

Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam

<https://www.2passeasy.com/dumps/Professional-Data-Engineer/>



NEW QUESTION 1

- (Exam Topic 1)

Your weather app queries a database every 15 minutes to get the current temperature. The frontend is powered by Google App Engine and server millions of users. How should you design the frontend to respond to a database failure?

- A. Issue a command to restart the database servers.
- B. Retry the query with exponential backoff, up to a cap of 15 minutes.
- C. Retry the query every second until it comes back online to minimize staleness of data.
- D. Reduce the query frequency to once every hour until the database comes back online.

Answer: B

Explanation:

<https://cloud.google.com/sql/docs/mysql/manage-connections#backoff>

NEW QUESTION 2

- (Exam Topic 1)

You are designing a basket abandonment system for an ecommerce company. The system will send a message to a user based on these rules:

- > No interaction by the user on the site for 1 hour
- > Has added more than \$30 worth of products to the basket
- > Has not completed a transaction

You use Google Cloud Dataflow to process the data and decide if a message should be sent. How should you design the pipeline?

- A. Use a fixed-time window with a duration of 60 minutes.
- B. Use a sliding time window with a duration of 60 minutes.
- C. Use a session window with a gap time duration of 60 minutes.
- D. Use a global window with a time based trigger with a delay of 60 minutes.

Answer: C

NEW QUESTION 3

- (Exam Topic 1)

Your company is using WHILECARD tables to query data across multiple tables with similar names. The SQL statement is currently failing with the following error:

```
# Syntax error : Expected end of statement but got "-" at [4:11] SELECT age
```

```
FROM
```

```
bigquery-public-data.noaa_gsod.gsod WHERE
```

```
age != 99
```

```
AND_TABLE_SUFFIX = '1929' ORDER BY
```

```
age DESC
```

Which table name will make the SQL statement work correctly?

- A. 'bigquery-public-data.noaa_gsod.gsod'
- B. bigquery-public-data.noaa_gsod.gsod*
- C. 'bigquery-public-data.noaa_gsod.gsod'*
- D. 'bigquery-public-data.noaa_gsod.gsod**'

Answer: D

NEW QUESTION 4

- (Exam Topic 1)

Your company is streaming real-time sensor data from their factory floor into Bigtable and they have noticed extremely poor performance. How should the row key be redesigned to improve Bigtable performance on queries that populate real-time dashboards?

- A. Use a row key of the form <timestamp>.
- B. Use a row key of the form <sensorid>.
- C. Use a row key of the form <timestamp>#<sensorid>.
- D. Use a row key of the form >#<sensorid>#<timestamp>.

Answer: A

NEW QUESTION 5

- (Exam Topic 1)

Your company handles data processing for a number of different clients. Each client prefers to use their own suite of analytics tools, with some allowing direct query access via Google BigQuery. You need to secure the data so that clients cannot see each other's data. You want to ensure appropriate access to the data. Which three steps should you take? (Choose three.)

- A. Load data into different partitions.
- B. Load data into a different dataset for each client.
- C. Put each client's BigQuery dataset into a different table.
- D. Restrict a client's dataset to approved users.
- E. Only allow a service account to access the datasets.
- F. Use the appropriate identity and access management (IAM) roles for each client's users.

Answer: BDF

NEW QUESTION 6

- (Exam Topic 1)

Your startup has never implemented a formal security policy. Currently, everyone in the company has access to the datasets stored in Google BigQuery. Teams have freedom to use the service as they see fit, and they have not documented their use cases. You have been asked to secure the data warehouse. You need to discover what everyone is doing. What should you do first?

- A. Use Google Stackdriver Audit Logs to review data access.
- B. Get the identity and access management (IAM) policy of each table
- C. Use Stackdriver Monitoring to see the usage of BigQuery query slots.
- D. Use the Google Cloud Billing API to see what account the warehouse is being billed to.

Answer: A

NEW QUESTION 7

- (Exam Topic 1)

You are building new real-time data warehouse for your company and will use Google BigQuery streaming inserts. There is no guarantee that data will only be sent in once but you do have a unique ID for each row of data and an event timestamp. You want to ensure that duplicates are not included while interactively querying data. Which query type should you use?

- A. Include ORDER BY DESK on timestamp column and LIMIT to 1.
- B. Use GROUP BY on the unique ID column and timestamp column and SUM on the values.
- C. Use the LAG window function with PARTITION by unique ID along with WHERE LAG IS NOT NULL.
- D. Use the ROW_NUMBER window function with PARTITION by unique ID along with WHERE row equals 1.

Answer: D

Explanation:

<https://cloud.google.com/bigquery/docs/reference/standard-sql/analytic-function-concepts>

NEW QUESTION 8

- (Exam Topic 1)

Your software uses a simple JSON format for all messages. These messages are published to Google Cloud Pub/Sub, then processed with Google Cloud Dataflow to create a real-time dashboard for the CFO. During testing, you notice that some messages are missing in the dashboard. You check the logs, and all messages are being published to Cloud Pub/Sub successfully. What should you do next?

- A. Check the dashboard application to see if it is not displaying correctly.
- B. Run a fixed dataset through the Cloud Dataflow pipeline and analyze the output.
- C. Use Google Stackdriver Monitoring on Cloud Pub/Sub to find the missing messages.
- D. Switch Cloud Dataflow to pull messages from Cloud Pub/Sub instead of Cloud Pub/Sub pushing messages to Cloud Dataflow.

Answer: B

NEW QUESTION 9

- (Exam Topic 1)

Your company has hired a new data scientist who wants to perform complicated analyses across very large datasets stored in Google Cloud Storage and in a Cassandra cluster on Google Compute Engine. The scientist primarily wants to create labelled data sets for machine learning projects, along with some visualization tasks. She reports that her laptop is not powerful enough to perform her tasks and it is slowing her down. You want to help her perform her tasks. What should you do?

- A. Run a local version of Jupiter on the laptop.
- B. Grant the user access to Google Cloud Shell.
- C. Host a visualization tool on a VM on Google Compute Engine.
- D. Deploy Google Cloud Datalab to a virtual machine (VM) on Google Compute Engine.

Answer: B

NEW QUESTION 10

- (Exam Topic 1)

You have Google Cloud Dataflow streaming pipeline running with a Google Cloud Pub/Sub subscription as the source. You need to make an update to the code that will make the new Cloud Dataflow pipeline incompatible with the current version. You do not want to lose any data when making this update. What should you do?

- A. Update the current pipeline and use the drain flag.
- B. Update the current pipeline and provide the transform mapping JSON object.
- C. Create a new pipeline that has the same Cloud Pub/Sub subscription and cancel the old pipeline.
- D. Create a new pipeline that has a new Cloud Pub/Sub subscription and cancel the old pipeline.

