B. From Azure Monitor in the Azure portal, execute a query against the logs of DW1.
C. On DW1, execute a query against the sys.database_files dynamic management view.
Answer: A
D. Execute a query against the logs of DW1 by using the Get-AzOperationalInsightSearchResult PowerShell cmdlet.
Explanation:
The following query returns the transaction log size on each distribution. If one of the log files is reaching 160 GB, you should consider scaling up your instance or limiting your transaction size.
-- Transaction log size
SELECT
instance_name as distribution_db,
cntr_value*1.0/1048576 as log_file_size_used_GB,
pdw_node_id
FROM sys.dm_pdw_nodes_os_performance_counters
WHERE
instance_name like 'Distribution_%'
AND counter_name = 'Log File(s) Used Size (KB)'
Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-manage-monitor

NO.68 You have an Azure Data Lake Storage account that contains a staging zone.
You need to design a dairy process to ingest incremental data from the staging zone, transform the data by executing an R script, and then insert the transformed data into a data warehouse in Azure Synapse Analytics.
Solution: You use an Azure Data Factory schedule trigger to execute a pipeline that copies the data to a staging table in the data warehouse, and then uses a stored procedure to execute the R script.
Does this meet the goal?
A. Yes
B. No
Answer: A
Explanation:
If you need to transform data in a way that is not supported by Data Factory, you can create a custom activity with your own data processing logic and use the activity in the pipeline.
Note: You can use data transformation activities in Azure Data Factory and Synapse pipelines to transform and process your raw data into predictions and insights at scale.

Reference:
https://docs.microsoft.com/en-us/azure/data-factory/transform-data

NO.69 You are building an Azure Analytics query that will receive input data from Azure IoT Hub and write the results to Azure Blob storage.
You need to calculate the difference in readings per sensor per hour.
How should you complete the query? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

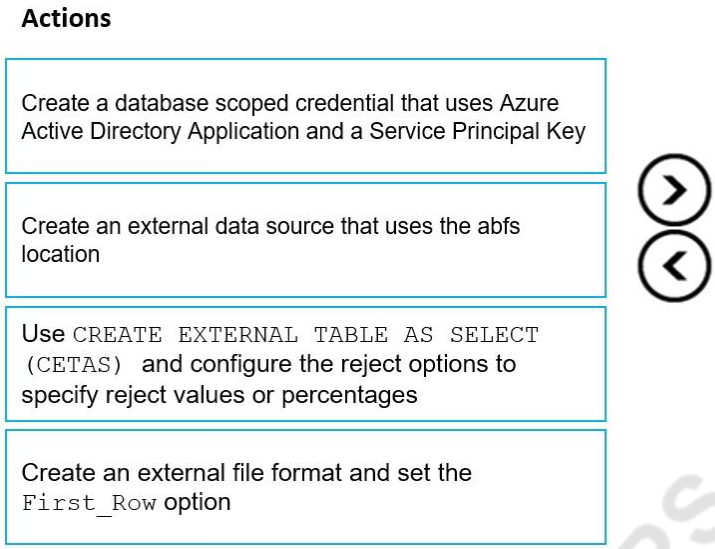
```
SELECT sensorId,
       growth = reading -
                [          ▼] (reading) OVER (PARTITION BY sensorId [          ▼] (hour,1))
                  LAG                        LIMIT DURATION
                  LAST                       OFFSET
                  LEAD                       WHEN
FROM input
```

Answer:

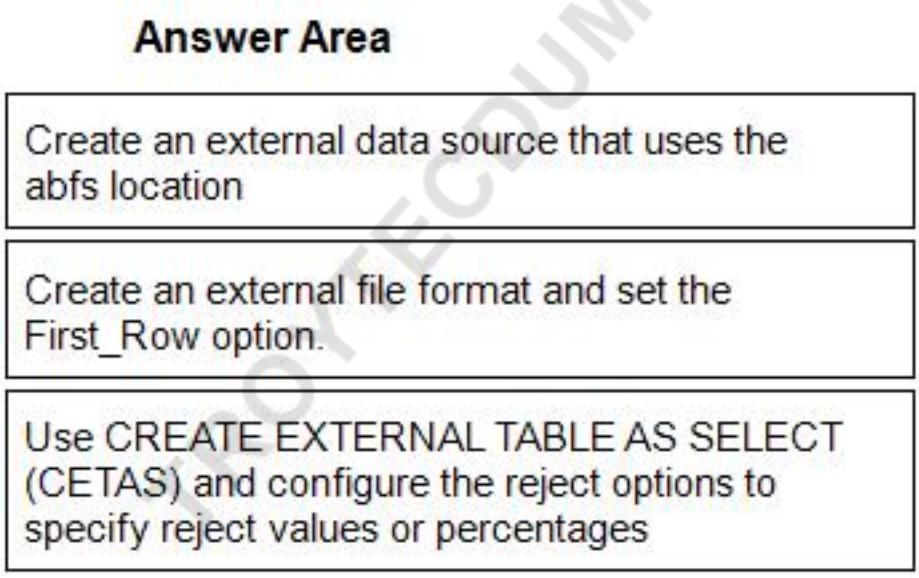
```
SELECT sensorId,
       growth = reading -
                [          ▼] (reading) OVER (PARTITION BY sensorId [          ▼] (hour,1))
                  LAG                        LIMIT DURATION
                  LAST                       OFFSET
                  LEAD                       WHEN
FROM input
```

Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/lag-azure-stream-analytics

NO.70 You have data stored in thousands of CSV files in Azure Data Lake Storage Gen2. Each file has a header row followed by a properly formatted carriage return (/r) and line feed (/n).
You are implementing a pattern that batch loads the files daily into an enterprise data warehouse in Azure Synapse Analytics by using PolyBase.
You need to skip the header row when you import the files into the data warehouse. Before building the loading pattern, you need to prepare the required database objects in Azure Synapse Analytics.
Which three 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: Each correct selection is worth one point



Answer:



1 - Create an external data source that uses the abfs location
2 - Create an external file format and set the First_Row option.
3 - Use CREATE EXTERNAL TABLE AS SELECT (CETAS) and configure the reject options to specify reject values or percentages Reference:
https://docs.microsoft.com/en-us/sql/relational-databases/polybase/polybase-t-sql-objects
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-external-table-as-select-transact-sql

NO.71 You use Azure Data Lake Storage Gen2.
You need to ensure that workloads can use filter predicates and column projections to filter data at the time the data is read from disk.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Reregister the Microsoft Data Lake Store resource provider.

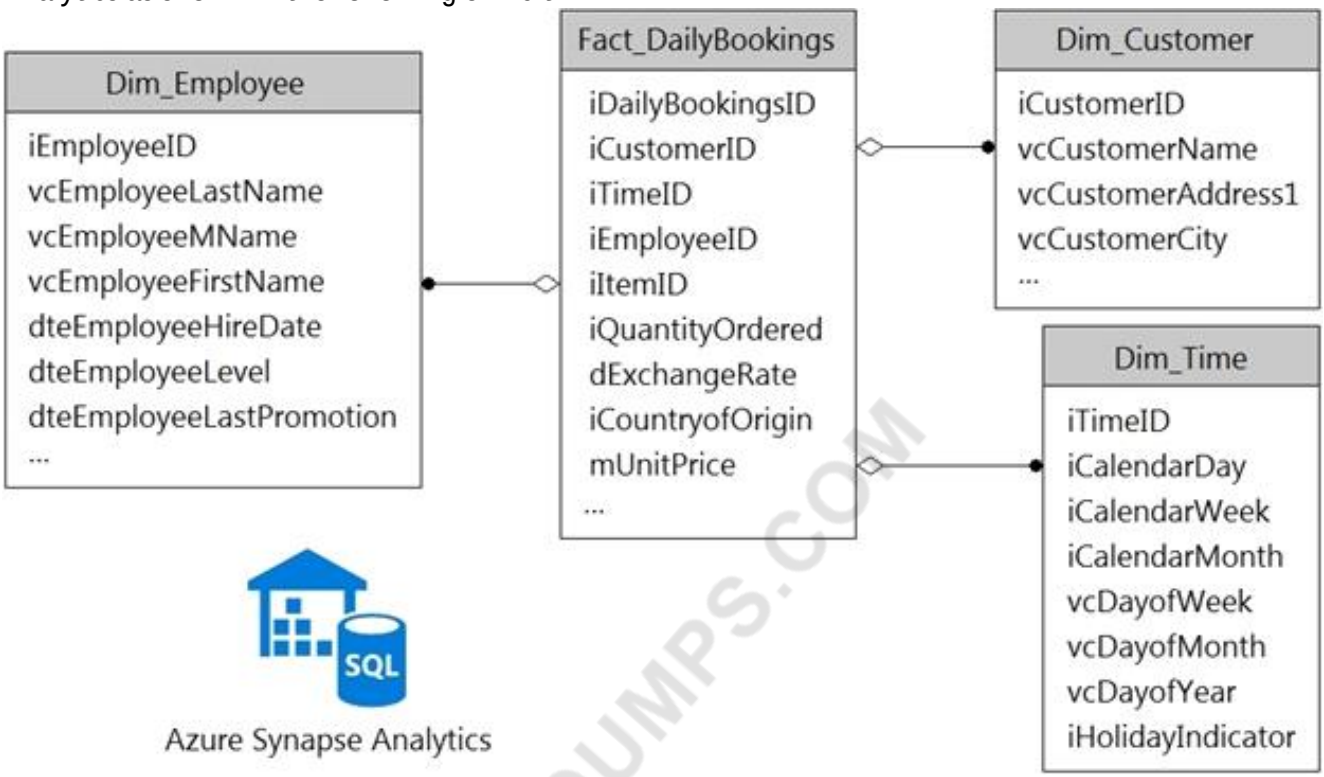
B. Reregister the Azure Storage resource provider.

C. Create a storage policy that is scoped to a container.

D. Register the query acceleration feature.

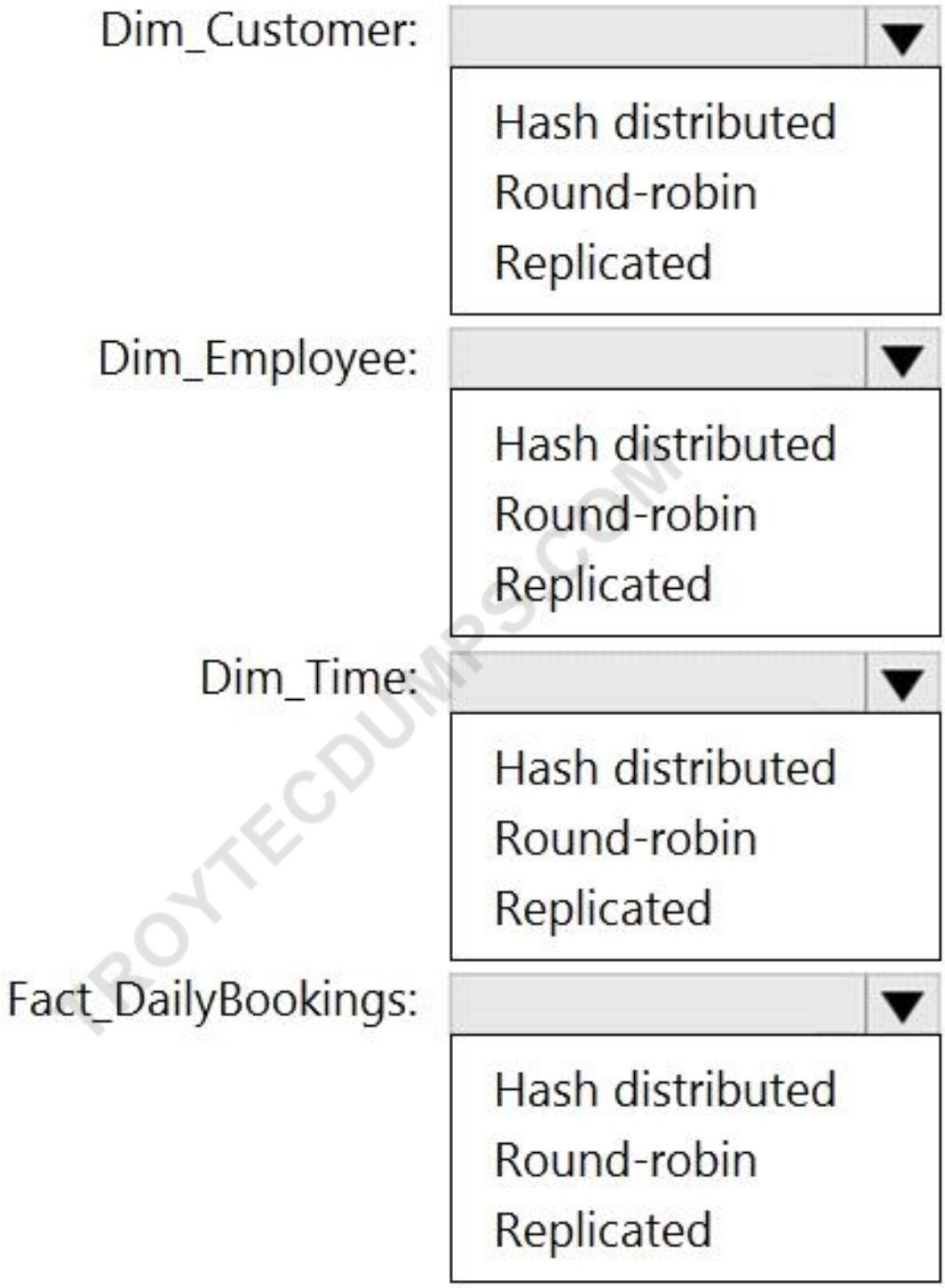
E. Create a storage policy that is scoped to a container prefix filter.
Answer: B,D

NO.72 You have a data model that you plan to implement in a data warehouse in Azure Synapse Analytics as shown in the following exhibit.



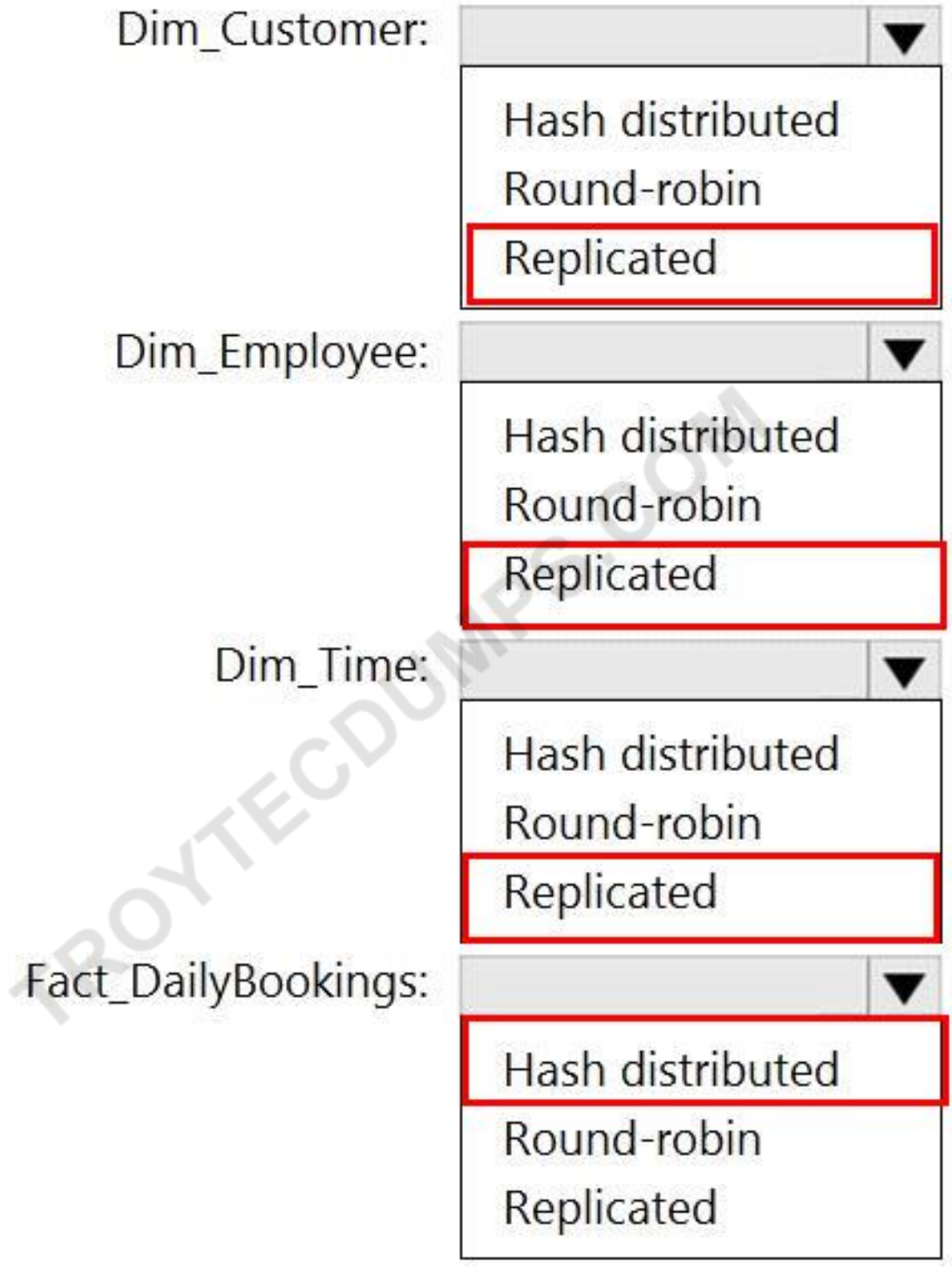
All the dimension tables will be less than 2 GB after compression, and the fact table will be approximately 6 TB.
Which type of table should you use for each table? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Answer Area



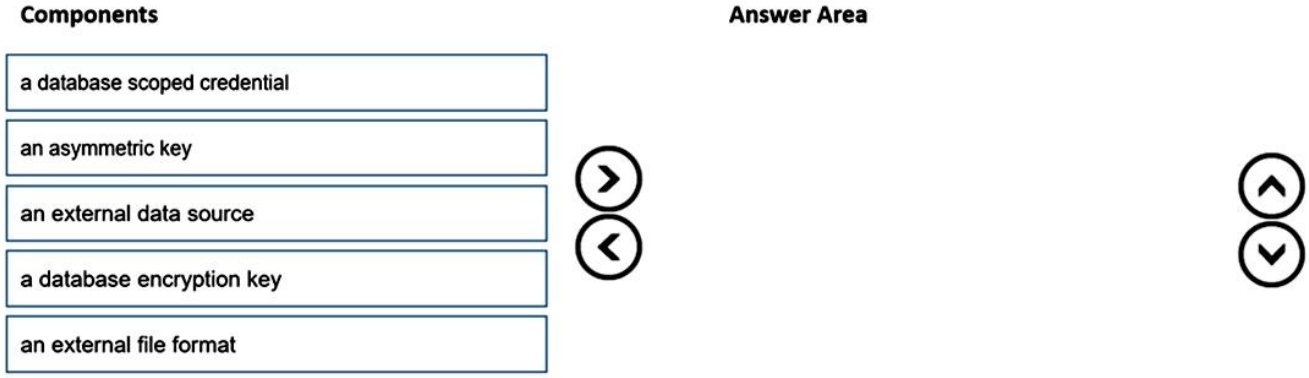
Answer:

Answer Area

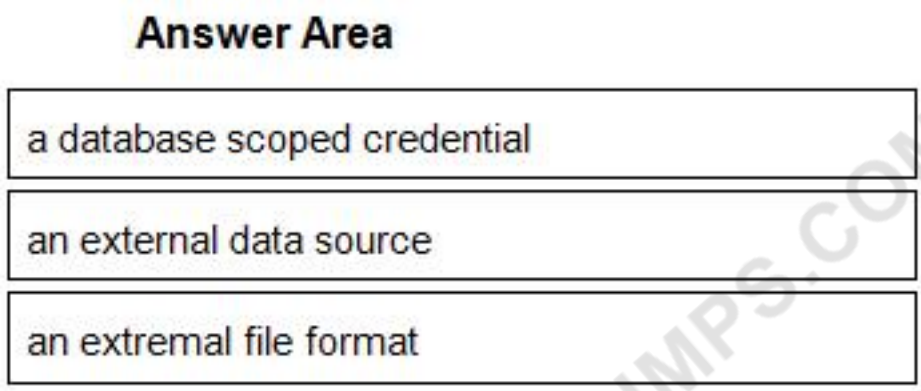


NO.73 You are responsible for providing access to an Azure Data Lake Storage Gen2 account.
Your user account has contributor access to the storage account, and you have the application ID and access key.
You plan to use PolyBase to load data into an enterprise data warehouse in Azure Synapse Analytics.
You need to configure PolyBase to connect the data warehouse to storage account.
Which three components should you create in sequence? To answer, move the appropriate

components from the list of components to the answer area and arrange them in the correct order.



Answer:



1 - a database scoped credential
2 - an external data source
3 - an extremal file format

NO.74 You are planning a solution to aggregate streaming data that originates in Apache Kafka and is output to Azure Data Lake Storage Gen2. The developers who will implement the stream processing solution use Java, Which service should you recommend using to process the streaming data?

A. Azure Data Factory
B. Azure Stream Analytics
C. Azure Databricks
D. Azure Event Hubs

Answer: C
Explanation:
https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/stream-processing

NO.75 You have an Azure Synapse Analytics dedicated SQL pool named Pool1 and a database named DB1. DB1 contains a fact table named Table1.
You need to identify the extent of the data skew in Table1.
What should you do in Synapse Studio?

A. Connect to the built-in pool and run dbcc pdw_showspaceused.

B. Connect to the built-in pool and run dbcc checkalloc.

C. Connect to Pool1 and query sys.dm_pdw_node_scacus.

D. Connect to Pool1 and query sys.dm_pdw_nodes_db_partition_scacs.

Answer: A

Explanation:

A quick way to check for data skew is to use DBCC PDW_SHOWSPACEUSED. The following SQL code returns the number of table rows that are stored in each of the 60 distributions. For balanced performance, the rows in your distributed table should be spread evenly across all the distributions.

DBCC PDW_SHOWSPACEUSED('dbo.FactInternetSales');

Reference:

https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-distribute

NO.76 You plan to create an Azure Data Factory pipeline that will include a mapping data flow.

You have JSON data containing objects that have nested arrays.

You need to transform the JSON-formatted data into a tabular dataset. The dataset must have one tow for each item in the arrays.

Which transformation method should you use in the mapping data flow?

A. unpivot

B. flatten

C. new branch

D. alter row

Answer: B

NO.77 You have an Azure Synapse Analytics dedicated SQL pool that contains a table named Table1.

You have files that are ingested and loaded into an Azure Data Lake Storage Gen2 container named container1.

You plan to insert data from the files into Table1 and azure Data Lake Storage Gen2 container named container1.

You plan to insert data from the files into Table1 and transform the dat a. Each row of data in the files will produce one row in the serving layer of Table1.

You need to ensure that when the source data files are loaded to container1, the DateTime is stored as an additional column in Table1.

Solution: In an Azure Synapse Analytics pipeline, you use a data flow that contains a Derived Column transformation.

A. Yes

B. No

Answer: A

Explanation:

Use the derived column transformation to generate new columns in your data flow or to modify existing fields.

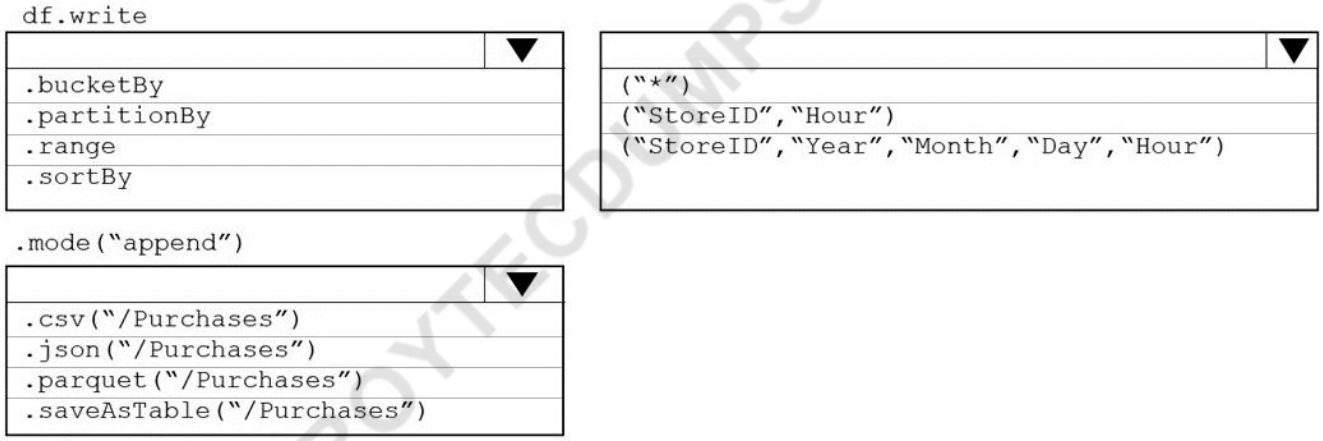
Reference:

https://docs.microsoft.com/en-us/azure/data-factory/data-flow-derived-column

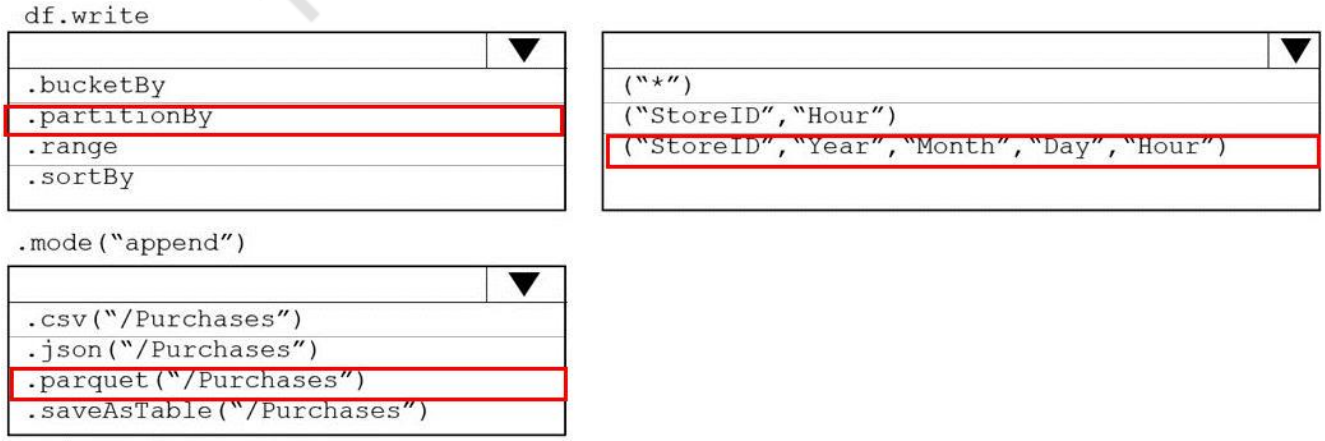
NO.78 You plan to develop a dataset named Purchases by using Azure databricks Purchases will

contain the following columns:
* ProductID
* ItemPrice
* lineTotal
* Quantity
* StoreID
* Minute
* Month
* Hour
* Year
* Day

You need to store the data to support hourly incremental load pipelines that will vary for each StoreID. the solution must minimize storage costs. How should you complete the rode? To answer, select the appropriate options In the answer are a.
NOTE: Each correct selection is worth one point.



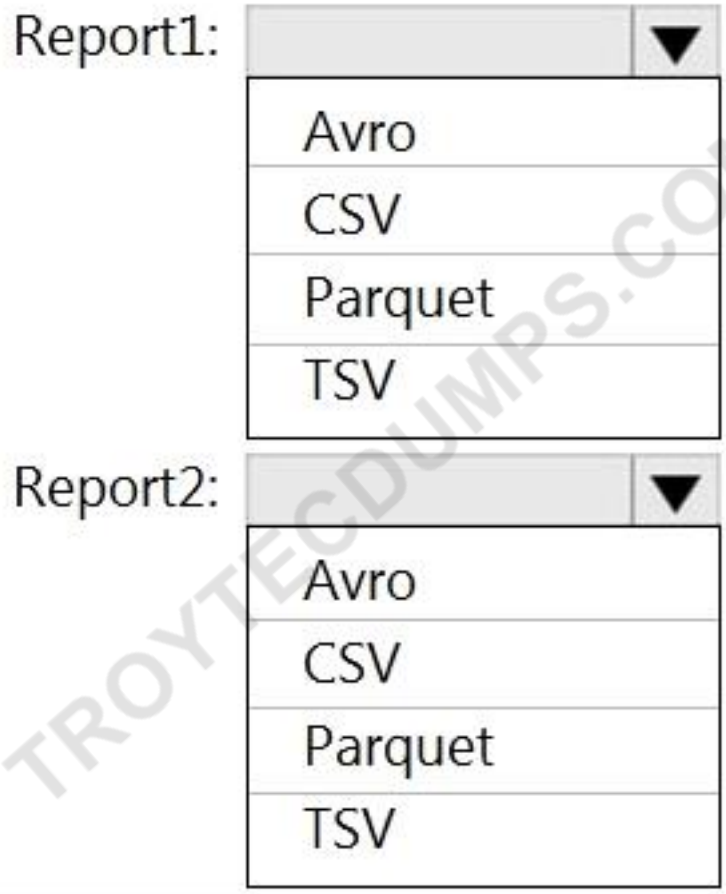
Answer:



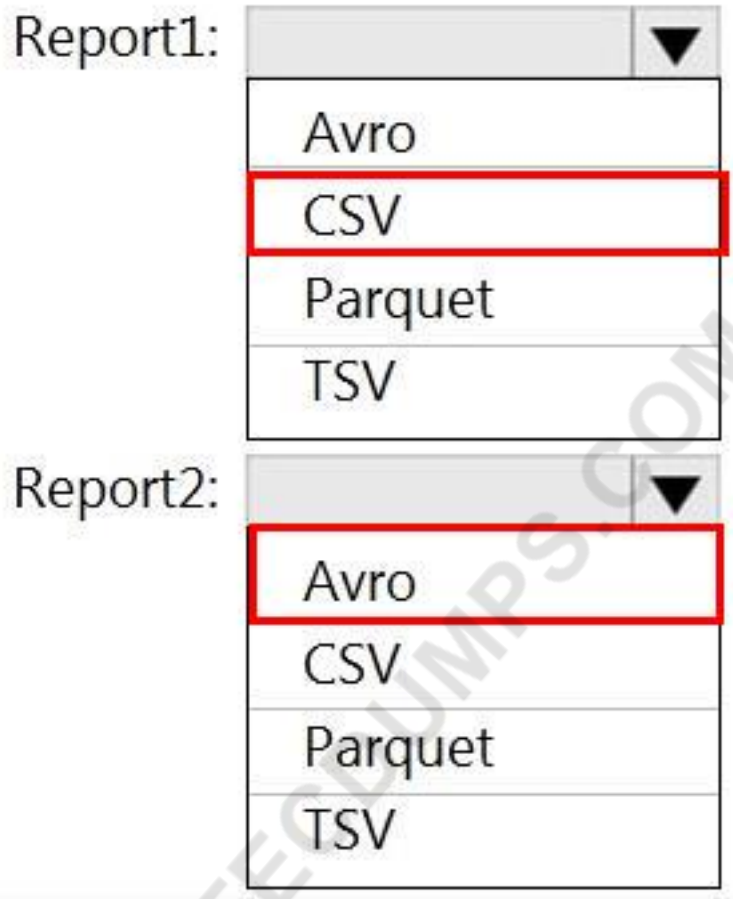
Reference:
https://intellipaat.com/community/11744/how-to-partition-and-write-dataframe-in-spark-without-deleting-partitions-with-no-new-data

NO.79 You are planning the deployment of Azure Data Lake Storage Gen2.
You have the following two reports that will access the data lake:
Report1: Reads three columns from a file that contains 50 columns.
Report2: Queries a single record based on a timestamp.

You need to recommend in which format to store the data in the data lake to support the reports. The solution must minimize read times.
What should you recommend for each report? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

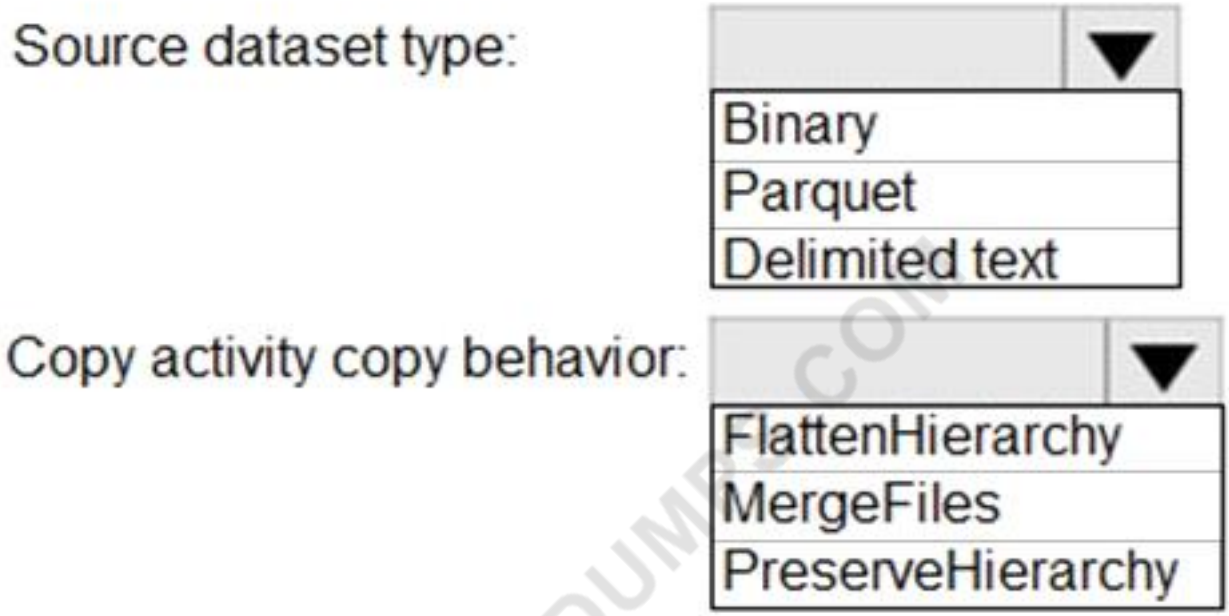


Answer:

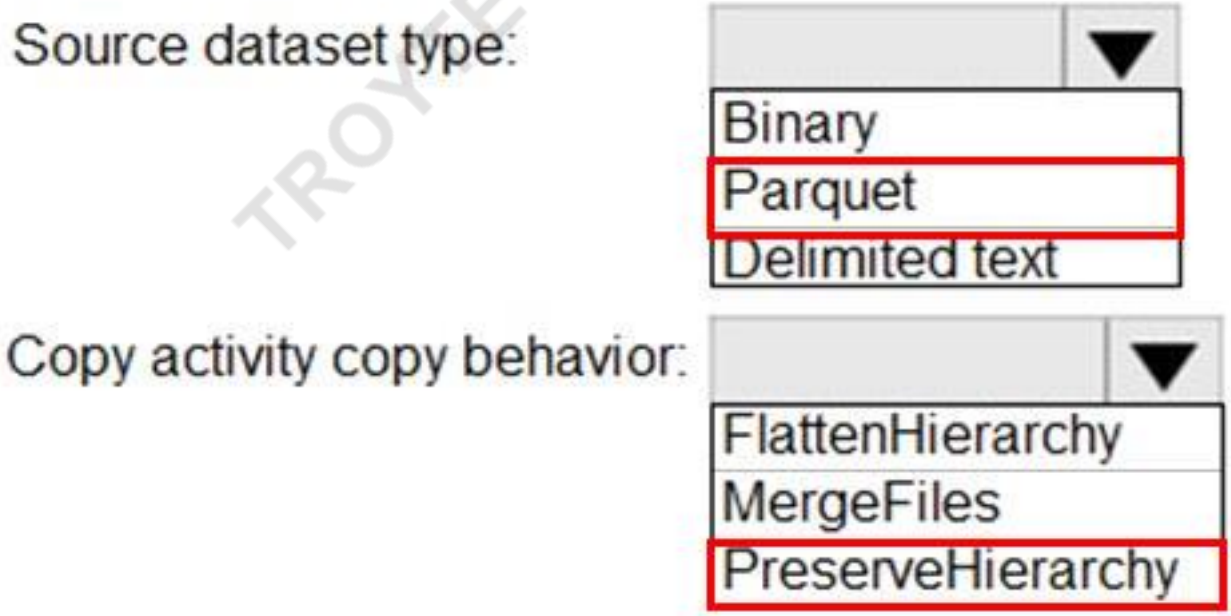


Reference:
https://streamsets.com/documentation/datacollector/latest/help/datacollector/UserGuide/Destinations/ADLS-G2-D.html

NO.80 You have two Azure Storage accounts named Storage1 and Storage2. Each account holds one container and has the hierarchical namespace enabled. The system has files that contain data stored in the Apache Parquet format.
You need to copy folders and files from Storage1 to Storage2 by using a Data Factory copy activity.
The solution must meet the following requirements:
No transformations must be performed.
The original folder structure must be retained.
Minimize time required to perform the copy activity.
How should you configure the copy activity? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/data-factory/format-parquet
https://docs.microsoft.com/en-us/azure/data-factory/connector-azure-data-lake-storage

NO.81 You have an Azure Storage account and a data warehouse in Azure Synapse Analytics in the UK South region.
You need to copy blob data from the storage account to the data warehouse by using Azure Data Factory. The solution must meet the following requirements:
Ensure that the data remains in the UK South region at all times.
Minimize administrative effort.
Which type of integration runtime should you use?

