

# DATABRICKS-CERTIFIED-PR OFESSIONAL-DATA-ENGINEER<sup>Q&As</sup>

Databricks Certified Professional Data Engineer Exam

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#### **QUESTION 1**

A table is registered with the following code: Both users and orders are Delta Lake tables. Which statement describes the results of querying recent\_orders?

```
CREATE TABLE recent_orders AS (
   SELECT a.user_id, a.email, b.order_id, b.order_date
   FROM
   (SELECT user_id, email
   FROM users) a
   INNER JOIN
   (SELECT user_id, order_id, order_date
   FROM orders
   WHERE order_date >= (current_date() - 7)) b
   ON a.user_id = b.user_id
)
```

A. All logic will execute at query time and return the result of joining the valid versions of the source tables at the time the query finishes.

B. All logic will execute when the table is defined and store the result of joining tables to the DBFS; this stored data will be returned when the table is queried.

C. Results will be computed and cached when the table is defined; these cached results will incrementally update as new records are inserted into source tables.

D. All logic will execute at query time and return the result of joining the valid versions of the source tables at the time the query began.

E. The versions of each source table will be stored in the table transaction log; query results will be saved to DBFS with each query.

Correct Answer: B

#### **QUESTION 2**

A junior data engineer is working to implement logic for a Lakehouse table named silver\_device\_recordings. The source data contains 100 unique fields in a highly nested JSON structure.

The silver\_device\_recordings table will be used downstream for highly selective joins on a number of fields, and will also be leveraged by the machine learning team to filter on a handful of relevant fields, in total, 15 fields have been identified

that will often be used for filter and join logic.

The data engineer is trying to determine the best approach for dealing with these nested fields before declaring the table schema.



Which of the following accurately presents information about Delta Lake and Databricks that may Impact their decisionmaking process?

A. Because Delta Lake uses Parquet for data storage, Dremel encoding information for nesting can be directly referenced by the Delta transaction log.

B. Tungsten encoding used by Databricks is optimized for storing string data: newly-added native support for querying JSON strings means that string types are always most efficient.

C. Schema inference and evolution on Databricks ensure that inferred types will always accurately match the data types used by downstream systems.

D. By default Delta Lake collects statistics on the first 32 columns in a table; these statistics are leveraged for data skipping when executing selective queries.

Correct Answer: D

Delta Lake, built on top of Parquet, enhances query performance through data skipping, which is based on the statistics collected for each file in a table. For tables with a large number of columns, Delta Lake by default collects and stores statistics only for the first 32 columns. These statistics include min/max values and null counts, which are used to optimize query execution by skipping irrelevant data files. When dealing with highly nested JSON structures, understanding this behavior is crucial for schema design, especially when determining which fields should be flattened or prioritized in the table structure to leverage data skipping efficiently for performance optimization. References: Databricks documentation on Delta Lake optimization techniques, including data skipping and statistics collection (https://docs.databricks.com/delta/optimizations/index.html).

#### **QUESTION 3**

A Databricks job has been configured with 3 tasks, each of which is a Databricks notebook. Task A does not depend on other tasks. Tasks B and C run in parallel, with each having a serial dependency on task A.

If tasks A and B complete successfully but task C fails during a scheduled run, which statement describes the resulting state?

A. All logic expressed in the notebook associated with tasks A and B will have been successfully completed; some operations in task C may have completed successfully.

B. All logic expressed in the notebook associated with tasks A and B will have been successfully completed; any changes made in task C will be rolled back due to task failure.

C. All logic expressed in the notebook associated with task A will have been successfully completed; tasks B and C will not commit any changes because of stage failure.

D. Because all tasks are managed as a dependency graph, no changes will be committed to the Lakehouse until ail tasks have successfully been completed.

E. Unless all tasks complete successfully, no changes will be committed to the Lakehouse; because task C failed, all commits will be rolled back automatically.