Answer: D

NEW QUESTION 10

- (Exam Topic 1)

You are building a model to predict whether or not it will rain on a given day. You have thousands of input features and want to see if you can improve training speed by removing some features while having a minimum effect on model accuracy. What can you do?

- A. Eliminate features that are highly correlated to the output labels.
- B. Combine highly co-dependent features into one representative feature.
- C. Instead of feeding in each feature individually, average their values in batches of 3.
- D. Remove the features that have null values for more than 50% of the training records.

Answer: B

NEW QUESTION 15

- (Exam Topic 1)

You are working on a sensitive project involving private user data. You have set up a project on Google Cloud Platform to house your work internally. An external consultant is going to assist with coding a complex transformation in a Google Cloud Dataflow pipeline for your project. How should you maintain users' privacy?

- A. Grant the consultant the Viewer role on the project.
- B. Grant the consultant the Cloud Dataflow Developer role on the project.
- C. Create a service account and allow the consultant to log on with it.
- D. Create an anonymized sample of the data for the consultant to work with in a different project.

Answer: C

NEW QUESTION 20

- (Exam Topic 1)

Your company's customer and order databases are often under heavy load. This makes performing analytics against them difficult without harming operations. The databases are in a MySQL cluster, with nightly backups taken using mysqldump. You want to perform analytics with minimal impact on operations. What should you do?

- A. Add a node to the MySQL cluster and build an OLAP cube there.
- B. Use an ETL tool to load the data from MySQL into Google BigQuery.
- C. Connect an on-premises Apache Hadoop cluster to MySQL and perform ETL.
- D. Mount the backups to Google Cloud SQL, and then process the data using Google Cloud Dataproc.

Answer: C

NEW QUESTION 25

- (Exam Topic 1)

You have spent a few days loading data from comma-separated values (CSV) files into the Google BigQuery table CLICK_STREAM. The column DT stores the epoch time of click events. For convenience, you chose a simple schema where every field is treated as the STRING type. Now, you want to compute web session durations of users who visit your site, and you want to change its data type to the TIMESTAMP. You want to minimize the migration effort without making future queries computationally expensive. What should you do?

- A. Delete the table CLICK_STREAM, and then re-create it such that the column DT is of the TIMESTAMP type.
- B. Reload the data.
- C. Add a column TS of the TIMESTAMP type to the table CLICK_STREAM, and populate the numeric values from the column DT for each row.
- D. Reference the column TS instead of the column DT from now on.
- E. Create a view CLICK_STREAM_V, where strings from the column DT are cast into TIMESTAMP values.
- F. Reference the view CLICK_STREAM_V instead of the table CLICK_STREAM from now on.
- G. Add two columns to the table CLICK_STREAM: TS of the TIMESTAMP type and IS_NEW of the BOOLEAN type.
- H. Reload all data in append mode.
- I. For each appended row, set the value of IS_NEW to true.
- J. For future queries, reference the column TS instead of the column DT, with the WHERE clause ensuring that the value of IS_NEW must be true.
- K. Construct a query to return every row of the table CLICK_STREAM, while using the built-in function to cast strings from the column DT into TIMESTAMP values.
- L. Run the query into a destination table NEW_CLICK_STREAM, in which the column TS is the TIMESTAMP type.
- M. Reference the table NEW_CLICK_STREAM instead of the table CLICK_STREAM from now on.
- N. In the future, new data is loaded into the table NEW_CLICK_STREAM.

Answer: D

NEW QUESTION 30

- (Exam Topic 1)

An external customer provides you with a daily dump of data from their database. The data flows into Google Cloud Storage GCS as comma-separated values (CSV) files. You want to analyze this data in Google BigQuery, but the data could have rows that are formatted incorrectly or corrupted. How should you build this pipeline?

- A. Use federated data sources, and check data in the SQL query.
- B. Enable BigQuery monitoring in Google Stackdriver and create an alert.
- C. Import the data into BigQuery using the gcloud CLI and set max_bad_records to 0.
- D. Run a Google Cloud Dataflow batch pipeline to import the data into BigQuery, and push errors to another dead-letter table for analysis.

Answer: D

NEW QUESTION 32

- (Exam Topic 1)

You work for a car manufacturer and have set up a data pipeline using Google Cloud Pub/Sub to capture anomalous sensor events. You are using a push subscription in Cloud Pub/Sub that calls a custom HTTPS endpoint that you have created to take action on these anomalous events as they occur. Your custom HTTPS endpoint keeps getting an inordinate amount of duplicate messages. What is the most likely cause of these duplicate messages?

- A. The message body for the sensor event is too large.
- B. Your custom endpoint has an out-of-date SSL certificate.
- C. The Cloud Pub/Sub topic has too many messages published to it.
- D. Your custom endpoint is not acknowledging messages within the acknowledgement deadline.

Answer: B

NEW QUESTION 36

- (Exam Topic 1)

You designed a database for patient records as a pilot project to cover a few hundred patients in three clinics. Your design used a single database table to represent all patients and their visits, and you used self-joins to generate reports. The server resource utilization was at 50%. Since then, the scope of the project has expanded. The database must now store 100 times more patient records. You can no longer run the reports, because they either take too long or they encounter errors with insufficient compute resources. How should you adjust the database design?

- A. Add capacity (memory and disk space) to the database server by the order of 200.
- B. Shard the tables into smaller ones based on date ranges, and only generate reports with prespecified date ranges.
- C. Normalize the master patient-record table into the patient table and the visits table, and create other necessary tables to avoid self-join.
- D. Partition the table into smaller tables, with one for each clinic
- E. Run queries against the smaller table pairs, and use unions for consolidated reports.

Answer: C

NEW QUESTION 39

- (Exam Topic 1)

Your company uses a proprietary system to send inventory data every 6 hours to a data ingestion service in the cloud. Transmitted data includes a payload of several fields and the timestamp of the transmission. If there are any concerns about a transmission, the system re-transmits the data. How should you deduplicate the data most efficiently?

- A. Assign global unique identifiers (GUID) to each data entry.
- B. Compute the hash value of each data entry, and compare it with all historical data.
- C. Store each data entry as the primary key in a separate database and apply an index.
- D. Maintain a database table to store the hash value and other metadata for each data entry.

Answer: D

NEW QUESTION 43

- (Exam Topic 1)

Your company built a TensorFlow neural-network model with a large number of neurons and layers. The model fits well for the training data. However, when tested against new data, it performs poorly. What method can you employ to address this?

