



# Microsoft

## Exam Questions DP-203

Data Engineering on Microsoft Azure

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### NEW QUESTION 1

- (Exam Topic 1)

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 Area

Table type to store the product sales transactions:	<div>Hash</div> <div>Round-robin</div> <div>Replicated</div>
When creating the table for sales transactions:	<div>Configure a clustered index.</div> <div>Set the distribution column to product ID.</div> <div>Set the distribution column to the sales date.</div>

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

#### Answer Area

Table type to store the product sales transactions:	<div>Hash</div> <div>Round-robin</div> <div>Replicated</div>
When creating the table for sales transactions:	<div>Configure a clustered index.</div> <div>Set the distribution column to product ID.</div> <div>Set the distribution column to the sales date.</div>

### NEW QUESTION 2

- (Exam Topic 1)

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>

### NEW QUESTION 3

- (Exam Topic 2)

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.

Integration runtime type:

Trigger type:

Activity type:

- A. Mastered  
 B. Not Mastered

**Answer: A**

**Explanation:**

Box 1: Self-hosted integration runtime

A self-hosted IR is capable of running copy activity between a cloud data stores and a data store in private network.

Box 2: Schedule trigger

Schedule every 8 hours Box 3: Copy activity Scenario:

- > Customer data, including name, contact information, and loyalty number, comes from Salesforce 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.

**NEW QUESTION 4**

- (Exam Topic 3)

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-a>

**NEW QUESTION 5**

- (Exam Topic 3)

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).

- A. Mastered  
B. Not Mastered

**Answer:** A

### Explanation:

Step 1: Create an empty table named SalesFact\_work that has the same schema as SalesFact. Step 2: Switch the partition containing the stale data from SalesFact to SalesFact\_Work.

SQL Data Warehouse supports partition splitting, merging, and switching. To switch partitions between two tables, you must ensure that the partitions align on their respective boundaries and that the table definitions match.

Loading data into partitions with partition switching is a convenient way stage new data in a table that is not visible to users the switch in the new data.

Step 3: Drop the SalesFact\_Work table. Reference:

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

## NEW QUESTION 6

- (Exam Topic 3)

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:

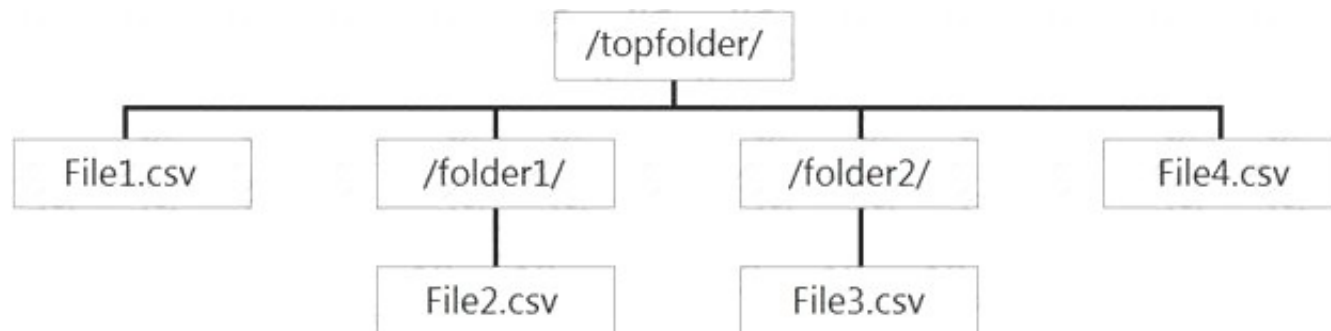
<https://docs.azuredatabricks.net/clusters/configure.html>

## NEW QUESTION 7

- (Exam Topic 3)

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:** C

**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>

**NEW QUESTION 8**

- (Exam Topic 3)

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.

**Values**

all, ecommerce, retail, wholesale
dept=='ecommerce', dept=='retail', dept=='wholesale'
dept=='ecommerce', dept=='wholesale', dept=='retail'
disjoint: false
disjoint: true
ecommerce, retail, wholesale, all

**Answer Area**

```
CleanData
split(
    [ ]
    [ ]
    [ ] ~> SplitByDept@([ ])
)
```

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

The conditional split transformation routes data rows to different streams based on matching conditions. The conditional split transformation is similar to a CASE decision structure in a programming language. The transformation evaluates expressions, and based on the results, directs the data row to the specified stream.

Box 1: dept=='ecommerce', dept=='retail', dept=='wholesale'

First we put the condition. The order must match the stream labeling we define in Box 3. Syntax:

```
<incomingStream> split(
<conditionalExpression1>
<conditionalExpression2>
disjoint: {true | false}
) ~> <splitTx>@(stream1, stream2, ..., <defaultStream>)
```

Box 2: discount : false

disjoint is false because the data goes to the first matching condition. All remaining rows matching the third condition go to output stream all.

Box 3: ecommerce, retail, wholesale, all Label the streams

Reference:

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

**NEW QUESTION 9**

- (Exam Topic 3)

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.

Copy behavior:

	▼
Flatten hierarchy	
Merge files	
Preserve hierarchy	

Sink file type:

	▼
CSV	
JSON	
Parquet	
TXT	

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Box 1: Preserver herarchy

Compared to the flat namespace on Blob storage, the hierarchical namespace greatly improves the performance of directory management operations, which improves overall job performance.

Box 2: Parquet

Azure Data Factory parquet format is supported for Azure Data Lake Storage Gen2. Parquet supports the schema property.

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>

**NEW QUESTION 10**

- (Exam Topic 3)

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:** ADF

**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>

**NEW QUESTION 10**

- (Exam Topic 3)

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 Area

df.write

.bucketBy

.format

.partitionBy

.sortBy

("")

("GeographyRegionID")

("GeographyRegionID", "Year", "Month", "Day")

("Year", "Month", "Day", "GeographyRegionID")

.csv("/DBTBL1")

.json("/DBTBL1")

.parquet("/DBTBL1")

.saveAsTable("/DBTBL1")

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Answer Area

df.write

.bucketBy

.format

.partitionBy

.sortBy

("")

("GeographyRegionID")

("GeographyRegionID", "Year", "Month", "Day")

("Year", "Month", "Day", "GeographyRegionID")

.csv("/DBTBL1")

.json("/DBTBL1")

.parquet("/DBTBL1")

.saveAsTable("/DBTBL1")

NEW QUESTION 11

- (Exam Topic 3)

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.