#### Correct Answer: A

The query uses the CREATE TABLE USING DELTA syntax to create a Delta Lake table from an existing Parquet file stored in DBFS. The query also uses the LOCATION keyword to specify the path to the Parquet file as /mnt/



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finance\_eda\_bucket/tx\_sales.parquet. By using the LOCATION keyword, the query creates an external table, which is a table that is stored outside of the default warehouse directory and whose metadata is not managed by Databricks. An external table can be created from an existing directory in a cloud storage system, such as DBFS or S3, that contains data files in a supported format, such as Parquet or CSV. The resulting state after running the second command is that an external table will be created in the storage container mounted to /mnt/finance\_eda\_bucket with the new name prod.sales\_by\_store. The command will not change any data or move any files in the storage container; it will only update the table reference in the metastore and create a new Delta transaction log for the renamed table. Verified References: [Databricks Certified Data Engineer Professional], under "Delta Lake" section; Databricks Documentation, under "ALTER TABLE RENAME TO" section; Databricks Documentation, under "Create an external table" section.

## **QUESTION 4**

Which of the following technologies can be used to identify key areas of text when parsing Spark Driver log4j output?

A. Regex

B. Julia

C. pyspsark.ml.feature

- D. Scala Datasets
- E. C++

Correct Answer: A

Regex, or regular expressions, are a powerful way of matching patterns in text. They can be used to identify key areas of text when parsing Spark Driver log4j output, such as the log level, the timestamp, the thread name, the class name, the method name, and the message. Regex can be applied in various languages and frameworks, such as Scala, Python, Java, Spark SQL, and Databricks notebooks. References: https://docs.databricks.com/notebooks/notebooks-use.html#use-regular-expressions https://docs.databricks.com/spark/latest/spark-sql/udf-scala.html#using-regular-expressions-in-udfs https://docs.databricks.com/spark/latest/sparkr/functions/regexp\_extract.html https://docs.databricks.com/spark/latest/sparkr/functions/regexp\_replace.html

#### **QUESTION 5**

A Delta Lake table was created with the below query:

Realizing that the original query had a typographical error, the below code was executed:

ALTER TABLE prod.sales\_by\_stor RENAME TO prod.sales\_by\_store

Which result will occur after running the second command?

- A. The table reference in the metastore is updated and no data is changed.
- B. The table name change is recorded in the Delta transaction log.
- C. All related files and metadata are dropped and recreated in a single ACID transaction.
- D. The table reference in the metastore is updated and all data files are moved.
- E. A new Delta transaction log Is created for the renamed table.



#### Correct Answer: A

The query uses the CREATE TABLE USING DELTA syntax to create a Delta Lake table from an existing Parquet file stored in DBFS. The query also uses the LOCATION keyword to specify the path to the Parquet file as /mnt/ finance\_eda\_bucket/tx\_sales.parquet. By using the LOCATION keyword, the query creates an external table, which is a table that is stored outside of the default warehouse directory and whose metadata is not managed by Databricks. An external table can be created from an existing directory in a cloud storage system, such as DBFS or S3, that contains data files in a supported format, such as Parquet or CSV. The result that will occur after running the second command is that the table reference in the metastore is updated and no data is changed. The metastore is a service that stores metadata about tables, such as their schema, location, properties, and partitions. The metastore allows users to access tables using SQL commands or Spark APIs without knowing their physical location or format. When renaming an external table using the ALTER TABLE RENAME TO command, only the table reference in the metastore is updated with the new name; no data files or directories are moved or changed in the storage system. The table will still point to the same location and use the same format as before. However, if renaming a managed table, which is a table whose metadata and data are both managed by Databricks, both the table reference in the metastore and the data files in the default warehouse directory are moved and renamed accordingly. Verified References: [Databricks Certified Data Engineer Professional], under "Delta Lake" section; Databricks Documentation, under "ALTER TABLE RENAME TO" section; Databricks Documentation, under "Metastore" section; Databricks Documentation, under "Managed and external tables" section.

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