- A. Threading
- B. Serialization
- C. Dropout Methods
- D. Dimensionality Reduction

Answer: C

Explanation:

Reference

<https://medium.com/mlreview/a-simple-deep-learning-model-for-stock-price-prediction-using-tensorflow-30505>

NEW QUESTION 46

- (Exam Topic 2)

Flowlogistic's CEO wants to gain rapid insight into their customer base so his sales team can be better informed in the field. This team is not very technical, so they've purchased a visualization tool to simplify the creation of BigQuery reports. However, they've been overwhelmed by all the data in the table, and are spending a lot of money on queries trying to find the data they need. You want to solve their problem in the most cost-effective way. What should you do?

- A. Export the data into a Google Sheet for virtualization.
- B. Create an additional table with only the necessary columns.
- C. Create a view on the table to present to the virtualization tool.
- D. Create identity and access management (IAM) roles on the appropriate columns, so only they appear in a query.

Answer: C

NEW QUESTION 49

- (Exam Topic 2)

Flowlogistic wants to use Google BigQuery as their primary analysis system, but they still have Apache Hadoop and Spark workloads that they cannot move to BigQuery. Flowlogistic does not know how to store the data that is common to both workloads. What should they do?

- A. Store the common data in BigQuery as partitioned tables.
- B. Store the common data in BigQuery and expose authorized views.
- C. Store the common data encoded as Avro in Google Cloud Storage.
- D. Store the common data in the HDFS storage for a Google Cloud Dataproc cluster.

Answer: B

NEW QUESTION 54

- (Exam Topic 3)

You need to compose visualization for operations teams with the following requirements:

- Telemetry must include data from all 50,000 installations for the most recent 6 weeks (sampling once every minute)
- The report must not be more than 3 hours delayed from live data.
- The actionable report should only show suboptimal links.

- Most suboptimal links should be sorted to the top.
- Suboptimal links can be grouped and filtered by regional geography.
- User response time to load the report must be <5 seconds.

You create a data source to store the last 6 weeks of data, and create visualizations that allow viewers to see multiple date ranges, distinct geographic regions, and unique installation types. You always show the latest data without any changes to your visualizations. You want to avoid creating and updating new visualizations each month. What should you do?

- A. Look through the current data and compose a series of charts and tables, one for each possible combination of criteria.
- B. Look through the current data and compose a small set of generalized charts and tables bound to criteria filters that allow value selection.
- C. Export the data to a spreadsheet, compose a series of charts and tables, one for each possible combination of criteria, and spread them across multiple tabs.
- D. Load the data into relational database tables, write a Google App Engine application that queries all rows, summarizes the data across each criteria, and then renders results using the Google Charts and visualization API.

Answer: B

NEW QUESTION 56

- (Exam Topic 3)

MJTelco's Google Cloud Dataflow pipeline is now ready to start receiving data from the 50,000 installations. You want to allow Cloud Dataflow to scale its compute power up as required. Which Cloud Dataflow pipeline configuration setting should you update?

- A. The zone
- B. The number of workers
- C. The disk size per worker
- D. The maximum number of workers

Answer: A

NEW QUESTION 61

- (Exam Topic 3)

Given the record streams MJTelco is interested in ingesting per day, they are concerned about the cost of Google BigQuery increasing. MJTelco asks you to provide a design solution. They require a single large data table called `tracking_table`. Additionally, they want to minimize the cost of daily queries while performing fine-grained analysis of each day's events. They also want to use streaming ingestion. What should you do?

- A. Create a table called `tracking_table` and include a `DATE` column.
- B. Create a partitioned table called `tracking_table` and include a `TIMESTAMP` column.
- C. Create sharded tables for each day following the pattern `tracking_table_YYYYMMDD`.
- D. Create a table called `tracking_table` with a `TIMESTAMP` column to represent the day.

Answer: B

NEW QUESTION 62

- (Exam Topic 4)

You are deploying a new storage system for your mobile application, which is a media streaming service. You decide the best fit is Google Cloud Datastore. You have entities with multiple properties, some of which can take on multiple values. For example, in the entity 'Movie' the property 'actors' and the property 'tags' have multiple values but the property 'date released' does not. A typical query would ask for all movies with `actor=<actorname>` ordered by `date_released` or all movies with `tag=Comedy` ordered by `date_released`. How should you avoid a combinatorial explosion in the number of indexes?

A. Manually configure the index in your index config as follows:

Indexes:

```
-kind: Movie
  Properties:
    -name: actors
    name: date_released
-kind: Movie
  Properties:
    -name: tags
    name: date_released
```

B. Manually configure the index in your index config as follows:

Indexes:

```
-kind: Movie
  Properties:
    -name: actors
    -name: tags
-name: date_published
```

C. Set the following in your entity options: `exclude_from_indexes = 'actors, tags'`

D. Set the following in your entity options: `exclude_from_indexes = 'date_published'`

- A. Option A
- B. Option B.
- C. Option C
- D. Option D

Answer: A

NEW QUESTION 67

- (Exam Topic 4)

You work for a large fast food restaurant chain with over 400,000 employees. You store employee information in Google BigQuery in a Users table consisting of a FirstName field and a LastName field. A member of IT is building an application and asks you to modify the schema and data in BigQuery so the application can query a FullName field consisting of the value of the FirstName field concatenated with a space, followed by the value of the LastName field for each employee. How can you make that data available while minimizing cost?

- A. Create a view in BigQuery that concatenates the FirstName and LastName field values to produce the FullName.
- B. Add a new column called FullName to the Users table
- C. Run an UPDATE statement that updates the FullName column for each user with the concatenation of the FirstName and LastName values.
- D. Create a Google Cloud Dataflow job that queries BigQuery for the entire Users table, concatenates the FirstName value and LastName value for each user, and loads the proper values for FirstName, LastName, and FullName into a new table in BigQuery.
- E. Use BigQuery to export the data for the table to a CSV file
- F. Create a Google Cloud Dataproc job to process the CSV file and output a new CSV file containing the proper values for FirstName, LastName and FullName
- G. Run a BigQuery load job to load the new CSV file into BigQuery.

Answer: C

NEW QUESTION 69

- (Exam Topic 4)

You are designing the database schema for a machine learning-based food ordering service that will predict what users want to eat. Here is some of the information you need to store:

- > The user profile: What the user likes and doesn't like to eat
- > The user account information: Name, address, preferred meal times
- > The order information: When orders are made, from where, to whom

The database will be used to store all the transactional data of the product. You want to optimize the data schema. Which Google Cloud Platform product should you use?