Values

CAST

COLLATE

CONVERT

FLATTEN

PIVOT

UNPIVOT

Answer Area

```
SELECT * FROM (
    SELECT YEAR(Date) Year, MONTH(Date)
    FROM temperatures
    WHERE date BETWEEN DATE '2019-01-01' AND DATE
    '2021-08-31'
    Value (
        Value (Temp AS DECIMAL(4, 1)))
    AVG (
        FOR Month in (
            1 JAN, 2 FEB, 3 MAR, 4 APR, 5 MAY, 6
            JUN, 7 JUL, 8 AUG, 9 SEP, 10 OCT, 11 NOV,
            12 DEC
        )
    )
    ORDER BY Year ASC
```

- A. Mastered  
B. Not Mastered

Answer: A

Explanation:

Values

CAST

COLLATE

CONVERT

FLATTEN

PIVOT

UNPIVOT

Answer Area

```
SELECT * FROM (
    SELECT YEAR(Date) Year, MONTH(Date)
    FROM temperatures
    WHERE date BETWEEN DATE '2019-01-01' AND DATE
    '2021-08-31'
    CONVERT (
        COLLATE (Temp AS DECIMAL(4, 1)))
    AVG (
        FOR Month in (
            1 JAN, 2 FEB, 3 MAR, 4 APR, 5 MAY, 6
            JUN, 7 JUL, 8 AUG, 9 SEP, 10 OCT, 11 NOV,
            12 DEC
        )
    )
    ORDER BY Year ASC
```

#### NEW QUESTION 15

- (Exam Topic 3)

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	

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

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

**NEW QUESTION 20**

- (Exam Topic 3)

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.

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

**NEW QUESTION 25**

- (Exam Topic 3)

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.

## Architecture requirement

## Technology

Data storage	<div><div></div><div>Azure SQL Database</div><div>Azure Blob Storage</div><div>Azure Cosmos DB</div><div>Azure Data Lake Store</div></div>
Batch processing	<div><div></div><div>HDInsight Spark</div><div>HDInsight Hadoop</div><div>Azure Databricks</div><div>HDInsight Interactive Query</div></div>
Analytical data store	<div><div></div><div>HDInsight HBase</div><div>Azure SQL Data Warehouse</div><div>Azure Analysis Services</div><div>Azure Cosmos DB</div></div>

- A. Mastered
- B. Not Mastered

**Answer:** A

### Explanation:

Data storage: Azure Data Lake Store

A key mechanism that allows Azure Data Lake Storage Gen2 to provide file system performance at object storage scale and prices is the addition of a hierarchical namespace. This allows the collection of objects/files within an account to be organized into a hierarchy of directories and nested subdirectories in the same way that the file system on your computer is organized. With the hierarchical namespace enabled, a storage account becomes capable of providing the scalability and cost-effectiveness of object storage, with file system semantics that are familiar to analytics engines and frameworks.

Batch processing: HD Insight Spark

Apache Spark is an open-source, parallel-processing framework that supports in-memory processing to boost the performance of big-data analysis applications. HDInsight is a managed Hadoop service. Use it to deploy and manage Hadoop clusters in Azure. For batch processing, you can use Spark, Hive, Hive LLAP, MapReduce.

Languages: R, Python, Java, Scala, SQL Analytic data store: SQL Data Warehouse

SQL Data Warehouse is a cloud-based Enterprise Data Warehouse (EDW) that uses Massively Parallel Processing (MPP).

SQL Data Warehouse stores data into relational tables with columnar storage. References:

<https://docs.microsoft.com/en-us/azure/storage/blobs/data-lake-storage-namespaces> <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>

### NEW QUESTION 30

- (Exam Topic 3)

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 server level, not at the database level.

References:

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

### NEW QUESTION 35

- (Exam Topic 3)

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: BC

Explanation:

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

NEW QUESTION 40

- (Exam Topic 3)

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.

HubA:

▼

Stream

Reference

HubB:

▼

Stream

Reference

Database1:

▼

Stream

Reference

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

HubA: Stream HubB: Stream  
Database1: Reference  
Reference data (also known as a lookup table) is a finite data set that is static or slowly changing in nature, used to perform a lookup or to augment your data streams. For example, in an IoT scenario, you could store metadata about sensors (which don't change often) in reference data and join it with real time IoT data streams. Azure Stream Analytics loads reference data in memory to achieve low latency stream processing

NEW QUESTION 45

- (Exam Topic 3)

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

**NEW QUESTION 48**

- (Exam Topic 3)

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.

Does this meet the goal?

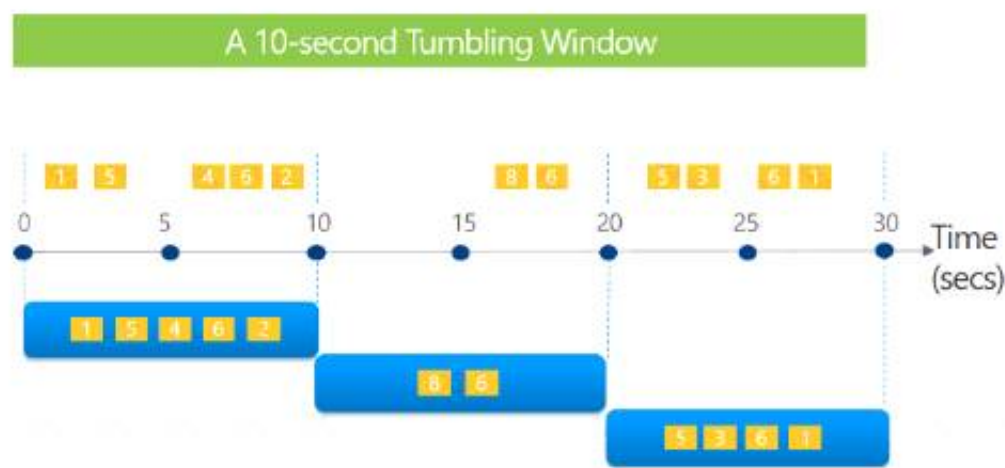
- A. Yes
- B. No

**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.

Tell me the count of tweets per time zone every 10 seconds



```
SELECT TimeZone, COUNT(*) AS Count
FROM TwitterStream TIMESTAMP BY CreatedAt
GROUP BY TimeZone, TumblingWindow(second,10)
```

Reference:

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

**NEW QUESTION 51**

- (Exam Topic 3)

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:

**NEW QUESTION 53**

- (Exam Topic 3)

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: D**

**NEW QUESTION 54**

- (Exam Topic 3)

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_datareader

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.