A. Azure integration runtime

B. Azure-SSIS integration runtime

C. Self-hosted integration runtime

Answer: A

Explanation:

IR type	Public network	Private network
Azure	Data Flow Data movement Activity dispatch	
Self-hosted	Data movement Activity dispatch	Data movement Activity dispatch
Azure-SSIS	SSIS package execution	SSIS package execution

Reference:
https://docs.microsoft.com/en-us/azure/data-factory/concepts-integration-runtime

NO.82 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this scenario, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have an Azure Storage account that contains 100 GB of files. The files contain text and numerical values. 75% of the rows contain description data that has an average length of 1.1 MB.
You plan to copy the data from the storage account to an Azure SQL data warehouse.
You need to prepare the files to ensure that the data copies quickly.
Solution: You modify the files to ensure that each row is less than 1 MB.
Does this meet the goal?

A. Yes

B. No

Answer: A

Explanation:
When exporting data into an ORC File Format, you might get Java out-of-memory errors when there are large text columns. To work around this limitation, export only a subset of the columns.
Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/guidance-for-loading-data

NO.83 You have an enterprise-wide Azure Data Lake Storage Gen2 account. The data lake is accessible only through an Azure virtual network named VNET1.
You are building a SQL pool in Azure Synapse that will use data from the data lake.
Your company has a sales team. All the members of the sales team are in an Azure Active Directory group named Sales. POSIX controls are used to assign the Sales group access to the files in the data lake.
You plan to load data to the SQL pool every hour.

You need to ensure that the SQL pool can load the sales data from the data lake.
Which three actions should you perform? Each correct answer presents part of the solution.
NOTE: Each area selection is worth one point.

A. Add the managed identity to the Sales group.

B. Use the managed identity as the credentials for the data load process.

C. Create a shared access signature (SAS).

D. Add your Azure Active Directory (Azure AD) account to the Sales group.

E. Use the snared access signature (SAS) as the credentials for the data load process.

F. Create a managed identity.

Answer: A,D,F

Explanation:
The managed identity grants permissions to the dedicated SQL pools in the workspace.
Note: Managed identity for Azure resources is a feature of Azure Active Directory. The feature provides Azure services with an automatically managed identity in Azure AD Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/security/synapse-workspace-managed-identity

NO.84 You are designing a star schema for a dataset that contains records of online orders. Each record includes an order date, an order due date, and an order ship date.
You need to ensure that the design provides the fastest query times of the records when querying for arbitrary date ranges and aggregating by fiscal calendar attributes.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Create a date dimension table that has a DateTime key.

B. Use built-in SQL functions to extract date attributes.

C. Create a date dimension table that has an integer key in the format of yyyymmdd.

D. In the fact table, use integer columns for the date fields.

E. Use DateTime columns for the date fields.

Answer: B,D

NO.85 You are developing a solution that will stream to Azure Stream Analytics. The solution will have both streaming data and reference data.
Which input type should you use for the reference data?

A. Azure Cosmos DB

B. Azure Blob storage

C. Azure IoT Hub

D. Azure Event Hubs

Answer: B

Explanation:
Stream Analytics supports Azure Blob storage and Azure SQL Database as the storage layer for Reference Data.
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-use-reference-data

NO.86 You are designing an Azure Synapse Analytics dedicated SQL pool.
Groups will have access to sensitive data in the pool as shown in the following table.

Name	Enhanced access
Executives	No access to sensitive data
Analysts	Access to in-region sensitive data
Engineers	Access to all numeric sensitive data

You have policies for the sensitive dat
a. The policies vary be region as shown in the following table.

Region	Data considered sensitive
RegionA	Financial, Personally Identifiable Information (PII)
RegionB	Financial, Personally Identifiable Information (PII), medical
RegionC	Financial, medical

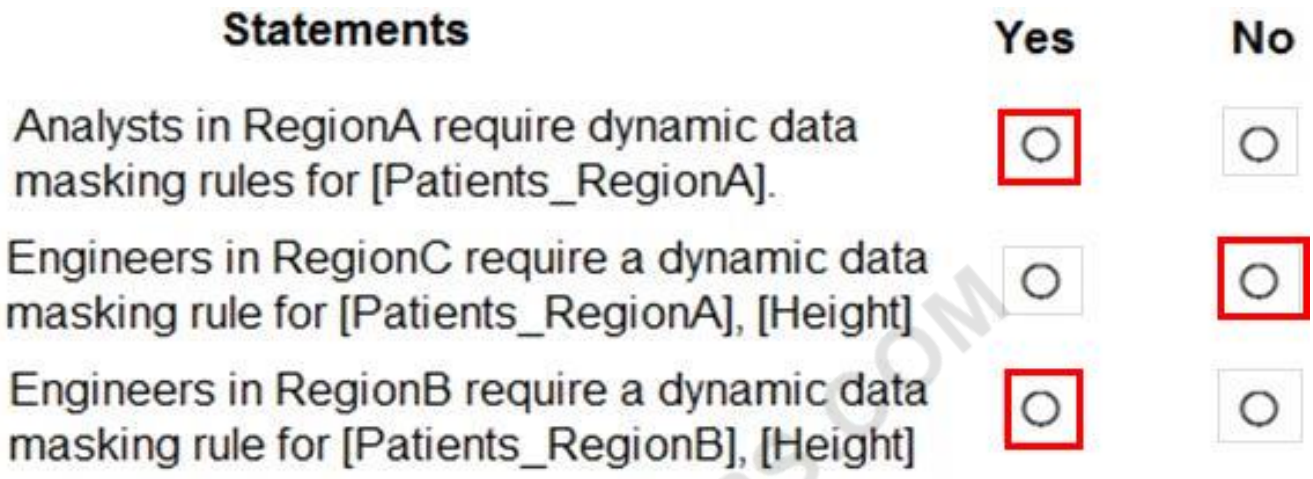
You have a table of patients for each region. The tables contain the following potentially sensitive columns.

Name	Sensitive data	Description
CardOnFile	Financial	Debit/credit card number for charges
Height	Medical	Patient's height in cm
ContactEmail	PII	Email address for secure communications

You are designing dynamic data masking to maintain compliance.
For each of the following statements, select Yes if the statement is true. Otherwise, select No.
NOTE: Each correct selection is worth one point.

Statements	Yes	No
Analysts in RegionA require dynamic data masking rules for [Patients_RegionA].	○	○
Engineers in RegionC require a dynamic data masking rule for [Patients_RegionA], [Height]	○	○
Engineers in RegionB require a dynamic data masking rule for [Patients_RegionB], [Height]	○	○

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/azure-sql/database/dynamic-data-masking-overview

NO.87 You have an Azure data solution that contains an enterprise data warehouse in Azure Synapse Analytics named DW1.
Several users execute ad hoc queries to DW1 concurrently.
You regularly perform automated data loads to DW1.
You need to ensure that the automated data loads have enough memory available to complete quickly and successfully when the adhoc queries run.
What should you do?

A. Hash distribute the large fact tables in DW1 before performing the automated data loads.

B. Assign a smaller resource class to the automated data load queries.

C. Assign a larger resource class to the automated data load queries.

D. Create sampled statistics for every column in each table of DW1.

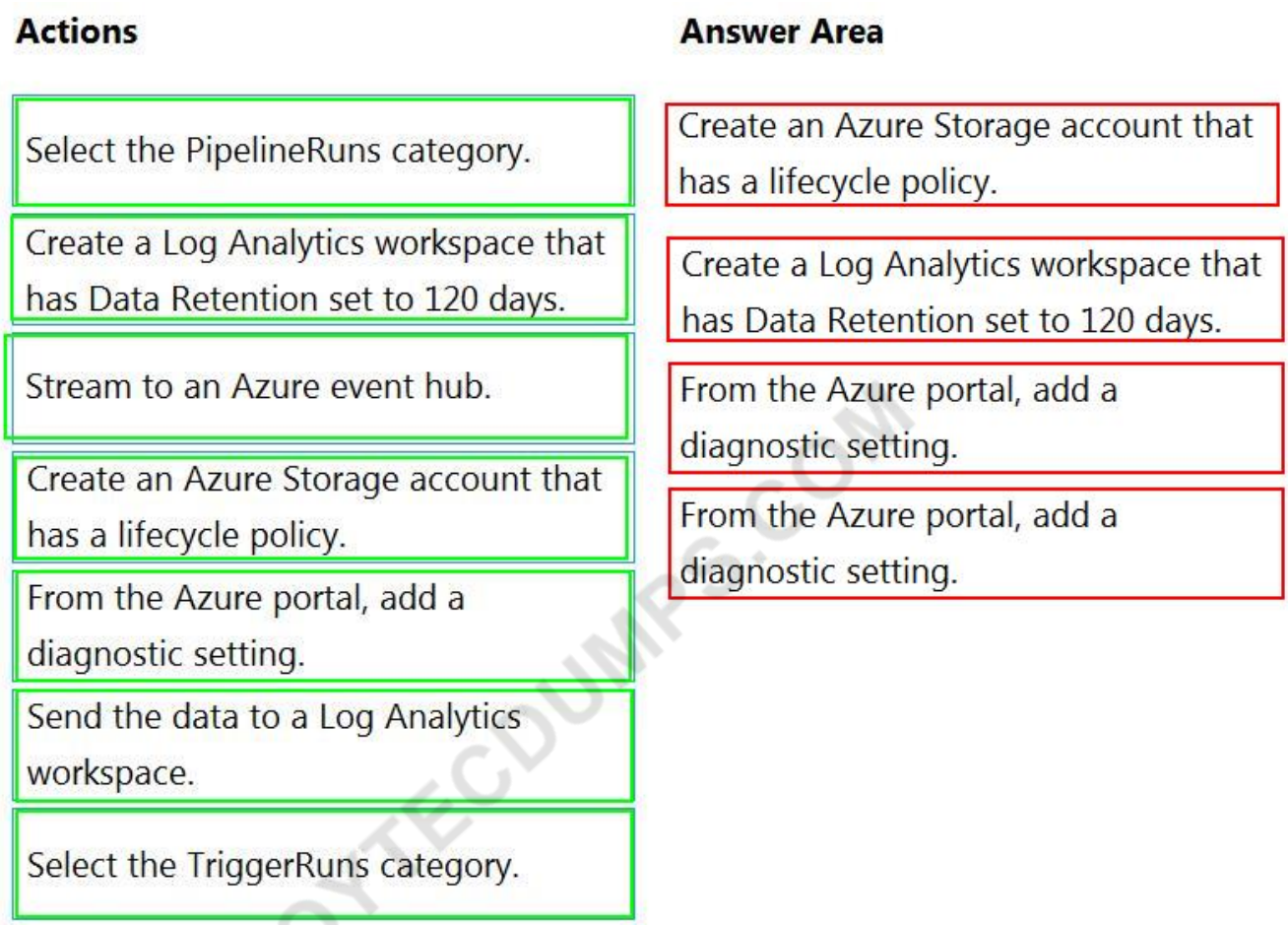
Answer: C
Explanation:
The performance capacity of a query is determined by the user's resource class. Resource classes are pre-determined resource limits in Synapse SQL pool that govern compute resources and concurrency for query execution.
Resource classes can help you configure resources for your queries by setting limits on the number of queries that run concurrently and on the compute-resources assigned to each query. There's a trade-off between memory and concurrency.
Smaller resource classes reduce the maximum memory per query, but increase concurrency.
Larger resource classes increase the maximum memory per query, but reduce concurrency.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/resource-classes-for-workload-management

NO.88 You have an Azure data factory.
You need to ensure that pipeline-run data is retained for 120 days. The solution must ensure that you can query the data by using the Kusto query language.
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	Answer Area
Select the PipelineRuns category.	
Create a Log Analytics workspace that has Data Retention set to 120 days.	
Stream to an Azure event hub.	
Create an Azure Storage account that has a lifecycle policy.	
From the Azure portal, add a diagnostic setting.	
Send the data to a Log Analytics workspace.	
Select the TriggerRuns category.	

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/data-factory/monitor-using-azure-monitor

NO.89 You are performing exploratory analysis of the bus fare data in an Azure Data Lake Storage Gen2 account by using an Azure Synapse Analytics serverless SQL pool.
You execute the Transact-SQL query shown in the following exhibit.

```
SELECT
    payment_type,
    SUM(fare_amount) AS fare_total
FROM OPENROWSET(
            BULK 'csv/busfare/tripdata_2020*.csv',
            DATA_SOURCE = 'BusData',
            FORMAT = 'CSV', PARSER_VERSION = '2.0',
            FIRSTROW = 2
    )
    WITH (
            payment_type INT 10,
            fare_amount FLOAT 11
    ) AS nyc
GROUP BY payment_type
ORDER BY payment_type;
```

What do the query results include?

A. Only CSV files in the tripdata_2020 subfolder.

B. All files that have file names that beginning with "tripdata_2020".

C. All CSV files that have file names that contain "tripdata_2020".

D. Only CSV that have file names that beginning with "tripdata_2020".

Answer: D

NO.90 You have a self-hosted integration runtime in Azure Data Factory.
The current status of the integration runtime has the following configurations:
Status: Running
Type: Self-Hosted
Running / Registered Node(s): 1/1
High Availability Enabled: False
Linked Count: 0
Queue Length: 0
Average Queue Duration. 0.00s
The integration runtime has the following node details:
Name: X-M
Status: Running
Available Memory: 7697MB
CPU Utilization: 6%
Network (In/Out): 1.21KBps/0.83KBps
Concurrent Jobs (Running/Limit): 2/14
Role: Dispatcher/Worker
Credential Status: In Sync
Use the drop-down menus to select the answer choice that completes each statement based on the information presented.

NOTE: Each correct selection is worth one point.

If the X-M node becomes unavailable, all executed pipelines will:

- fail until the node comes back online
- switch to another integration runtime
- exceed the CPU limit

The number of concurrent jobs and the CPU usage indicate that the Concurrent Jobs (Running/Limit) value should be:

- raised
- lowered
- left as is

Answer:

If the X-M node becomes unavailable, all executed pipelines will:

- **fail until the node comes back online**
- switch to another integration runtime
- exceed the CPU limit

The number of concurrent jobs and the CPU usage indicate that the Concurrent Jobs (Running/Limit) value should be:

- raised
- **lowered**
- left as is

Reference:
https://docs.microsoft.com/en-us/azure/data-factory/create-self-hosted-integration-runtime

NO.91 You are creating dimensions for a data warehouse in an Azure Synapse Analytics dedicated SQL pool.
You create a table by using the Transact-SQL statement shown in the following exhibit.

```
CREATE TABLE [DBO].[DimProduct](
       [ProductKey] [int] IDENTITY(1,1) NOT NULL,
       [ProductSourceID] [int] NOT NULL,
       [ProductName] [nvarchar](100) NOT NULL,
       [ProductNumber] [nvarchar](25) NOT NULL,
       [Color] [nvarchar](15) NULL,
       [Size] [nvarchar](5) NULL,
       [Weight] [decimal](8, 2) NULL,
       [ProductCategory] [nvarchar](100) NULL,
       [SellStartDate] [date] NOT NULL,
       [SellEndDate] [date] NULL,
       [RowInsertedDateTime] [datetime] NOT NULL,
       [RowUpdatedDateTime] [datetime] NOT NULL,
       [ETLAuditID] [int] NOT NULL
)
```

Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.
NOTE: Each correct selection is worth one point.

DimProduct is a **[answer choice]** slowly changing dimension (SCD).

- Type 0
- Type 1
- Type 2

The ProductKey column is **[answer choice]**.

- a surrogate key
- a business key
- an audit column

Answer:

DimProduct is a **[answer choice]** slowly changing dimension (SCD).

- Type 0
- Type 1
- Type 2 (selected)

The ProductKey column is **[answer choice]**.

- a surrogate key
- a business key (selected)
- an audit column

Reference:
https://docs.microsoft.com/en-us/learn/modules/populate-slowly-changing-dimensions-azure-synapse-analytics-pipelines/3-choose-between-dimension-types

NO.92 You use PySpark in Azure Databricks to parse the following JSON input.

```
{
    "persons":[
      {
         "name":"Keith",
         "age":30,
         "dogs":["Fido", "Fluffy"]

      },
      {
         "name":"Donna",
         "age":46,
         "dogs":["Spot"]


      }
    ]
}
```

You need to output the data in the following tabular format.

owner	age	dog
Keith	30	Fido
Keith	30	Fluffy
Donna	46	Spot

How should you complete the PySpark code? To answer, drag the appropriate values to he correct targets. Each value 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.
NOTE: Each correct selection is worth one point.

Answer:

NO.93 You have an Azure Synapse Analytics dedicated SQL pool that contains a table named Table1.
You have files that are ingested and loaded into an Azure Data Lake Storage Gen2 container named container1.
You plan to insert data from the files into Table1 and azure Data Lake Storage Gen2 container named container1.
You plan to insert data from the files into Table1 and transform the dat a. Each row of data in the files will produce one row in the serving layer of Table1.
You need to ensure that when the source data files are loaded to container1, the DateTime is stored as an additional column in Table1.
Solution: You use a dedicated SQL pool to create an external table that has a additional DateTime column.
Does this meet the goal?

A. Yes

B. No

Answer: A

NO.94 You manage an enterprise data warehouse in Azure Synapse Analytics.
Users report slow performance when they run commonly used queries. Users do not report performance changes for infrequently used queries.
You need to monitor resource utilization to determine the source of the performance issues.
Which metric should you monitor?

A. Data IO percentage

B. Local tempdb percentage

C. Cache used percentage

D. DWU percentage

Answer: C

Explanation:
Monitor and troubleshoot slow query performance by determining whether your workload is optimally leveraging the adaptive cache for dedicated SQL pools.
Reference:

https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-how-to-monitor-cache

NO.95 You are implementing an Azure Stream Analytics solution to process event data from devices. The devices output events when there is a fault and emit a repeat of the event every five seconds until the fault is resolved. The devices output a heartbeat event every five seconds after a previous event if there are no faults present.
A sample of the events is shown in the following table.

DeviceID	EventType	EventTime
78cc5ht9-w357-684r-w4fr-kr16h6p9874e	HeartBeat	2020-12-01T19:00.000Z
78cc5ht9-w357-684r-w4fr-kr16h6p9874e	HeartBeat	2020-12-01T19:05.000Z
78cc5ht9-w357-684r-w4fr-kr16h6p9874e	TemperatureSensorFault	2020-12-01T19:07.000Z

You need to calculate the uptime between the faults.
How should you complete the Stream Analytics SQL query? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.

```
SELECT

DeviceID,

MIN(EventTime) as StartTime,

MAX(EventTime) as EndTime,

DATEDIFF(second, MIN(EventTime), MAX(EventTime)) AS duration_in_seconds

FROM input TIMESTAMP BY EventTime
```

▼
WHERE EventType='HeartBeat'
WHERE LAG(EventType, 1) OVER (LIMIT DURATION(second,5)) <> EventType
WHERE IsFirst(second,5) = 1

```
GROUP BY

DeviceID
```

▼
,SessionWindow(second, 5, 50000) OVER (PARTITION BY DeviceID)
,TumblingWindow(second,5)
HAVING DATEDIFF(second, MIN(EventTime), MAX(EventTime)) > 5

Answer:

```
SELECT

DeviceID,

MIN(EventTime) as StartTime,

MAX(EventTime) as EndTime,

DATEDIFF(second, MIN(EventTime), MAX(EventTime)) AS duration_in_seconds

FROM input TIMESTAMP BY EventTime
```

WHERE EventType='HeartBeat'
WHERE LAG(EventType, 1) OVER (LIMIT DURATION(second,5)) <> EventType
WHERE IsFirst(second,5) = 1

```
GROUP BY

DeviceID
```

,SessionWindow(second, 5, 50000) OVER (PARTITION BY DeviceID)
,TumblingWindow(second,5)
HAVING DATEDIFF(second, MIN(EventTime), MAX(EventTime)) > 5

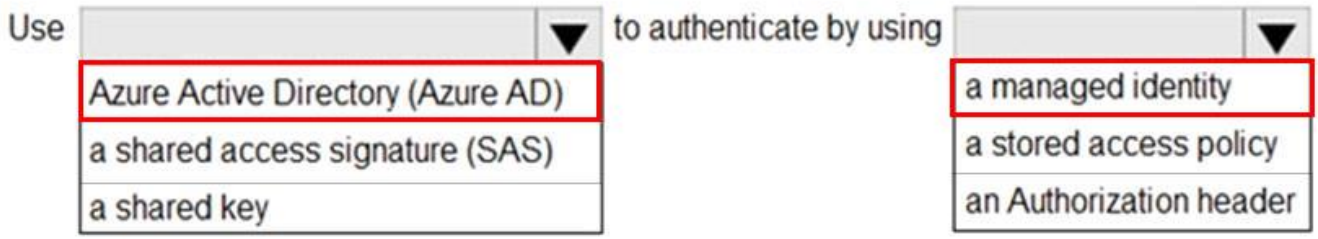
Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/session-window-azure-stream-analytics
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.96 You have an Azure subscription that contains an Azure Data Lake Storage account. The storage account contains a data lake named DataLake1.
You plan to use an Azure data factory to ingest data from a folder in DataLake1, transform the data, and land the data in another folder.
You need to ensure that the data factory can read and write data from any folder in the DataLake1 file system. The solution must meet the following requirements:
Minimize the risk of unauthorized user access.
Use the principle of least privilege.
Minimize maintenance effort.
How should you configure access to the storage account for the data factory? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Use [▼] to authenticate by using [▼]

Use	to authenticate by using
Azure Active Directory (Azure AD)	a managed identity
a shared access signature (SAS)	a stored access policy
a shared key	an Authorization header

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/active-directory/managed-identities-azure-resources/overview
https://docs.microsoft.com/en-us/azure/data-factory/connector-azure-data-lake-storage

NO.97 You are designing a streaming data solution that will ingest variable volumes of data.
You need to ensure that you can change the partition count after creation.
Which service should you use to ingest the data?

A. Azure Event Hubs Dedicated

B. Azure Stream Analytics

C. Azure Data Factory

D. Azure Synapse Analytics

Answer: A

Explanation:
You can't change the partition count for an event hub after its creation except for the event hub in a dedicated cluster.
Reference:
https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-features

NO.98 You have an Azure Synapse workspace named MyWorkspace that contains an Apache Spark database named mytestdb.
You run the following command in an Azure Synapse Analytics Spark pool in MyWorkspace.

```
CREATE TABLE mytestdb.myParquetTable(
EmployeeID int,
EmployeeName string,
EmployeeStartDate date)
USING Parquet
```

You then use Spark to insert a row into mytestdb.myParquetTable. The row contains the following data.

EmployeeName	EmployeeID	EmployeeStartDate
Alice	24	2020-01-25

One minute later, you execute the following query from a serverless SQL pool in MyWorkspace.

```
SELECT EmployeeID
FROM mytestdb.dbo.myParquetTable
WHERE name = 'Alice';
```

What will be returned by the query?

A. 24

B. an error

C. a null value

Answer: B

Explanation:

Once a database has been created by a Spark job, you can create tables in it with Spark that use Parquet as the storage format. Table names will be converted to lower case and need to be queried using the lower case name. These tables will immediately become available for querying by any of the Azure Synapse workspace Spark pools. They can also be used from any of the Spark jobs subject to permissions.

Note: For external tables, since they are synchronized to serverless SQL pool asynchronously, there will be a delay until they appear.

Reference:

https://docs.microsoft.com/en-us/azure/synapse-analytics/metadata/table

NO.99 You plan to perform batch processing in Azure Databricks once daily.

Which type of Databricks cluster should you use?

A. High Concurrency

B. automated

C. interactive

Answer: B

Explanation:

Azure Databricks has two types of clusters: interactive and automated. You use interactive clusters to analyze data collaboratively with interactive notebooks. You use automated clusters to run fast and robust automated jobs.

Example: Scheduled batch workloads (data engineers running ETL jobs)

This scenario involves running batch job JARs and notebooks on a regular cadence through the Databricks platform.

The suggested best practice is to launch a new cluster for each run of critical jobs. This helps avoid any issues (failures, missing SLA, and so on) due to an existing workload (noisy neighbor) on a shared cluster.

Reference:

https://docs.databricks.com/administration-guide/cloud-configurations/aws/cmbp.html#scenario-3-scheduled-batch-workloads-data-engineers-running-etl-jobs

NO.100 You are designing a monitoring solution for a fleet of 500 vehicles. Each vehicle has a GPS tracking device that sends data to an Azure event hub once per minute.

You have a CSV file in an Azure Data Lake Storage Gen2 container. The file maintains the expected geographical area in which each vehicle should be.

You need to ensure that when a GPS position is outside the expected area, a message is added to another event hub for processing within 30 seconds. The solution must minimize cost.

What should you include in the solution? To answer, select the appropriate options in the answer area.

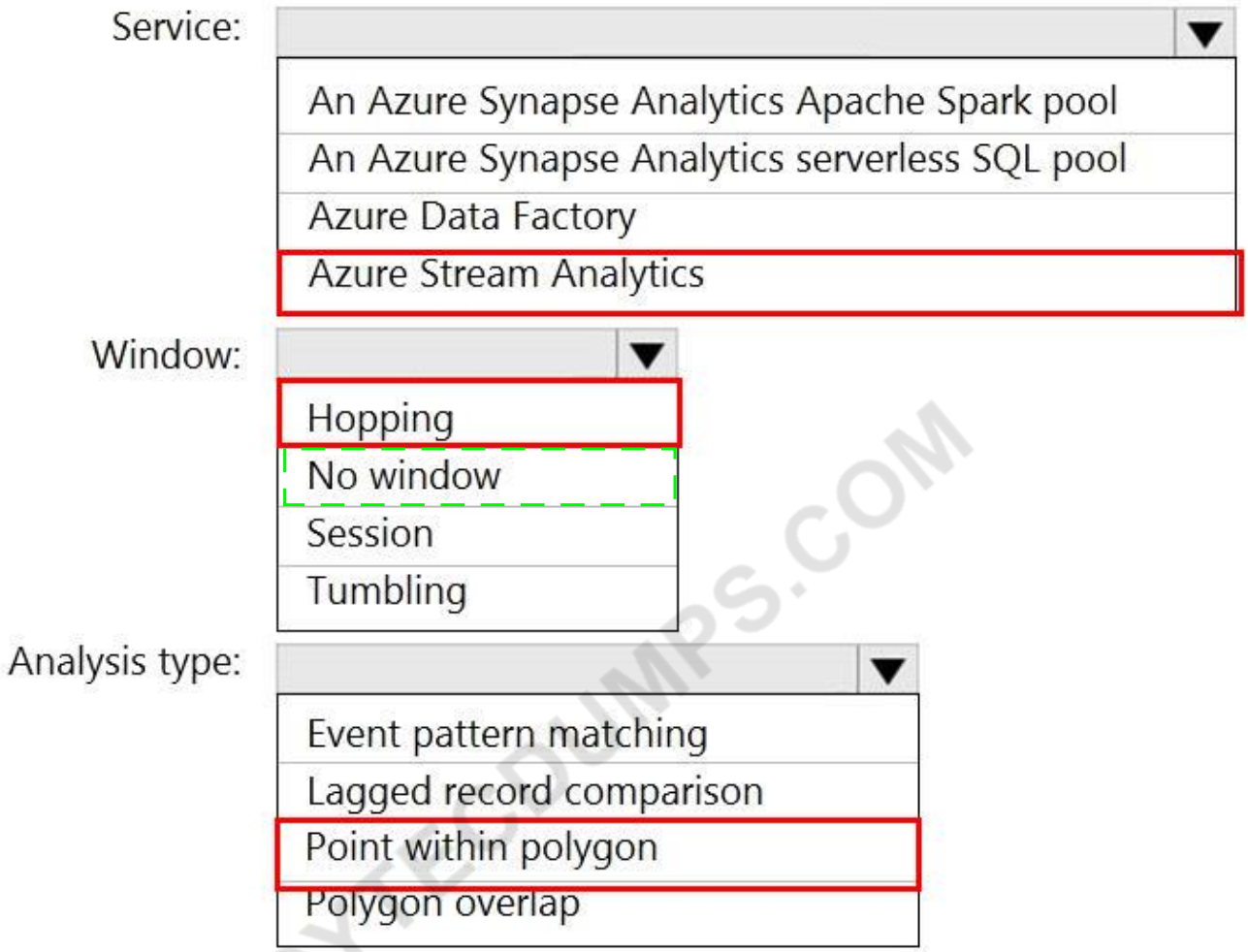
NOTE: Each correct selection is worth one point.

Service:
- An Azure Synapse Analytics Apache Spark pool
- An Azure Synapse Analytics serverless SQL pool
- Azure Data Factory
- Azure Stream Analytics

Window:
- Hopping
- No window
- Session
- Tumbling

Analysis type:
- Event pattern matching
- Lagged record comparison
- Point within polygon
- Polygon overlap

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.101 The storage account container view is shown in the Refdata exhibit. (Click the Refdata tab.) You need to configure the Stream Analytics job to pick up the new reference dat a. What should you configure? To answer, select the appropriate options in the answer area NOTE: Each correct selection is worth one point.

Answer:

Answer as below

NO.102 You have an Azure Data Lake Storage Gen2 account that contains a JSON file for customers. The file contains two attributes named FirstName and LastName.
You need to copy the data from the JSON file to an Azure Synapse Analytics table by using Azure Databricks. A new column must be created that concatenates the FirstName and LastName values.
You create the following components:

A destination table in Azure Synapse
An Azure Blob storage container
A service principal
Which five actions should you perform in sequence next in is Databricks notebook? 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
Mount the Data Lake Storage onto DBFS.	
Write the results to a table in Azure Synapse.	
Perform transformations on the file.	
Specify a temporary folder to stage the data.	
Write the results to Data Lake Storage.	
Read the file into a data frame.	
Drop the data frame.	
Perform transformations on the data frame.	

Answer:

Actions	Answer Area
Mount the Data Lake Storage onto DBFS.	Read the file into a data frame.
Write the results to a table in Azure Synapse.	Perform transformations on the file.
Perform transformations on the file.	Specify a temporary folder to stage the data.
Specify a temporary folder to stage the data.	Write the results to Data Lake Storage.
Write the results to Data Lake Storage.	Drop the data frame.
Read the file into a data frame.	
Drop the data frame.	
Perform transformations on the data frame.	

Reference:
https://docs.microsoft.com/en-us/azure/azure-databricks/databricks-extract-load-sql-data-warehouse

NO.103 You plan to implement an Azure Data Lake Gen2 storage account.
You need to ensure that the data lake will remain available if a data center fails in the primary Azure region.
The solution must minimize costs.
Which type of replication should you use for the storage account?
A. geo-redundant storage (GRS)
B. zone-redundant storage (ZRS)
C. locally-redundant storage (LRS)
D. geo-zone-redundant storage (GZRS)
Answer: C

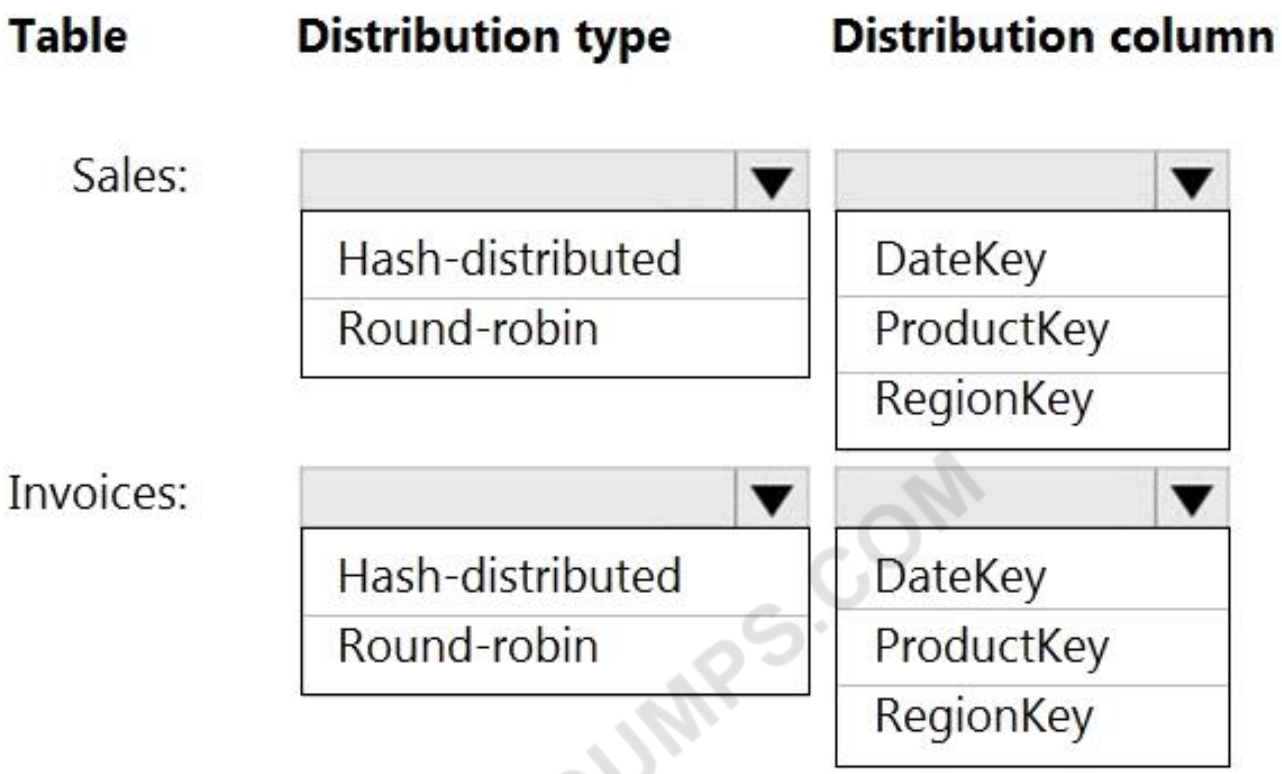
Explanation:
Locally redundant storage (LRS) copies your data synchronously three times within a single physical location in the primary region. LRS is the least expensive replication option Reference: https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy

NO.104 You have an Azure Synapse Analytics serverless SQL pool named Pool1 and an Azure Data Lake Storage Gen2 account named storage1. The AllowedBlobpublicAccess porperty is disabled for storage1.
You need to create an external data source that can be used by Azure Active Directory (Azure AD) users to access storage1 from Pool1.
What should you create first?
A. an external resource pool
B. a remote service binding
C. database scoped credentials
D. an external library
Answer: C

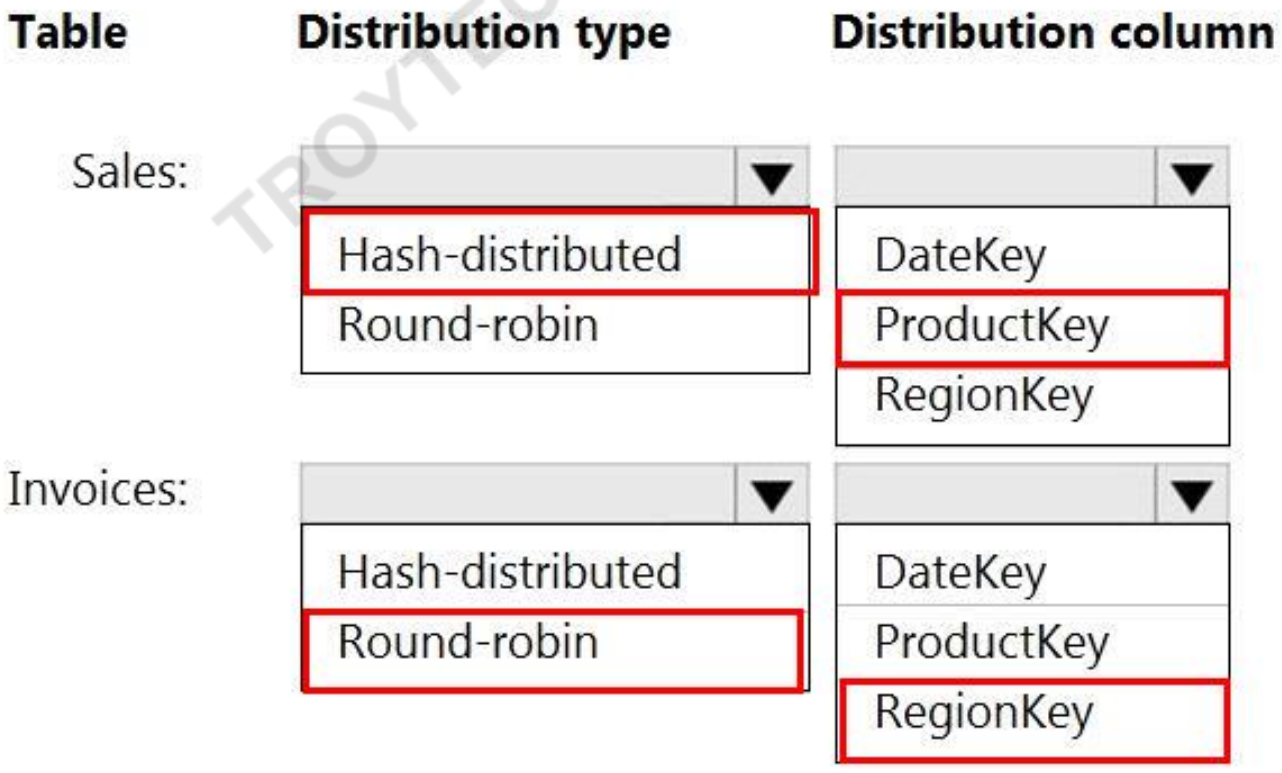
NO.105 You have an on-premises data warehouse that includes the following fact tables. Both tables have the following columns: DateKey, ProductKey, RegionKey. There are 120 unique product keys and 65 unique region keys.