- A. BigQuery
- B. Cloud SQL
- C. Cloud Bigtable
- D. Cloud Datastore

Answer: A

NEW QUESTION 72

- (Exam Topic 4)

Your company has recently grown rapidly and now ingesting data at a significantly higher rate than it was previously. You manage the daily batch MapReduce analytics jobs in Apache Hadoop. However, the recent increase in data has meant the batch jobs are falling behind. You were asked to recommend ways the development team could increase the responsiveness of the analytics without increasing costs. What should you recommend they do?

- A. Rewrite the job in Pig.
- B. Rewrite the job in Apache Spark.
- C. Increase the size of the Hadoop cluster.
- D. Decrease the size of the Hadoop cluster but also rewrite the job in Hive.

Answer: A

NEW QUESTION 75

- (Exam Topic 5)

Which SQL keyword can be used to reduce the number of columns processed by BigQuery?

- A. BETWEEN
- B. WHERE
- C. SELECT
- D. LIMIT

Answer: C

Explanation:

SELECT allows you to query specific columns rather than the whole table.

LIMIT, BETWEEN, and WHERE clauses will not reduce the number of columns processed by BigQuery.

Reference:

https://cloud.google.com/bigquery/launch-checklist#architecture_design_and_development_checklist

NEW QUESTION 78

- (Exam Topic 5)

You are developing a software application using Google's Dataflow SDK, and want to use conditional, for loops and other complex programming structures to create a branching pipeline. Which component will be used for the data processing operation?

- A. PCollection
- B. Transform
- C. Pipeline
- D. Sink API

Answer: B

Explanation:

In Google Cloud, the Dataflow SDK provides a transform component. It is responsible for the data processing operation. You can use conditional, for loops, and other complex programming structure to create a branching pipeline.

Reference: <https://cloud.google.com/dataflow/model/programming-model>

NEW QUESTION 79

- (Exam Topic 5)

Which row keys are likely to cause a disproportionate number of reads and/or writes on a particular node in a Bigtable cluster (select 2 answers)?

- A. A sequential numeric ID
- B. A timestamp followed by a stock symbol
- C. A non-sequential numeric ID
- D. A stock symbol followed by a timestamp

Answer: AB

Explanation:

using a timestamp as the first element of a row key can cause a variety of problems.

In brief, when a row key for a time series includes a timestamp, all of your writes will target a single node; fill that node; and then move onto the next node in the cluster, resulting in hotspotting.

Suppose your system assigns a numeric ID to each of your application's users. You might be tempted to use the user's numeric ID as the row key for your table. However, since new users are more likely to be active users, this approach is likely to push most of your traffic to a small number of nodes.

[<https://cloud.google.com/bigtable/docs/schema-design>]

Reference:

https://cloud.google.com/bigtable/docs/schema-design-time-series#ensure_that_your_row_key_avoids_hotspotti

NEW QUESTION 82

- (Exam Topic 5)

How would you query specific partitions in a BigQuery table?

- A. Use the DAY column in the WHERE clause
- B. Use the EXTRACT(DAY) clause
- C. Use the __PARTITIONTIME pseudo-column in the WHERE clause
- D. Use DATE BETWEEN in the WHERE clause

Answer: C

Explanation:

Partitioned tables include a pseudo column named `_PARTITIONTIME` that contains a date-based timestamp for data loaded into the table. To limit a query to particular partitions (such as Jan 1st and 2nd of 2017), use a clause similar to this:

```
WHERE _PARTITIONTIME BETWEEN TIMESTAMP('2017-01-01') AND TIMESTAMP('2017-01-02')
```

Reference: https://cloud.google.com/bigquery/docs/partitioned-tables#the_partitiontime_pseudo_column

NEW QUESTION 86

- (Exam Topic 5)

What are two methods that can be used to denormalize tables in BigQuery?

- A. 1) Split table into multiple tables; 2) Use a partitioned table
- B. 1) Join tables into one table; 2) Use nested repeated fields
- C. 1) Use a partitioned table; 2) Join tables into one table
- D. 1) Use nested repeated fields; 2) Use a partitioned table

Answer: B

Explanation:

The conventional method of denormalizing data involves simply writing a fact, along with all its dimensions, into a flat table structure. For example, if you are dealing with sales transactions, you would write each individual fact to a record, along with the accompanying dimensions such as order and customer information. The other method for denormalizing data takes advantage of BigQuery's native support for nested and repeated structures in JSON or Avro input data. Expressing records using nested and repeated structures can provide a more natural representation of the underlying data. In the case of the sales order, the outer part of a JSON structure would contain the order and customer information, and the inner part of the structure would contain the individual line items of the order, which would be represented as nested, repeated elements.

Reference: https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing_data

NEW QUESTION 88

- (Exam Topic 5)

What Dataflow concept determines when a Window's contents should be output based on certain criteria being met?

- A. Sessions
- B. OutputCriteria
- C. Windows
- D. Triggers

Answer: D

Explanation:

Triggers control when the elements for a specific key and window are output. As elements arrive, they are put into one or more windows by a Window transform and its associated WindowFn, and then passed to the associated Trigger to determine if the Windows contents should be output.

Reference:

<https://cloud.google.com/dataflow/java-sdk/JavaDoc/com/google/cloud/dataflow/sdk/transforms/windowing/Tri>

NEW QUESTION 93

- (Exam Topic 5)

To give a user read permission for only the first three columns of a table, which access control method would you use?

- A. Primitive role
- B. Predefined role
- C. Authorized view
- D. It's not possible to give access to only the first three columns of a table.

Answer: C

Explanation:

An authorized view allows you to share query results with particular users and groups without giving them read access to the underlying tables. Authorized views can only be created in a dataset that does not contain the tables queried by the view.

When you create an authorized view, you use the view's SQL query to restrict access to only the rows and columns you want the users to see.

Reference: <https://cloud.google.com/bigquery/docs/views#authorized-views>

NEW QUESTION 97

- (Exam Topic 5)

Which of the following is not possible using primitive roles?

- A. Give a user viewer access to BigQuery and owner access to Google Compute Engine instances.
- B. Give UserA owner access and UserB editor access for all datasets in a project.
- C. Give a user access to view all datasets in a project, but not run queries on them.
- D. Give GroupA owner access and GroupB editor access for all datasets in a project.

Answer: C

Explanation:

Primitive roles can be used to give owner, editor, or viewer access to a user or group, but they can't be used to separate data access permissions from job-running permissions.

Reference: https://cloud.google.com/bigquery/docs/access-control#primitive_iam_roles

NEW QUESTION 99

- (Exam Topic 5)

What is the HBase Shell for Cloud Bigtable?