**Answer Area**

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

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

### Answer Area

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

### NEW QUESTION 59

- (Exam Topic 3)

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.

- A. Mastered  
B. Not Mastered

**Answer:** A

### Explanation:

Step 1: Read the file into a data frame.

You can load the json files as a data frame in Azure Databricks. Step 2: Perform transformations on the data frame.

Step 3:Specify a temporary folder to stage the data

Specify a temporary folder to use while moving data between Azure Databricks and Azure Synapse. Step 4: Write the results to a table in Azure Synapse.

You upload the transformed data frame into Azure Synapse. You use the Azure Synapse connector for Azure Databricks to directly upload a dataframe as a table in a Azure Synapse.

Step 5: Drop the data frame

Clean up resources. You can terminate the cluster. From the Azure Databricks workspace, select Clusters on the left. For the cluster to terminate, under Actions, point to the ellipsis (...) and select the Terminate icon.

Reference:

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

### NEW QUESTION 64

- (Exam Topic 3)

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.

Actions

From the Data Factory monitoring app, add the Source user property to the Activity Runs table.

From the Data Factory monitoring app, add the Source user property to the Pipeline Runs table.

From the Data Factory authoring UI, publish the pipelines.

From the Data Factory monitoring app, add a linked service to the Pipeline Runs table.

From the Data Factory authoring UI, generate a user property for Source on all activities.

From the Data Factory authoring UI, generate a user property for Source on all datasets.

Answer Area

>

<

⬆

⬇

- A. Mastered  
B. Not Mastered

Answer: A

Explanation:

Step 1: From the Data Factory authoring UI, generate a user property for Source on all activities. Step 2: From the Data Factory monitoring app, add the Source user property to Activity Runs table.

You can promote any pipeline activity property as a user property so that it becomes an entity that you can monitor. For example, you can promote the Source and Destination properties of the copy activity in your pipeline as user properties. You can also select Auto Generate to generate the Source and Destination user properties for a copy activity.

Step 3: From the Data Factory authoring UI, publish the pipelines

Publish output data to data stores such as Azure SQL Data Warehouse for business intelligence (BI) applications to consume.

References:

<https://docs.microsoft.com/en-us/azure/data-factory/monitor-visually>

NEW QUESTION 69

- (Exam Topic 3)

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.

- A. Mastered  
B. Not Mastered



**Answer:** A

**Explanation:**

Box 1: TDE with customer-managed keys

Customer-managed keys are stored in the Azure Key Vault. You can monitor how and when your key vaults are accessed, and by whom. You can do this by enabling logging for Azure Key Vault, which saves information in an Azure storage account that you provide.

Box 2: Create and configure Azure key vaults in two Azure regions

The contents of your key vault are replicated within the region and to a secondary region at least 150 miles away, but within the same geography to maintain high durability of your keys and secrets.

Reference:

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

**NEW QUESTION 74**

- (Exam Topic 3)

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 SQL.
- 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

**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>

**NEW QUESTION 77**

- (Exam Topic 3)

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 queries.

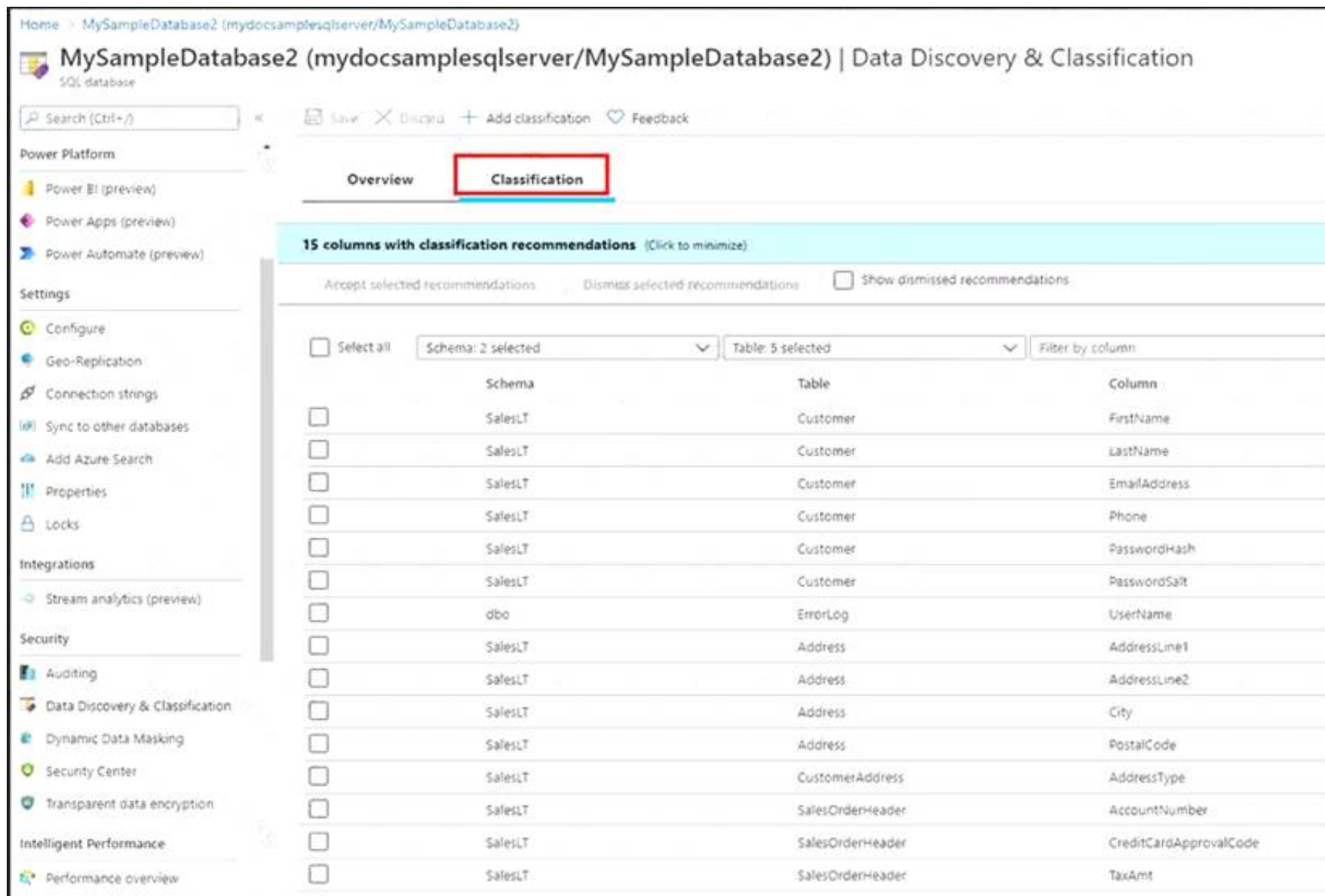
Which two components should you include in the solution? Each correct answer presents part of the solution. NOTE: Each correct selection is worth one point.