Table	Comments
Sales	The table is 600 GB in size. DateKey is used extensively in the WHERE clause in queries. ProductKey is used extensively in join operations. RegionKey is used for grouping. Severity-five percent of records relate to one of 40 regions.
Invoice	The table is 6 GB in size. DateKey and ProductKey are used extensively in the WHERE clause in queries. RegionKey is used for grouping.

Queries that use the data warehouse take a long time to complete.
You plan to migrate the solution to use Azure Synapse Analytics. You need to ensure that the Azure-based solution optimizes query performance and minimizes processing skew.
What should you recommend? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-distribute

NO.106 You have the following table named Employees.

first_name	last_name	hire_date	employee_type
Jane	Doe	2019-08-23	new
Ben	Smith	2017-12-15	Standard

You need to calculate the employee_type value based on the hire_date value.
How should you complete the Transact-SQL statement? To answer, drag the appropriate values to the correct targets. Each value 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.
NOTE: Each correct selection is worth one point.

Values

CASE

ELSE

OVER

PARTITION BY

ROW_NUMBER

Answer Area

```
SELECT
     *,
       [          ]
         WHEN hire_date >= '2019-01-01' THEN 'New'
       [          ] 'Standard'
     END AS employee_type
FROM
     employees
```

Answer:

Values

CASE

ELSE

OVER

PARTITION BY

ROW_NUMBER

Answer Area

```
SELECT
     *,
       [CASE      ]
         WHEN hire_date >= '2019-01-01' THEN 'New'
       [ELSE      ] 'Standard'
     END AS employee_type
FROM
     employees
```

Reference:
https://docs.microsoft.com/en-us/sql/t-sql/language-elements/case-transact-sql

NO.107 You are designing an Azure Stream Analytics solution that receives instant messaging data from an Azure Event Hub.
You need to ensure that the output from the Stream Analytics job counts the number of messages per time zone every 15 seconds.
How should you complete the Stream Analytics query? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.

```
Select TimeZone, count (*) AS MessageCount

FROM MessageStream  [ ▼ ]  CreatedAt
                    LAST
                    OVER
                    SYSTEM.TIMESTAMP()
                    TIMESTAMP BY

GROUP BY TimeZone,  [ ▼ ]  (second,15)
                    HOPPINGWINDOW
                    SESSIONWINDOW
                    SLIDINGWINDOW
                    TUMBLINGWINDOW
```

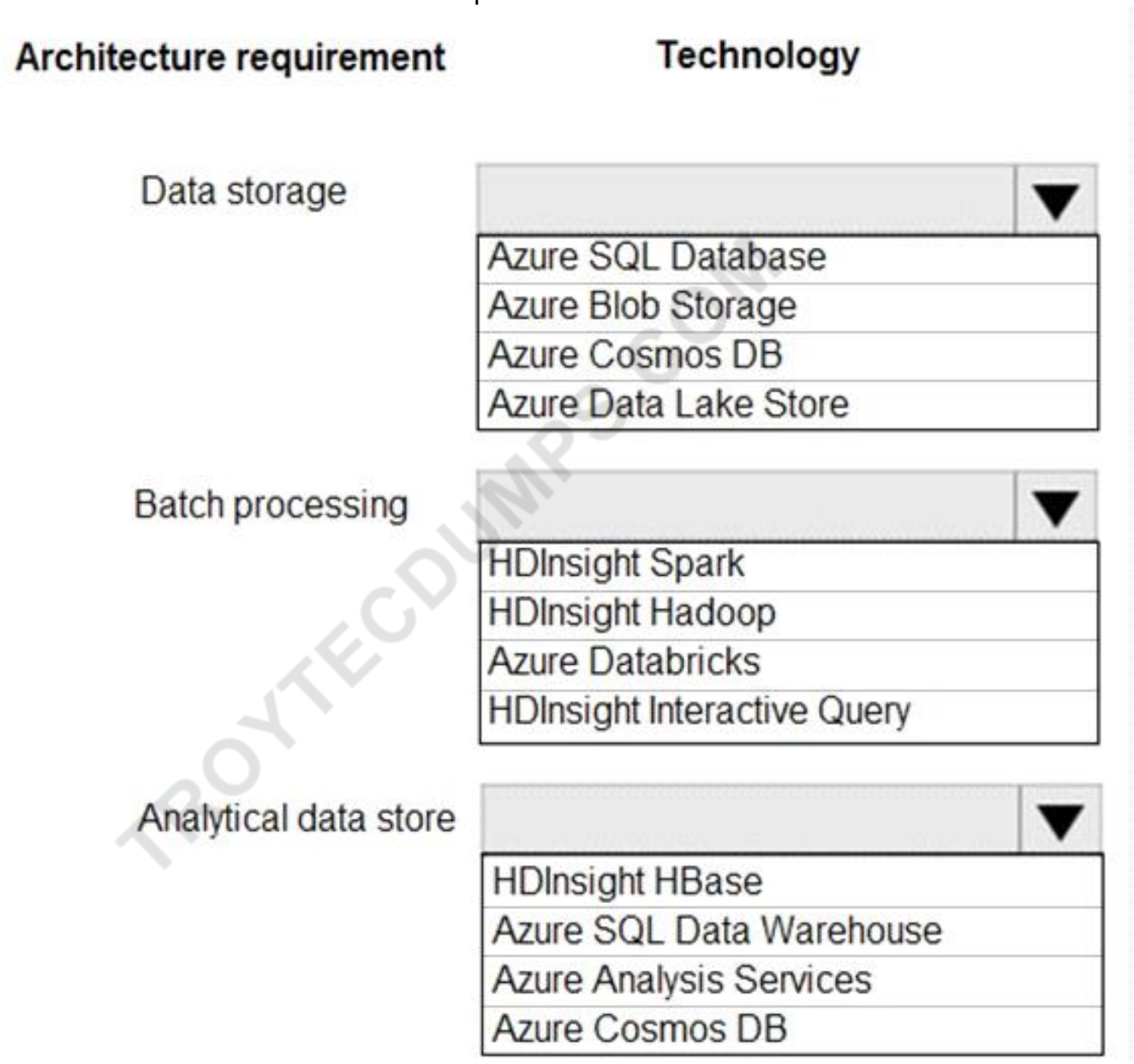
Answer:

```
Select TimeZone, count (*) AS MessageCount

FROM MessageStream  [ ▼ ]  CreatedAt
                    LAST
                    OVER
                    SYSTEM.TIMESTAMP()
                    TIMESTAMP BY

GROUP BY TimeZone,  [ ▼ ]  (second,15)
                    HOPPINGWINDOW
                    SESSIONWINDOW
                    SLIDINGWINDOW
                    TUMBLINGWINDOW
```

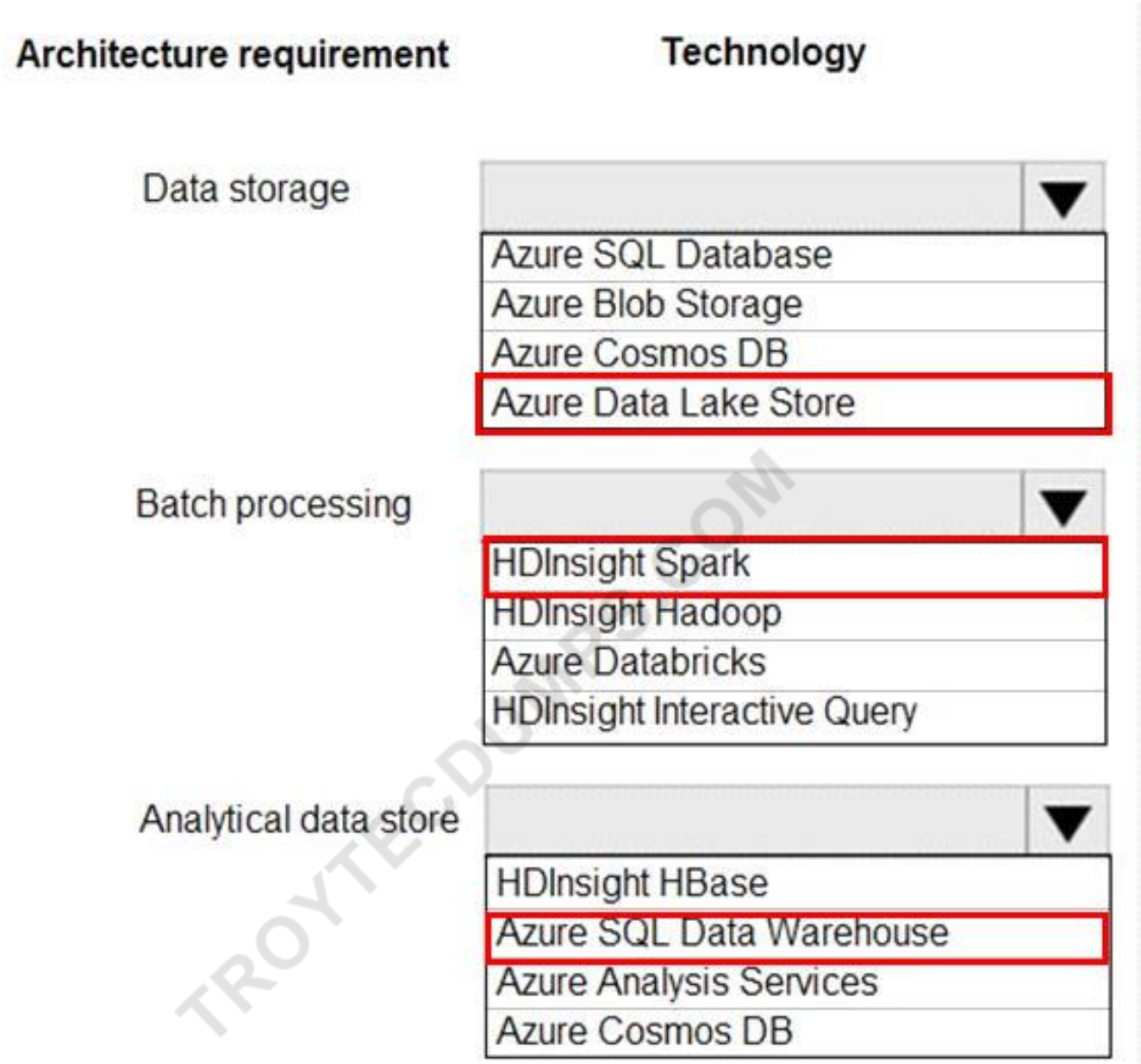
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.108 You are developing a solution using a Lambda architecture on Microsoft Azure.
The data at test layer must meet the following requirements:
Data storage:
* Serve as a repository (or high volumes of large files in various formats.
* Implement optimized storage for big data analytics workloads.
* Ensure that data can be organized using a hierarchical structure.

Batch processing:
* Use a managed solution for in-memory computation processing.
* Natively support Scala, Python, and R programming languages.
* Provide the ability to resize and terminate the cluster automatically.
Analytical data store:
* Support parallel processing.
* Use columnar storage.
* Support SQL-based languages.
You need to identify the correct technologies to build the Lambda architecture.
Which technologies should you use? To answer, select the appropriate options in the answer area
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-namespace
https://docs.microsoft.com/en-us/azure/architecture/data-guide/technology-choices/batch-processing
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-overview-what-is

NO.109 You are designing an Azure Synapse solution that will provide a query interface for the data stored in an Azure Storage account. The storage account is only accessible from a virtual network.
You need to recommend an authentication mechanism to ensure that the solution can access the source data.
What should you recommend?

A. a managed identity

B. anonymous public read access

C. a shared key

Answer: A

Explanation:
Managed Identity authentication is required when your storage account is attached to a VNet.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/quickstart-bulk-load-copy-tsql-examples

NO.110 You plan to create an Azure Data Factory pipeline that will include a mapping data flow.
You have JSON data containing objects that have nested arrays.
You need to transform the JSON-formatted data into a tabular dataset. The dataset must have one tow for each item in the arrays.
Which transformation method should you use in the mapping data flow?
A. unpivot
B. flatten
C. new branch
D. alter row
Answer: B

NO.111 You are designing a data mart for the human resources (MR) department at your company. The data mart will contain information and employee transactions. From a source system you have a flat extract that has the following fields:
* EmployeeID
* FirstName
* LastName
* Recipient
* GrossArnount
* TransactionID
* GovernmentID
* NetAmountPaid
* TransactionDate
You need to design a start schema data model in an Azure Synapse analytics dedicated SQL pool for the data mart.
Which two tables should you create? Each Correct answer present part of the solution.
A. a dimension table for employee
B. a fabric for Employee
C. a dimension table far EmployeeTransaction
D. a dimension table for Transaction
E. a fact table for Transaction
Answer: A,E
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-overview

NO.112 A company has a real-time data analysis solution that is hosted on Microsoft Azure. The solution uses Azure Event Hub to ingest data and an Azure Stream Analytics cloud job to analyze the dat a. The cloud job is configured to use 120 Streaming Units (SU).

You need to optimize performance for the Azure Stream Analytics job.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Implement event ordering.

B. Implement Azure Stream Analytics user-defined functions (UDF).

C. Implement query parallelization by partitioning the data output.

D. Scale the SU count for the job up.

E. Scale the SU count for the job down.

F. Implement query parallelization by partitioning the data input.

Answer: D,F
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-parallelization

NO.113 You are designing an Azure Stream Analytics job to process incoming events from sensors in retail environments.
You need to process the events to produce a running average of shopper counts during the previous 15 minutes, calculated at five-minute intervals.
Which type of window should you use?

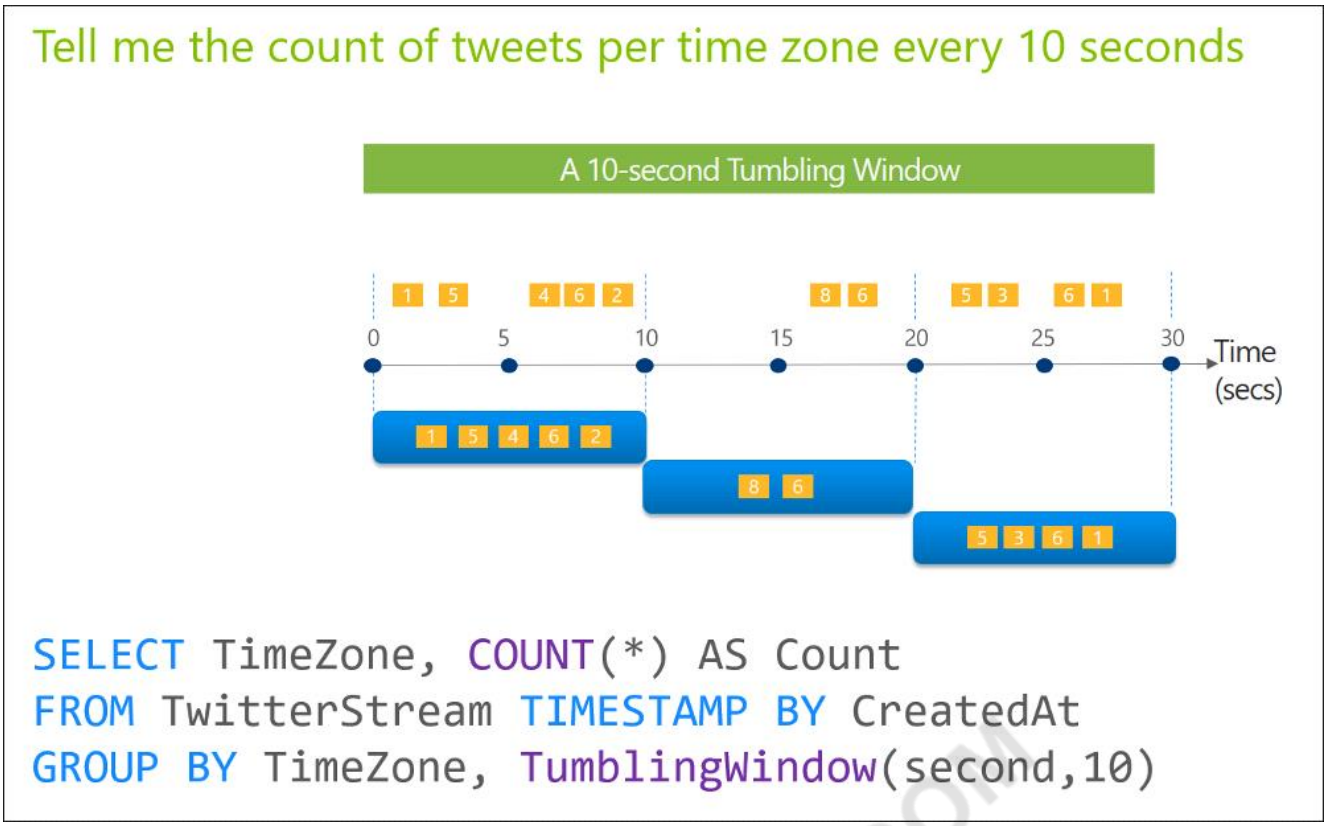
A. snapshot

B. tumbling

C. hopping

D. sliding

Answer: B
Explanation:
Tumbling windows are a series of fixed-sized, non-overlapping and contiguous time intervals. The following diagram illustrates a stream with a series of events and how they are mapped into 10-second tumbling windows.



Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.114 You have an Azure Data Lake Storage Gen2 container.
Data is ingested into the container, and then transformed by a data integration application. The data is NOT modified after that. Users can read files in the container but cannot modify the files.
You need to design a data archiving solution that meets the following requirements:
New data is accessed frequently and must be available as quickly as possible.
Data that is older than five years is accessed infrequently but must be available within one second when requested.
Data that is older than seven years is NOT accessed. After seven years, the data must be persisted at the lowest cost possible.
Costs must be minimized while maintaining the required availability.
How should you manage the data? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point

Five-year-old data:

- Delete the blob.
- Move to archive storage.
- Move to cool storage.
- Move to hot storage.

Seven-year-old data:

- Delete the blob.
- Move to archive storage.
- Move to cool storage.
- Move to hot storage.

Answer:

Five-year-old data:

- Delete the blob.
- Move to archive storage.
- **Move to cool storage.**
- Move to hot storage.

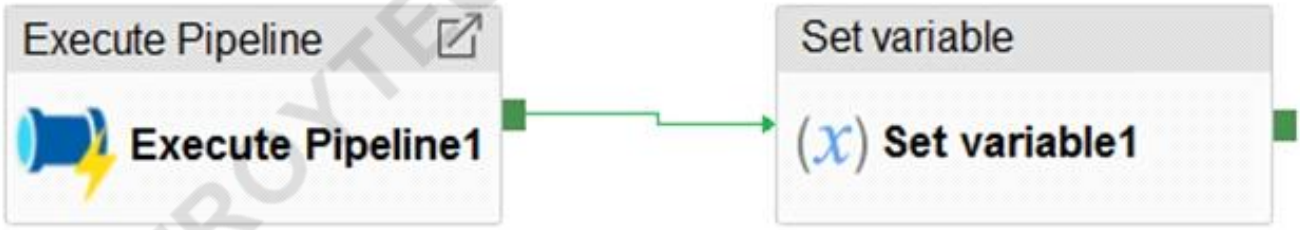
Seven-year-old data:

- Delete the blob.
- **Move to archive storage.**
- Move to cool storage.
- Move to hot storage.

Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/storage-blob-storage-tiers
https://azure.microsoft.com/en-us/updates/reduce-data-movement-and-make-your-queries-more-efficient-with-the-general-availability-of-replicated-tables/
https://azure.microsoft.com/en-us/blog/replicated-tables-now-generally-available-in-azure-sql-data-warehouse/

NO.115 You have an Azure Data Factory instance that contains two pipelines named Pipeline1 and Pipeline2.
Pipeline1 has the activities shown in the following exhibit.

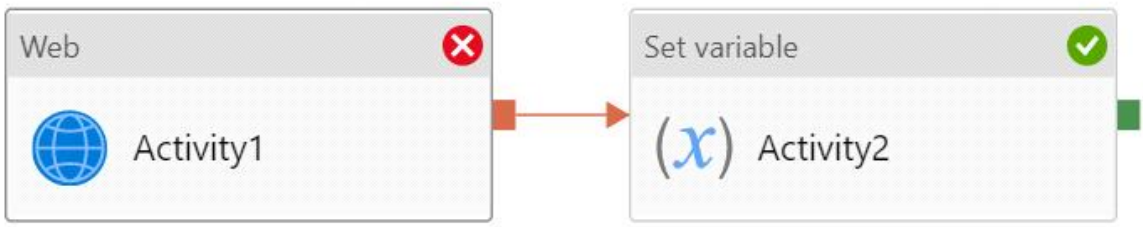
Pipeline2 has the activities shown in the following exhibit.



You execute Pipeline2, and Stored procedure1 in Pipeline1 fails.
What is the status of the pipeline runs?

A. Pipeline1 and Pipeline2 succeeded.
B. Pipeline1 and Pipeline2 failed.
C. Pipeline1 succeeded and Pipeline2 failed.
D. Pipeline1 failed and Pipeline2 succeeded.

Answer: A
Explanation:
Activities are linked together via dependencies. A dependency has a condition of one of the following: Succeeded, Failed, Skipped, or Completed.
Consider Pipeline1:
If we have a pipeline with two activities where Activity2 has a failure dependency on Activity1, the pipeline will not fail just because Activity1 failed. If Activity1 fails and Activity2 succeeds, the pipeline will succeed. This scenario is treated as a try-catch block by Data Factory.



The failure dependency means this pipeline reports success.
Note:
If we have a pipeline containing Activity1 and Activity2, and Activity2 has a success dependency on Activity1, it will only execute if Activity1 is successful. In this scenario, if Activity1 fails, the pipeline will fail.
Reference:
https://datasavvy.me/category/azure-data-factory/

NO.116 You build a data warehouse in an Azure Synapse Analytics dedicated SQL pool.
Analysts write a complex SELECT query that contains multiple JOIN and CASE statements to transform data for use in inventory reports. The inventory reports will use the data and additional WHERE parameters depending on the report. The reports will be produced once daily.
You need to implement a solution to make the dataset available for the reports. The solution must minimize query times.
What should you implement?

A. a materialized view

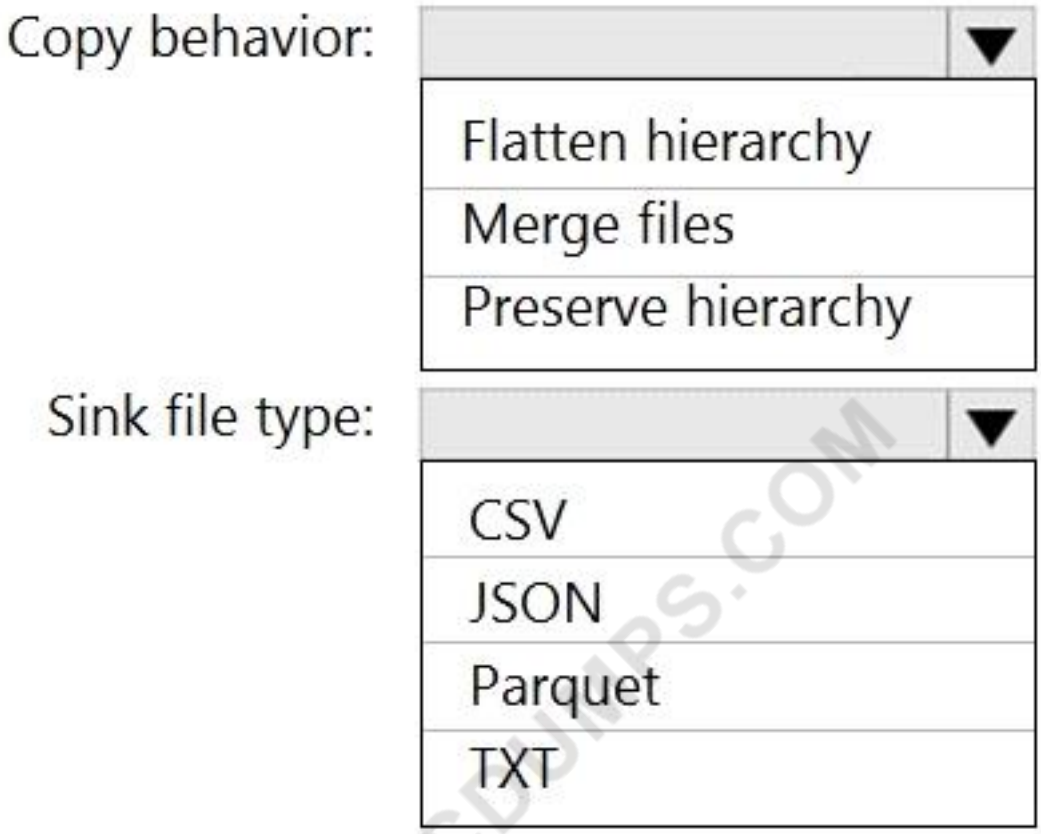
B. a replicated table

C. in ordered clustered columnstore index

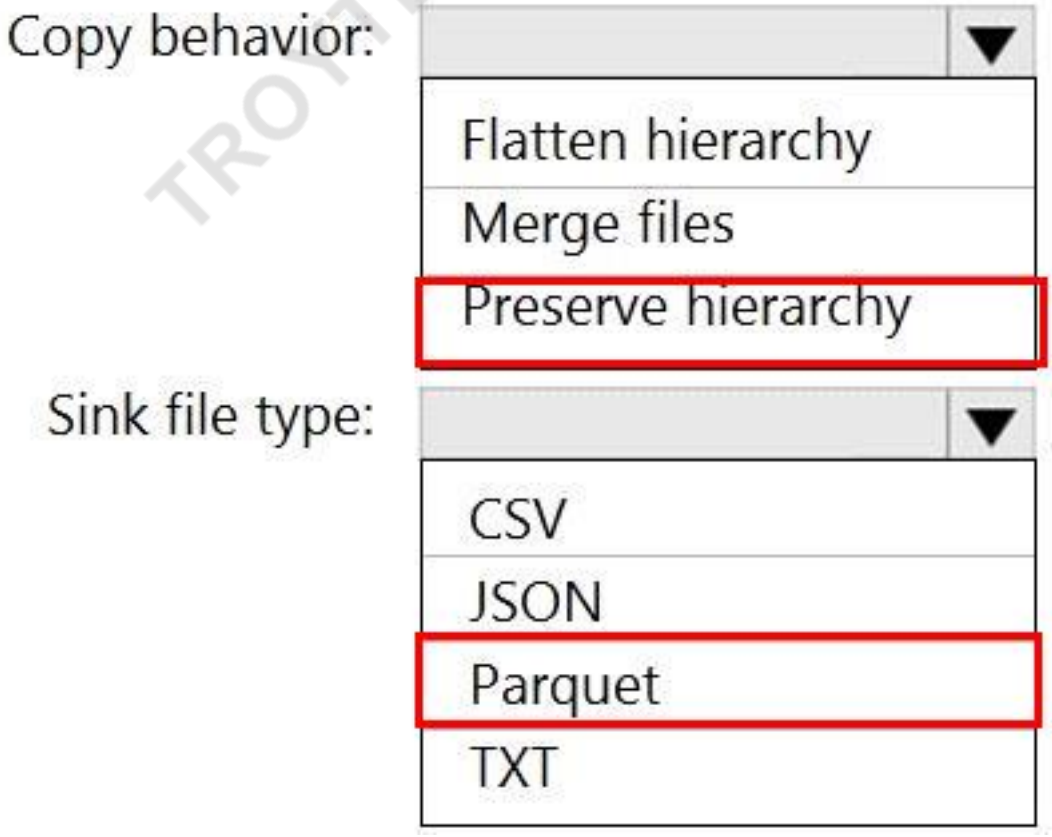
D. result set chaching

Answer: A
Explanation:
Materialized views for dedicated SQL pools in Azure Synapse provide a low maintenance method for complex analytical queries to get fast performance without any query change.
Note: When result set caching is enabled, dedicated SQL pool automatically caches query results in the user database for repetitive use. This allows subsequent query executions to get results directly from the persisted cache so recomputation is not needed. Result set caching improves query performance and reduces compute resource usage. In addition, queries using cached results set do not use any concurrency slots and thus do not count against existing concurrency limits.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/performance-tuning-materialized-views
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/performance-tuning-result-set-caching

NO.117 You use Azure Data Factory to prepare data to be queried by Azure Synapse Analytics serverless SQL pools.
Files are initially ingested into an Azure Data Lake Storage Gen2 account as 10 small JSON files. Each file contains the same data attributes and data from a subsidiary of your company.
You need to move the files to a different folder and transform the data to meet the following requirements:
Provide the fastest possible query times.
Automatically infer the schema from the underlying files.
How should you configure the Data Factory copy activity? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

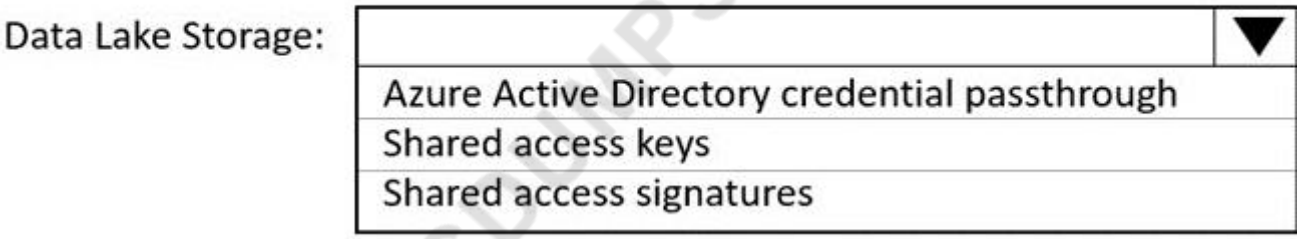


Answer:

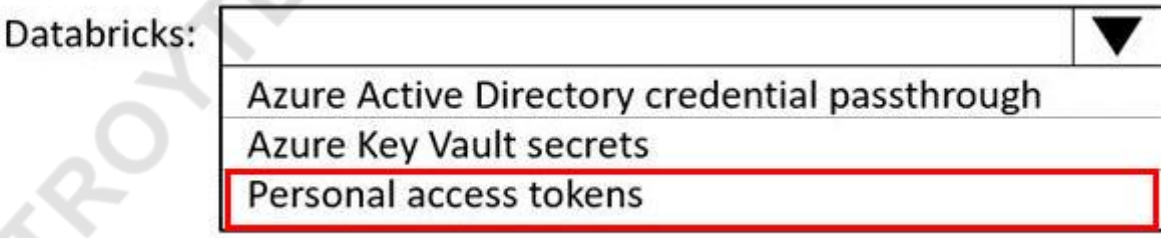


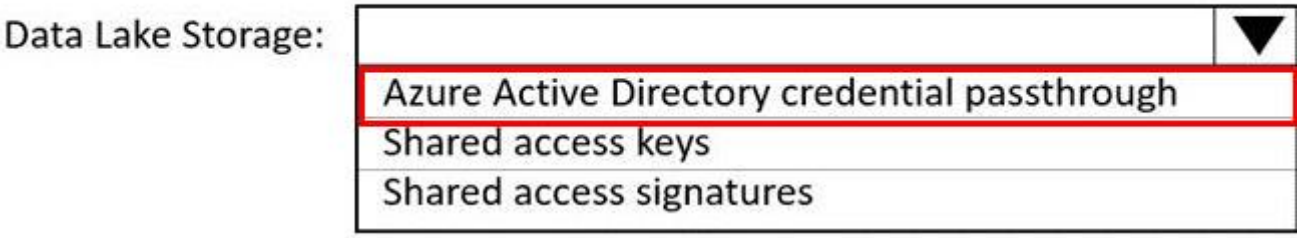
Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-introduction
https://docs.microsoft.com/en-us/azure/data-factory/format-parquet

NO.118 You use Azure Data Lake Storage Gen2 to store data that data scientists and data engineers will query by using Azure Databricks interactive notebooks. Users will have access only to the Data Lake Storage folders that relate to the projects on which they work.
You need to recommend which authentication methods to use for Databricks and Data Lake Storage to provide the users with the appropriate access. The solution must minimize administrative effort and development effort.
Which authentication method should you recommend for each Azure service? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:





Reference:
https://docs.microsoft.com/en-us/azure/databricks/data/data-sources/azure/adls-gen2/azure-datalake-gen2-sas-access
https://docs.microsoft.com/en-us/azure/databricks/security/credential-passthrough/adls-

passthrough

NO.119 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution. After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have an Azure Storage account that contains 100 GB of files. The files contain rows of text and numerical values. 75% of the rows contain description data that has an average length of 1.1 MB. You plan to copy the data from the storage account to an enterprise data warehouse in Azure Synapse Analytics.
You need to prepare the files to ensure that the data copies quickly.
Solution: You copy the files to a table that has a columnstore index.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
Instead convert the files to compressed delimited text files.
Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/guidance-for-loading-data

NO.120 You are designing a financial transactions table in an Azure Synapse Analytics dedicated SQL pool. The table will have a clustered columnstore index and will include the following columns:
TransactionType: 40 million rows per transaction type
CustomerSegment: 4 million per customer segment
TransactionMonth: 65 million rows per month
AccountType: 500 million per account type
You have the following query requirements:
Analysts will most commonly analyze transactions for a given month.
Transactions analysis will typically summarize transactions by transaction type, customer segment, and/or account type You need to recommend a partition strategy for the table to minimize query times.
On which column should you recommend partitioning the table?

A. CustomerSegment

B. AccountType

C. TransactionType

D. TransactionMonth

Answer: D

Explanation:
For optimal compression and performance of clustered columnstore tables, a minimum of 1 million rows per distribution and partition is needed. Before partitions are created, dedicated SQL pool already divides each table into 60 distributed databases.
Example: Any partitioning added to a table is in addition to the distributions created behind the scenes. Using this example, if the sales fact table contained 36 monthly partitions, and given that a

dedicated SQL pool has 60 distributions, then the sales fact table should contain 60 million rows per month, or 2.1 billion rows when all months are populated. If a table contains fewer than the recommended minimum number of rows per partition, consider using fewer partitions in order to increase the number of rows per partition.

NO.121 You are designing the folder structure for an Azure Data Lake Storage Gen2 container.
Users will query data by using a variety of services including Azure Databricks and Azure Synapse Analytics serverless SQL pools. The data will be secured by subject are a. Most queries will include data from the current year or current month.
Which folder structure should you recommend to support fast queries and simplified folder security?