- A. The HBase shell is a GUI based interface that performs administrative tasks, such as creating and deleting tables.
- B. The HBase shell is a command-line tool that performs administrative tasks, such as creating and deleting tables.
- C. The HBase shell is a hypervisor based shell that performs administrative tasks, such as creating and deleting new virtualized instances.
- D. The HBase shell is a command-line tool that performs only user account management functions to grant access to Cloud Bigtable instances.

Answer: B

Explanation:

The HBase shell is a command-line tool that performs administrative tasks, such as creating and deleting tables. The Cloud Bigtable HBase client for Java makes it possible to use the HBase shell to connect to Cloud Bigtable.

Reference: <https://cloud.google.com/bigtable/docs/installing-hbase-shell>

NEW QUESTION 101

- (Exam Topic 5)

What are the minimum permissions needed for a service account used with Google Dataproc?

- A. Execute to Google Cloud Storage; write to Google Cloud Logging
- B. Write to Google Cloud Storage; read to Google Cloud Logging
- C. Execute to Google Cloud Storage; execute to Google Cloud Logging
- D. Read and write to Google Cloud Storage; write to Google Cloud Logging

Answer: D

Explanation:

Service accounts authenticate applications running on your virtual machine instances to other Google Cloud Platform services. For example, if you write an application that reads and writes files on Google Cloud Storage, it must first authenticate to the Google Cloud Storage API. At a minimum, service accounts used with Cloud Dataproc need permissions to read and write to Google Cloud Storage, and to write to Google Cloud Logging.

Reference: https://cloud.google.com/dataproc/docs/concepts/service-accounts#important_notes

NEW QUESTION 102

- (Exam Topic 5)

When you design a Google Cloud Bigtable schema it is recommended that you .

- A. Avoid schema designs that are based on NoSQL concepts
- B. Create schema designs that are based on a relational database design
- C. Avoid schema designs that require atomicity across rows
- D. Create schema designs that require atomicity across rows

Answer: C

Explanation:

All operations are atomic at the row level. For example, if you update two rows in a table, it's possible that one row will be updated successfully and the other update will fail. Avoid schema designs that require atomicity across rows.

Reference: <https://cloud.google.com/bigtable/docs/schema-design#row-keys>

NEW QUESTION 104

- (Exam Topic 5)

Which software libraries are supported by Cloud Machine Learning Engine?

- A. Theano and TensorFlow
- B. Theano and Torch
- C. TensorFlow
- D. TensorFlow and Torch

Answer: C

Explanation:

Cloud ML Engine mainly does two things:

Enables you to train machine learning models at scale by running TensorFlow training applications in the cloud.

Hosts those trained models for you in the cloud so that you can use them to get predictions about new data.

Reference: https://cloud.google.com/ml-engine/docs/technical-overview#what_it_does

NEW QUESTION 105

- (Exam Topic 5)

Which of these rules apply when you add preemptible workers to a Dataproc cluster (select 2 answers)?

- A. Preemptible workers cannot use persistent disk.
- B. Preemptible workers cannot store data.
- C. If a preemptible worker is reclaimed, then a replacement worker must be added manually.
- D. A Dataproc cluster cannot have only preemptible workers.

Answer: BD

Explanation:

The following rules will apply when you use preemptible workers with a Cloud Dataproc cluster: Processing only—Since preemptibles can be reclaimed at any time,

preemptible workers do not store data.

Preemptibles added to a Cloud Dataproc cluster only function as processing nodes.

No preemptible-only clusters—To ensure clusters do not lose all workers, Cloud Dataproc cannot create preemptible-only clusters.

Persistent disk size—As a default, all preemptible workers are created with the smaller of 100GB or the primary worker boot disk size. This disk space is used for local caching of data and is not available through HDFS.

The managed group automatically re-adds workers lost due to reclamation as capacity permits. Reference:

<https://cloud.google.com/dataproc/docs/concepts/preemptible-vm>s

NEW QUESTION 108

- (Exam Topic 5)

Which of the following is NOT one of the three main types of triggers that Dataflow supports?

- A. Trigger based on element size in bytes
- B. Trigger that is a combination of other triggers
- C. Trigger based on element count
- D. Trigger based on time

Answer: A

Explanation:

There are three major kinds of triggers that Dataflow supports: 1. Time-based triggers 2. Data-driven triggers. You can set a trigger to emit results from a window when that window has received a certain number of data elements. 3. Composite triggers. These triggers combine multiple time-based or data-driven triggers in some logical way

Reference: <https://cloud.google.com/dataflow/model/triggers>

NEW QUESTION 111

- (Exam Topic 5)

Why do you need to split a machine learning dataset into training data and test data?

- A. So you can try two different sets of features
- B. To make sure your model is generalized for more than just the training data
- C. To allow you to create unit tests in your code
- D. So you can use one dataset for a wide model and one for a deep model

Answer: B

Explanation:

The flaw with evaluating a predictive model on training data is that it does not inform you on how well the model has generalized to new unseen data. A model that is selected for its accuracy on the training dataset rather than its accuracy on an unseen test dataset is very likely to have lower accuracy on an unseen test dataset. The reason is that the model is not as generalized. It has specialized to the structure in the training dataset. This is called overfitting.

Reference: <https://machinelearningmastery.com/a-simple-intuition-for-overfitting/>

NEW QUESTION 116

- (Exam Topic 5)

When creating a new Cloud Dataproc cluster with the `projects.regions.clusters.create` operation, these four values are required: project, region, name, and .

- A. zone
- B. node
- C. label
- D. type

Answer: A

Explanation:

At a minimum, you must specify four values when creating a new cluster with the `projects.regions.clusters.create` operation:

The project in which the cluster will be created

The region to use

The name of the cluster

The zone in which the cluster will be created

You can specify many more details beyond these minimum requirements. For example, you can

also specify the number of workers, whether preemptible compute should be used, and the network settings. Reference:

https://cloud.google.com/dataproc/docs/tutorials/python-library-example#create_a_new_cloud_dataproc_cluste

NEW QUESTION 118

- (Exam Topic 5)

Which of these is not a supported method of putting data into a partitioned table?

- A. If you have existing data in a separate file for each day, then create a partitioned table and upload each file into the appropriate partition.
- B. Run a query to get the records for a specific day from an existing table and for the destination table, specify a partitioned table ending with the day in the format "\$YYYYMMDD".
- C. Create a partitioned table and stream new records to it every day.
- D. Use ORDER BY to put a table's rows into chronological order and then change the table's type to "Partitioned".

Answer: D

Explanation:

You cannot change an existing table into a partitioned table. You must create a partitioned table from scratch. Then you can either stream data into it every day and the data will automatically be put in the right partition, or you can load data into a specific partition by using "\$YYYYMMDD" at the end of the table name.