- 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:** AC

**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
	7.125	Microsoft SQL Server Management Studio - Query	1	847	847	C244A066-2271-...	Confidential - GDPR
	7.125	Microsoft SQL Server Management Studio - Query	2	32	32	C244A066-2271-...	Confidential
	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>

### NEW QUESTION 80

- (Exam Topic 3)

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: B**

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

Reference:

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

### NEW QUESTION 85

- (Exam Topic 3)

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?



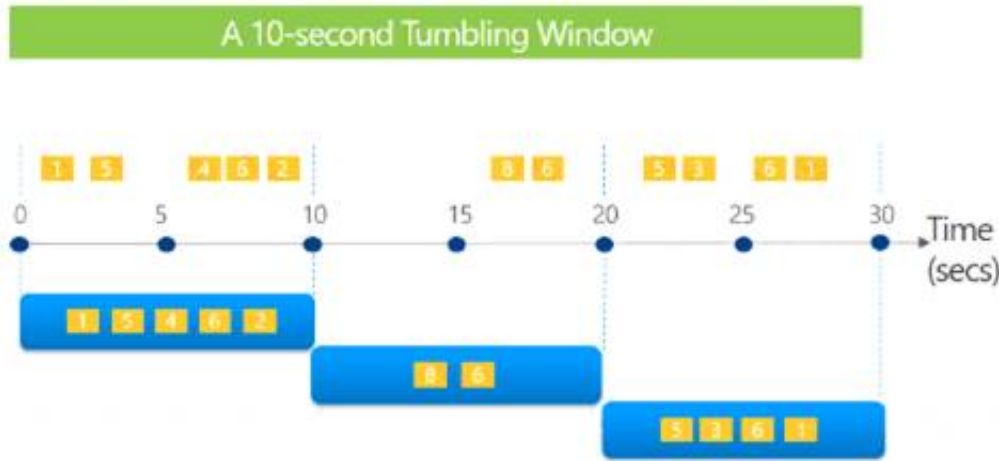
- A. snapshot
- B. tumbling
- C. hopping
- D. sliding

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.

Tell me the count of tweets per time zone every 10 seconds



```
SELECT TimeZone, COUNT(*) AS Count
FROM TwitterStream TIMESTAMP BY CreatedAt
GROUP BY TimeZone, TumblingWindow(second,10)
```

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

NEW QUESTION 86

- (Exam Topic 3)

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.

Report1:

▼

Avro

CSV

Parquet

TSV

Report2:

▼

Avro

CSV

Parquet

TSV

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:

Report1: CSV  
CSV: The destination writes records as delimited data. Report2: AVRO

AVRO supports timestamps.

Not Parquet, TSV: Not options for Azure Data Lake Storage Gen2. Reference:

<https://streamsets.com/documentation/datacollector/latest/help/datacollector/UserGuide/Destinations/ADLS-G2>

#### NEW QUESTION 87

- (Exam Topic 3)

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.