A. /{SubjectArea}/{DataSource}/{DD}/{MM}/{YYYY}/{FileData}_{YYYY}_{MM}_{DD}.csv

B. /{DD}/{MM}/{YYYY}/{SubjectArea}/{DataSource}/{FileData}_{YYYY}_{MM}_{DD}.csv

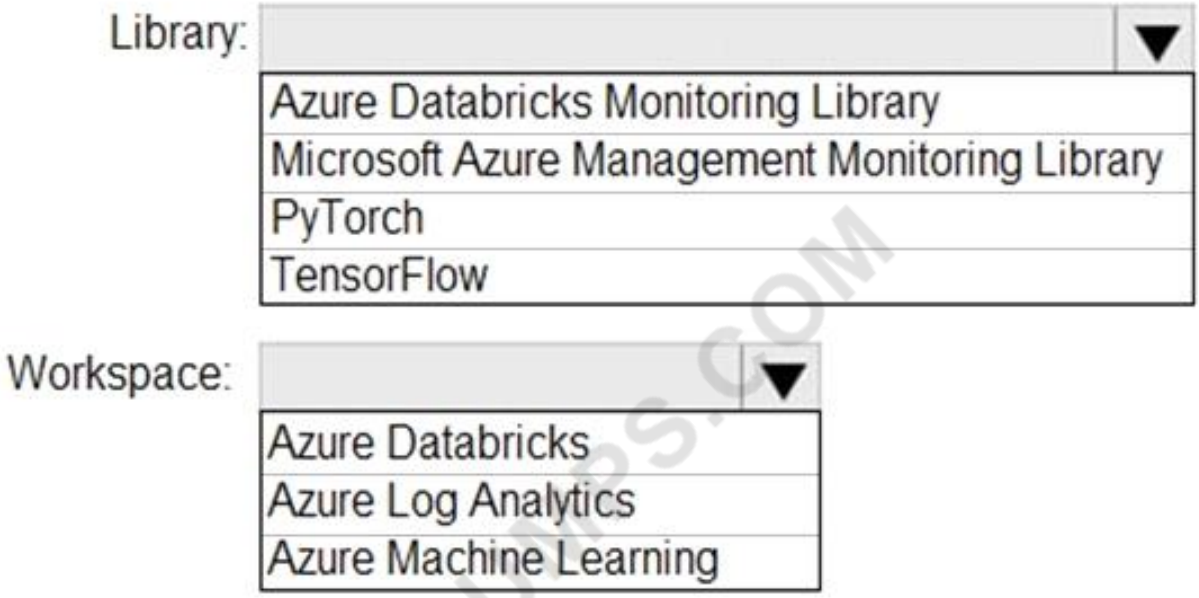
C. /{YYYY}/{MM}/{DD}/{SubjectArea}/{DataSource}/{FileData}_{YYYY}_{MM}_{DD}.csv

D. /{SubjectArea}/{DataSource}/{YYYY}/{MM}/{DD}/{FileData}_{YYYY}_{MM}_{DD}.csv

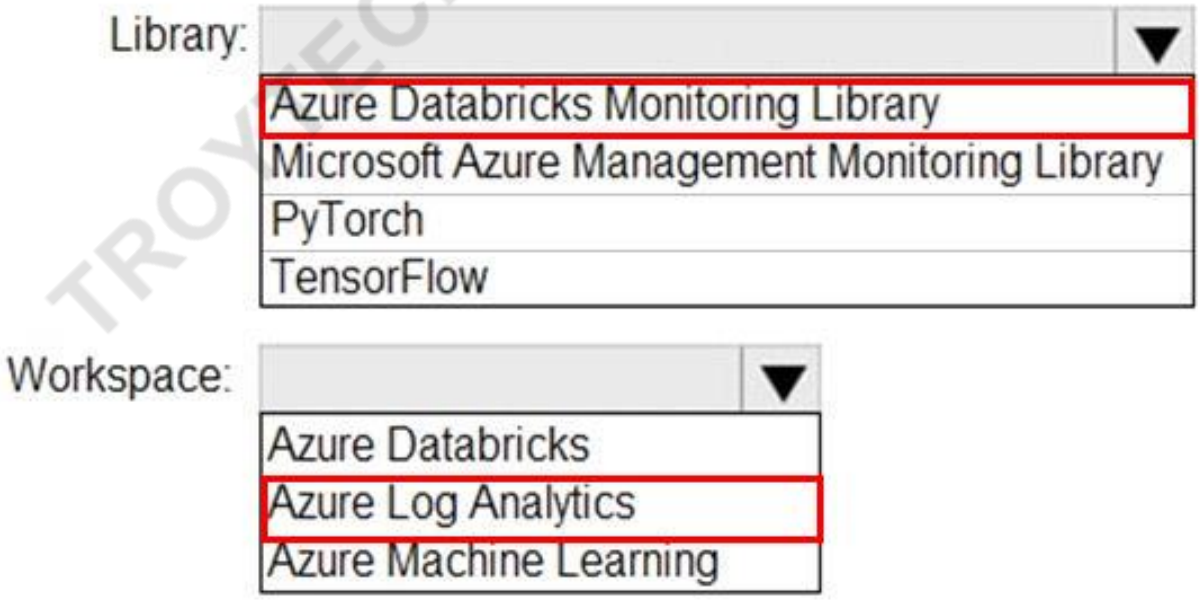
Answer: D

Explanation:
There's an important reason to put the date at the end of the directory structure. If you want to lock down certain regions or subject matters to users/groups, then you can easily do so with the POSIX permissions. Otherwise, if there was a need to restrict a certain security group to viewing just the UK data or certain planes, with the date structure in front a separate permission would be required for numerous directories under every hour directory. Additionally, having the date structure in front would exponentially increase the number of directories as time went on.
Note: In IoT workloads, there can be a great deal of data being landed in the data store that spans across numerous products, devices, organizations, and customers. It's important to pre-plan the directory layout for organization, security, and efficient processing of the data for down-stream consumers. A general template to consider might be the following layout:
{Region}/{SubjectMatter(s)}/{yyyy}/{mm}/{dd}/{hh}/

NO.122 You need to collect application metrics, streaming query events, and application log messages for an Azure Databrick cluster.
Which type of library and workspace should you implement? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/architecture/databricks-monitoring/application-logs

NO.123 You need to trigger an Azure Data Factory pipeline when a file arrives in an Azure Data Lake Storage Gen2 container.
Which resource provider should you enable?

A. Microsoft.Sql

B. Microsoft-Automation

C. Microsoft.EventGrid

D. Microsoft.EventHub

Answer: C

Explanation:
Event-driven architecture (EDA) is a common data integration pattern that involves production,

detection, consumption, and reaction to events. Data integration scenarios often require Data Factory customers to trigger pipelines based on events happening in storage account, such as the arrival or deletion of a file in Azure Blob Storage account. Data Factory natively integrates with Azure Event Grid, which lets you trigger pipelines on such events.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/how-to-create-event-trigger
https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipeline-execution-triggers

NO.124 You have an Azure Data Lake Storage Gen2 container that contains 100 TB of data.
You need to ensure that the data in the container is available for read workloads in a secondary region if an outage occurs in the primary region. The solution must minimize costs.
Which type of data redundancy should you use?
A. zone-redundant storage (ZRS)
B. read-access geo-redundant storage (RA-GRS)
C. locally-redundant storage (LRS)
D. geo-redundant storage (GRS)
Answer: B
Explanation:
Geo-redundant storage (with GRS or GZRS) replicates your data to another physical location in the secondary region to protect against regional outages. However, that data is available to be read only if the customer or Microsoft initiates a failover from the primary to secondary region. When you enable read access to the secondary region, your data is available to be read at all times, including in a situation where the primary region becomes unavailable.
Reference:
https://docs.microsoft.com/en-us/azure/storage/common/storage-redundancy

NO.125 You have an Azure Synapse Analytics dedicated SQL Pool1. Pool1 contains a partitioned fact table named dbo.Sales and a staging table named stg.Sales that has the matching table and partition definitions.
You need to overwrite the content of the first partition in dbo.Sales with the content of the same partition in stg.Sales. The solution must minimize load times.
What should you do?
A. Switch the first partition from dbo.Sales to stg.Sales.
B. Switch the first partition from stg.Sales to dbo. Sales.
C. Update dbo.Sales from stg.Sales.
D. Insert the data from stg.Sales into dbo.Sales.
Answer: D

NO.126 You are monitoring an Azure Stream Analytics job by using metrics in Azure.
You discover that during the last 12 hours, the average watermark delay is consistently greater than the configured late arrival tolerance.
What is a possible cause of this behavior?
A. Events whose application timestamp is earlier than their arrival time by more than five minutes arrive as inputs.
B. There are errors in the input data.

C. The late arrival policy causes events to be dropped.

D. The job lacks the resources to process the volume of incoming data.

Answer: D

Explanation:

Watermark Delay indicates the delay of the streaming data processing job.

There are a number of resource constraints that can cause the streaming pipeline to slow down. The watermark delay metric can rise due to:

Not enough processing resources in Stream Analytics to handle the volume of input events. To scale up resources, see Understand and adjust Streaming Units.

Not enough throughput within the input event brokers, so they are throttled. For possible solutions, see Automatically scale up Azure Event Hubs throughput units.

Output sinks are not provisioned with enough capacity, so they are throttled. The possible solutions vary widely based on the flavor of output service being used.

Reference:

https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-time-handling

NO.127 You need to implement a Type 3 slowly changing dimension (SCD) for product category data in an Azure Synapse Analytics dedicated SQL pool.

You have a table that was created by using the following Transact-SQL statement.

```
CREATE TABLE [DBO].[DimProduct] (
[ProductKey] [int] IDENTITY(1,1) NOT NULL,
[ProductSourceID] [int] NOT NULL,
[ProductName] [nvarchar] (100) NULL,
[Color] [nvarchar] (15) NULL,
[SellStartDate] [date] NOT NULL,
[SellEndDate] [date] NULL,
[RowInsertedDateTime] [datetime] NOT NULL,
[RowUpdatedDateTime] [datetime] NOT NULL,
[ETLAuditID] [int] NOT NULL
)
```

Which two columns should you add to the table? Each correct answer presents part of the solution.

NOTE: Each correct selection is worth one point.

A. [EffectiveScarcDate] [datetime] NOT NULL,

B. [CurrentProduccCacegory] [nvarchar] (100) NOT NULL,

C. [EffectiveEndDace] [dacecime] NULL,

D. [ProductCategory] [nvarchar] (100) NOT NULL,

E. [OriginalProduccCacegory] [nvarchar] (100) NOT NULL,

Answer: B,E

Explanation:

A Type 3 SCD supports storing two versions of a dimension member as separate columns. The table includes a column for the current value of a member plus either the original or previous value of the

member. So Type 3 uses additional columns to track one key instance of history, rather than storing additional rows to track each change like in a Type 2 SCD.
This type of tracking may be used for one or two columns in a dimension table. It is not common to use it for many members of the same table. It is often used in combination with Type 1 or Type 2 members.

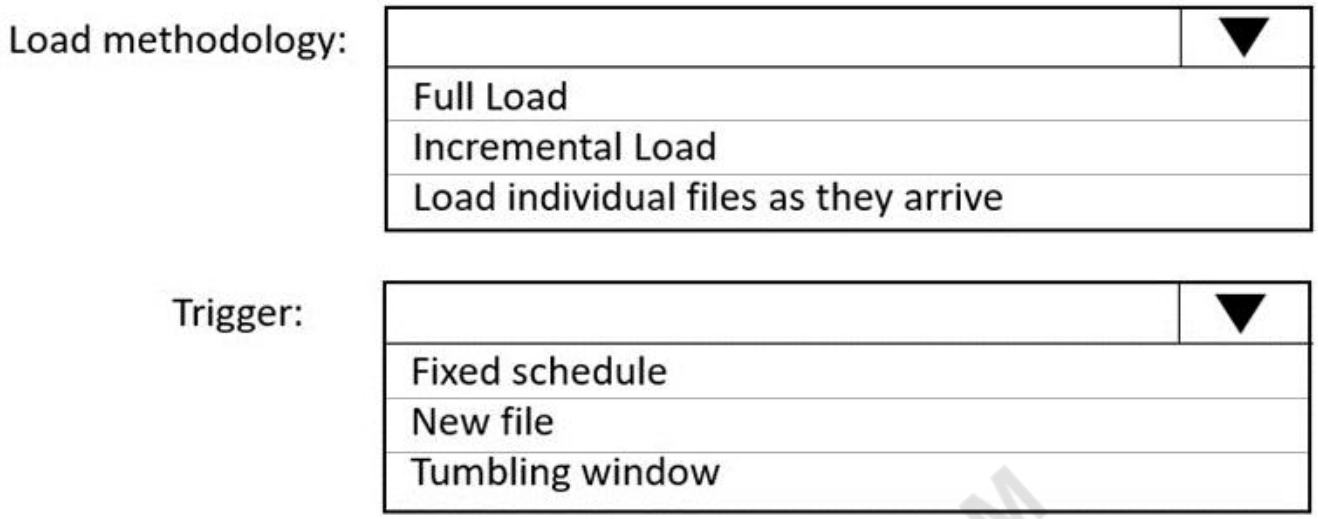
CustomerID	FirstName	LastName	CurrentEmail	OriginalEmail	CompanyName	InsertedDate	ModifiedDate
2	Keith	Harris	keith0@aw.com	keith0@aw.com	Progressive Sports	2021-03-20	2021-03-20
3	Donna	Carreras	donna0@aw.com	donna0@aw.com	A Bike Store	2021-03-20	2021-03-20

CustomerID	FirstName	LastName	CurrentEmail	OriginalEmail	CompanyName	InsertedDate	ModifiedDate
2	Keith	Harris	keith0@aw.com	keith0@aw.com	Progressive Sports	2021-03-20	2021-03-20
3	Donna	Carreras	dc3@aw.com	donna0@aw.com	A Bike Store	2021-03-20	2021-03-22

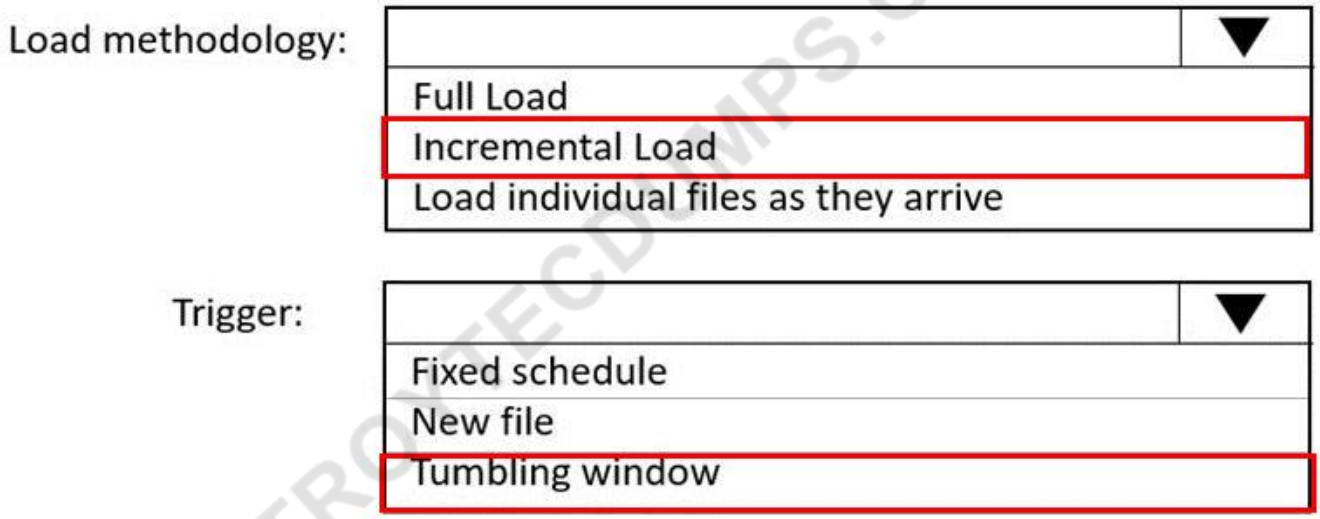
Reference:
https://k21academy.com/microsoft-azure/azure-data-engineer-dp203-q-a-day-2-live-session-review/

NO.128 You have an Azure Synapse Analytics dedicated SQL pool.
You need to ensure that data in the pool is encrypted at rest. The solution must NOT require modifying applications that query the data.
What should you do?
A. Enable encryption at rest for the Azure Data Lake Storage Gen2 account.
B. Enable Transparent Data Encryption (TDE) for the pool.
C. Use a customer-managed key to enable double encryption for the Azure Synapse workspace.
D. Create an Azure key vault in the Azure subscription grant access to the pool.
Answer: B
Explanation:
Transparent Data Encryption (TDE) helps protect against the threat of malicious activity by encrypting and decrypting your data at rest. When you encrypt your database, associated backups and transaction log files are encrypted without requiring any changes to your applications. TDE encrypts the storage of an entire database by using a symmetric key called the database encryption key.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-overviewmanage-security

NO.129 You have an Azure Storage account that generates 200,000 new files daily. The file names have a format of {YYYY}/{MM}/{DD}/{HH}/{CustomerID}.csv.
You need to design an Azure Data Factory solution that will load new data from the storage account to an Azure Data Lake once hourly. The solution must minimize load times and costs.
How should you configure the solution? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics

NO.130 You have a SQL pool in Azure Synapse.
You discover that some queries fail or take a long time to complete.
You need to monitor for transactions that have rolled back.
Which dynamic management view should you query?

A. sys.dm_pdw_request_steps

B. sys.dm_pdw_nodes_tran_database_transactions

C. sys.dm_pdw_waits

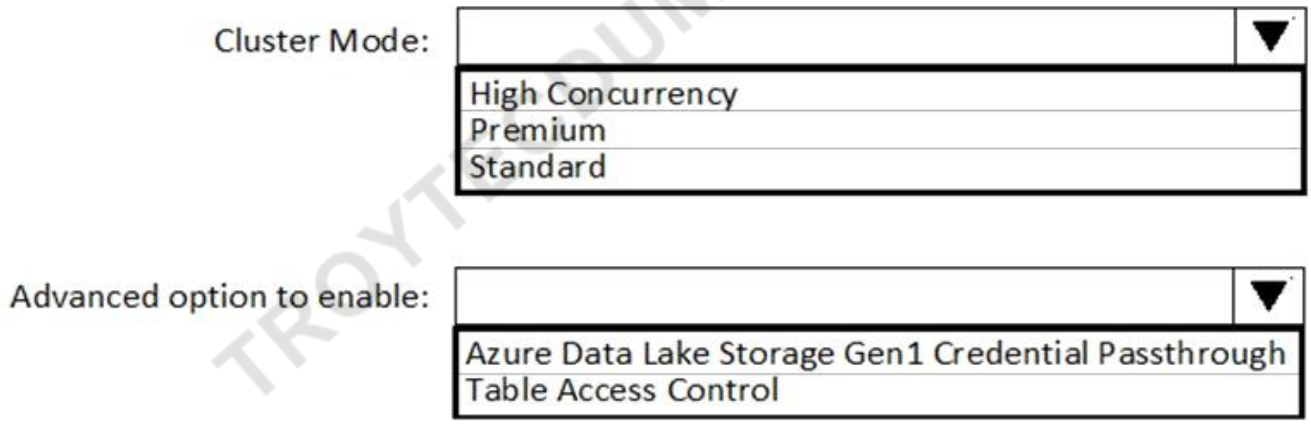
D. sys.dm_pdw_exec_sessions

Answer: B

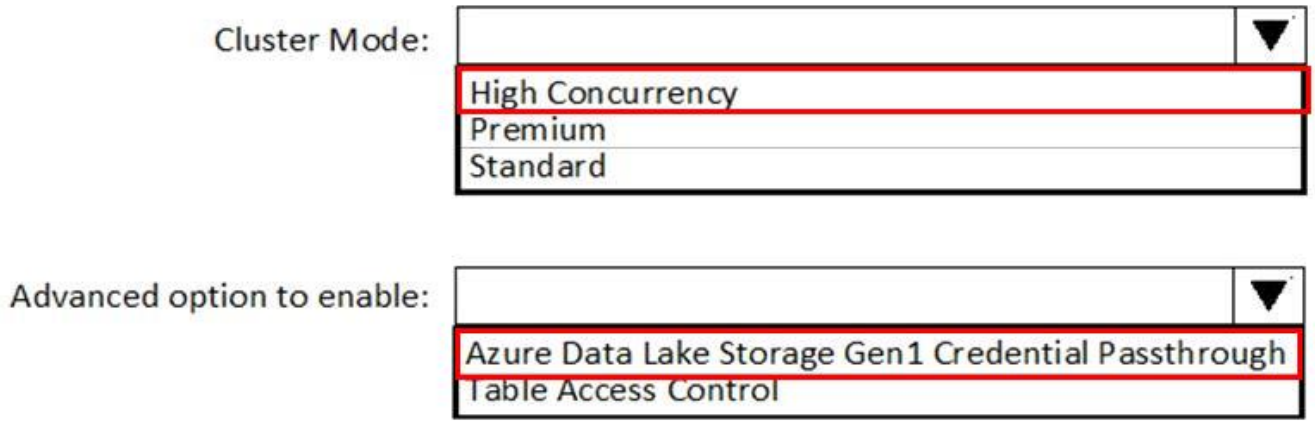
Explanation:
You can use Dynamic Management Views (DMVs) to monitor your workload including investigating query execution in SQL pool.
If your queries are failing or taking a long time to proceed, you can check and monitor if you have any

transactions rolling back.
Example:
-- Monitor rollback
SELECT
SUM(CASE WHEN t.database_transaction_next_undo_lsn IS NOT NULL THEN 1 ELSE 0 END),
t.pdw_node_id, nod.[type] FROM sys.dm_pdw_nodes_tran_database_transactions t JOIN
sys.dm_pdw_nodes nod ON t.pdw_node_id = nod.pdw_node_id GROUP BY t.pdw_node_id,
nod.[type] Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-manage-monitor#monitor-transaction-log-rollback

NO.131 You need to implement an Azure Databricks cluster that automatically connects to Azure Data Lake Storage Gen2 by using Azure Active Directory (Azure AD) integration.
How should you configure the new cluster? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.azuredatabricks.net/spark/latest/data-sources/azure/adls-passthrough.html

NO.132 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question

sets might have more than one correct solution, while others might not have a correct solution.
After you answer a question in this scenario, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have an Azure Storage account that contains 100 GB of files. The files contain text and numerical values. 75% of the rows contain description data that has an average length of 1.1 MB.
You plan to copy the data from the storage account to an Azure SQL data warehouse.
You need to prepare the files to ensure that the data copies quickly.
Solution: You modify the files to ensure that each row is more than 1 MB.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
Instead modify the files to ensure that each row is less than 1 MB.
Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/guidance-for-loading-data

NO.133 You have an Azure Databricks workspace named workspace1 in the Standard pricing tier.
You need to configure workspace1 to support autoscaling all-purpose clusters. The solution must meet the following requirements:
Automatically scale down workers when the cluster is underutilized for three minutes.
Minimize the time it takes to scale to the maximum number of workers.
Minimize costs.
What should you do first?

A. Enable container services for workspace1.

B. Upgrade workspace1 to the Premium pricing tier.

C. Set Cluster Mode to High Concurrency.

D. Create a cluster policy in workspace1.

Answer: B

Explanation:
For clusters running Databricks Runtime 6.4 and above, optimized autoscaling is used by all-purpose clusters in the Premium plan Optimized autoscaling:
Scales up from min to max in 2 steps.
Can scale down even if the cluster is not idle by looking at shuffle file state.
Scales down based on a percentage of current nodes.
On job clusters, scales down if the cluster is underutilized over the last 40 seconds.
On all-purpose clusters, scales down if the cluster is underutilized over the last 150 seconds.
The spark.databricks.aggressiveWindowDownS Spark configuration property specifies in seconds how often a cluster makes down-scaling decisions. Increasing the value causes a cluster to scale down more slowly. The maximum value is 600.
Note: Standard autoscaling
Starts with adding 8 nodes. Thereafter, scales up exponentially, but can take many steps to reach the max. You can customize the first step by setting the spark.databricks.autoscaling.standardFirstStepUp Spark configuration property.
Scales down only when the cluster is completely idle and it has been underutilized for the last 10

minutes.
Scales down exponentially, starting with 1 node.
Reference:
https://docs.databricks.com/clusters/configure.html

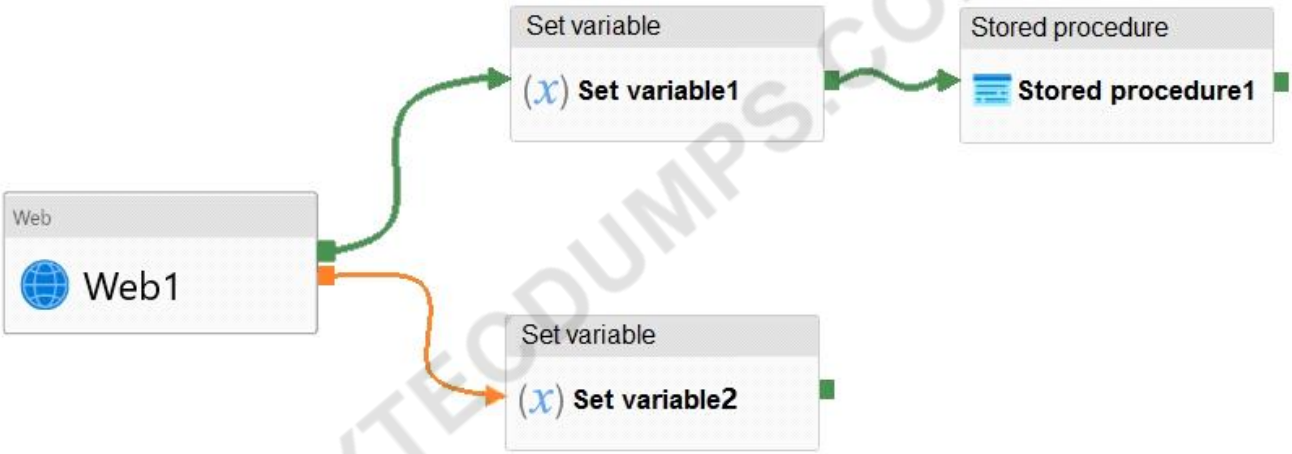
NO.134 You have a data warehouse in Azure Synapse Analytics.
You need to ensure that the data in the data warehouse is encrypted at rest.
What should you enable?
A. Advanced Data Security for this database
B. Transparent Data Encryption (TDE)
C. Secure transfer required
D. Dynamic Data Masking
Answer: B
Explanation:
Azure SQL Database currently supports encryption at rest for Microsoft-managed service side and client-side encryption scenarios.
Support for server encryption is currently provided through the SQL feature called Transparent Data Encryption.
Client-side encryption of Azure SQL Database data is supported through the Always Encrypted feature.
Reference:
https://docs.microsoft.com/en-us/azure/security/fundamentals/encryption-atrest

NO.135 You have an Azure Synapse Analytics Apache Spark pool named Pool1.
You plan to load JSON files from an Azure Data Lake Storage Gen2 container into the tables in Pool1.
The structure and data types vary by file.
You need to load the files into the tables. The solution must maintain the source data types.
What should you do?
A. Use a Get Metadata activity in Azure Data Factory.
B. Use a Conditional Split transformation in an Azure Synapse data flow.
C. Load the data by using the OPEHROwset Transact-SQL command in an Azure Synapse Anarytics serverless SQL pool.
D. Load the data by using PySpark.
Answer: C

NO.136 You have an Azure Data Factory pipeline that performs an incremental load of source data to an Azure Data Lake Storage Gen2 account.
Data to be loaded is identified by a column named LastUpdatedDate in the source table.
You plan to execute the pipeline every four hours.
You need to ensure that the pipeline execution meets the following requirements:
Automatically retries the execution when the pipeline run fails due to concurrency or throttling limits .
Supports backfilling existing data in the table.
Which type of trigger should you use?
A. event

B. on-demand
C. schedule
D. tumbling window
Answer: D
Explanation:
In case of pipeline failures, tumbling window trigger can retry the execution of the referenced pipeline automatically, using the same input parameters, without the user intervention. This can be specified using the property "retryPolicy" in the trigger definition.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/how-to-create-tumbling-window-trigger

NO.137 You have an Azure Data Factory pipeline that has the activities shown in the following exhibit.



Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.
NOTE: Each correct selection is worth one point.

Stored procedure1 will execute Web1 and Set variable1 **[answer choice]**
- complete
- fail
- succeed

If Web1 fails and Set variable2 succeeds, the pipeline status will be **[answer choice]**
- Canceled
- Failed
- Succeeded

Answer:

Stored procedure1 will execute Web1 and Set variable1 **[answer choice]**
- complete
- fail
- succeed

If Web1 fails and Set variable2 succeeds, the pipeline status will be **[answer choice]**
- Canceled
- Failed
- Succeeded

Reference:
https://datasavvy.me/2021/02/18/azure-data-factory-activity-failures-and-pipeline-outcomes/

NO.138 You are designing a highly available Azure Data Lake Storage solution that will include geo-zone-redundant storage (GZRS).
You need to monitor for replication delays that can affect the recovery point objective (RPO).
What should you include in the monitoring solution?

A. availability

B. Average Success E2E Latency

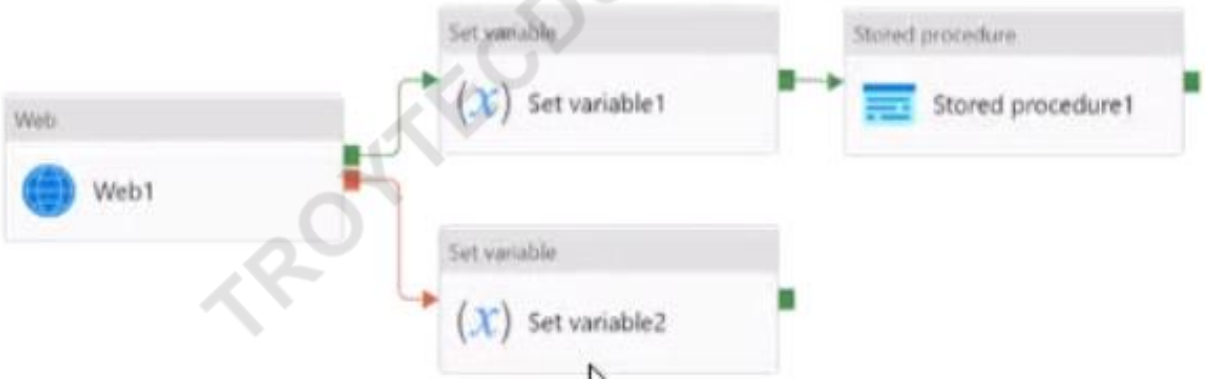
C. 5xx: Server Error errors

D. Last Sync Time

Answer: D

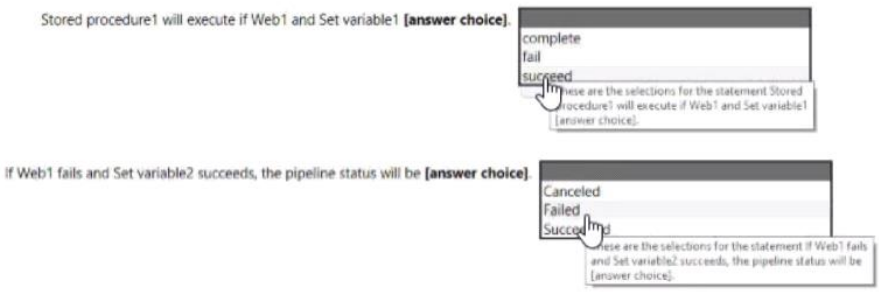
Explanation:
Because geo-replication is asynchronous, it is possible that data written to the primary region has not yet been written to the secondary region at the time an outage occurs. The Last Sync Time property indicates the last time that data from the primary region was written successfully to the secondary region. All writes made to the primary region before the last sync time are available to be read from the secondary location. Writes made to the primary region after the last sync time property may or may not be available for reads yet.
Reference:
https://docs.microsoft.com/en-us/azure/storage/common/last-sync-time-get

NO.139 You have an Azure Data Factory pipeline that has the activity shown in the following exhibit.



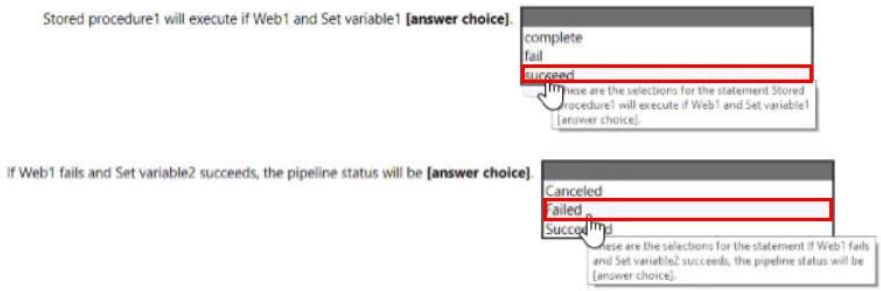
Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

Answer Area



Answer:

Answer Area



NO.140 You need to schedule an Azure Data Factory pipeline to execute when a new file arrives in an Azure Data Lake Storage Gen2 container.
Which type of trigger should you use?

A. on-demand

B. tumbling window

C. schedule

D. event

Answer: B

Explanation:
Event-driven architecture (EDA) is a common data integration pattern that involves production, detection, consumption, and reaction to events. Data integration scenarios often require Data Factory customers to trigger pipelines based on events happening in storage account, such as the arrival or deletion of a file in Azure Blob Storage account.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/how-to-create-event-trigger

NO.141 You are designing a statistical analysis solution that will use custom proprietary1 Python functions on near real-time data from Azure Event Hubs.
You need to recommend which Azure service to use to perform the statistical analysis. The solution must minimize latency.
What should you recommend?

A. Azure Stream Analytics

B. Azure SQL Database

C. Azure Databricks

D. Azure Synapse Analytics

Answer: A

Reference:
https://docs.microsoft.com/en-us/azure/event-hubs/process-data-azure-stream-analytics

NO.142 You have an Azure Databricks resource.
You need to log actions that relate to changes in compute for the Databricks resource.
Which Databricks services should you log?

A. clusters

B. workspace

C. DBFS

D. SSH

Answer: B
E Iobs
Explanation:
Cloud Provider Infrastructure Logs. Databricks logging allows security and admin teams to demonstrate conformance to data governance standards within or from a Databricks workspace. Customers, especially in the regulated industries, also need records on activities like: - User access control to cloud data storage - Cloud Identity and Access Management roles - User access to clou d network and compute Azure Databricks offers three distinct workloads on several VM Instances tailored for your data analytics workflow-the Jobs Compute and Jobs Light Compute workloads make it easy for data engineers to build and execute jobs, and the All-Purpose Compute workload makes it easy for data scientists to explore, visualize, manipulate, and share data and insights interactively.

NO.143 You are building an Azure Stream Analytics job to identify how much time a user spends interacting with a feature on a webpage.
The job receives events based on user actions on the webpage. Each row of data represents an event. Each event has a type of either 'start' or 'end'.
You need to calculate the duration between start and end events.
How should you complete the query? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

```
SELECT
    [user],
    feature,
    [ DATEADD( | DATEDIFF( | DATEPART( ]
        second,
        [ ISFIRST | LAST | TOPONE ] (Time) OVER (PARTITION BY [user], feature LIMIT DURATION(hour, 1) WHEN Event = 'start'),
        Time) as duration
FROM input TIMESTAMP BY Time
WHERE
    Event = 'end'
```

Answer:

```
SELECT
    [user],
    feature,
    [ DATEADD( | DATEDIFF( | DATEPART( ]
        second,
        [ ISFIRST | LAST | TOPONE ] (Time) OVER (PARTITION BY [user], feature LIMIT DURATION(hour, 1) WHEN Event = 'start'),
        Time) as duration
FROM input TIMESTAMP BY Time
WHERE
    Event = 'end'
```

Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-stream-analytics-query-patterns

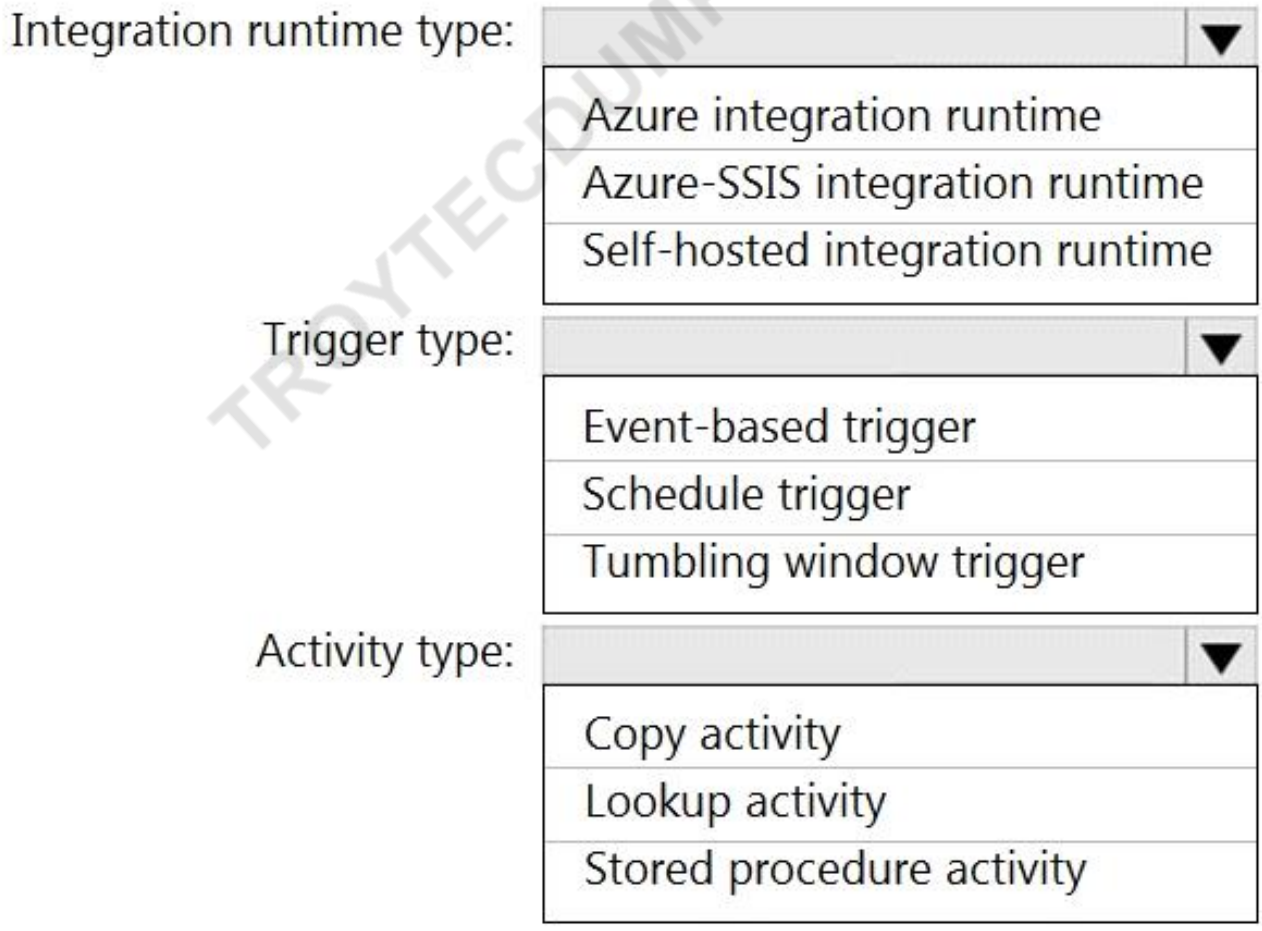
NO.144 You are designing an application that will use an Azure Data Lake Storage Gen 2 account to store petabytes of license plate photos from toll booths. The account will use zone-redundant storage (ZRS).

You identify the following usage patterns:
* The data will be accessed several times a day during the first 30 days after the data is created. The data must meet an availability SU of 99.9%.
* After 90 days, the data will be accessed infrequently but must be available within 30 seconds.
* After 365 days, the data will be accessed infrequently but must be available within five minutes.