Reference: <https://cloud.google.com/bigquery/docs/partitioned-tables>

NEW QUESTION 122

- (Exam Topic 5)

What is the general recommendation when designing your row keys for a Cloud Bigtable schema?

- A. Include multiple time series values within the row key
- B. Keep the row key as an 8 bit integer
- C. Keep your row key reasonably short
- D. Keep your row key as long as the field permits

Answer: C

Explanation:

A general guide is to, keep your row keys reasonably short. Long row keys take up additional memory and storage and increase the time it takes to get responses from the Cloud Bigtable server.

Reference: <https://cloud.google.com/bigtable/docs/schema-design#row-keys>

NEW QUESTION 126

- (Exam Topic 5)

Suppose you have a dataset of images that are each labeled as to whether or not they contain a human face. To create a neural network that recognizes human faces in images using this labeled dataset, what approach would likely be the most effective?

- A. Use K-means Clustering to detect faces in the pixels.
- B. Use feature engineering to add features for eyes, noses, and mouths to the input data.
- C. Use deep learning by creating a neural network with multiple hidden layers to automatically detect features of faces.
- D. Build a neural network with an input layer of pixels, a hidden layer, and an output layer with two categories.

Answer: C

Explanation:

Traditional machine learning relies on shallow nets, composed of one input and one output layer, and at most one hidden layer in between. More than three layers (including input and output) qualifies as "deep" learning. So deep is a strictly defined, technical term that means more than one hidden layer.

In deep-learning networks, each layer of nodes trains on a distinct set of features based on the previous layer's output. The further you advance into the neural net, the more complex the features your nodes can recognize, since they aggregate and recombine features from the previous layer.

A neural network with only one hidden layer would be unable to automatically recognize high-level features of faces, such as eyes, because it wouldn't be able to "build" these features using previous hidden layers that detect low-level features, such as lines.

Feature engineering is difficult to perform on raw image data.

K-means Clustering is an unsupervised learning method used to categorize unlabeled data. Reference: <https://deeplearning4j.org/neuralnet-overview>

NEW QUESTION 127

- (Exam Topic 5)

What are two of the benefits of using denormalized data structures in BigQuery?

- A. Reduces the amount of data processed, reduces the amount of storage required
- B. Increases query speed, makes queries simpler
- C. Reduces the amount of storage required, increases query speed
- D. Reduces the amount of data processed, increases query speed

Answer: B

Explanation:

Denormalization increases query speed for tables with billions of rows because BigQuery's performance degrades when doing JOINS on large tables, but with a denormalized data

structure, you don't have to use JOINS, since all of the data has been combined into one table. Denormalization also makes queries simpler because you do not have to use JOIN clauses.

Denormalization increases the amount of data processed and the amount of storage required because it creates redundant data.

Reference:

https://cloud.google.com/solutions/bigquery-data-warehouse#denormalizing_data

NEW QUESTION 131

- (Exam Topic 5)

Does Dataflow process batch data pipelines or streaming data pipelines?

- A. Only Batch Data Pipelines
- B. Both Batch and Streaming Data Pipelines
- C. Only Streaming Data Pipelines
- D. None of the above

Answer: B

Explanation:

Dataflow is a unified processing model, and can execute both streaming and batch data pipelines Reference: <https://cloud.google.com/dataflow/>

NEW QUESTION 133

- (Exam Topic 5)

If you want to create a machine learning model that predicts the price of a particular stock based on its recent price history, what type of estimator should you use?

- A. Unsupervised learning
- B. Regressor
- C. Classifier

D. Clustering estimator

Answer: B

Explanation:

Regression is the supervised learning task for modeling and predicting continuous, numeric variables. Examples include predicting real-estate prices, stock price movements, or student test scores.
Classification is the supervised learning task for modeling and predicting categorical variables. Examples include predicting employee churn, email spam, financial fraud, or student letter grades.
Clustering is an unsupervised learning task for finding natural groupings of observations (i.e. clusters) based on the inherent structure within your dataset. Examples include customer segmentation, grouping similar items in e-commerce, and social network analysis.
Reference: <https://elitedatascience.com/machine-learning-algorithms>

NEW QUESTION 138

- (Exam Topic 5)

Which role must be assigned to a service account used by the virtual machines in a Dataproc cluster so they can execute jobs?

- A. Dataproc Worker
- B. Dataproc Viewer
- C. Dataproc Runner
- D. Dataproc Editor

Answer: A

Explanation:

Service accounts used with Cloud Dataproc must have Dataproc/Dataproc Worker role (or have all the permissions granted by Dataproc Worker role).
Reference: https://cloud.google.com/dataproc/docs/concepts/service-accounts#important_notes

NEW QUESTION 142

- (Exam Topic 5)

Which of these operations can you perform from the BigQuery Web UI?

- A. Upload a file in SQL format.
- B. Load data with nested and repeated fields.
- C. Upload a 20 MB file.
- D. Upload multiple files using a wildcard.

Answer: B

Explanation:

You can load data with nested and repeated fields using the Web UI. You cannot use the Web UI to:
- Upload a file greater than 10 MB in size
- Upload multiple files at the same time
- Upload a file in SQL format
All three of the above operations can be performed using the "bq" command. Reference: <https://cloud.google.com/bigquery/loading-data>

NEW QUESTION 147

- (Exam Topic 5)

What is the recommended action to do in order to switch between SSD and HDD storage for your Google Cloud Bigtable instance?

- A. create a third instance and sync the data from the two storage types via batch jobs
- B. export the data from the existing instance and import the data into a new instance
- C. run parallel instances where one is HDD and the other is SDD
- D. the selection is final and you must resume using the same storage type

Answer: B

Explanation:

When you create a Cloud Bigtable instance and cluster, your choice of SSD or HDD storage for the cluster is permanent. You cannot use the Google Cloud Platform Console to change the type of storage that is used for the cluster.
If you need to convert an existing HDD cluster to SSD, or vice-versa, you can export the data from the existing instance and import the data into a new instance. Alternatively, you can write a Cloud Dataflow or Hadoop MapReduce job that copies the data from one instance to another. Reference: <https://cloud.google.com/bigtable/docs/choosing-ssd-hdd->

NEW QUESTION 151

- (Exam Topic 5)

If you're running a performance test that depends upon Cloud Bigtable, all the choices except one below are recommended steps. Which is NOT a recommended step to follow?

- A. Do not use a production instance.
- B. Run your test for at least 10 minutes.
- C. Before you test, run a heavy pre-test for several minutes.
- D. Use at least 300 GB of data.