A. Mastered

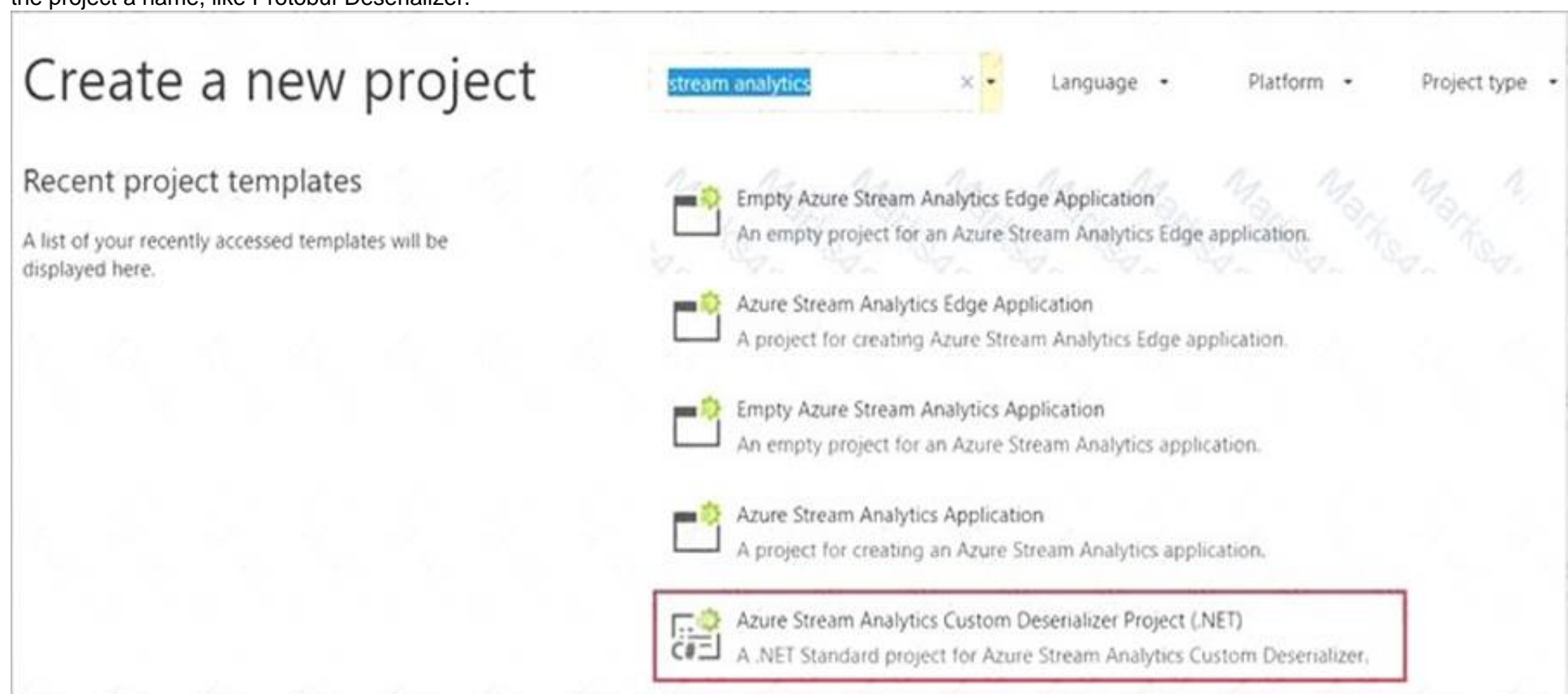
B. Not Mastered

**Answer:** A

#### Explanation:

Step 1: Add an Azure Stream Analytics Custom Deserializer Project (.NET) project to the solution. Create a custom deserializer

\* 1. Open Visual Studio and select File > New > Project. Search for Stream Analytics and select Azure Stream Analytics Custom Deserializer Project (.NET). Give the project a name, like Protobuf Deserializer.



\* 2. In Solution Explorer, right-click your Protobuf Deserializer project and select Manage NuGet Packages from the menu. Then install the Microsoft.Azure.StreamAnalytics and Google.Protobuf NuGet packages.

\* 3. Add the MessageBodyProto class and the MessageBodyDeserializer class to your project.

\* 4. Build the Protobuf Deserializer project.

Step 2: Add .NET deserializer code for Protobuf to the custom deserializer project

Azure Stream Analytics has built-in support for three data formats: JSON, CSV, and Avro. With custom .NET deserializers, you can read data from other formats such as Protocol Buffer, Bond and other user defined formats for both cloud and edge jobs.

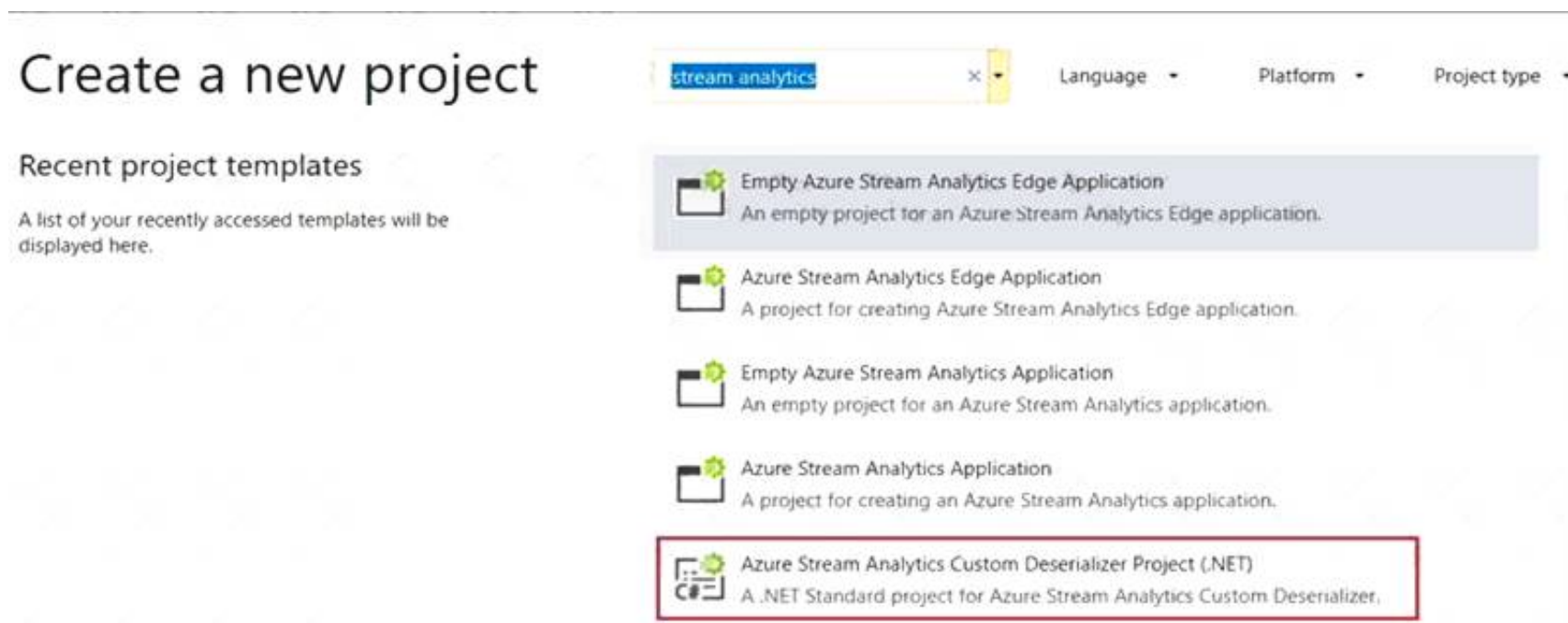
Step 3: Add an Azure Stream Analytics Application project to the solution Add an Azure Stream Analytics project

➤ In Solution Explorer, right-click the Protobuf Deserializer solution and select Add > New Project. Under Azure Stream Analytics > Stream Analytics, choose Azure Stream Analytics Application. Name it ProtobufCloudDeserializer and select OK.

➤ Right-click References under the ProtobufCloudDeserializer Azure Stream Analytics project. Under Projects, add Protobuf Deserializer. It should be automatically populated for you.

Reference:

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



#### NEW QUESTION 89

- (Exam Topic 3)

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.	

A. Mastered

B. Not Mastered

**Answer: A**

#### Explanation:

Step 1: Create an Azure Storage account that has a lifecycle policy

To automate common data management tasks, Microsoft created a solution based on Azure Data Factory. The service, Data Lifecycle Management, makes frequently accessed data available and archives or purges other data according to retention policies. Teams across the company use the service to reduce storage costs, improve app performance, and comply with data retention policies.

Step 2: Create a Log Analytics workspace that has Data Retention set to 120 days.

Data Factory stores pipeline-run data for only 45 days. Use Azure Monitor if you want to keep that data for a longer time. With Monitor, you can route diagnostic logs for analysis to multiple different targets, such as a Storage Account: Save your diagnostic logs to a storage account for auditing or manual inspection. You can use the diagnostic settings to specify the retention time in days.