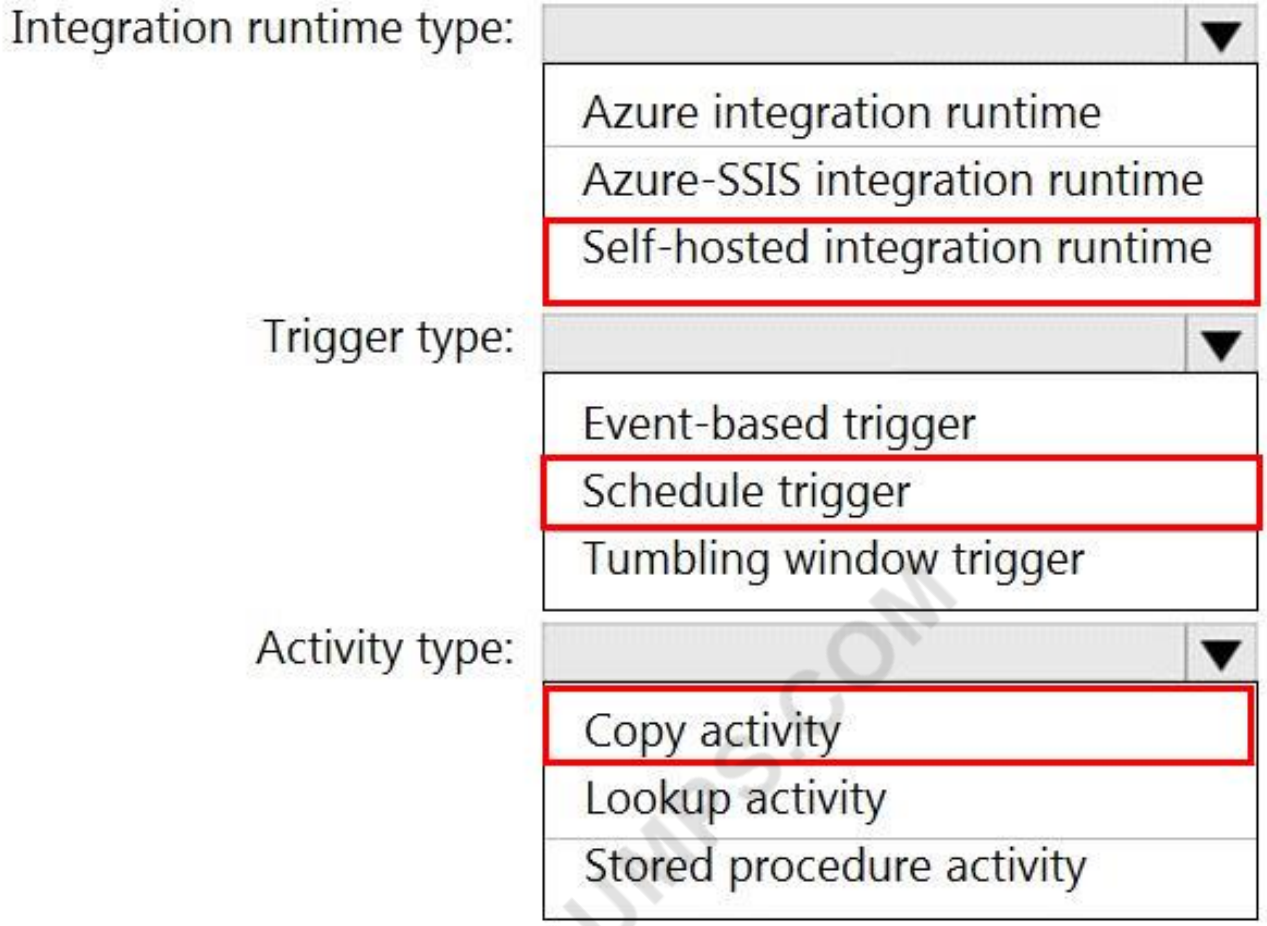
Answer:

Answer as below

NO.145 Which Azure Data Factory components should you recommend using together to import the daily inventory data from the SQL server to Azure Data Lake Storage? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



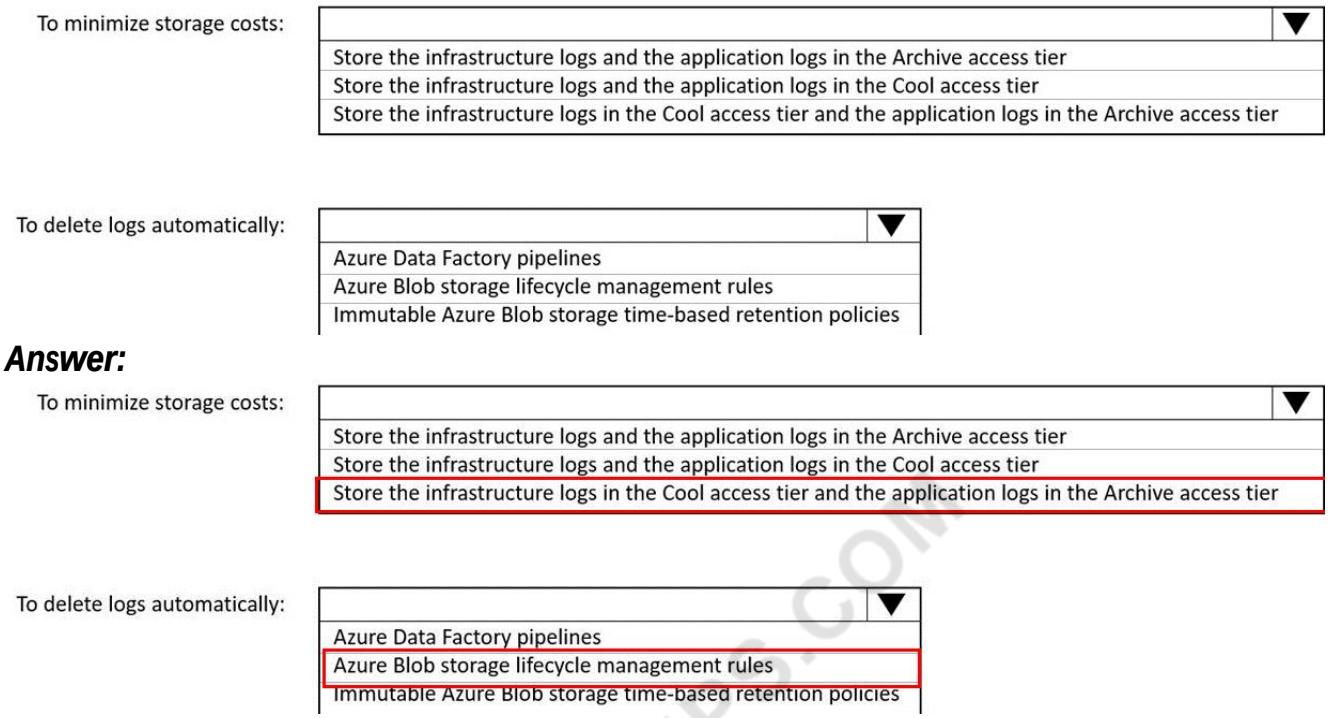
Answer:



NO.146 You have an Azure Data Lake Storage Gen2 account named account1 that stores logs as shown in the following table.

Type	Designated retention period
Application	360 days
Infrastructure	60 days

You do not expect that the logs will be accessed during the retention periods.
You need to recommend a solution for account1 that meets the following requirements:
Automatically deletes the logs at the end of each retention period
Minimizes storage costs
What should you include in the recommendation? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.



Answer:

Reference:
https://docs.microsoft.com/en-us/azure/storage/blobs/access-tiers-overview

NO.147 You create an Azure Databricks cluster and specify an additional library to install.
When you attempt to load the library to a notebook, the library in not found.
You need to identify the cause of the issue.
What should you review?

A. notebook logs

B. cluster event logs

C. global init scripts logs

D. workspace logs

Answer: C

Explanation:
Cluster-scoped Init Scripts: Init scripts are shell scripts that run during the startup of each cluster node before the Spark driver or worker JVM starts. Databricks customers use init scripts for various purposes such as installing custom libraries, launching background processes, or applying enterprise security policies.
Logs for Cluster-scoped init scripts are now more consistent with Cluster Log Delivery and can be found in the same root folder as driver and executor logs for the cluster.
Reference:
https://databricks.com/blog/2018/08/30/introducing-cluster-scoped-init-scripts.html

NO.148 You have an Azure Synapse Analytics dedicated SQL pool named Pool1 and an Azure Data Lake Storage Gen2 account named Account 1.
You plan to access the files in Accoun1l by using an external table.
You need to create a data source in Pool1 that you can reference when you create the external table.
How should you complete the Transact-SQL statement? To answer, select the appropriate options in the answer area.

NOTE Each coned selection is worth one point.

Answer:

Answer as below

Answer Area

NO.149 You have an Azure Synapse Analytics dedicated SQL pool named SA1 that contains a table named Table1. You need to identify tables that have a high percentage of deleted rows. What should you run?

A)

```
sys.pdw_nodes_column_store_segments
```

B)

```
sys.dm_db_column_store_row_group_operational_stats
```

C)

```
sys.pdw_nodes_column_store_row_groups
```

D)

```
sys.dm_db_column_store_row_group_physical_stats
```

A. Option

B. Option

C. Option

D. Option

Answer: B

NO.150 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution. After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.

You plan to create an Azure Databricks workspace that has a tiered structure. The workspace will contain the following three workloads:

A workload for data engineers who will use Python and SQL.

A workload for jobs that will run notebooks that use Python, Scala, and SOL.

A workload that data scientists will use to perform ad hoc analysis in Scala and R.

The enterprise architecture team at your company identifies the following standards for Databricks environments:

The data engineers must share a cluster.

The job cluster will be managed by using a request process whereby data scientists and data engineers provide packaged notebooks for deployment to the cluster.
All the data scientists must be assigned their own cluster that terminates automatically after 120 minutes of inactivity. Currently, there are three data scientists.
You need to create the Databricks clusters for the workloads.
Solution: You create a High Concurrency cluster for each data scientist, a High Concurrency cluster for the data engineers, and a Standard cluster for the jobs.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
Need a High Concurrency cluster for the jobs.
Standard clusters are recommended for a single user. Standard can run workloads developed in any language:
Python, R, Scala, and SQL.
A high concurrency cluster is a managed cloud resource. The key benefits of high concurrency clusters are that they provide Apache Spark-native fine-grained sharing for maximum resource utilization and minimum query latencies.
Reference:
https://docs.azuredatabricks.net/clusters/configure.html

NO.151 You have an Azure Data Factory version 2 (V2) resource named Df1. Df1 contains a linked service.
You have an Azure Key vault named vault1 that contains an encryption key named key1.
You need to encrypt Df1 by using key1.
What should you do first?

A. Add a private endpoint connection to vaul 1.

B. Enable Azure role-based access control on vault 1.

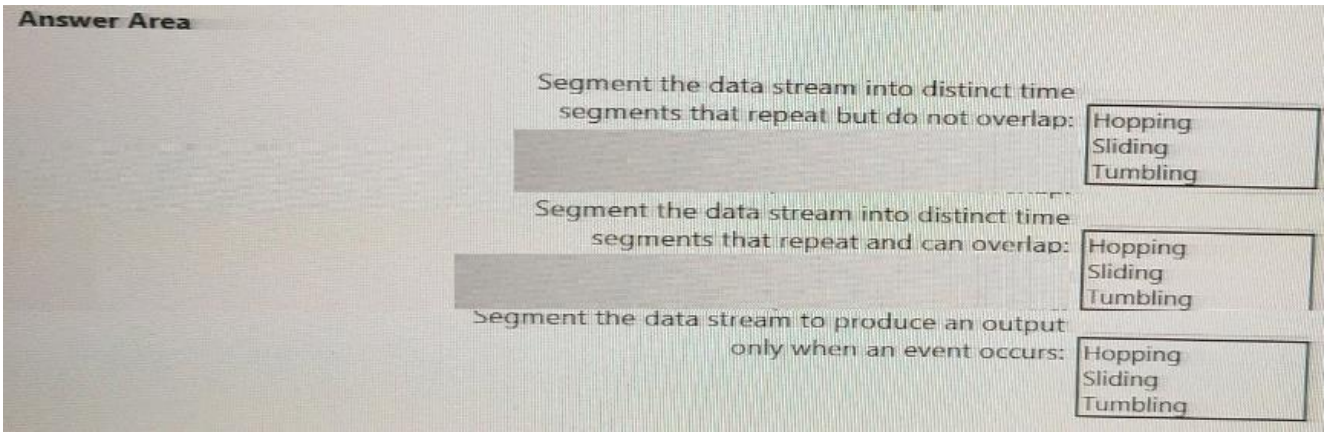
C. Remove the linked service from Df1.

D. Create a self-hosted integration runtime.

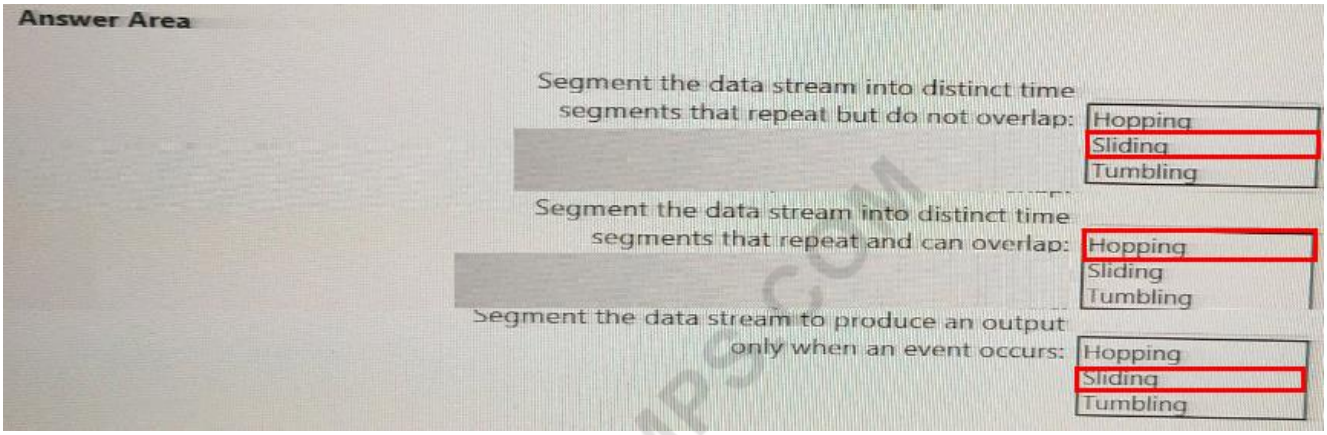
Answer: C

Explanation:
Linked services are much like connection strings, which define the connection information needed for Data Factory to connect to external resources.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/enable-customer-managed-key
https://docs.microsoft.com/en-us/azure/data-factory/concepts-linked-services
https://docs.microsoft.com/en-us/azure/data-factory/create-self-hosted-integration-runtime

NO.152 You are implementing Azure Stream Analytics windowing functions.
Which windowing function should you use for each requirement? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



NO.153 You have several Azure Data Factory pipelines that contain a mix of the following types of activities.
* Wrangling data flow
* Notebook
* Copy
* jar

Which two Azure services should you use to debug the activities? Each correct answer presents part of the solution NOTE: Each correct selection is worth one point.

A. Azure HDInsight

B. Azure Databricks

C. Azure Machine Learning

D. Azure Data Factory

E. Azure Synapse Analytics

Answer: C,E

NO.154 You have an Azure Data Lake Storage account that contains a staging zone.
You need to design a daily process to ingest incremental data from the staging zone, transform the data by executing an R script, and then insert the transformed data into a data warehouse in Azure Synapse Analytics.
Solution: You use an Azure Data Factory schedule trigger to execute a pipeline that executes mapping data Flow, and then inserts the data info the data warehouse.
Does this meet the goal?

A. Yes
B. No
Answer: B

NO.155 You implement an enterprise data warehouse in Azure Synapse Analytics.
You have a large fact table that is 10 terabytes (TB) in size.
Incoming queries use the primary key SaleKey column to retrieve data as displayed in the following table:

SaleKey	CityKey	CustomerKey	StockItemKey	InvoiceDateKey	Quantity	UnitPrice	TotalExcludingTax
49309	90858	70	69	10/22/13	8	16	128
49313	55710	126	69	10/22/13	2	16	32
49343	44710	234	68	10/22/13	10	16	160
49352	66109	163	70	10/22/13	4	16	64
49488	65312	230	70	10/22/13	8	16	128
49646	85877	271	70	10/24/13	1	16	16
49798	41238	288	69	10/24/13	1	16	16

You need to distribute the large fact table across multiple nodes to optimize performance of the table.
Which technology should you use?
A. hash distributed table with clustered index
B. hash distributed table with clustered Columnstore index
C. round robin distributed table with clustered index
D. round robin distributed table with clustered Columnstore index
E. heap table with distribution replicate
Answer: B
Explanation:
Hash-distributed tables improve query performance on large fact tables.
Columnstore indexes can achieve up to 100x better performance on analytics and data warehousing workloads and up to 10x better data compression than traditional rowstore indexes.
Reference:
https://docs.microsoft.com/en-us/azure/sql-data-warehouse/sql-data-warehouse-tables-distribute
https://docs.microsoft.com/en-us/sql/relational-databases/indexes/columnstore-indexes-query-performance

NO.156 You have an Azure Databricks workspace named workspace! in the Standard pricing tier. Workspace! contains an all-purpose cluster named cluster). You need to reduce the time it takes for cluster 1 to start and scale up. The solution must minimize costs. What should you do first?
A. Upgrade workspace! to the Premium pricing tier.
B. Create a cluster policy in workspace1.
C. Create a pool in workspace1.
D. Configure a global init script for workspace1.
Answer: C

NO.157 You are designing a date dimension table in an Azure Synapse Analytics dedicated SQL pool. The date dimension table will be used by all the fact tables.
Which distribution type should you recommend to minimize data movement?

A. HASH
B. REPLICATE
C. ROUND ROBIN
Answer: B
Explanation:
A replicated table has a full copy of the table available on every Compute node. Queries run fast on replicated tables since joins on replicated tables don't require data movement. Replication requires extra storage, though, and isn't practical for large tables.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-overview

NO.158 You have the following Azure Data Factory pipelines
* ingest Data from System 1
* Ingest Data from System2
* Populate Dimensions
* Populate facts
ingest Data from System1 and Ingest Data from System1 have no dependencies. Populate Dimensions must execute after Ingest Data from System1 and Ingest Data from System* Populate Facts must execute after the Populate Dimensions pipeline. All the pipelines must execute every eight hours.
What should you do to schedule the pipelines for execution?
A. Add an event trigger to all four pipelines.
B. Create a parent pipeline that contains the four pipelines and use an event trigger.
C. Create a parent pipeline that contains the four pipelines and use a schedule trigger.
D. Add a schedule trigger to all four pipelines.
Answer: C
Explanation:
Schedule trigger: A trigger that invokes a pipeline on a wall-clock schedule.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/concepts-pipeline-execution-triggers

NO.159 You are designing a dimension table for a data warehouse. The table will track the value of the dimension attributes over time and preserve the history of the data by adding new rows as the data changes.
Which type of slowly changing dimension (SCD) should use?
A. Type 0
B. Type 1
C. Type 2
D. Type 3
Answer: C
Explanation:
Type 2 - Creating a new additional record. In this methodology all history of dimension changes is kept in the database. You capture attribute change by adding a new row with a new surrogate key to the dimension table. Both the prior and new rows contain as attributes the natural key(or other durable

identifier). Also 'effective date' and 'current indicator' columns are used in this method. There could be only one record with current indicator set to 'Y'. For 'effective date' columns, i.e. start_date and end_date, the end_date for current record usually is set to value 9999-12-31. Introducing changes to the dimensional model in type 2 could be very expensive database operation so it is not recommended to use it in dimensions where a new attribute could be added in the future.
https://www.datawarehouse4u.info/SCD-Slowly-Changing-Dimensions.html

NO.160 You have an Azure Data Factory instance named ADF1 and two Azure Synapse Analytics workspaces named WS1 and WS2.
ADF1 contains the following pipelines:
P1: Uses a copy activity to copy data from a nonpartitioned table in a dedicated SQL pool of WS1 to an Azure Data Lake Storage Gen2 account P2: Uses a copy activity to copy data from text-delimited files in an Azure Data Lake Storage Gen2 account to a nonpartitioned table in a dedicated SQL pool of WS2 You need to configure P1 and P2 to maximize parallelism and performance.
Which dataset settings should you configure for the copy activity if each pipeline? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.

P1:

Set the Copy method to Bulk insert
Set the Copy method to PolyBase
Set the Isolation level to Repeatable read
Set the Partition option to Dynamic range

P2:

Set the Copy method to Bulk insert
Set the Copy method to PolyBase
Set the Isolation level to Repeatable read
Set the Partition option to Dynamic range

Answer:

P1:

- Set the Copy method to Bulk insert
- **Set the Copy method to PolyBase**
- Set the Isolation level to Repeatable read
- Set the Partition option to Dynamic range

P2:

- **Set the Copy method to Bulk insert**
- Set the Copy method to PolyBase
- Set the Isolation level to Repeatable read
- Set the Partition option to Dynamic range

Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/load-data-overview

NO.161 You have an Azure Synapse Analytics workspace named WS1.
You have an Azure Data Lake Storage Gen2 container that contains JSON-formatted files in the following format.

```
{
    "id": "66532691-ab20-11ea-8b1d-936b3ec64e54",
    "context": {
        "data": {
            "eventTime": "2020-06-10T13:43:34.553Z",
            "samplingRate": "100.0",
            "isSynthetic": "false"
        },
        "session": {
            "isFirst": "false",
            "id": "38619c14-7a23-4687-8268-95862c5326b1"
        },
        "custom": {
            "dimensions": [
                {
                    "customerInfo": {
                        "ProfileType": "ExpertUser",
                        "RoomName": "",
                        "CustomerName": "diamond",
                        "UserName": "XXXX@yahoo.com"
                    }
                },
                {
                    "customerInfo" {
                        "ProfileType": "Novice",
                        "RoomName": "",
                        "CustomerName": "topaz",
                        "UserName": "XXXX@outlook.com"
                    }
                }
            ]
        }
    }
}
```


You need to use the serverless SQL pool in WS1 to read the files.
How should you complete the Transact-SQL statement? To answer, drag the appropriate values to the correct targets. Each value 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.
NOTE: Each correct selection is worth one point.

Values

opendatasource

openjson

openquery

openrowset

Answer Area

```
select*

FROM
[                ] (
     BULK 'https://contoso.blob.core.windows.net/contosodw',
     FORMAT= 'CSV',
     fieldterminator = '0x0b',
     fieldquote = '0x0b',
     rowterminator = '0x0b'
)
with (id varchar(50),
     contextdateventTime varchar(50) '$.context.data.eventTime',
     contextdatasamplingRate varchar(50) '$.context.data.samplingRate',
     contextdataisSynthetic varchar(50) '$.context.data.isSynthetic'.
     contextsessionisFirst varchar(50) '$.context.session.isFirst',
     contextsession varchar(50) '$.context.session.id',
     contextcustomdimensions varchar(max) '$.context.custom.dimensions'

) as q
cross apply [                ](contextcustomdimensions)

with ( ProfileType varchar(50) '$.customerInfo.ProfileType',
          RoomName varchar(50) '$.customerInfo.RoomName',
          CustomerName varchar(50) '$.customerInfo.CustomerName',
          UserName varchar(50) '$.customerInfo.UserName'
     )
```

Answer:

Values

opendatasource

openjson

openquery

openrowset

Answer Area

```
select*

FROM
  openrowset  (
     BULK 'https://contoso.blob.core.windows.net/contosodw',
     FORMAT= 'CSV',
     fieldterminator = '0x0b',
     fieldquote = '0x0b',
     rowterminator = '0x0b'
)
with (id varchar(50),
     contextdateventTime varchar(50) '$.context.data.eventTime',
     contextdatasamplingRate varchar(50) '$.context.data.samplingRate',
     contextdataisSynthetic varchar(50) '$.context.data.isSynthetic'.
     contextsessionisFirst varchar(50) '$.context.session.isFirst',
     contextsession varchar(50) '$.context.session.id',
     contextcustomdimensions varchar(max) '$.context.custom.dimensions'

) as q
cross apply   openjson   (contextcustomdimensions)

with ( ProfileType varchar(50) '$.customerInfo.ProfileType',
          RoomName varchar(50) '$.customerInfo.RoomName',
          CustomerName varchar(50) '$.customerInfo.CustomerName',
          UserName varchar(50) '$.customerInfo.UserName'
     )
```

Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/query-single-csv-file
https://docs.microsoft.com/en-us/sql/relational-databases/json/import-json-documents-into-sql-server

NO.162 You plan to implement an Azure Data Lake Storage Gen2 container that will contain CSV

files. The size of the files will vary based on the number of events that occur per hour.
File sizes range from 4.KB to 5 GB.
You need to ensure that the files stored in the container are optimized for batch processing.
What should you do?

A. Compress the files.

B. Merge the files.

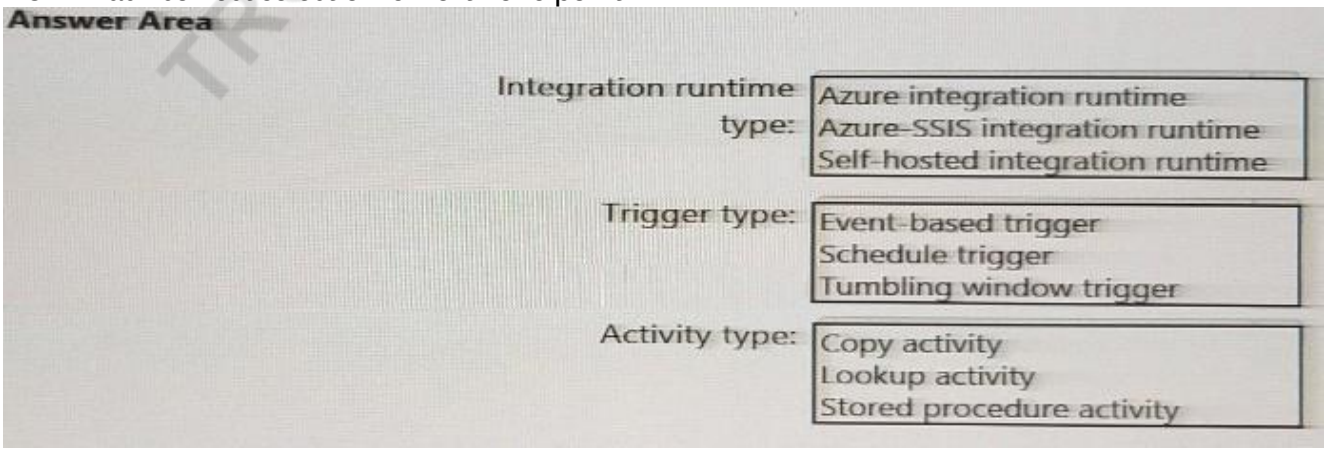
C. Convert the files to JSON

D. Convert the files to Avro.

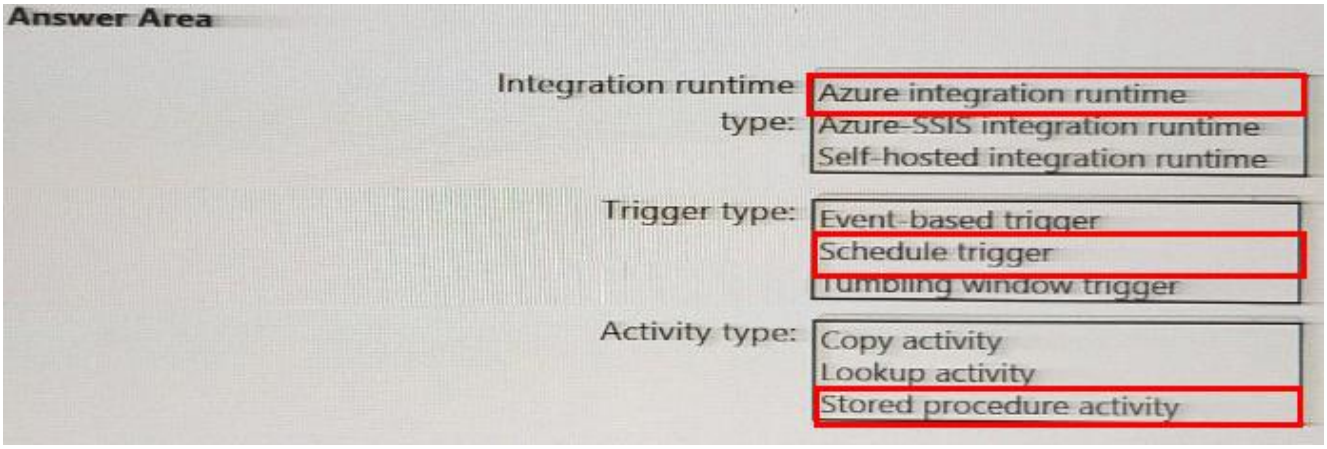
Answer: D

Explanation:
Avro supports batch and is very relevant for streaming.
Note: Avro is framework developed within Apache's Hadoop project. It is a row-based storage format which is widely used as a serialization process. AVRO stores its schema in JSON format making it easy to read and interpret by any program. The data itself is stored in binary format by doing it compact and efficient.
Reference:
https://www.adaltas.com/en/2020/07/23/benchmark-study-of-different-file-format/

NO.163 Which Azure Data Factory components should you recommend using together to import the daily inventory data from the SQL server to Azure Data Lake Storage? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



NO.164 You have an Azure Stream Analytics query. The query returns a result set that contains 10,000 distinct values for a column named clusterID.
You monitor the Stream Analytics job and discover high latency.
You need to reduce the latency.
Which two actions should you perform? Each correct answer presents a complete solution.
NOTE: Each correct selection is worth one point.

A. Add a pass-through query.

B. Add a temporal analytic function.

C. Scale out the query by using PARTITION BY.

D. Convert the query to a reference query.

E. Increase the number of streaming units.

Answer: C,E

Explanation:
C: Scaling a Stream Analytics job takes advantage of partitions in the input or output. Partitioning lets you divide data into subsets based on a partition key. A process that consumes the data (such as a Streaming Analytics job) can consume and write different partitions in parallel, which increases throughput.
E: Streaming Units (SUs) represents the computing resources that are allocated to execute a Stream Analytics job. The higher the number of SUs, the more CPU and memory resources are allocated for your job. This capacity lets you focus on the query logic and abstracts the need to manage the hardware to run your Stream Analytics job in a timely manner.
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-parallelization
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-streaming-unit-consumption

NO.165 You are designing a fact table named FactPurchase in an Azure Synapse Analytics dedicated SQL pool. The table contains purchases from suppliers for a retail store. FactPurchase will contain the following columns.

Name	Data type	Nullable
PurchaseKey	Bigint	No
DateKey	Int	No
SupplierKey	Int	No
StockItemKey	Int	No
PurchaseOrderID	Int	Yes
OrderedQuantity	Int	No
OrderedOuters	Int	No
ReceivedOuters	Int	No
Package	Nvarchar(50)	No
IsOrderFinalized	Bit	No
LineageKey	Int	No

FactPurchase will have 1 million rows of data added daily and will contain three years of data.
Transact-SQL queries similar to the following query will be executed daily.

```
SELECT
SupplierKey, StockItemKey, COUNT(*)
FROM FactPurchase
WHERE DateKey >= 20210101
AND DateKey <= 20210131
GROUP By SupplierKey, StockItemKey
```

Which table distribution will minimize query times?

A. round-robin

B. replicated

C. hash-distributed on DateKey

D. hash-distributed on PurchaseKey

Answer: D

Explanation:
Hash-distributed tables improve query performance on large fact tables, and are the focus of this article. Round-robin tables are useful for improving loading speed.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-distribute

NO.166 What should you do to improve high availability of the real-time data processing solution?

A. Deploy identical Azure Stream Analytics jobs to paired regions in Azure.

B. Deploy a High Concurrency Databricks cluster.

C. Deploy an Azure Stream Analytics job and use an Azure Automation runbook to check the status of the job and to start the job if it stops.

D. Set Data Lake Storage to use geo-redundant storage (GRS).

Answer: A

Explanation:

Guarantee Stream Analytics job reliability during service updates

Part of being a fully managed service is the capability to introduce new service functionality and improvements at a rapid pace. As a result, Stream Analytics can have a service update deploy on a weekly (or more frequent) basis. No matter how much testing is done there is still a risk that an existing, running job may break due to the introduction of a bug. If you are running mission critical jobs, these risks need to be avoided. You can reduce this risk by following Azure's paired region model.

Scenario: The application development team will create an Azure event hub to receive real-time sales data, including store number, date, time, product ID, customer loyalty number, price, and discount amount, from the point of sale (POS) system and output the data to data storage in Azure Reference:

https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-job-reliability

NO.167 You have an Azure Synapse Analystics dedicated SQL pool that contains a table named Contacts. Contacts contains a column named Phone.

You need to ensure that users in a specific role only see the last four digits of a phone number when querying the Phone column.

What should you include in the solution?

A. a default value

B. dynamic data masking

C. row-level security (RLS)

D. column encryption

E. table partitions

Answer: B

Explanation:

Dynamic data masking helps prevent unauthorized access to sensitive data by enabling customers to designate how much of the sensitive data to reveal with minimal impact on the application layer. It's a policy-based security feature that hides the sensitive data in the result set of a query over designated database fields, while the data in the database is not changed.

Reference:

https://docs.microsoft.com/en-us/azure/azure-sql/database/dynamic-data-masking-overview

NO.168 You are designing a slowly changing dimension (SCD) for supplier data in an Azure Synapse Analytics dedicated SQL pool.

You plan to keep a record of changes to the available fields.

The supplier data contains the following columns.

Name	Description
SupplierSystemID	Unique supplier ID in an enterprise resource planning (ERP) system
SupplierName	Name of the supplier company
SupplierAddress1	Address of the supplier company
SupplierAddress2	Second address line of the supplier company
SupplierCity	City of the supplier company
SupplierStateProvince	State or province of the supplier company
SupplierCountry	Country of the supplier company
SupplierPostalCode	Postal code of the supplier company
SupplierDescription	Free-text description of the supplier company
SupplierCategory	Category of goods provided by the supplier company

Which three additional columns should you add to the data to create a Type 2 SCD? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. surrogate primary key
B. foreign key
C. effective start date
D. effective end date
E. last modified date
F. business key

Answer: D,C,F
Reference:
https://docs.microsoft.com/en-us/sql/integration-services/data-flow/transformations/slowly-changing-dimension-transformation

NO.169 A company plans to use Apache Spark analytics to analyze intrusion detection data.
You need to recommend a solution to analyze network and system activity data for malicious activities and policy violations. The solution must minimize administrative efforts.
What should you recommend?

A. Azure Data Lake Storage
B. Azure Databncks
C. Azure HDInsight
D. Azure Data Factory

Answer: B

NO.170 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution.

After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You plan to create an Azure Databricks workspace that has a tiered structure. The workspace will contain the following three workloads:
A workload for data engineers who will use Python and SQL.
A workload for jobs that will run notebooks that use Python, Scala, and SOL.
A workload that data scientists will use to perform ad hoc analysis in Scala and R.
The enterprise architecture team at your company identifies the following standards for Databricks environments:
The data engineers must share a cluster.
The job cluster will be managed by using a request process whereby data scientists and data engineers provide packaged notebooks for deployment to the cluster.
All the data scientists must be assigned their own cluster that terminates automatically after 120 minutes of inactivity. Currently, there are three data scientists.
You need to create the Databricks clusters for the workloads.
Solution: You create a Standard cluster for each data scientist, a High Concurrency cluster for the data engineers, and a High Concurrency cluster for the jobs.
Does this meet the goal?

A. Yes

B. No

Answer: A

We need a High Concurrency cluster for the data engineers and the jobs.
Note:
Standard clusters are recommended for a single user. Standard can run workloads developed in any language:
Python, R, Scala, and SQL.
A high concurrency cluster is a managed cloud resource. The key benefits of high concurrency clusters are that they provide Apache Spark-native fine-grained sharing for maximum resource utilization and minimum query latencies.
Reference:
https://docs.azuredatabricks.net/clusters/configure.html

NO.171 You are designing an Azure Synapse Analytics workspace.
You need to recommend a solution to provide double encryption of all the data at rest.
Which two components should you include in the recommendation? Each coned answer presents part of the solution NOTE: Each correct selection is worth one point.

A. an X509 certificate

B. an RSA key

C. an Azure key vault that has purge protection enabled

D. an Azure virtual network that has a network security group (NSG)

E. an Azure Policy initiative

Answer: A,D

NO.172 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question

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The job cluster will be managed by using a request process whereby data scientists and data engineers provide packaged notebooks for deployment to the cluster.
All the data scientists must be assigned their own cluster that terminates automatically after 120 minutes of inactivity. Currently, there are three data scientists.
You need to create the Databricks clusters for the workloads.
Solution: You create a Standard cluster for each data scientist, a High Concurrency cluster for the data engineers, and a Standard cluster for the jobs.
Does this meet the goal?