Answer: A

Explanation:

If you're running a performance test that depends upon Cloud Bigtable, be sure to follow these steps as you plan and execute your test:
Use a production instance. A development instance will not give you an accurate sense of how a production instance performs under load.
Use at least 300 GB of data. Cloud Bigtable performs best with 1 TB or more of data. However, 300 GB of data is enough to provide reasonable results in a performance test on a 3-node cluster. On larger clusters, use 100 GB of data per node.
Before you test, run a heavy pre-test for several minutes. This step gives Cloud Bigtable a chance to balance data across your nodes based on the access patterns it observes.
Run your test for at least 10 minutes. This step lets Cloud Bigtable further optimize your data, and it helps ensure that you will test reads from disk as well as cached reads from memory.
Reference: <https://cloud.google.com/bigtable/docs/performance>

NEW QUESTION 155

- (Exam Topic 5)

Which of the following statements is NOT true regarding Bigtable access roles?

- A. Using IAM roles, you cannot give a user access to only one table in a project, rather than all tables in a project.
- B. To give a user access to only one table in a project, grant the user the Bigtable Editor role for that table.
- C. You can configure access control only at the project level.
- D. To give a user access to only one table in a project, you must configure access through your application.

Answer: B

Explanation:

For Cloud Bigtable, you can configure access control at the project level. For example, you can grant the ability to:
Read from, but not write to, any table within the project.

Read from and write to any table within the project, but not manage instances. Read from and write to any table within the project, and manage instances.

Reference: <https://cloud.google.com/bigtable/docs/access-control>

NEW QUESTION 156

- (Exam Topic 5)

Which Google Cloud Platform service is an alternative to Hadoop with Hive?

- A. Cloud Dataflow
- B. Cloud Bigtable
- C. BigQuery
- D. Cloud Datastore

Answer: C

Explanation:

Apache Hive is a data warehouse software project built on top of Apache Hadoop for providing data summarization, query, and analysis.

Google BigQuery is an enterprise data warehouse. Reference: https://en.wikipedia.org/wiki/Apache_Hive

NEW QUESTION 158

- (Exam Topic 5)

Which of the following statements about Legacy SQL and Standard SQL is not true?

- A. Standard SQL is the preferred query language for BigQuery.
- B. If you write a query in Legacy SQL, it might generate an error if you try to run it with Standard SQL.
- C. One difference between the two query languages is how you specify fully-qualified table names (i.e. table names that include their associated project name).
- D. You need to set a query language for each dataset and the default is Standard SQL.

Answer: D

Explanation:

You do not set a query language for each dataset. It is set each time you run a query and the default query language is Legacy SQL.

Standard SQL has been the preferred query language since BigQuery 2.0 was released.

In legacy SQL, to query a table with a project-qualified name, you use a colon, :, as a separator. In standard SQL, you use a period, ., instead.

Due to the differences in syntax between the two query languages (such as with project-qualified table names), if you write a query in Legacy SQL, it might generate an error if you try to run it with Standard SQL.

Reference:

<https://cloud.google.com/bigquery/docs/reference/standard-sql/migrating-from-legacy-sql>

NEW QUESTION 159

- (Exam Topic 5)

When using Cloud Dataproc clusters, you can access the YARN web interface by configuring a browser to connect through a proxy.

- A. HTTPS
- B. VPN
- C. SOCKS
- D. HTTP

Answer: C

Explanation:

When using Cloud Dataproc clusters, configure your browser to use the SOCKS proxy. The SOCKS proxy routes data intended for the Cloud Dataproc cluster through an SSH tunnel.

Reference: <https://cloud.google.com/dataproc/docs/concepts/cluster-web-interfaces#interfaces>

NEW QUESTION 163

- (Exam Topic 6)

You use a dataset in BigQuery for analysis. You want to provide third-party companies with access to the same dataset. You need to keep the costs of data sharing low and ensure that the data is current. Which solution should you choose?

- A. Create an authorized view on the BigQuery table to control data access, and provide third-party companies with access to that view.
- B. Use Cloud Scheduler to export the data on a regular basis to Cloud Storage, and provide third-party companies with access to the bucket.
- C. Create a separate dataset in BigQuery that contains the relevant data to share, and provide third-party companies with access to the new dataset.
- D. Create a Cloud Dataflow job that reads the data in frequent time intervals, and writes it to the relevant BigQuery dataset or Cloud Storage bucket for third-party companies to use.

Answer: B

NEW QUESTION 165

- (Exam Topic 6)

An online retailer has built their current application on Google App Engine. A new initiative at the company mandates that they extend their application to allow their customers to transact directly via the application.

They need to manage their shopping transactions and analyze combined data from multiple datasets using a business intelligence (BI) tool. They want to use only a single database for this purpose. Which Google Cloud database should they choose?

- A. BigQuery
- B. Cloud SQL
- C. Cloud BigTable
- D. Cloud Datastore

Answer: C

Explanation:

Reference: <https://cloud.google.com/solutions/business-intelligence/>

NEW QUESTION 167

- (Exam Topic 6)

You have Cloud Functions written in Node.js that pull messages from Cloud Pub/Sub and send the data to BigQuery. You observe that the message processing rate on the Pub/Sub topic is orders of magnitude higher than anticipated, but there is no error logged in Stackdriver Log Viewer. What are the two most likely causes of this problem? Choose 2 answers.

- A. Publisher throughput quota is too small.
- B. Total outstanding messages exceed the 10-MB maximum.
- C. Error handling in the subscriber code is not handling run-time errors properly.
- D. The subscriber code cannot keep up with the messages.
- E. The subscriber code does not acknowledge the messages that it pulls.

Answer: CD

NEW QUESTION 168

- (Exam Topic 6)

Your company is selecting a system to centralize data ingestion and delivery. You are considering messaging and data integration systems to address the requirements. The key requirements are:

- > The ability to seek to a particular offset in a topic, possibly back to the start of all data ever captured
- > Support for publish/subscribe semantics on hundreds of topics
- > Retain per-key ordering

Which system should you choose?

- A. Apache Kafka
- B. Cloud Storage
- C. Cloud Pub/Sub
- D. Firebase Cloud Messaging

Answer: A

NEW QUESTION 172

- (Exam Topic 6)

You are building a new application that you need to collect data from in a scalable way. Data arrives continuously from the application throughout the day, and you expect to generate approximately 150 GB of JSON data per day by the end of the year. Your requirements are:

- > Decoupling producer from consumer
- > Space and cost-efficient storage of the raw ingested data, which is to be stored indefinitely
- > Near real-time SQL query
- > Maintain at least 2 years of historical data, which will be queried with SQ Which pipeline should you use to meet these requirements?