Step 3: From Azure Portal, add a diagnostic setting. Step 4: Send the data to a log Analytics workspace,

Event Hub: A pipeline that transfers events from services to Azure Data Explorer. Keeping Azure Data Factory metrics and pipeline-run data.

Configure diagnostic settings and workspace.

Create or add diagnostic settings for your data factory.

- In the portal, go to Monitor. Select Settings > Diagnostic settings.
- Select the data factory for which you want to set a diagnostic setting.
- If no settings exist on the selected data factory, you're prompted to create a setting. Select Turn on diagnostics.
- Give your setting a name, select Send to Log Analytics, and then select a workspace from Log Analytics Workspace.
- Select Save. Reference:



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

### NEW QUESTION 93

- (Exam Topic 3)

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**

### NEW QUESTION 96

- (Exam Topic 3)

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>

### NEW QUESTION 98

- (Exam Topic 3)

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

- A. Mastered  
B. Not Mastered

**Answer:** A

**Explanation:**

Box 1: Type 2

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>

**NEW QUESTION 103**

- (Exam Topic 3)

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-distribu>

**NEW QUESTION 104**

- (Exam Topic 3)

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:** AE

**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-resou>

**NEW QUESTION 107**

- (Exam Topic 3)

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

**NEW QUESTION 109**

- (Exam Topic 3)

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.

Columnar format:

▼

Avro

GZip

Parquet

TXT

JSON with a timestamp:

▼

Avro

GZip

Parquet

TXT

- A. Mastered
- B. Not Mastered

Answer: A

**Explanation:**

Box 1: Parquet

Parquet stores data in columns, while Avro stores data in a row-based format. By their very nature, column-oriented data stores are optimized for read-heavy analytical workloads, while row-based databases are best for write-heavy transactional workloads.

Box 2: Avro

An Avro schema is created using JSON format.

AVRO supports timestamps.

Note: Azure Data Factory supports the following file formats (not GZip or TXT).

- > Avro format
- > Binary format
- > Delimited text format
- > Excel format
- > JSON format
- > ORC format
- > Parquet format
- > XML format

Reference:

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

**NEW QUESTION 112**

- (Exam Topic 3)

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**

**Answer Area**

- CASE
- ELSE
- OVER
- PARTITION
- ROW\_NUMBER

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

- A. Mastered
- B. Not Mastered

Answer: A

**Explanation:**

**Values**

**Answer Area**

- CASE
- ELSE
- OVER
- PARTITION
- ROW\_NUMBER

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

**NEW QUESTION 114**

- (Exam Topic 3)

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>

**NEW QUESTION 118**

- (Exam Topic 3)

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-partitio>

**NEW QUESTION 121**

- (Exam Topic 3)

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 Area**

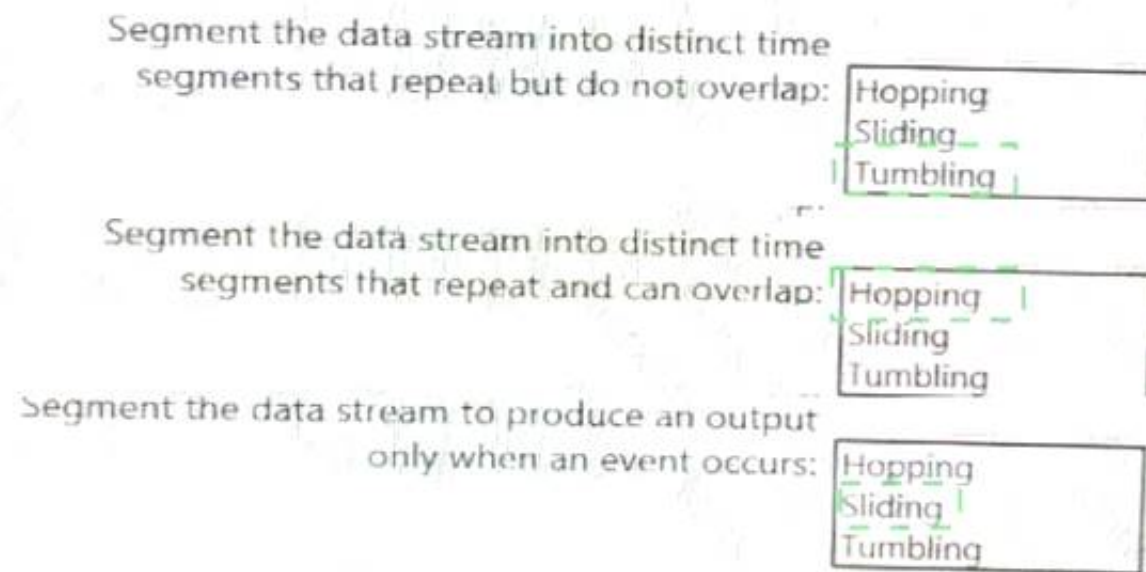
Segment the data stream into distinct time segments that repeat but do not overlap:	<div>Hopping Sliding Tumbling</div>
Segment the data stream into distinct time segments that repeat and can overlap:	<div>Hopping Sliding Tumbling</div>
Segment the data stream to produce an output only when an event occurs:	<div>Hopping Sliding Tumbling</div>

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

## Answer Area



### NEW QUESTION 123

- (Exam Topic 3)

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 is 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>

### NEW QUESTION 124

- (Exam Topic 3)

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))
);
```

- A. Mastered
- B. Not Mastered

**Answer:** A

#### Explanation:

Box 1: DISTRIBUTION

Table distribution options include DISTRIBUTION = HASH ( distribution\_column\_name ), assigns each row to one distribution by hashing the value stored in distribution\_column\_name. Box 2: PARTITION

Table partition options. Syntax:

PARTITION ( partition\_column\_name RANGE [ LEFT | RIGHT ] FOR VALUES ( [ boundary\_value [...n] ] ) )

Reference:

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

### NEW QUESTION 127

- (Exam Topic 3)



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: C

NEW QUESTION 130

- (Exam Topic 3)  
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 db
- C. Sales.
- D. Update dbo.Sales from stg.Sales.
- E. Insert the data from stg.Sales into dbo.Sales.

Answer: D

NEW QUESTION 132

- (Exam Topic 3)  
You have the following Azure Stream Analytics query.