A. Yes

B. No

Answer: B

Explanation:
We would need a High Concurrency cluster for the jobs.
Note:
Standard clusters are recommended for a single user. Standard can run workloads developed in any language:
Python, R, Scala, and SQL.
A high concurrency cluster is a managed cloud resource. The key benefits of high concurrency clusters are that they provide Apache Spark-native fine-grained sharing for maximum resource utilization and minimum query latencies.
Reference:
https://docs.azuredatabricks.net/clusters/configure.html

NO.173 You are designing the folder structure for an Azure Data Lake Storage Gen2 account.
You identify the following usage patterns:
* Users will query data by using Azure Synapse Analytics serverless SQL pools and Azure Synapse Analytics serverless Apache Spark pods.
* Most queries will include a filter on the current year or week.
* Data will be secured by data source.
You need to recommend a folder structure that meets the following requirements:
* Supports the usage patterns
* Simplifies folder security
* Minimizes query times
Which folder structure should you recommend?
A)

```
\YYYYY\WW\DataSource\SubjectArea\FileData_YYYY_MM_DD.parquet
```

B)

```
DataSource\SubjectArea\WW\YYYY\FileData_YYYY_MM_DD.parquet
```

C)

```
\DataSource\SubjectArea\YYYY\WW\FileData_YYYY_MM_DD.parquet
```

D)

```
\DataSource\SubjectArea\YYYY-WW\FileData_YYYY_MM_DD.parquet
```

E)

```
WW\YYYY\SubjectArea\DataSource\FileData_YYYY_MM_DD.parquet
```

A. Option A
B. Option B
C. Option C
D. Option D
E. Option E
Answer: D

NO.174 You have an Azure Factory instance named DF1 that contains a pipeline named PL1.PL1 includes a tumbling window trigger.
You create five clones of PL1. You configure each clone pipeline to use a different data source.
You need to ensure that the execution schedules of the clone pipeline match the execution schedule of PL1.
What should you do?
A. Add a new trigger to each cloned pipeline
B. Associate each cloned pipeline to an existing trigger.
C. Create a tumbling window trigger dependency for the trigger of PL1.
D. Modify the Concurrency setting of each pipeline.
Answer: B

NO.175 You are designing an inventory updates table in an Azure Synapse Analytics dedicated SQL pool. The table will have a clustered columnstore index and will include the following columns:

Table	Comment
EventDate	One million records are added to the table each day
EventTypeID	The table contains 10 million records for each event type.
WarehouseID	The table contains 100 million records for each warehouse.
ProductCategoryTypeID	The table contains 25 million records for each product category type.

You identify the following usage patterns:
Analysts will most commonly analyze transactions for a warehouse.
Queries will summarize by product category type, date, and/or inventory event type.
You need to recommend a partition strategy for the table to minimize query times.
On which column should you partition the table?

A. ProductCategoryTypeID
B. EventDate
C. WarehouseID
D. EventTypeID
Answer: C
Explanation:
The number of records for each warehouse is big enough for a good partitioning.
Note: Table partitions enable you to divide your data into smaller groups of data. In most cases, table partitions are created on a date column.
When creating partitions on clustered columnstore tables, it is important to consider how many rows belong to each partition. For optimal compression and performance of clustered columnstore tables, a minimum of 1 million rows per distribution and partition is needed. Before partitions are created, dedicated SQL pool already divides each table into 60 distributed databases.

NO.176 You are designing a security model for an Azure Synapse Analytics dedicated SQL pool that will support multiple companies. You need to ensure that users from each company can view only the data of their respective company. Which two objects should you include in the solution? Each correct answer presents part of the solution NOTE: Each correct selection it worth one point.
A. a custom role-based access control (RBAC) role.
B. asymmetric keys
C. a predicate function
D. a column encryption key
E. a security policy
Answer: A,E
Reference:
https://docs.microsoft.com/en-us/sql/relational-databases/security/row-level-security
https://docs.microsoft.com/en-us/azure/synapse-analytics/security/synapse-workspace-access-control-overview

NO.177 A company plans to use Platform-as-a-Service (PaaS) to create the new data pipeline process. The process must meet the following requirements:
Ingest:
Access multiple data sources.
Provide the ability to orchestrate workflow.
Provide the capability to run SQL Server Integration Services packages.
Store:
Optimize storage for big data workloads.
Provide encryption of data at rest.
Operate with no size limits.
Prepare and Train:
Provide a fully-managed and interactive workspace for exploration and visualization.
Provide the ability to program in R, SQL, Python, Scala, and Java.
Provide seamless user authentication with Azure Active Directory.
Model & Serve:
Implement native columnar storage.

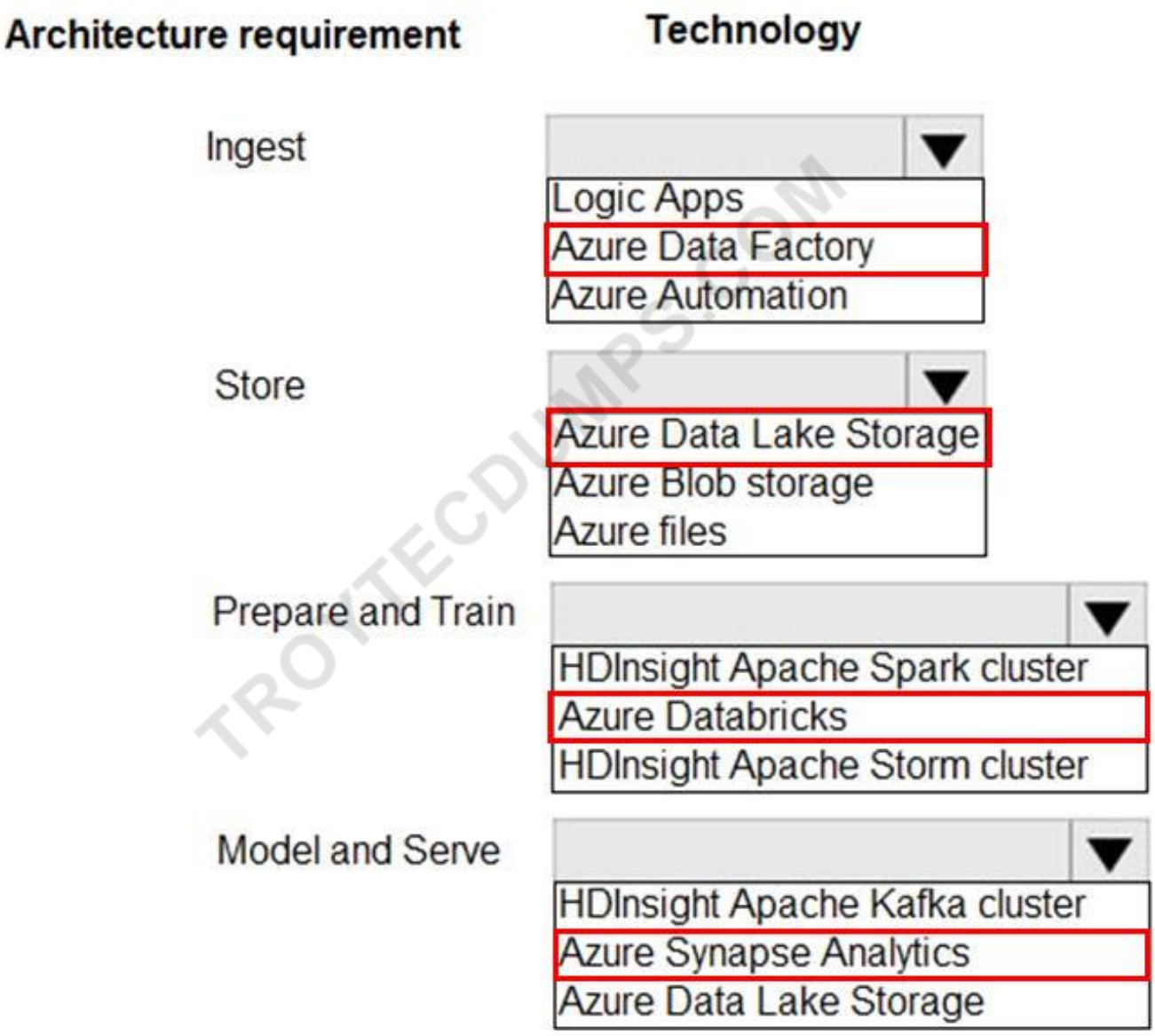
Support for the SQL language
Provide support for structured streaming.
You need to build the data integration pipeline.
Which technologies should you use? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Answer Area

Architecture requirement	Technology
Ingest	Logic Apps Azure Data Factory Azure Automation
Store	Azure Data Lake Storage Azure Blob storage Azure files
Prepare and Train	HDInsight Apache Spark cluster Azure Databricks HDInsight Apache Storm cluster
Model and Serve	HDInsight Apache Kafka cluster Azure Synapse Analytics Azure Data Lake Storage

Answer:

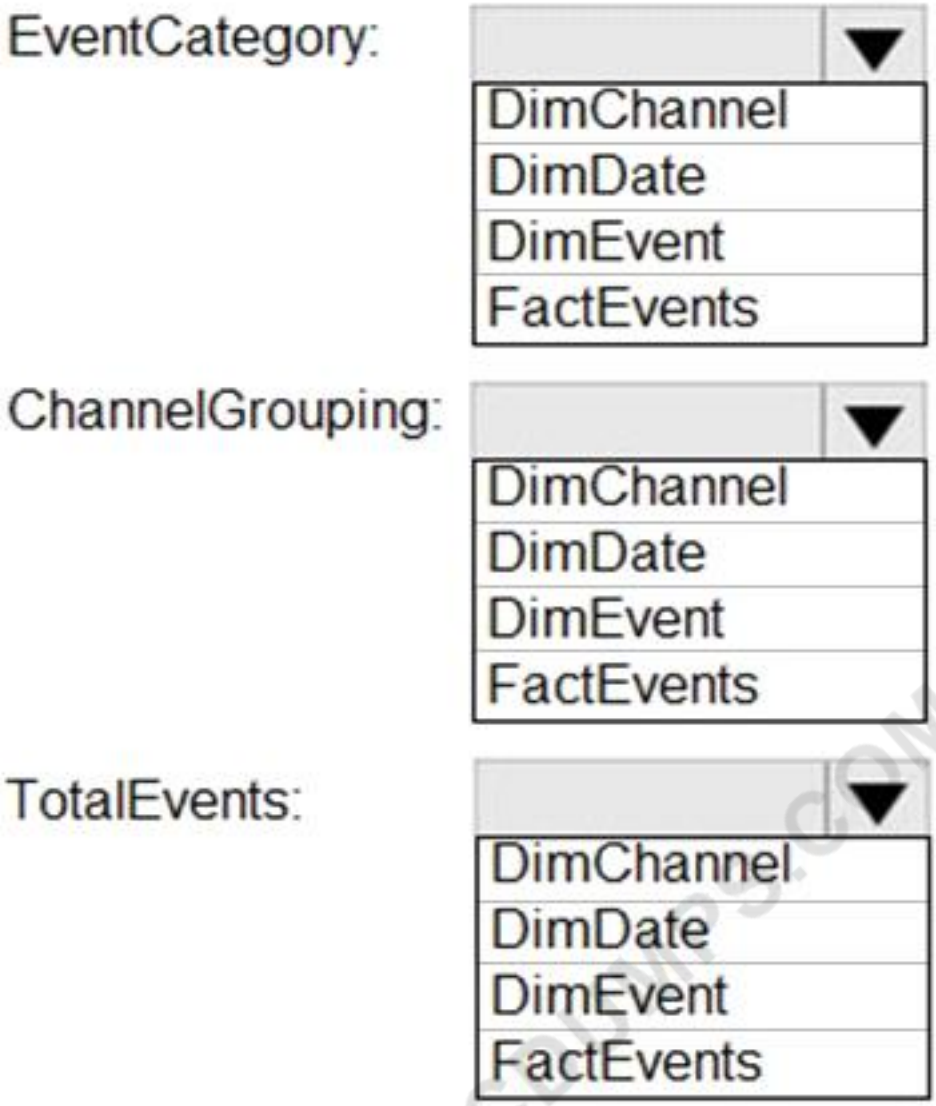
Answer Area



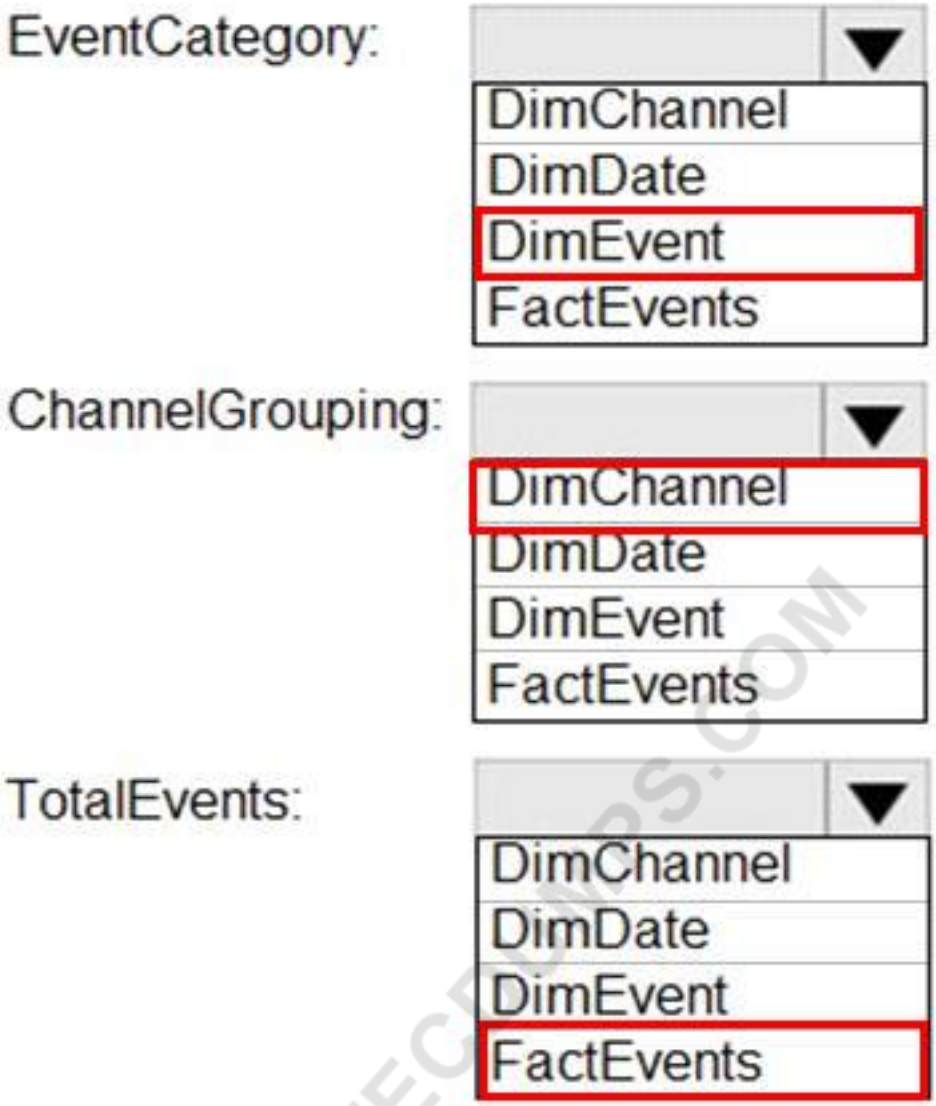
NO.178 From a website analytics system, you receive data extracts about user interactions such as downloads, link clicks, form submissions, and video plays.
The data contains the following columns.

Name	Sample value
Date	15 Jan 2021
EventCategory	Videos
EventAction	Play
EventLabel	Contoso Promotional
ChannelGrouping	Social
TotalEvents	150
UniqueEvents	120
SessionWithEvents	99

You need to design a star schema to support analytical queries of the data. The star schema will contain four tables including a date dimension.
To which table should you add each column? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/power-bi/guidance/star-schema

NO.179 You store files in an Azure Data Lake Storage Gen2 container. The container has the storage policy shown in the following exhibit.

```
{
  "rules": [
    {
      "enabled": true,
      "name": "contosorule",
      "type": "Lifecycle",
      "definition": {
        "actions": {
          "version": {
            "delete": {
              "daysAfterCreationGreaterThan": 60
            }
          },
          "baseBlob": {
            "tierToCool": {
              "daysAfterModificationGreaterThan": 30
            },
            },
          }
        },
        "filters": {
          "blobTypes": [
            "blockBlob"
          ],
          "prefixMatch": [
            "container1/contoso"
          ]
        }
      }
    }
  ]
}
```


Use the drop-down menus to select the answer choice that completes each statement based on the information presented in the graphic.

NOTE: Each correct selection is worth one point.

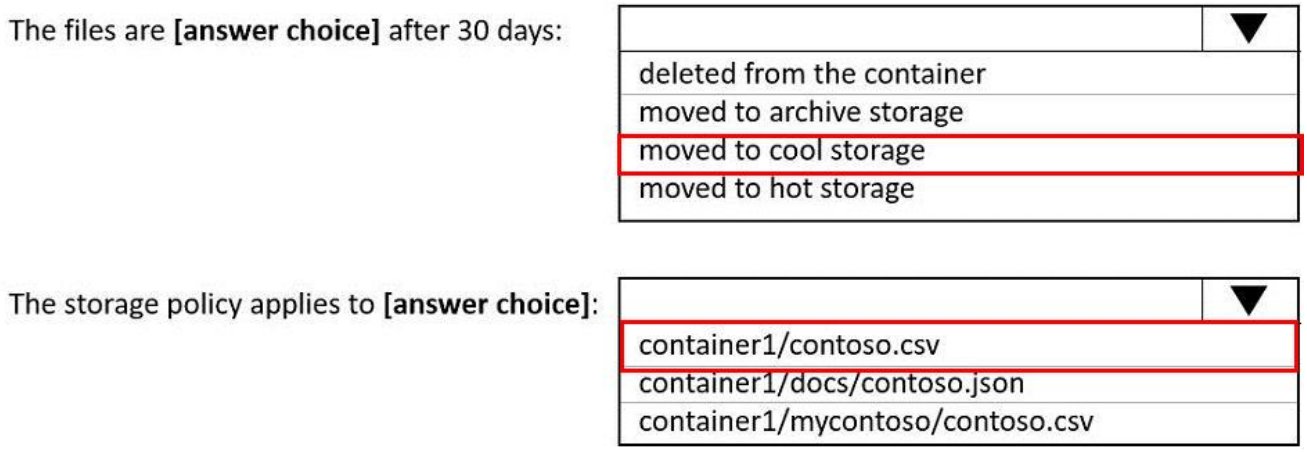
The files are **[answer choice]** after 30 days:

▼
deleted from the container
moved to archive storage
moved to cool storage
moved to hot storage

The storage policy applies to **[answer choice]**:

▼
container1/contoso.csv
container1/docs/contoso.json
container1/mycontoso/contoso.csv

Answer:



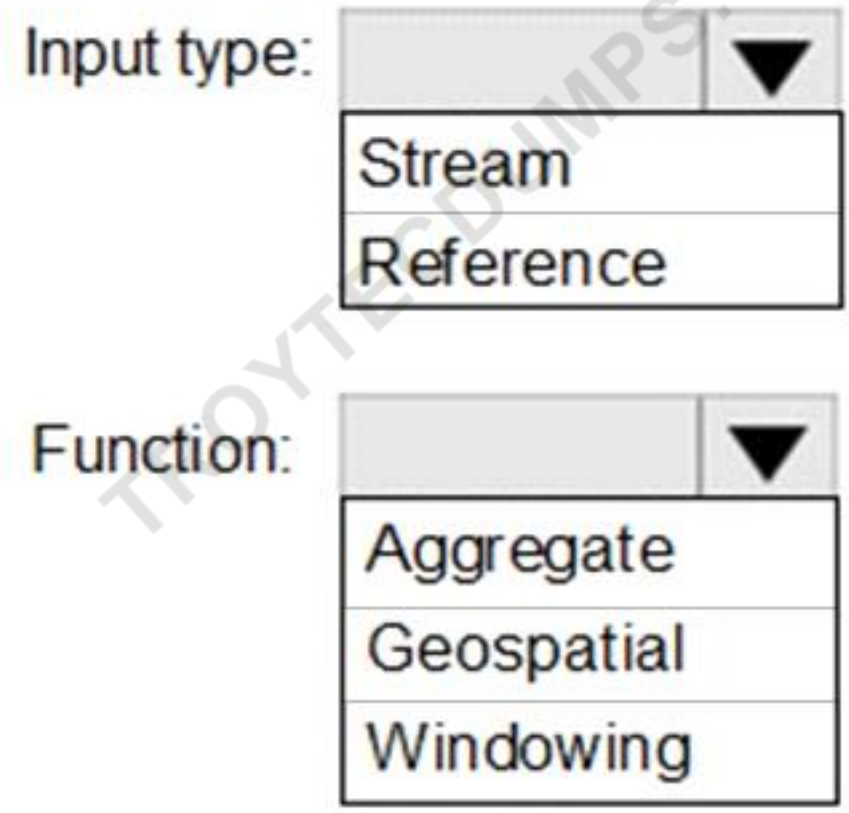
Reference:
https://docs.microsoft.com/en-us/dotnet/api/microsoft.azure.management.storage.fluent.models.managementpolicybaseblob.tiertocool

NO.180 You plan to build a structured streaming solution in Azure Databricks. The solution will count new events in five-minute intervals and report only events that arrive during the interval. The output will be sent to a Delta Lake table.
Which output mode should you use?
A. complete
B. update
C. append
Answer: C
Explanation:
Append Mode: Only new rows appended in the result table since the last trigger are written to external storage. This is applicable only for the queries where existing rows in the Result Table are not expected to change.
https://docs.databricks.com/getting-started/spark/streaming.html

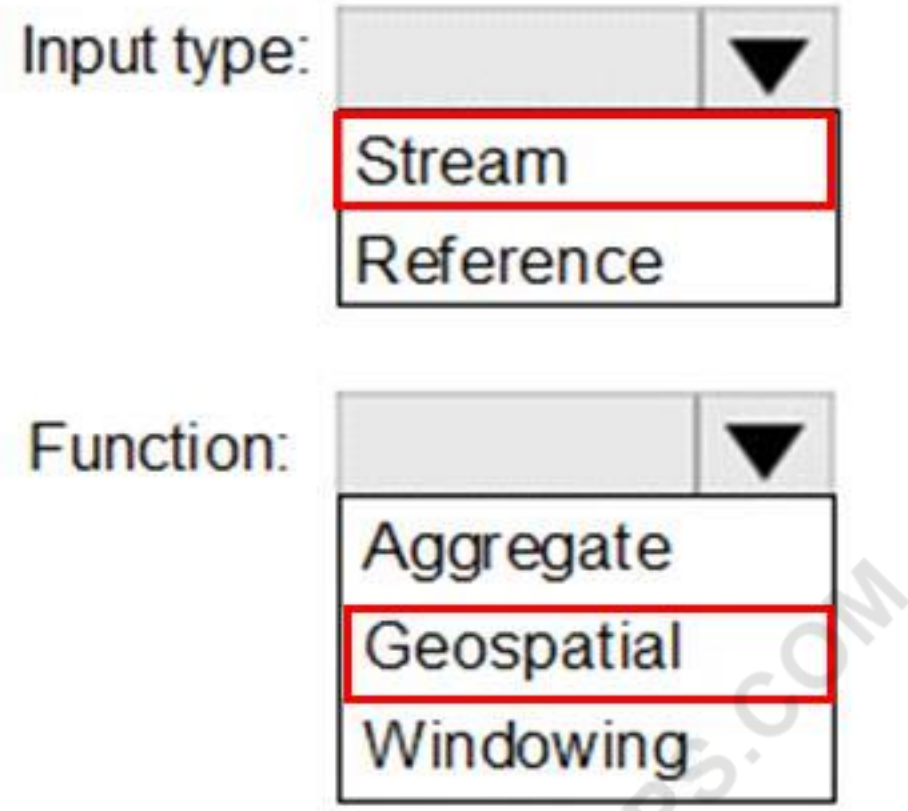
NO.181 What should you recommend to prevent users outside the Litware on-premises network from accessing the analytical data store?
A. a server-level virtual network rule
B. a database-level virtual network rule
C. a database-level firewall IP rule
D. a server-level firewall IP rule
Answer: A
Explanation:
Virtual network rules are one firewall security feature that controls whether the database server for your single databases and elastic pool in Azure SQL Database or for your databases in SQL Data Warehouse accepts communications that are sent from particular subnets in virtual networks.
Server-level, not database-level: Each virtual network rule applies to your whole Azure SQL Database server, not just to one particular database on the server. In other words, virtual network rule applies at the serverlevel, not at the database-level.
Reference:

https://docs.microsoft.com/en-us/azure/sql-database/sql-database-vnet-service-endpoint-rule-overview

NO.182 You plan to create a real-time monitoring app that alerts users when a device travels more than 200 meters away from a designated location.
You need to design an Azure Stream Analytics job to process the data for the planned app. The solution must minimize the amount of code developed and the number of technologies used.
What should you include in the Stream Analytics job? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-get-started-with-azure-stream-analytics-to-process-data-from-iot-devices
https://docs.microsoft.com/en-us/azure/stream-analytics/geospatial-scenarios

NO.183 You are designing an Azure Databricks cluster that runs user-defined local processes. You need to recommend a cluster configuration that meets the following requirements:
* Minimize query latency.
* Maximize the number of users that can run queues on the cluster at the same time
* Reduce overall costs without compromising other requirements Which cluster type should you recommend?

A. Standard with Auto termination

B. Standard with Autoscaling

C. High Concurrency with Autoscaling

D. High Concurrency with Auto Termination

Answer: C

Explanation:
A High Concurrency cluster is a managed cloud resource. The key benefits of High Concurrency clusters are that they provide fine-grained sharing for maximum resource utilization and minimum query latencies.
Databricks chooses the appropriate number of workers required to run your job. This is referred to as autoscaling. Autoscaling makes it easier to achieve high cluster utilization, because you don't need to provision the cluster to match a workload.
Reference:
https://docs.microsoft.com/en-us/azure/databricks/clusters/configure

NO.184 You have an enterprise data warehouse in Azure Synapse Analytics.
You need to monitor the data warehouse to identify whether you must scale up to a higher service level to accommodate the current workloads Which is the best metric to monitor?
More than one answer choice may achieve the goal. Select the BEST answer.

A. Data 10 percentage

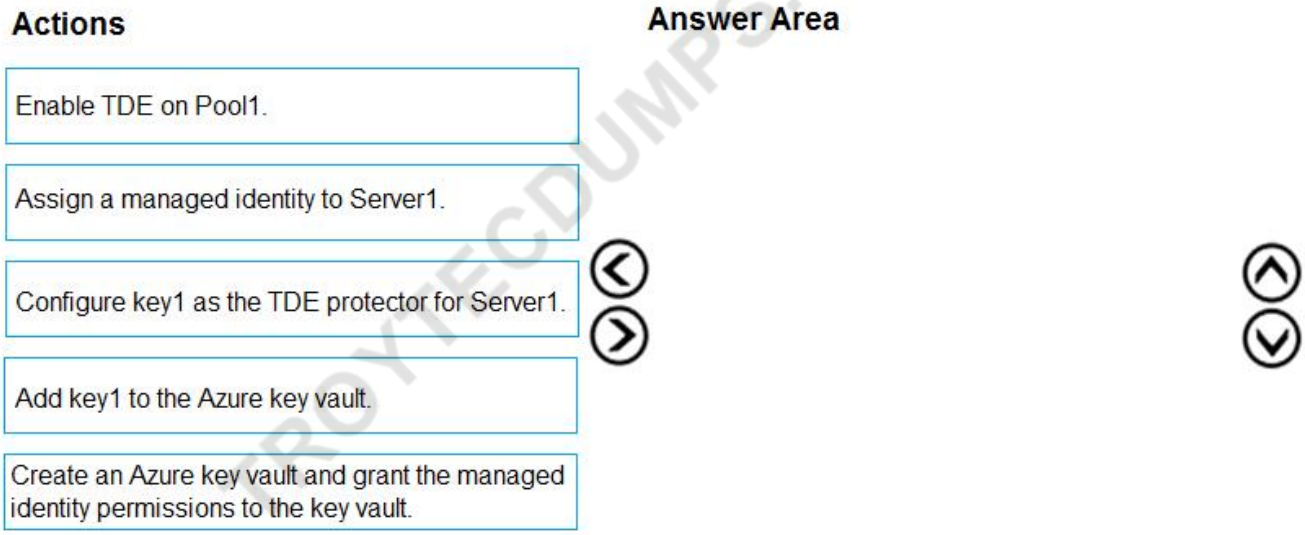
B. CPU percentage

C. DWU used

D. DWU percentage

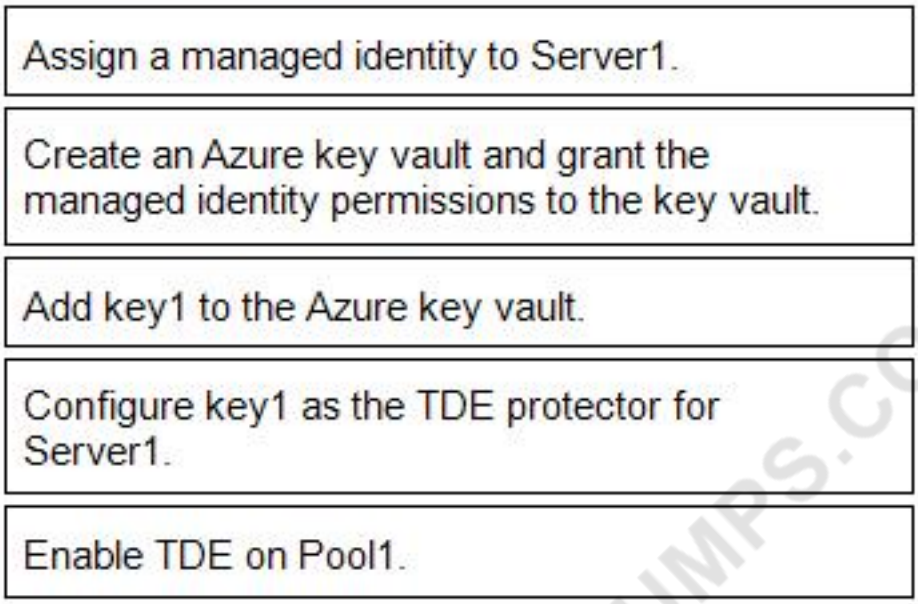
Answer: D

NO.185 You have an Azure Synapse Analytics SQL pool named Pool1 on a logical Microsoft SQL server named Server1.
You need to implement Transparent Data Encryption (TDE) on Pool1 by using a custom key named key1.
Which five 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.



Answer:

Answer Area

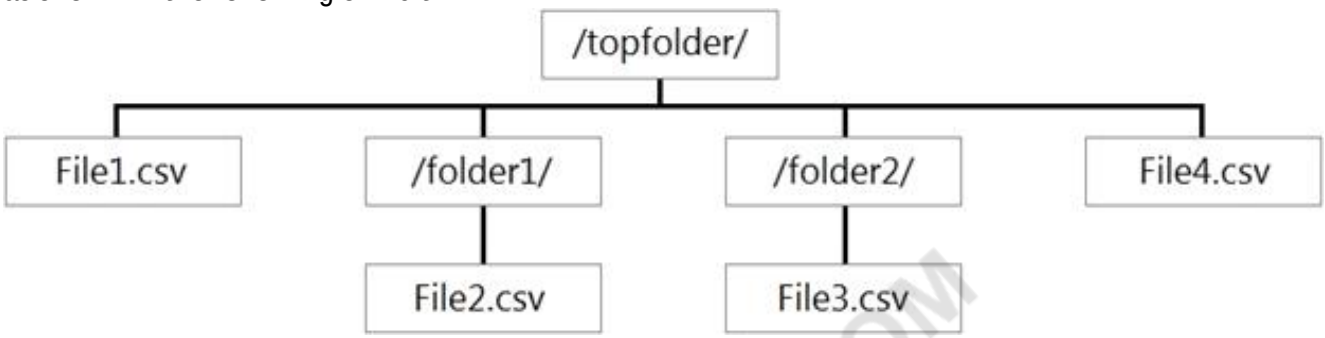


1 - Assign a managed identity to Server1.
2 - Create an Azure key vault and grant the managed identity permissions to the key vault.
3 - Add key1 to the Azure key vault.
4 - Configure key1 as the TDE protector for Server1.
5 - Enable TDE on Pool1.
Reference:
https://docs.microsoft.com/en-us/azure/azure-sql/managed-instance/scripts/transparent-data-encryption-byok-powershell

NO.186 Note: This question is part of a series of questions that present the same scenario. Each question in the series contains a unique solution that might meet the stated goals. Some question sets might have more than one correct solution, while others might not have a correct solution. After you answer a question in this section, you will NOT be able to return to it. As a result, these questions will not appear in the review screen.
You have an Azure Synapse Analytics dedicated SQL pool that contains a table named Table1.
You have files that are ingested and loaded into an Azure Data Lake Storage Gen2 container named container1.
You plan to insert data from the files in container1 into Table1 and transform the dat a. Each row of data in the files will produce one row in the serving layer of Table1.
You need to ensure that when the source data files are loaded to container1, the DateTime is stored as an additional column in Table1.
Solution: You use an Azure Synapse Analytics serverless SQL pool to create an external table that has an additional DateTime column.
Does this meet the goal?
A. Yes
B. No
Answer: B
Explanation:

Instead use the derived column transformation to generate new columns in your data flow or to modify existing fields.
Reference:
https://docs.microsoft.com/en-us/azure/data-factory/data-flow-derived-column

NO.187 You have files and folders in Azure Data Lake Storage Gen2 for an Azure Synapse workspace as shown in the following exhibit.



You create an external table named ExtTable that has LOCATION='/topfolder/'.
When you query ExtTable by using an Azure Synapse Analytics serverless SQL pool, which files are returned?

A. File2.csv and File3.csv only

B. File1.csv and File4.csv only

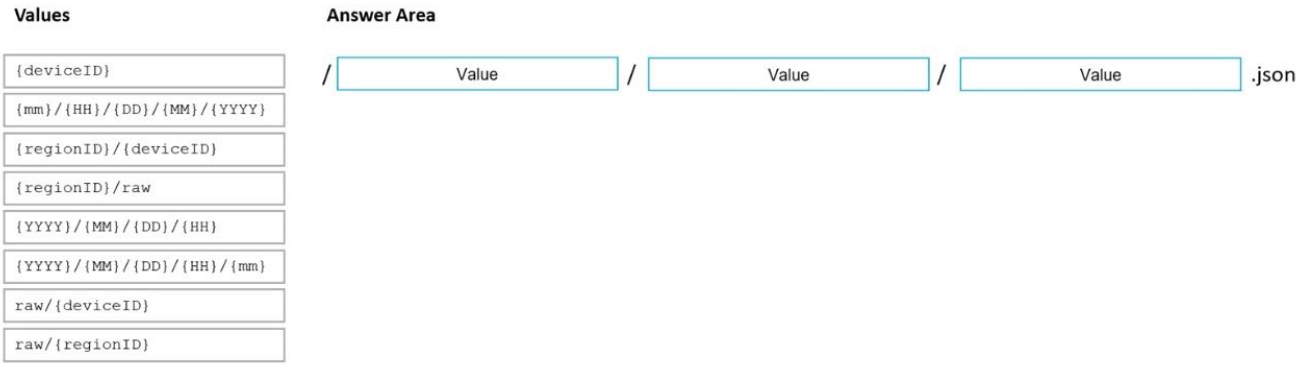
C. File1.csv, File2.csv, File3.csv, and File4.csv

D. File1.csv only

Answer: B

Explanation:
To run a T-SQL query over a set of files within a folder or set of folders while treating them as a single entity or rowset, provide a path to a folder or a pattern (using wildcards) over a set of files or folders.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/query-data-storage#query-multiple-files-or-folders

NO.188 You are designing an Azure Data Lake Storage Gen2 structure for telemetry data from 25 million devices distributed across seven key geographical regions. Each minute, the devices will send a JSON payload of metrics to Azure Event Hubs.
You need to recommend a folder structure for the dat
a. The solution must meet the following requirements:
Data engineers from each region must be able to build their own pipelines for the data of their respective region only.
The data must be processed at least once every 15 minutes for inclusion in Azure Synapse Analytics serverless SQL pools.
How should you recommend completing the structure? To answer, drag the appropriate values to the correct targets. Each value 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.
NOTE: Each correct selection is worth one point.