```
WITH

step1 AS (SELECT *
           FROM input1
           PARTITION BY StateID
           INTO 10),
step2 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.	<input type="radio"/>	<input type="radio"/>
The stream scheme key and count must match the output scheme.	<input type="radio"/>	<input type="radio"/>
Providing 60 streaming units will optimize the performance of the query.	<input type="radio"/>	<input type="radio"/>

- A. Mastered
- B. Not Mastered

Answer: A

Explanation:  
Box 1: Yes  
You can now use a new extension of Azure Stream Analytics SQL to specify the number of partitions of a stream when reshuffling the data.



The outcome is a stream that has the same partition scheme. Please see below for an example: WITH step1 AS (SELECT \* FROM [input1] PARTITION BY DeviceID INTO 10),  
step2 AS (SELECT \* FROM [input2] PARTITION BY DeviceID INTO 10)  
SELECT \* INTO [output] FROM step1 PARTITION BY DeviceID UNION step2 PARTITION BY DeviceID Note: The new extension of Azure Stream Analytics SQL includes a keyword INTO that allows you to specify the number of partitions for a stream when performing reshuffling using a PARTITION BY statement.  
Box 2: Yes  
When joining two streams of data explicitly repartitioned, these streams must have the same partition key and partition count.  
Box 3: Yes  
10 partitions x six SUs = 60 SUs is fine.  
Note: Remember, Streaming Unit (SU) count, which is the unit of scale for Azure Stream Analytics, must be adjusted so the number of physical resources available to the job can fit the partitioned flow. In general, six SUs is a good number to assign to each partition. In case there are insufficient resources assigned to the job, the system will only apply the repartition if it benefits the job.  
Reference:  
<https://azure.microsoft.com/en-in/blog/maximize-throughput-with-repartitioning-in-azure-stream-analytics/>

### NEW QUESTION 135

- (Exam Topic 3)

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.

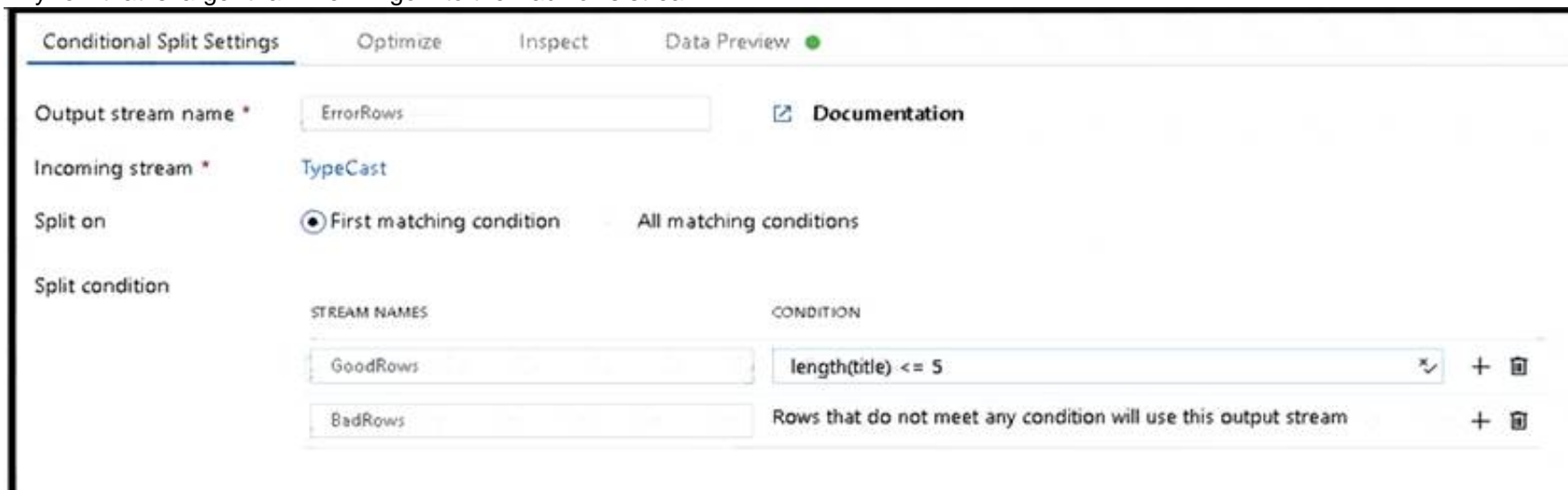
- A. To the data flow, add a sink transformation to write the rows to a file in blob storage.
- B. To the data flow, add a Conditional Split transformation to separate the rows that will cause truncation errors.
- C. To the data flow, add a filter transformation to filter out rows that will cause truncation errors.
- D. Add a select transformation to select only the rows that will cause truncation errors.

**Answer:** AB

### Explanation:

B: Example:

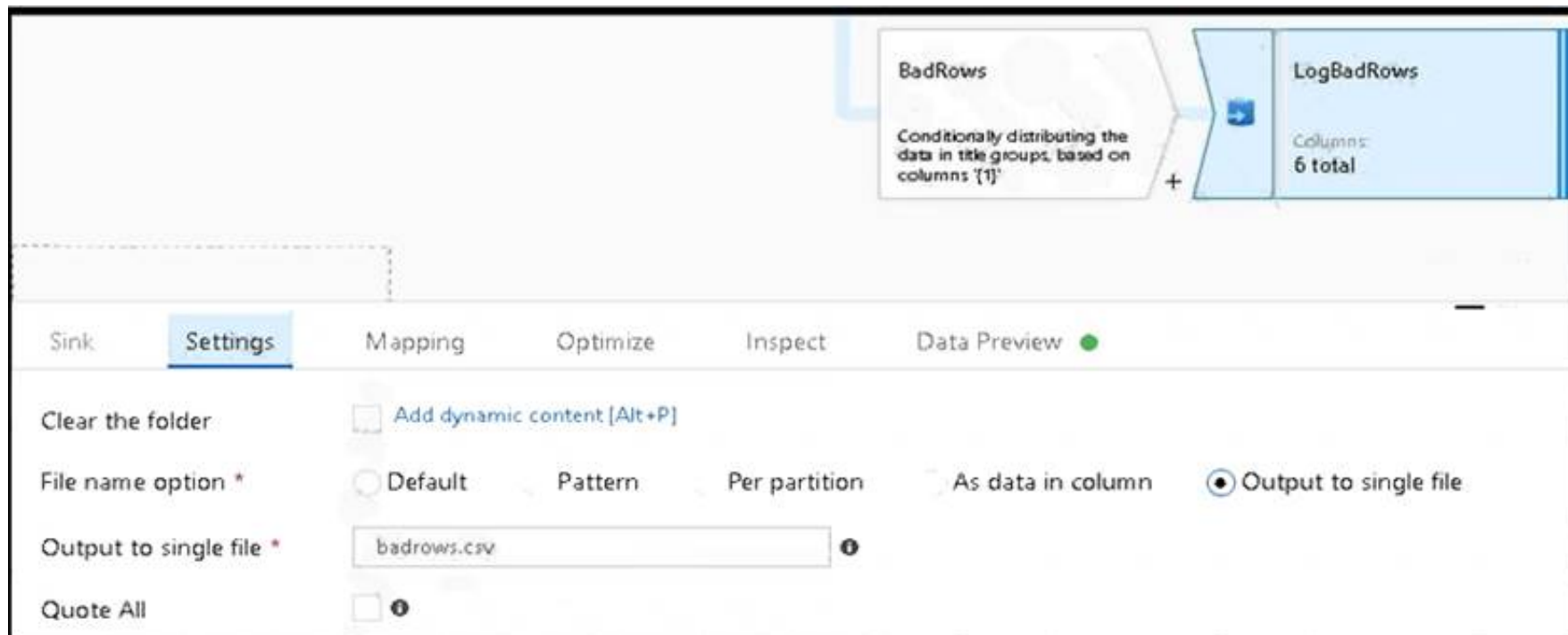
\* 1. This conditional split transformation defines the maximum length of "title" to be five. Any row that is less than or equal to five will go into the GoodRows stream. Any row that is larger than five will go into the BadRows stream.



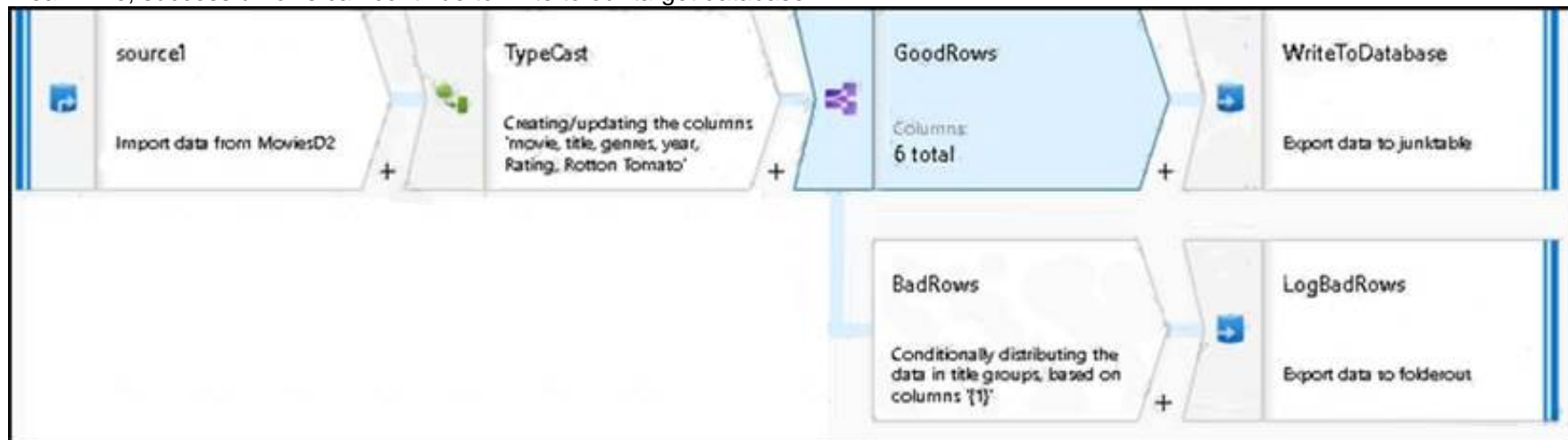
\* 2. This conditional split transformation defines the maximum length of "title" to be five. Any row that is less than or equal to five will go into the GoodRows stream. Any row that is larger than five will go into the BadRows stream.

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>

### NEW QUESTION 138

- (Exam Topic 3)

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 area.

NOTE: Each correct selection is worth one point.

**Answer Area**

```
Select TimeZone, count(*) AS MessageCount
FROM
    MessageStream
GROUP BY
    TimeZone,
    (
        LAST
        OVER
        SYSTEM.TIMESTAMP()
        TIMESTAMP BY
        HOPPINGWINDOW
        SESSIONWINDOW
        SLIDINGWINDOW
        TUMBLINGWINDOW
    )
    CreatedAt
    (second, 15)
```

- A. Mastered
- B. Not Mastered

**Answer: A**

**Explanation:**

## Answer Area

```

Select TimeZone, count(*) AS MessageCount
FROM
    MessageStream
    HOPPINGWINDOW
    SESSIONWINDOW
    SLIDINGWINDOW
    TUMBLINGWINDOW
    CreatedAt
    (second, 15)
    
```

### NEW QUESTION 140

- (Exam Topic 3)

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>

### NEW QUESTION 143

- (Exam Topic 3)

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 SparkLogging1 Event.CL table.
- C. From Synapse Studio, select the workspace
- D. From Monitor, select Apache Sparks applications.
- E. From Synapse Studio, select the workspace
- F. From Monitor, select SQL requests.

**Answer: C**

### NEW QUESTION 146

- (Exam Topic 3)

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.

Number of partitions:

	▼
1	
8	
16	
32	

Partition key:

	▼
Fraud indicator	
Fraud score	
Individual line items	
Payment details	
Transaction ID	

- A. Mastered
- B. Not Mastered

**Answer:** A

**Explanation:**

Box 1: 16

For Event Hubs you need to set the partition key explicitly.

An embarrassingly parallel job is the most scalable scenario in Azure Stream Analytics. It connects one partition of the input to one instance of the query to one partition of the output.

Box 2: Transaction ID Reference:

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

**NEW QUESTION 147**

- (Exam Topic 3)

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.

References:

<https://docs.azuredatabricks.net/clusters/clusters-manage.html#automatic-termination>

**NEW QUESTION 150**

- (Exam Topic 3)

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

**NEW QUESTION 155**

- (Exam Topic 3)

You have an Azure Synapse Analytics 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: C

NEW QUESTION 160

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