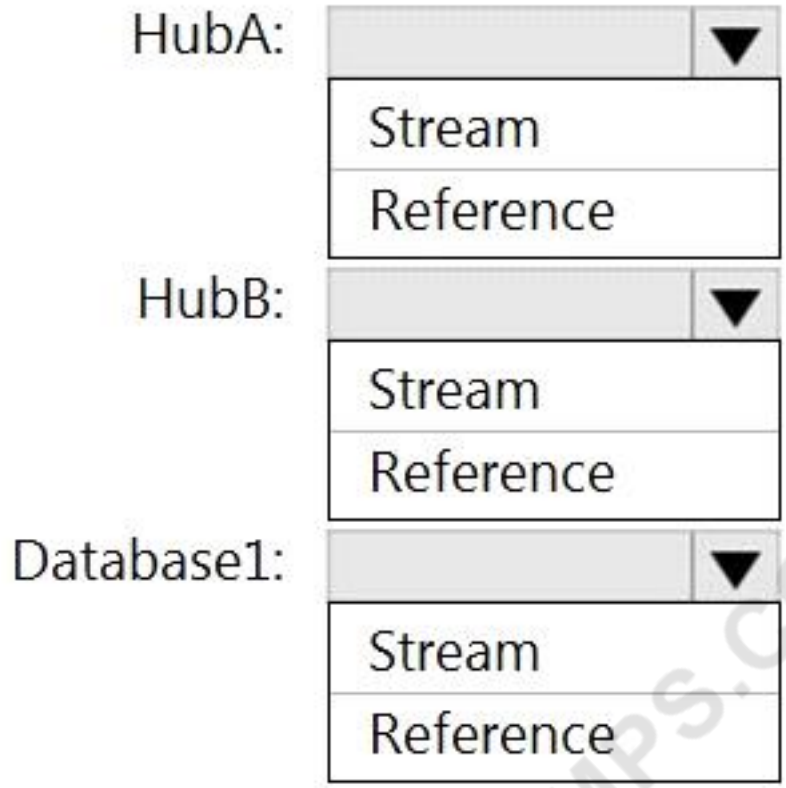
Answer:

Reference:
https://github.com/paolosalvatori/StreamAnalyticsAzureDataLakeStore/blob/master/README.md

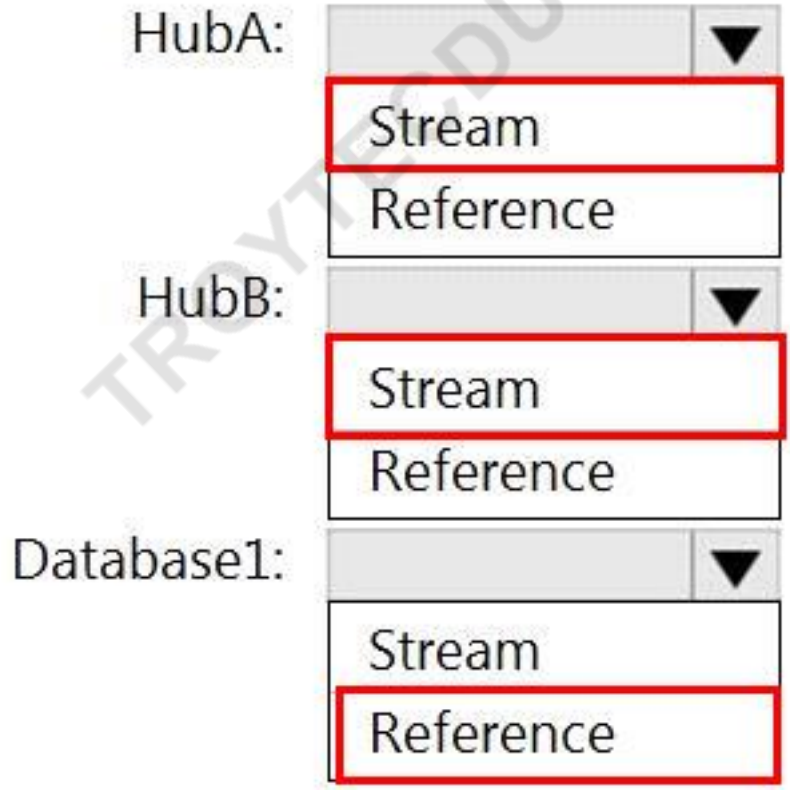
NO.189 You have an Azure SQL database named Database1 and two Azure event hubs named HubA and HubB. The data consumed from each source is shown in the following table.

Source	Data
Database1	Driver's name Driver's license number
HubA	Ride route Ride distance Ride duration
HubB	Ride fare Ride payment

You need to implement Azure Stream Analytics to calculate the average fare per mile by driver.
How should you configure the Stream Analytics input for each source? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-use-reference-data

NO.190 You are designing a partition strategy for a fact table in an Azure Synapse Analytics dedicated SQL pool. The table has the following specifications:
* Contain sales data for 20,000 products.

* Use hash distribution on a column named ProduclID,
* Contain 2.4 billion records for the years 20l9 and 2020.
Which number of partition ranges provides optimal compression and performance of the clustered columnstore index?

A. 40

B. 240

C. 400

D. 2,400

Answer: A

Explanation:
Each partition should have around 1 millions records. Dedication SQL pools already have 60 partitions.
We have the formula: Records/(Partitions*60)= 1 million
Partitions= Records/(1 million * 60)
Partitions= 2.4 x 1,000,000,000/(1,000,000 * 60) = 40
Note: Having too many partitions can reduce the effectiveness of clustered columnstore indexes if each partition has fewer than 1 million rows. Dedicated SQL pools automatically partition your data into 60 databases. So, if you create a table with 100 partitions, the result will be 6000 partitions.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/best-practices-dedicated-sql-pool

NO.191 You have an Azure Synapse Analytics dedicated SQL pool named Pool1 and a database named DB1. DB1 contains a fact table named Table1.
You need to identify the extent of the data skew in Table1.
What should you do in Synapse Studio?

A. Connect to the built-in pool and query sysdm_pdw_sys_info.

B. Connect to Pool1 and run DBCC CHECKALLOC.

C. Connect to the built-in pool and run DBCC CHECKALLOC.

D. Connect to Pool! and query sys.dm_pdw_nodes_db_partition_stats.

Answer: D

Explanation:
Microsoft recommends use of sys.dm_pdw_nodes_db_partition_stats to analyze any skewness in the data.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/cheat-sheet

NO.192 You are building an Azure Stream Analytics job to retrieve game data.
You need to ensure that the job returns the highest scoring record for each five-minute time interval of each game.
How should you complete the Stream Analytics query? To answer, select the appropriate options in the answer are a.
NOTE: Each correct selection is worth one point.

```
SELECT [                                          ▼]  as HighestScore
       Collect(Score)
       CollectTop(1) OVER(ORDER BY Score Desc)
       Game, MAX(Score)
       TopOne() OVER(PARTITION BY Game ORDER BY Score Desc)

FROM input TIMESTAMP BY CreatedAt

GROUP BY [                                        ▼]
         Game
         Hopping(minute,5)
         Tumbling(minute,5)
         Windows(TumblingWindow(minute,5),Hopping(minute,5))
```

Answer:

```
SELECT [                                          ▼]  as HighestScore
       Collect(Score)
       CollectTop(1) OVER(ORDER BY Score Desc)
       Game, MAX(Score)
       TopOne() OVER(PARTITION BY Game ORDER BY Score Desc)

FROM input TIMESTAMP BY CreatedAt

GROUP BY [                                        ▼]
         Game
         Hopping(minute,5)
         Tumbling(minute,5)
         Windows(TumblingWindow(minute,5),Hopping(minute,5))
```

Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/topone-azure-stream-analytics
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.193 You have two fact tables named Flight and Weather. Queries targeting the tables will be based on the join between the following columns.

Table	Column
Flight	ArrivalAirportID ArrivalDateTime
Weather	AirportID ReportDateTime

You need to recommend a solution that maximizes query performance.

What should you include in the recommendation?

A. In the tables use a hash distribution of ArrivalDateTime and ReportDateTime.

B. In the tables use a hash distribution of ArrivalAirportID and AirportID.

C. In each table, create an identity column.

D. In each table, create a column as a composite of the other two columns in the table.

Answer: B

Explanation:

Hash-distribution improves query performance on large fact tables.

Incorrect Answers:

A: Do not use a date column for hash distribution. All data for the same date lands in the same distribution. If several users are all filtering on the same date, then only 1 of the 60 distributions do all the processing work.

NO.194 You need to create a partitioned table in an Azure Synapse Analytics dedicated SQL pool. How should you complete the Transact-SQL statement? To answer, drag the appropriate values to the correct targets. Each value 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.

NOTE: Each correct selection is worth one point.

Values

- CLUSTERED INDEX
- COLLATE
- DISTRIBUTION
- PARTITION
- PARTITION FUNCTION
- PARTITION SCHEME

Answer Area

```
CREATE TABLE table1
(
 ID INTEGER,
 col1 VARCHAR(10),
 col2 VARCHAR(10)
) WITH
(
                    = HASH(ID),
                    (ID RANGE LEFT FOR VALUES (1, 1000000, 2000000))
);
```

Answer:

Values

- CLUSTERED INDEX
- COLLATE
- DISTRIBUTION
- PARTITION
- PARTITION FUNCTION
- PARTITION SCHEME

Answer Area

```
CREATE TABLE table1
(
 ID INTEGER,
 col1 VARCHAR(10),
 col2 VARCHAR(10)
) WITH
(
 DISTRIBUTION       = HASH(ID),
 PARTITION          (ID RANGE LEFT FOR VALUES (1, 1000000, 2000000))
);
```

Reference:

https://docs.microsoft.com/en-us/sql/t-sql/statements/create-table-azure-sql-data-warehouse?

NO.195 The following code segment is used to create an Azure Databricks cluster.

```
{
    "num_workers": null,
    "autoscale": {
        "min_workers": 2,
        "max_workers": 8
    },
    "cluster_name": "MyCluster",
    "spark_version": "latest-stable-scala2.11",
    "spark_conf": {
        "spark.databricks.cluster.profile": "serverless",
        "spark.databricks.repl.allowedLanguages": "sql,python,r"
    },
    "node_type_id": "Standard_DS13_v2",
    "ssh_public_keys": [],
    "custom_tags": {
        "ResourceClass": "Serverless"
    },
    "spark_env_vars": {
        "PYSPARK_PYTHON": "/databricks/python3/bin/python3"
    },
    "autotermination_minutes": 90,
    "enable_elastic_disk": true,
    "init_scripts": []
}
```

For each of the following statements, select Yes if the statement is true. Otherwise, select No.
NOTE: Each correct selection is worth one point.

Statements	Yes	No
The Databricks cluster supports multiple concurrent users.	○	○
The Databricks cluster minimizes costs when running scheduled jobs that execute notebooks.	○	○
The Databricks cluster supports the creation of a Delta Lake table.	○	○

Answer:

Statements	Yes	No
The Databricks cluster supports multiple concurrent users.	○	○
The Databricks cluster minimizes costs when running scheduled jobs that execute notebooks.	○	○
The Databricks cluster supports the creation of a Delta Lake table.	○	○

Reference:
https://adatis.co.uk/databricks-cluster-sizing/
https://docs.microsoft.com/en-us/azure/databricks/jobs
https://docs.databricks.com/administration-guide/capacity-planning/cmbp.html
https://docs.databricks.com/delta/index.html

NO.196 You have two fact tables named Flight and Weather. Queries targeting the tables will be based on the join between the following columns.

Table	Column
Flight	ArrivalAirportID ArrivalDateTime
Weather	AirportID ReportDateTime

You need to recommend a solution that maximum query performance.
What should you include in the recommendation?

A. In each table, create a column as a composite of the other two columns in the table.

B. In each table, create an IDENTITY column.

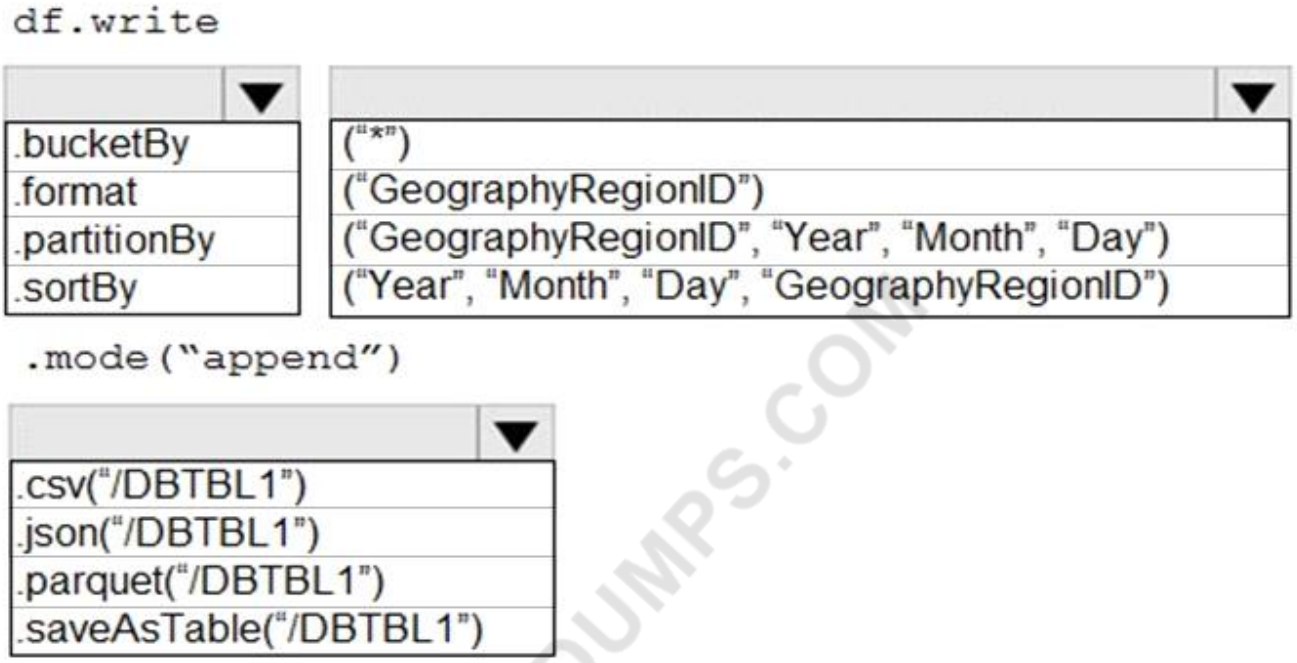
C. In the tables, use a hash distribution of ArriveDateTime and ReportDateTime.

D. In the tables, use a hash distribution of ArriveAirPortID and AirportID.

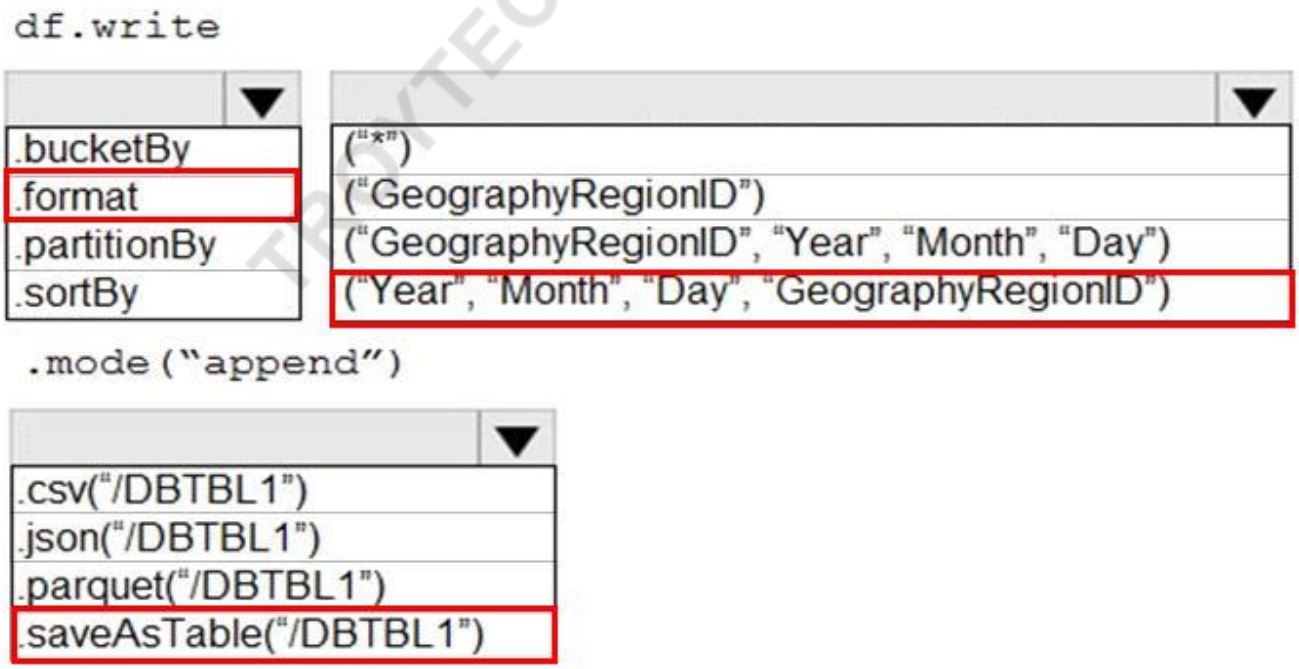
Answer: D

NO.197 You develop a dataset named DBTBL1 by using Azure Databricks.
DBTBL1 contains the following columns:
SensorTypeID
GeographyRegionID
Year
Month
Day
Hour
Minute
Temperature
WindSpeed

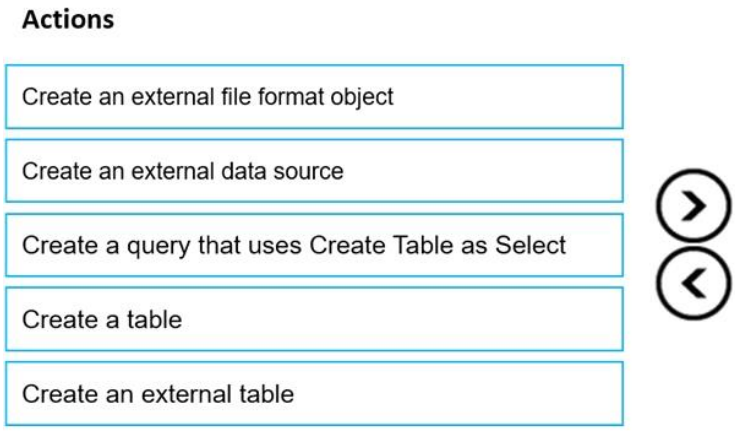
Other
You need to store the data to support daily incremental load pipelines that vary for each GeographyRegionID. The solution must minimize storage costs.
How should you complete the code? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



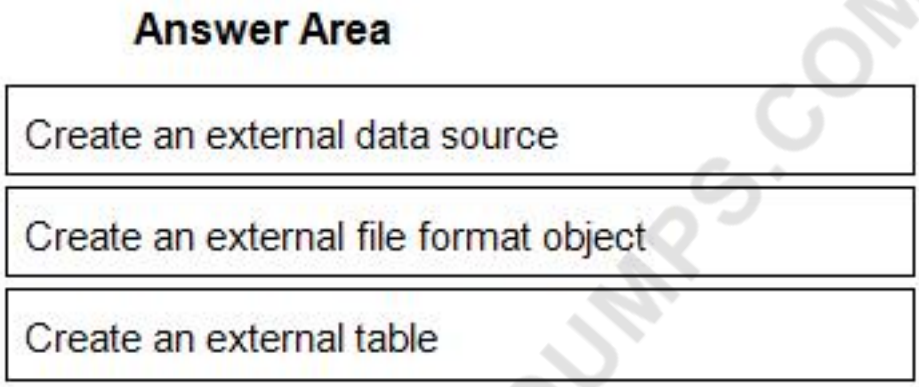
Answer:



NO.198 You need to build a solution to ensure that users can query specific files in an Azure Data Lake Storage Gen2 account from an Azure Synapse Analytics serverless SQL pool.
Which three 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.



Answer:



1 - Create an external data source
2 - Create an external file format object
3 - Create an external table
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/develop-tables-external-tables

NO.199 You have an Azure Synapse Analytics job that uses Scala.
You need to view the status of the job.
What should you do?

A. From Azure Monitor, run a Kusto query against the AzureDiagnostics table.

B. From Azure Monitor, run a Kusto query against the SparkLogying1 Event.CL table.

C. From Synapse Studio, select the workspace. From Monitor, select Apache Sparks applications.

D. From Synapse Studio, select the workspace. From Monitor, select SQL requests.

Answer: C

NO.200 You have an Azure Data Lake Storage account that has a virtual network service endpoint configured.
You plan to use Azure Data Factory to extract data from the Data Lake Storage account. The data will then be loaded to a data warehouse in Azure Synapse Analytics by using PolyBase.
Which authentication method should you use to access Data Lake Storage?

A. shared access key authentication

B. managed identity authentication

C. account key authentication

D. service principal authentication

Answer: B

Reference:
https://docs.microsoft.com/en-us/azure/data-factory/connector-azure-sql-data-warehouse#use-polybase-to-load-data-into-azure-sql-data-warehouse

NO.201 You have an Azure Data Lake Storage Gen2 account named adls2 that is protected by a virtual network.
You are designing a SQL pool in Azure Synapse that will use adls2 as a source.
What should you use to authenticate to adls2?

A. a shared access signature (SAS)

B. a managed identity

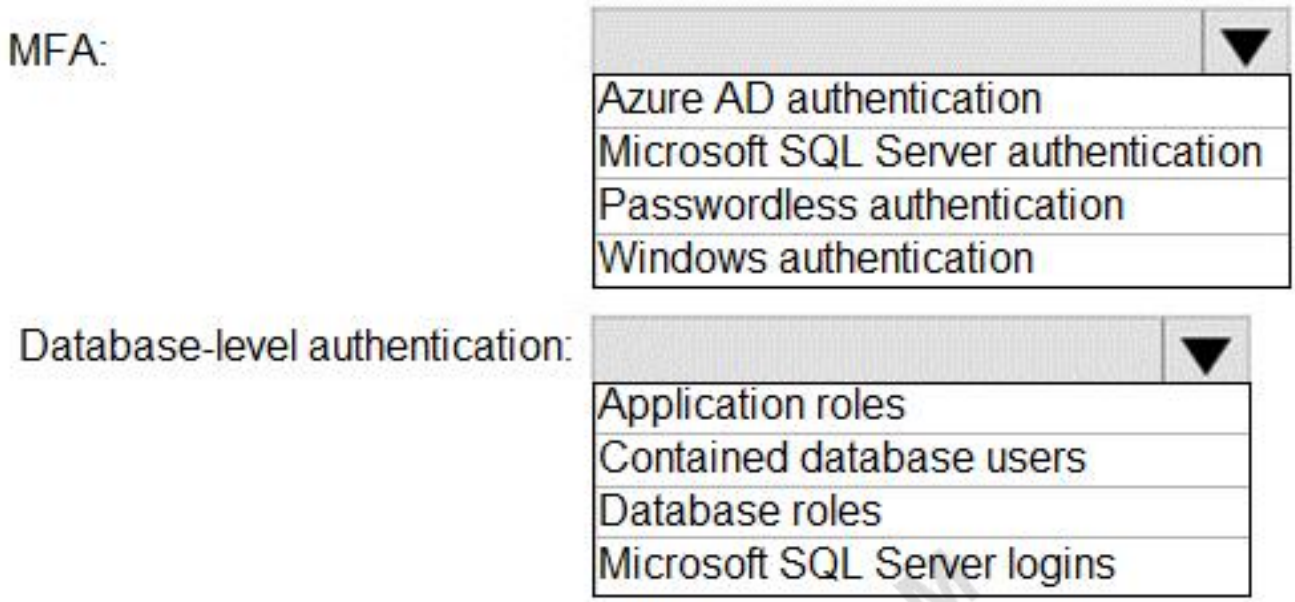
C. a shared key

D. an Azure Active Directory (Azure AD) user

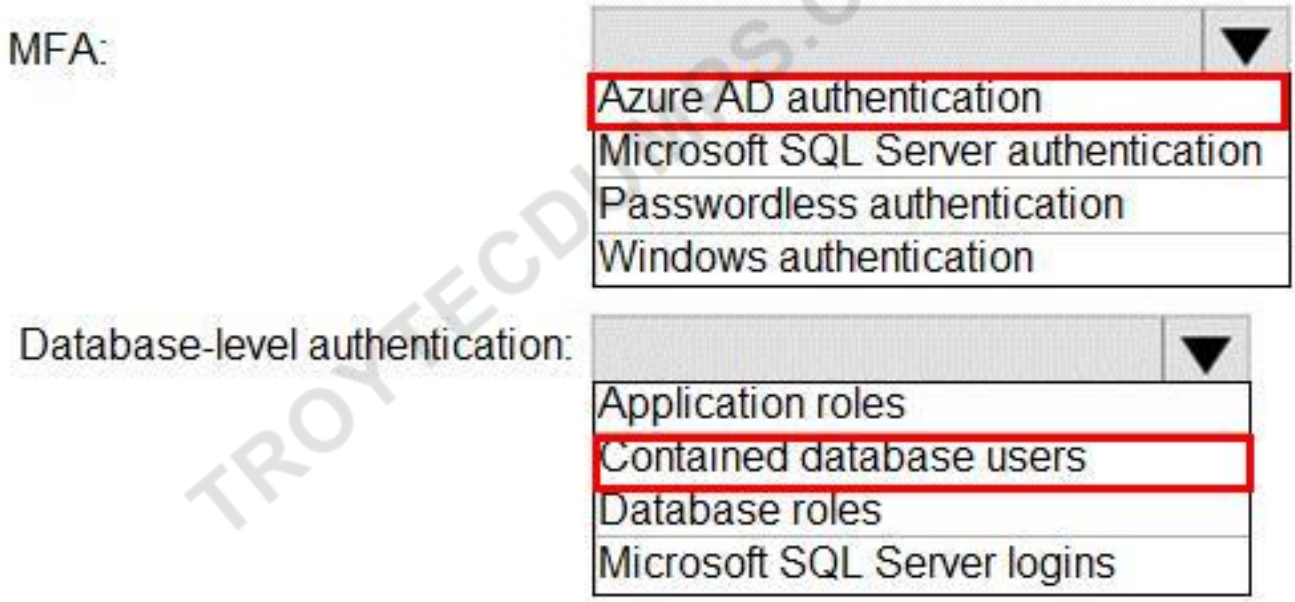
Answer: B

Explanation:
Managed identity for Azure resources is a feature of Azure Active Directory. The feature provides Azure services with an automatically managed identity in Azure AD. You can use the Managed Identity capability to authenticate to any service that support Azure AD authentication.
Managed Identity authentication is required when your storage account is attached to a VNet.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/quickstart-bulk-load-copy-tsql-examples

NO.202 You have an Azure subscription that is linked to a hybrid Azure Active Directory (Azure AD) tenant. The subscription contains an Azure Synapse Analytics SQL pool named Pool1.
You need to recommend an authentication solution for Pool1. The solution must support multi-factor authentication (MFA) and database-level authentication.
Which authentication solution or solutions should you include in the recommendation? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-authentication

NO.203 You are designing a sales transactions table in an Azure Synapse Analytics dedicated SQL pool. The table will contains approximately 60 million rows per month and will be partitioned by month. The table will use a clustered column store index and round-robin distribution.
Approximately how many rows will there be for each combination of distribution and partition?

A. 1 million
B. 5 million
C. 20 million
D. 60 million
Answer: D

Explanation:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-tables-partition

NO.204 You are implementing a batch dataset in the Parquet format.
Data tiles will be produced by using Azure Data Factory and stored in Azure Data Lake Storage Gen2.
The files will be consumed by an Azure Synapse Analytics serverless SQL pool.
You need to minimize storage costs for the solution.
What should you do?

A. Store all the data as strings in the Parquet tiles.

B. Use OPENROWEST to query the Parquet files.

C. Create an external table mat contains a subset of columns from the Parquet files.

D. Use Snappy compression for the files.

Answer: C
Explanation:
An external table points to data located in Hadoop, Azure Storage blob, or Azure Data Lake Storage. External tables are used to read data from files or write data to files in Azure Storage. With Synapse SQL, you can use external tables to read external data using dedicated SQL pool or serverless SQL pool.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/develop-tables-external-tables

NO.205 You have a SQL pool in Azure Synapse.
A user reports that queries against the pool take longer than expected to complete.
You need to add monitoring to the underlying storage to help diagnose the issue.
Which two metrics should you monitor? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

A. Cache used percentage

B. DWU Limit

C. Snapshot Storage Size

D. Active queries

E. Cache hit percentage

Answer: A,E
Explanation:
A: Cache used is the sum of all bytes in the local SSD cache across all nodes and cache capacity is the sum of the storage capacity of the local SSD cache across all nodes.
E: Cache hits is the sum of all columnstore segments hits in the local SSD cache and cache miss is the columnstore segments misses in the local SSD cache summed across all nodes Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/sql-data-warehouse-concept-resource-utilization-query-activity

NO.206 You use Azure Stream Analytics to receive Twitter data from Azure Event Hubs and to output the data to an Azure Blob storage account.
You need to output the count of tweets from the last five minutes every minute.
Which windowing function should you use?

A. Sliding
B. Session
C. Tumbling
D. Hopping
Answer: D
Explanation:
Hopping window functions hop forward in time by a fixed period. It may be easy to think of them as Tumbling windows that can overlap and be emitted more often than the window size. Events can belong to more than one Hopping window result set. To make a Hopping window the same as a Tumbling window, specify the hop size to be the same as the window size.
Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-window-functions

NO.207 You are building an Azure Synapse Analytics dedicated SQL pool that will contain a fact table for transactions from the first half of the year 2020.
You need to ensure that the table meets the following requirements:
Minimizes the processing time to delete data that is older than 10 years Minimizes the I/O for queries that use year-to-date values How should you complete the Transact-SQL statement? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

Answer Area

```
CREATE TABLE [dbo].[FactTransaction]
(
     [TransactionTypeID]    int      NOT NULL
,    [TransactionDateID]    int      NOT NULL
,    [CustomerID]           int      NOT NULL
,    [RecipientID]          int      NOT NULL
,    [Amount]               money    NOT NU::
)
WITH
(
```

[▼]
- CLUSTERED COLUMNSTORE INDEX
- DISTRIBUTION
- PARTITION
- TRUNCATE_TARGET

```
    (
```

[▼] RANGE RIGHT FOR VALUES
- [TransactionDateID]
- [TransactionDateID], [TransactionTypeID]
- HASH([TransactionTypeID])
- ROUND_ROBIN

```
        (20200101,20200201,20200301,20200401,20200501,20200601)
```

Answer:

Answer Area

```
CREATE TABLE [dbo].[FactTransaction]
(
      [TransactionTypeID]    int      NOT NULL
,     [TransactionDateID]    int      NOT NULL
,     [CustomerID]           int      NOT NULL
,     [RecipientID]          int      NOT NULL
,     [Amount]               money    NOT NU::
)
WITH
(
```

[▼]
- CLUSTERED COLUMNSTORE INDEX
- DISTRIBUTION
- PARTITION
- TRUNCATE_TARGET

```
(
```

[▼]
- [TransactionDateID]
- [TransactionDateID], [TransactionTypeID]
- HASH([TransactionTypeID])
- ROUND_ROBIN

```
RANGE RIGHT FOR VALUES
(20200101,20200201,20200301,20200401,20200501,20200601)
```

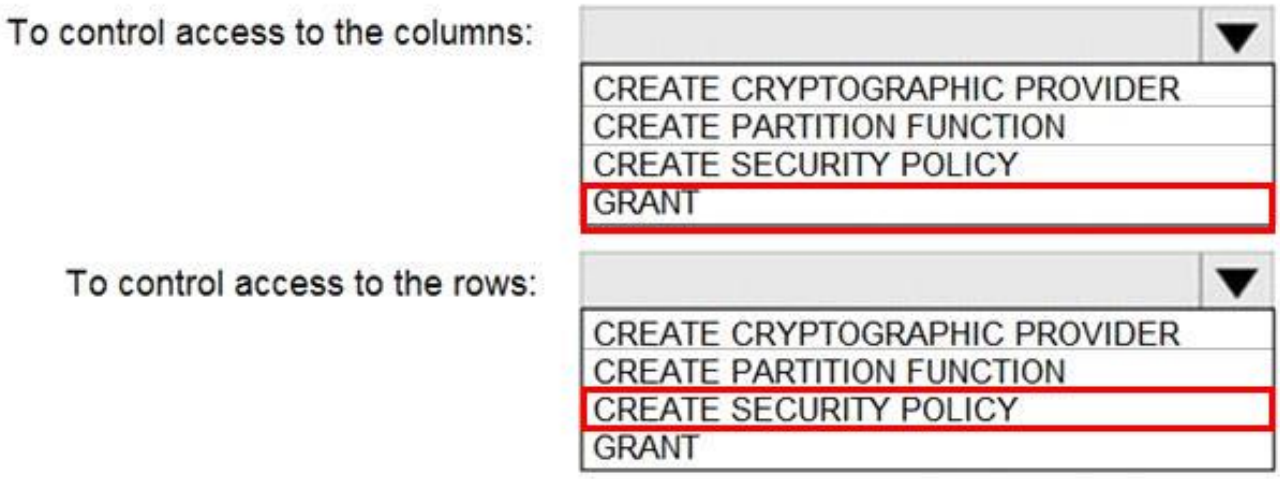
Reference:
https://docs.microsoft.com/en-us/sql/t-sql/statements/create-partition-function-transact-sql

NO.208 You have an Azure subscription that contains the following resources:
An Azure Active Directory (Azure AD) tenant that contains a security group named Group1 An Azure Synapse Analytics SQL pool named Pool1 You need to control the access of Group1 to specific columns and rows in a table in Pool1.
Which Transact-SQL commands should you use? To answer, select the appropriate options in the answer area.

To control access to the columns: [▼]
- CREATE CRYPTOGRAPHIC PROVIDER
- CREATE PARTITION FUNCTION
- CREATE SECURITY POLICY
- GRANT

To control access to the rows: [▼]
- CREATE CRYPTOGRAPHIC PROVIDER
- CREATE PARTITION FUNCTION
- CREATE SECURITY POLICY
- GRANT

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql-data-warehouse/column-level-security

NO.209 You are creating an Azure Data Factory data flow that will ingest data from a CSV file, cast columns to specified types of data, and insert the data into a table in an Azure Synapse Analytic dedicated SQL pool. The CSV file contains three columns named username, comment, and date.
The data flow already contains the following:
A source transformation.
A Derived Column transformation to set the appropriate types of data.
A sink transformation to land the data in the pool.
You need to ensure that the data flow meets the following requirements:
All valid rows must be written to the destination table.
Truncation errors in the comment column must be avoided proactively.
Any rows containing comment values that will cause truncation errors upon insert must be written to a file in blob storage.
Which two actions should you perform? Each correct answer presents part of the solution.
NOTE: Each correct selection is worth one point.

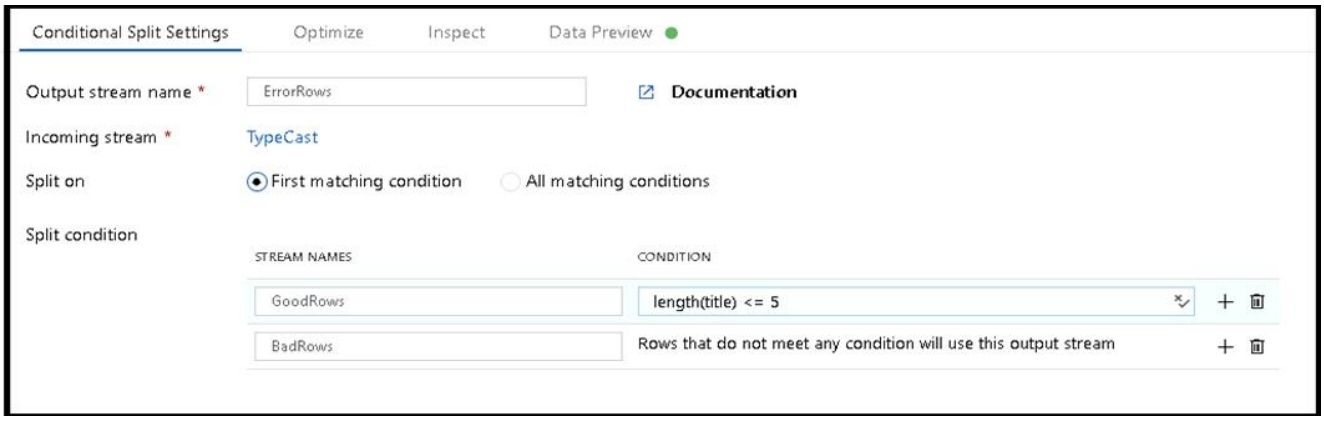
A. To the data flow, add a sink transformation to write the rows to a file in blob storage.

B. To the data flow, add a Conditional Split transformation to separate the rows that will cause truncation errors.

C. To the data flow, add a filter transformation to filter out rows that will cause truncation errors.

D. Add a select transformation to select only the rows that will cause truncation errors.

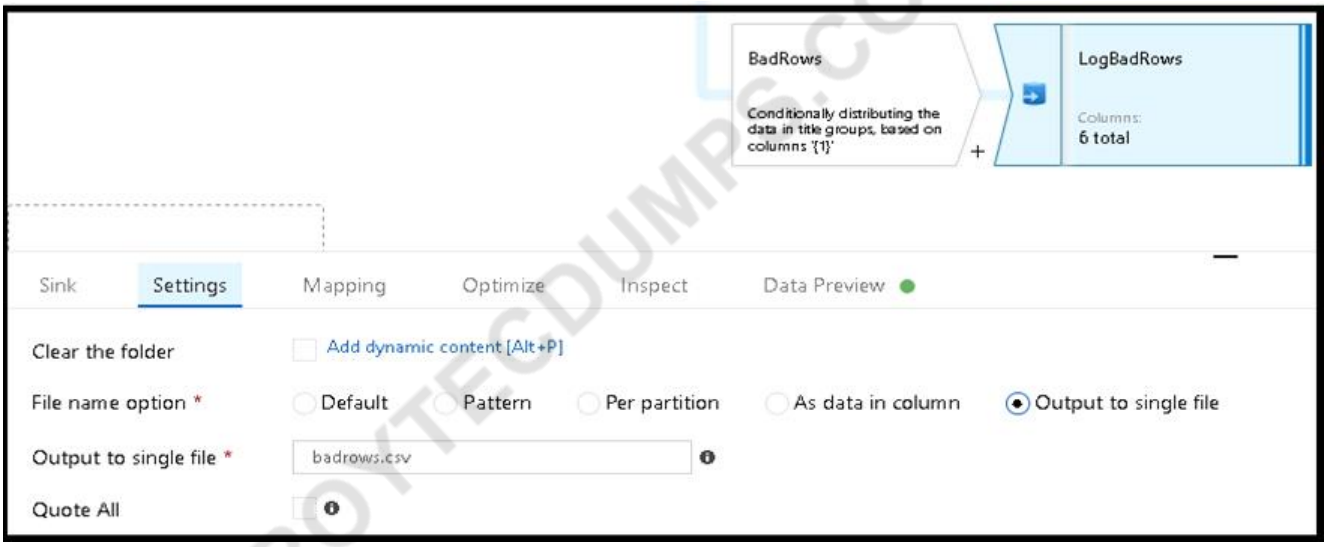
Answer: A,B
Explanation:
B: Example:
1. This conditional split transformation defines the maximum length of "title" to be five. Any row that is less than or equal to five will go into the GoodRows stream. Any row that is larger than five will go into the BadRows stream.



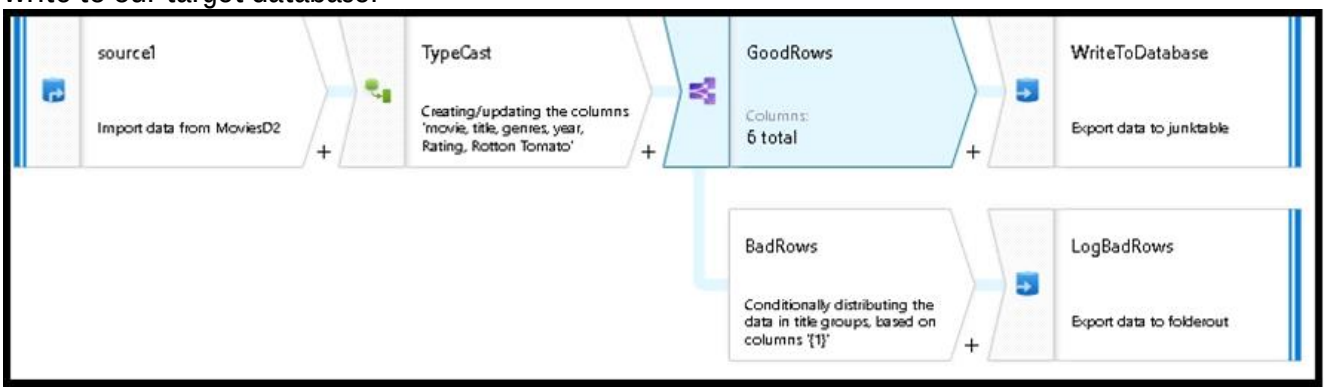
2. This conditional split transformation defines the maximum length of "title" to be five. Any row that is less than or equal to five will go into the GoodRows stream. Any row that is larger than five will go into the BadRows stream.

A:

3. Now we need to log the rows that failed. Add a sink transformation to the BadRows stream for logging. Here, we'll "auto-map" all of the fields so that we have logging of the complete transaction record. This is a text-delimited CSV file output to a single file in Blob Storage. We'll call the log file "badrows.csv".

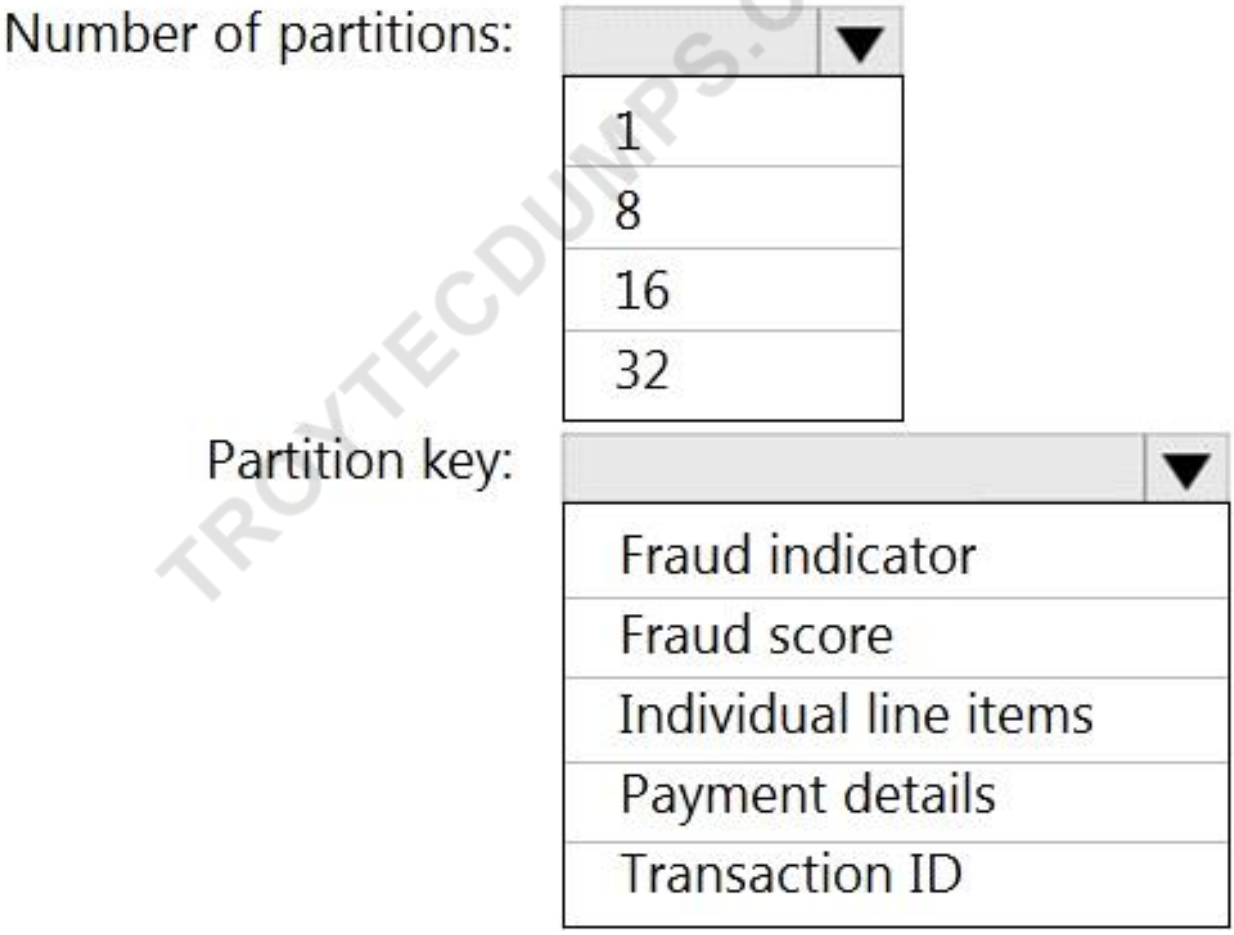


4. The completed data flow is shown below. We are now able to split off error rows to avoid the SQL truncation errors and put those entries into a log file. Meanwhile, successful rows can continue to write to our target database.

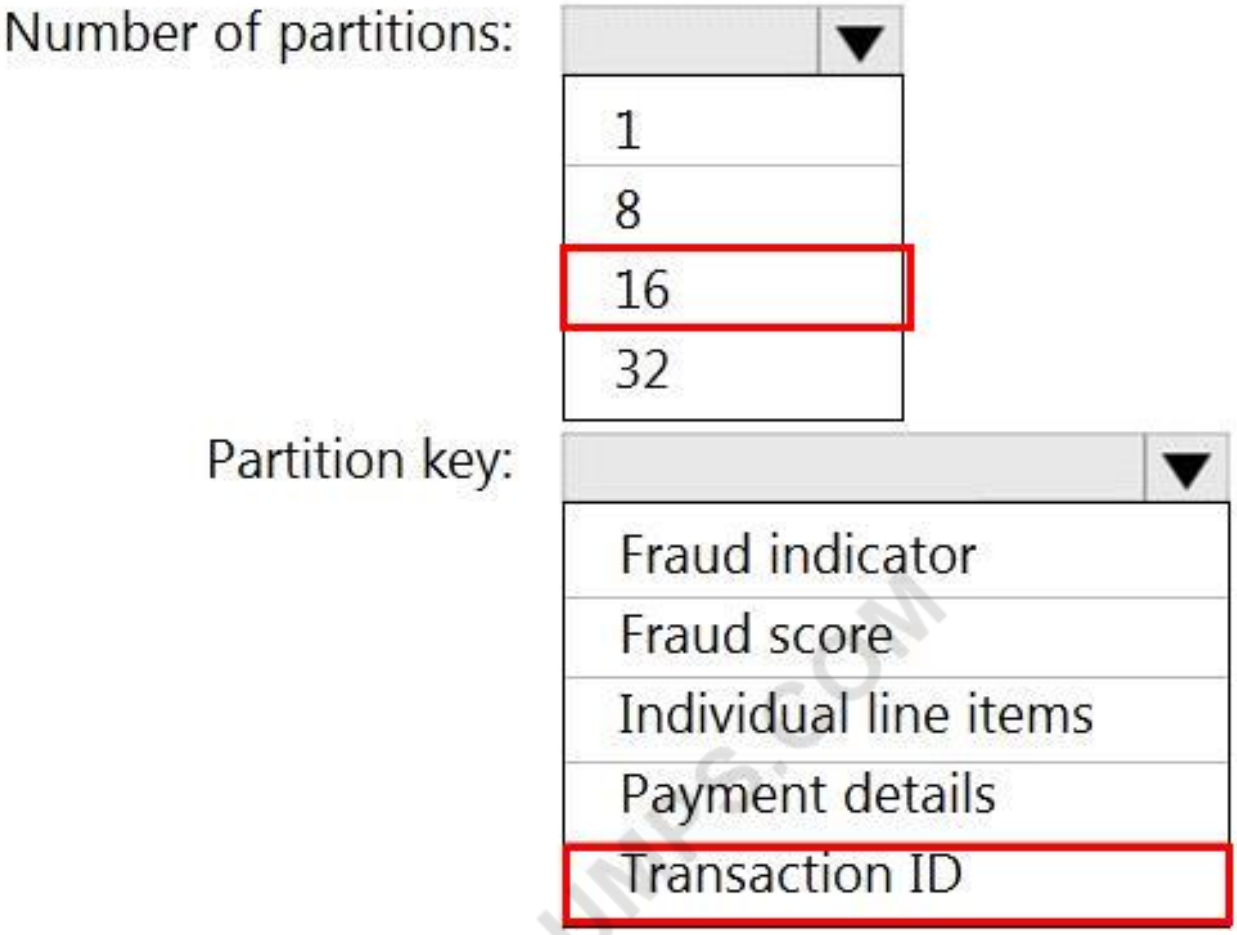


Reference:
https://docs.microsoft.com/en-us/azure/data-factory/how-to-data-flow-error-rows

NO.210 You have an Azure event hub named retailhub that has 16 partitions. Transactions are posted to retailhub. Each transaction includes the transaction ID, the individual line items, and the payment details. The transaction ID is used as the partition key.
You are designing an Azure Stream Analytics job to identify potentially fraudulent transactions at a retail store. The job will use retailhub as the input. The job will output the transaction ID, the individual line items, the payment details, a fraud score, and a fraud indicator.
You plan to send the output to an Azure event hub named fraudhub.
You need to ensure that the fraud detection solution is highly scalable and processes transactions as quickly as possible.
How should you structure the output of the Stream Analytics job? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.



Answer:



Reference:
https://docs.microsoft.com/en-us/azure/event-hubs/event-hubs-features#partitions

NO.211 You have an Azure Synapse Analytics workspace named WS1 that contains an Apache Spark pool named Pool1.
You plan to create a database named D61 in Pool1.
You need to ensure that when tables are created in DB1, the tables are available automatically as external tables to the built-in serverless SQL pod.
Which format should you use for the tables in DB1?

A. Parquet
B. CSV
C. ORC
D. JSON

Answer: A

Explanation:
Serverless SQL pool can automatically synchronize metadata from Apache Spark. A serverless SQL pool database will be created for each database existing in serverless Apache Spark pools.
For each Spark external table based on Parquet or CSV and located in Azure Storage, an external table is created in a serverless SQL pool database.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/develop-storage-files-spark-tables

NO.212 You are designing an Azure Synapse Analytics dedicated SQL pool.
You need to ensure that you can audit access to Personally Identifiable information (PII).
What should you include in the solution?

A. dynamic data masking

B. row-level security (RLS)

C. sensitivity classifications

D. column-level security

Answer: C

Explanation:
Data Discovery & Classification is built into Azure SQL Database, Azure SQL Managed Instance, and Azure Synapse Analytics. It provides basic capabilities for discovering, classifying, labeling, and reporting the sensitive data in your databases.
Your most sensitive data might include business, financial, healthcare, or personal information. Discovering and classifying this data can play a pivotal role in your organization's information-protection approach. It can serve as infrastructure for:
Helping to meet standards for data privacy and requirements for regulatory compliance.
Various security scenarios, such as monitoring (auditing) access to sensitive data.
Controlling access to and hardening the security of databases that contain highly sensitive data.
Reference:
https://docs.microsoft.com/en-us/azure/azure-sql/database/data-discovery-and-classification-overview

NO.213 What should you recommend using to secure sensitive customer contact information?

A. data labels

B. column-level security

C. row-level security

D. Transparent Data Encryption (TDE)

Answer: B

Explanation:
Scenario: All cloud data must be encrypted at rest and in transit.
Always Encrypted is a feature designed to protect sensitive data stored in specific database columns from access (for example, credit card numbers, national identification numbers, or data on a need to know basis). This includes database administrators or other privileged users who are authorized to access the database to perform management tasks, but have no business need to access the particular data in the encrypted columns. The data is always encrypted, which means the encrypted data is decrypted only for processing by client applications with access to the encryption key.
Reference:
https://docs.microsoft.com/en-us/azure/sql-database/sql-database-security-overview

NO.214 You have an Azure Data lake Storage account that contains a staging zone.
You need to design a daily process to ingest incremental data from the staging zone, transform the data by executing an R script, and then insert the transformed data into a data warehouse in Azure Synapse Analytics.
Solution You use an Azure Data Factory schedule trigger to execute a pipeline that executes an Azure Databricks notebook, and then inserts the data into the data warehouse Dow this meet the goal?

A. Yes
B. No
Answer: A

NO.215 You are designing an enterprise data warehouse in Azure Synapse Analytics that will contain a table named Customers. Customers will contain credit card information.
You need to recommend a solution to provide salespeople with the ability to view all the entries in Customers.
The solution must prevent all the salespeople from viewing or inferring the credit card information.
What should you include in the recommendation?
A. data masking
B. Always Encrypted
C. column-level security
D. row-level security
Answer: A
Explanation:
SQL Database dynamic data masking limits sensitive data exposure by masking it to non-privileged users.
The Credit card masking method exposes the last four digits of the designated fields and adds a constant string as a prefix in the form of a credit card.
Example: XXXX-XXXX-XXXX-1234
Reference:
https://docs.microsoft.com/en-us/azure/sql-database/sql-database-dynamic-data-masking-get-started

NO.216 You have the following Azure Stream Analytics query.

```
WITH

step1 AS (SELECT *
      FROM input1
      PARTITION BY StateID
      INTO 10),
step1 AS (SELECT *
      FROM input2
      PARTITION BY StateID
      INTO 10)

SELECT *
INTO output
FROM step1
PARTITION BY StateID
UNION step2
  BY StateID
```


For each of the following statements, select Yes if the statement is true. Otherwise, select No.
NOTE: Each correct selection is worth one point.

Statements	Yes	No
The query joins two streams of partitioned data.	○	○
The stream scheme key and count must match the output scheme.	○	○
Providing 60 streaming units will optimize the performance of the query.	○	○

Answer:

Statements	Yes	No
The query joins two streams of partitioned data.	○	○
The stream scheme key and count must match the output scheme.	○	○
Providing 60 streaming units will optimize the performance of the query.	○	○

Reference:
https://azure.microsoft.com/en-in/blog/maximize-throughput-with-repartitioning-in-azure-stream-analytics/

NO.217 You have an Azure subscription that contains a logical Microsoft SQL server named Server1. Server1 hosts an Azure Synapse Analytics SQL dedicated pool named Pool1.
You need to recommend a Transparent Data Encryption (TDE) solution for Server1. The solution must meet the following requirements:
Track the usage of encryption keys.
Maintain the access of client apps to Pool1 in the event of an Azure datacenter outage that affects the availability of the encryption keys.
What should you include in the recommendation? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

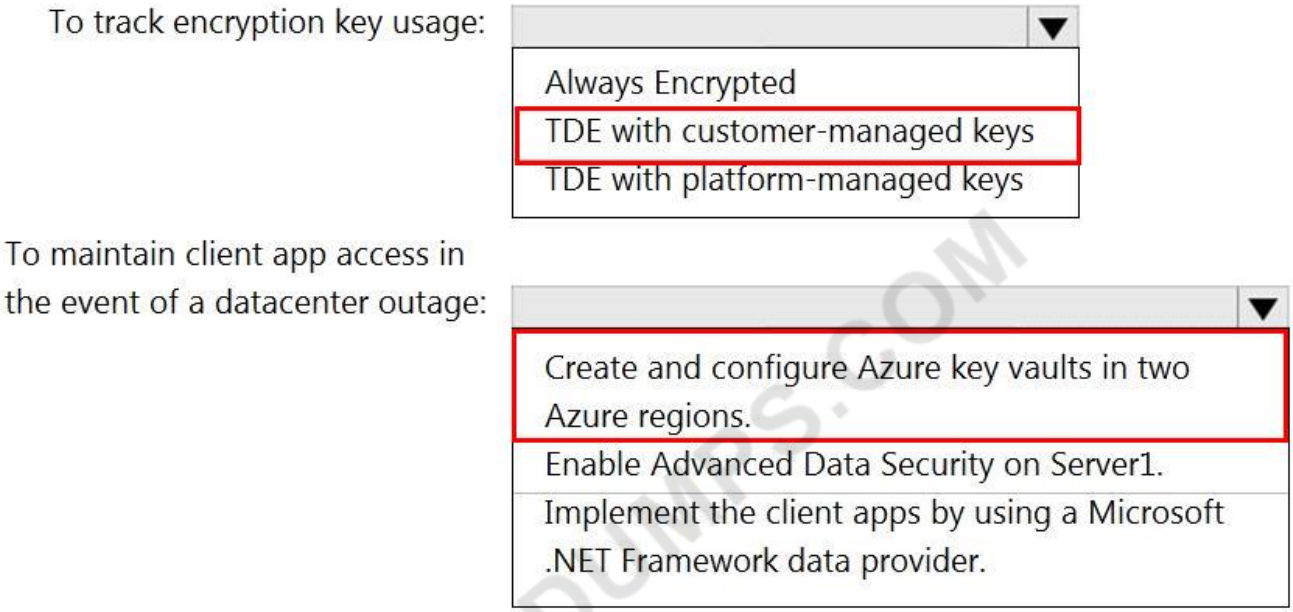
To track encryption key usage:

- Always Encrypted
- TDE with customer-managed keys
- TDE with platform-managed keys

To maintain client app access in the event of a datacenter outage:

- Create and configure Azure key vaults in two Azure regions.
- Enable Advanced Data Security on Server1.
- Implement the client apps by using a Microsoft .NET Framework data provider.

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/security/workspaces-encryption
https://docs.microsoft.com/en-us/azure/key-vault/general/logging

NO.218 You have an Azure Data Factory that contains 10 pipelines.
You need to label each pipeline with its main purpose of either ingest, transform, or load. The labels must be available for grouping and filtering when using the monitoring experience in Data Factory.
What should you add to each pipeline?

A. a resource tag

B. a correlation ID

C. a run group ID

D. an annotation

Answer: D

Explanation:
Annotations are additional, informative tags that you can add to specific factory resources: pipelines, datasets, linked services, and triggers. By adding annotations, you can easily filter and search for specific factory resources.
Reference:
https://www.cathrinewilhelmsen.net/annotations-user-properties-azure-data-factory/

NO.219 You have a SQL pool in Azure Synapse that contains a table named dbo.Customers. The table contains a column name Email.
You need to prevent nonadministrative users from seeing the full email addresses in the Email column. The users must see values in a format of aXXX@XXXX.com instead.
What should you do?

A. From Microsoft SQL Server Management Studio, set an email mask on the Email column.

B. From the Azure portal, set a mask on the Email column.

C. From Microsoft SQL Server Management studio, grant the SELECT permission to the users for all the columns in the dbo.Customers table except Email.

D. From the Azure portal, set a sensitivity classification of Confidential for the Email column.

Answer: A
Explanation:
From Microsoft SQL Server Management Studio, set an email mask on the Email column. This is because "This feature cannot be set using portal for Azure Synapse (use PowerShell or REST API) or SQL Managed Instance." So use Create table statement with Masking e.g. CREATE TABLE Membership (MemberID int IDENTITY PRIMARY KEY, FirstName varchar(100) MASKED WITH (FUNCTION = 'partial(1,"XXXXXXX",0)') NULL, . . https://docs.microsoft.com/en-us/azure/azure-sql/database/dynamic-data-masking-overview upvoted 24 times

NO.220 You have an Azure Synapse Analytics dedicated SQL pool that contains a large fact table. The table contains 50 columns and 5 billion rows and is a heap.
Most queries against the table aggregate values from approximately 100 million rows and return only two columns.
You discover that the queries against the fact table are very slow.
Which type of index should you add to provide the fastest query times?
A. nonclustered columnstore
B. clustered columnstore
C. nonclustered
D. clustered
Answer: B
Explanation:
Clustered columnstore indexes are one of the most efficient ways you can store your data in dedicated SQL pool.
Columnstore tables won't benefit a query unless the table has more than 60 million rows.
Reference:
https://docs.microsoft.com/en-us/azure/synapse-analytics/sql/best-practices-dedicated-sql-pool

NO.221 You are designing a real-time dashboard solution that will visualize streaming data from remote sensors that connect to the internet. The streaming data must be aggregated to show the average value of each 10-second interval. The data will be discarded after being displayed in the dashboard.
The solution will use Azure Stream Analytics and must meet the following requirements:
Minimize latency from an Azure Event hub to the dashboard.
Minimize the required storage.
Minimize development effort.
What should you include in the solution? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point

Azure Stream Analytics input type:

- Azure Event Hub
- Azure SQL Database
- Azure Stream Analytics
- Microsoft Power BI

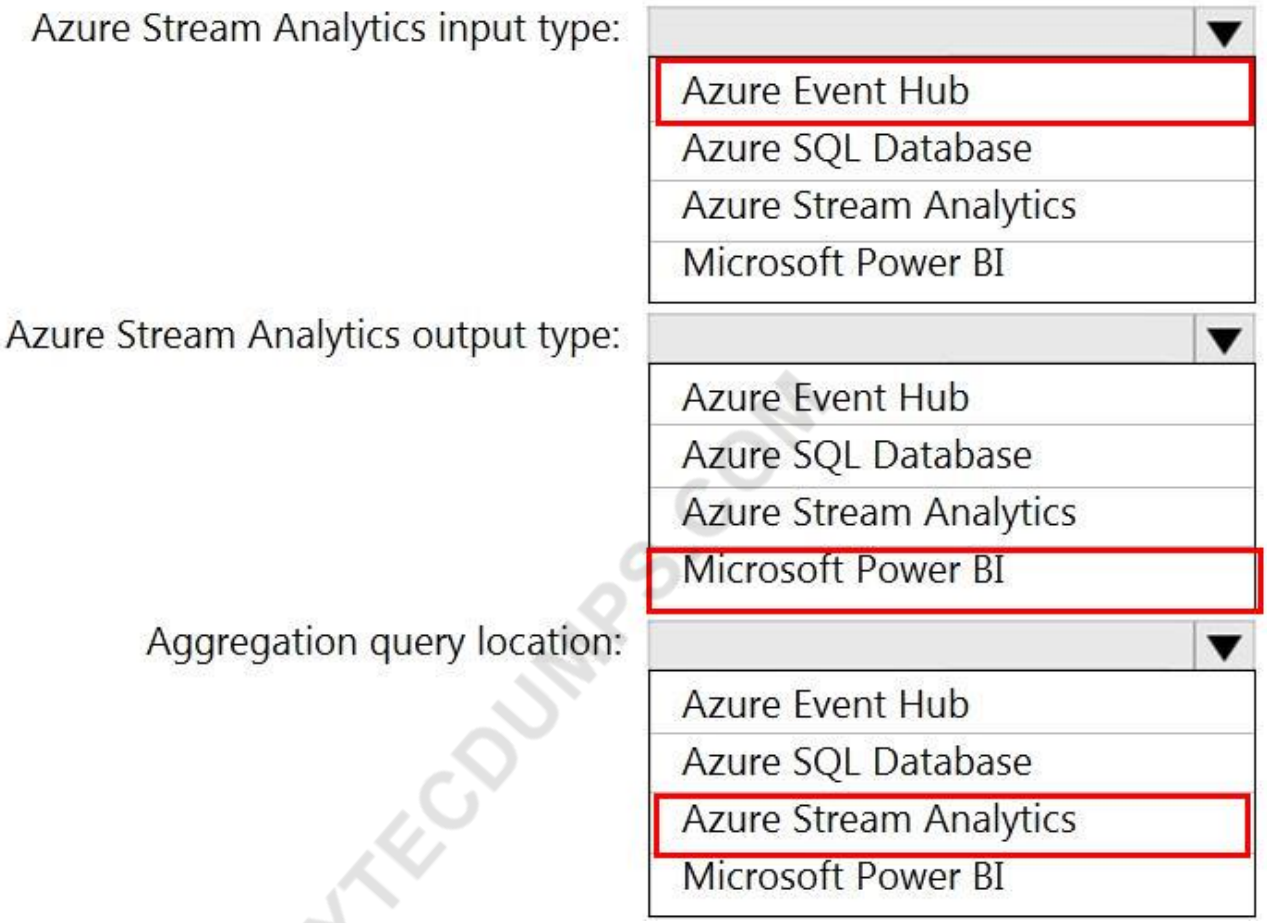
Azure Stream Analytics output type:

- Azure Event Hub
- Azure SQL Database
- Azure Stream Analytics
- Microsoft Power BI

Aggregation query location:

- Azure Event Hub
- Azure SQL Database
- Azure Stream Analytics
- Microsoft Power BI

Answer:



Reference:
https://docs.microsoft.com/en-us/azure/stream-analytics/stream-analytics-power-bi-dashboard

NO.222 You configure monitoring for a Microsoft Azure SQL Data Warehouse implementation. The implementation uses PolyBase to load data from comma-separated value (CSV) files stored in Azure Data Lake Gen 2 using an external table.
Files with an invalid schema cause errors to occur.
You need to monitor for an invalid schema error.
For which error should you monitor?

A. EXTERNAL TABLE access failed due to internal error: 'Java exception raised on call to HdfsBridge_Connect: Error [com.microsoft.polybase.client.KerberosSecureLogin] occurred while accessing external files.'

B. EXTERNAL TABLE access failed due to internal error: 'Java exception raised on call to HdfsBridge_Connect: Error [No FileSystem for scheme: wasbs] occurred while accessing external file.'

C. Cannot execute the query "Remote Query" against OLE DB provider "SQLNCLI11": for linked server "(null)", Query aborted- the maximum reject threshold (o rows) was reached while regarding from an external source: 1 rows rejected out of total 1 rows processed.

D. EXTERNAL TABLE access failed due to internal error: 'Java exception raised on call to HdfsBridge_Connect: Error [Unable to instantiate LoginClass] occurred while accessing external files.'

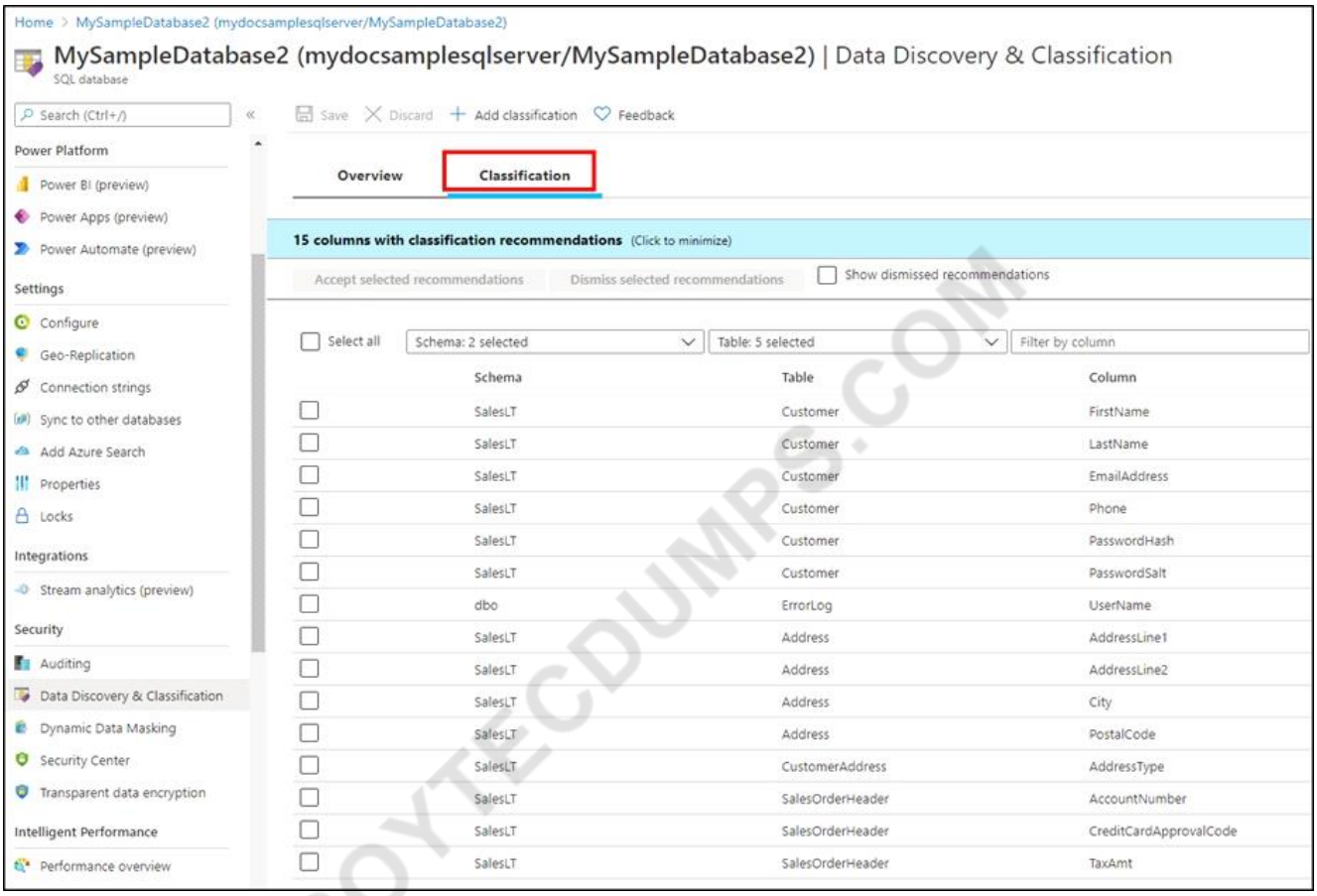
Answer: C
Explanation:
Customer Scenario:

SQL Server 2016 or SQL DW connected to Azure blob storage. The CREATE EXTERNAL TABLE DDL points to a directory (and not a specific file) and the directory contains files with different schemas.
SSMS Error:
Select query on the external table gives the following error:
Msg 7320, Level 16, State 110, Line 14
Cannot execute the query "Remote Query" against OLE DB provider "SQLNCLI11" for linked server "(null)". Query aborted-- the maximum reject threshold (0 rows) was reached while reading from an external source: 1 rows rejected out of total 1 rows processed.
Possible Reason:
The reason this error happens is because each file has different schema. The PolyBase external table DDL when pointed to a directory recursively reads all the files in that directory. When a column or data type mismatch happens, this error could be seen in SSMS.
Possible Solution:
If the data for each table consists of one file, then use the filename in the LOCATION section prepended by the directory of the external files. If there are multiple files per table, put each set of files into different directories in Azure Blob Storage and then you can point LOCATION to the directory instead of a particular file. The latter suggestion is the best practices recommended by SQLCAT even if you have one file per table.
Incorrect Answers:
A: Possible Reason: Kerberos is not enabled in Hadoop Cluster.
Reference:
https://techcommunity.microsoft.com/t5/DataCAT/PolyBase-Setup-Errors-and-Possible-Solutions/ba-p/305297

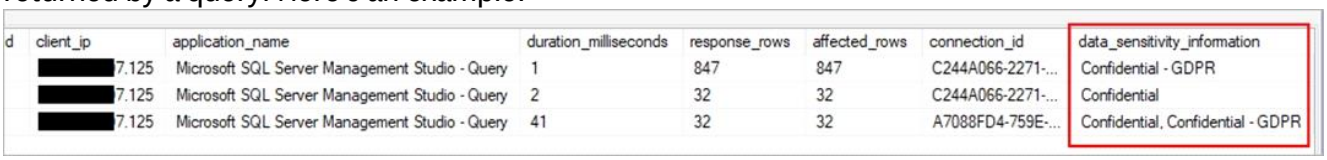
NO.223 You are developing an application that uses Azure Data Lake Storage Gen 2.
You need to recommend a solution to grant permissions to a specific application for a limited time period.
What should you include in the recommendation?
A. Azure Active Directory (Azure AD) identities
B. shared access signatures (SAS)
C. account keys
D. role assignments
Answer: B
Explanation:
A shared access signature (SAS) provides secure delegated access to resources in your storage account. With a SAS, you have granular control over how a client can access your data. For example:
What resources the client may access.
What permissions they have to those resources.
How long the SAS is valid.
Reference:
https://docs.microsoft.com/en-us/azure/storage/common/storage-sas-overview

NO.224 You plan to create an Azure Synapse Analytics dedicated SQL pool.
You need to minimize the time it takes to identify queries that return confidential information as defined by the company's data privacy regulations and the users who executed the queues.
Which two components should you include in the solution? Each correct answer presents part of the

solution.
NOTE: Each correct selection is worth one point.
A. sensitivity-classification labels applied to columns that contain confidential information
B. resource tags for databases that contain confidential information
C. audit logs sent to a Log Analytics workspace
D. dynamic data masking for columns that contain confidential information
Answer: A,C
Explanation:
A: You can classify columns manually, as an alternative or in addition to the recommendation-based classification:



Select Add classification in the top menu of the pane.
In the context window that opens, select the schema, table, and column that you want to classify, and the information type and sensitivity label.
Select Add classification at the bottom of the context window.
C: An important aspect of the information-protection paradigm is the ability to monitor access to sensitive data. Azure SQL Auditing has been enhanced to include a new field in the audit log called data_sensitivity_information. This field logs the sensitivity classifications (labels) of the data that was returned by a query. Here's an example:



d	client_ip	application_name	duration_milliseconds	response_rows	affected_rows	connection_id	data_sensitivity_information
	[redacted]7.125	Microsoft SQL Server Management Studio - Query	1	847	847	C244A066-2271-...	Confidential - GDPR
	[redacted]7.125	Microsoft SQL Server Management Studio - Query	2	32	32	C244A066-2271-...	Confidential
	[redacted]7.125	Microsoft SQL Server Management Studio - Query	41	32	32	A7088FD4-759E-...	Confidential, Confidential - GDPR

Reference:
https://docs.microsoft.com/en-us/azure/azure-sql/database/data-discovery-and-classification-

overview

NO.225 You are processing streaming data from vehicles that pass through a toll booth.
You need to use Azure Stream Analytics to return the license plate, vehicle make, and hour the last vehicle passed during each 10-minute window.
How should you complete the query? To answer, select the appropriate options in the answer area.
NOTE: Each correct selection is worth one point.

```
WITH LastInWindow AS
(
        SELECT
                [ ▼ ] (Time) AS LastEventTime
                  COUNT
                  MAX
                  MIN
                  TOPONE
        FROM
                Input TIMESTAMP BY Time
        GROUP BY
                [ ▼ ] (minute, 10)
                  HoppingWindow
                  SessionWindow
                  SlidingWindow
                  TumblingWindow
)
SELECT
        Input.License_plate,
        Input.Make,
        Input.Time
FROM
        Input TIMESTAMP BY Time
        INNER JOIN LastInWindow
        ON [ ▼ ] (minute, Input, LastInWindow) BETWEEN 0 AND 10
                  DATEADD
                  DATEDIFF
                  DATENAME
                  DATEPART
AND Input.Time = LastInWindow.LastEventTime
```


Answer:

```
WITH LastInWindow AS
(
        SELECT
                [ COUNT | MAX | MIN | TOPONE ] (Time) AS LastEventTime
        FROM
                Input TIMESTAMP BY Time
        GROUP BY
                [ HoppingWindow | SessionWindow | SlidingWindow | TumblingWindow ] (minute, 10)
)
SELECT
        Input.License_plate,
        Input.Make,
        Input.Time
FROM
        Input TIMESTAMP BY Time
        INNER JOIN LastInWindow
        ON [ DATEADD | DATEDIFF | DATENAME | DATEPART ] (minute, Input, LastInWindow) BETWEEN 0 AND 10
AND Input.Time = LastInWindow.LastEventTime
```


Reference:
https://docs.microsoft.com/en-us/stream-analytics-query/tumbling-window-azure-stream-analytics