- A. Create an application that provides an AP
- B. Write a tool to poll the API and write data to Cloud Storage as gzipped JSON files.
- C. Create an application that writes to a Cloud SQL database to store the dat
- D. Set up periodic exports of the database to write to Cloud Storage and load into BigQuery.
- E. Create an application that publishes events to Cloud Pub/Sub, and create Spark jobs on Cloud Dataproc to convert the JSON data to Avro format, stored on HDFS on Persistent Disk.
- F. Create an application that publishes events to Cloud Pub/Sub, and create a Cloud Dataflow pipeline that transforms the JSON event payloads to Avro, writing

the data to Cloud Storage and BigQuery.

Answer: A

NEW QUESTION 174

- (Exam Topic 6)

You need to set access to BigQuery for different departments within your company. Your solution should comply with the following requirements:

- Each department should have access only to their data.
- Each department will have one or more leads who need to be able to create and update tables and provide them to their team.
- Each department has data analysts who need to be able to query but not modify data. How should you set access to the data in BigQuery?

- A. Create a dataset for each department
- B. Assign the department leads the role of OWNER, and assign the data analysts the role of WRITER on their dataset.
- C. Create a dataset for each department
- D. Assign the department leads the role of WRITER, and assign the data analysts the role of READER on their dataset.
- E. Create a table for each department
- F. Assign the department leads the role of Owner, and assign the data analysts the role of Editor on the project the table is in.
- G. Create a table for each department
- H. Assign the department leads the role of Editor, and assign the data analysts the role of Viewer on the project the table is in.

Answer: D

NEW QUESTION 175

- (Exam Topic 6)

You are migrating a table to BigQuery and are deciding on the data model. Your table stores information related to purchases made across several store locations and includes information like the time of the transaction, items purchased, the store ID and the city and state in which the store is located. You frequently query this table to see how many of each item were sold over the past 30 days and to look at purchasing trends by state, city, and individual store. You want to model this table to minimize query time and cost. What should you do?

- A. Partition by transaction time; cluster by state first, then city then store ID
- B. Partition by transaction time; cluster by store ID first, then city, then state
- C. Top-level cluster by state first, then city then store
- D. Top-level cluster by store ID first, then city then state.

Answer: C

NEW QUESTION 177

- (Exam Topic 6)

You need to migrate a 2TB relational database to Google Cloud Platform. You do not have the resources to significantly refactor the application that uses this database and cost to operate is of primary concern.

Which service do you select for storing and serving your data?

- A. Cloud Spanner
- B. Cloud Bigtable
- C. Cloud Firestore
- D. Cloud SQL

Answer: D

NEW QUESTION 182

- (Exam Topic 6)

You need ads data to serve AI models and historical data for analytics. Longtail and outlier data points need to be identified. You want to cleanse the data in near-real time before running it through AI models. What should you do?

- A. Use BigQuery to ingest, prepare, and then analyze the data and then run queries to create views
- B. Use Cloud Storage as a data warehouse, shell scripts for processing, and BigQuery to create views for desired datasets
- C. Use Dataflow to identify longtail and outlier data points programmatically with BigQuery as a sink
- D. Use Cloud Composer to identify longtail and outlier data points, and then output a usable dataset to BigQuery

Answer: A

NEW QUESTION 185

- (Exam Topic 6)

You work on a regression problem in a natural language processing domain, and you have 100M labeled examples in your dataset. You have randomly shuffled your data and split your dataset into train and test samples (in a 90/10 ratio). After you trained the neural network and evaluated your model on a test set, you discover that the root-mean-squared error (RMSE) of your model is twice as high on the train set as on the test set. How should you improve the performance of your model?

- A. Increase the share of the test sample in the train-test split.
- B. Try to collect more data and increase the size of your dataset.
- C. Try out regularization techniques (e.g., dropout, batch normalization) to avoid overfitting.
- D. Increase the complexity of your model by, e.g., introducing an additional layer or increase the size of vocabularies or n-grams used.

Answer: D

NEW QUESTION 186

- (Exam Topic 6)

You architect a system to analyze seismic data. Your extract, transform, and load (ETL) process runs as a series of MapReduce jobs on an Apache Hadoop cluster. The ETL process takes days to process a data set because some steps are computationally expensive. Then you discover that a sensor calibration step has been omitted. How should you change your ETL process to carry out sensor calibration systematically in the future?

- A. Modify the transformMapReduce jobs to apply sensor calibration before they do anything else.
- B. Introduce a new MapReduce job to apply sensor calibration to raw data, and ensure all other MapReduce jobs are chained after this.
- C. Add sensor calibration data to the output of the ETL process, and document that all users need to apply sensor calibration themselves.
- D. Develop an algorithm through simulation to predict variance of data output from the last MapReduce job based on calibration factors, and apply the correction to all data.

Answer: A

NEW QUESTION 188

- (Exam Topic 6)

Government regulations in the banking industry mandate the protection of client's personally identifiable information (PII). Your company requires PII to be access controlled encrypted and compliant with major data protection standards In addition to using Cloud Data Loss Prevention (Cloud DIP) you want to follow Google-recommended practices and use service accounts to control access to PII. What should you do?

- A. Assign the required identity and Access Management (IAM) roles to every employee, and create a single service account to access protect resources
- B. Use one service account to access a Cloud SQL database and use separate service accounts for each human user
- C. Use Cloud Storage to comply with major data protection standard
- D. Use one service account shared by all users
- E. Use Cloud Storage to comply with major data protection standard
- F. Use multiple service accounts attached to IAM groups to grant the appropriate access to each group

Answer: D

NEW QUESTION 191

- (Exam Topic 6)

You are building a teal-lime prediction engine that streams files, which may contain PII (personal identifiable information) data, into Cloud Storage and eventually into BigQuery You want to ensure that the sensitive data is masked but still maintains referential Integrity, because names and emails are often used as join keys How should you use the Cloud Data Loss Prevention API (DLP API) to ensure that the PII data is not accessible by unauthorized individuals?

- A. Create a pseudonym by replacing the PII data with cryptogenic tokens, and store the non-tokenized data in a locked-down button.
- B. Redact all PII data, and store a version of the unredacted data in a locked-down bucket
- C. Scan every table in BigQuery, and mask the data it finds that has PII
- D. Create a pseudonym by replacing PII data with a cryptographic format-preserving token

Answer: A

NEW QUESTION 194

- (Exam Topic 6)

You are updating the code for a subscriber to a Put/Sub feed. You are concerned that upon deployment the subscriber may erroneously acknowledge messages, leading to message loss. You subscriber is not set up to retain acknowledged messages. What should you do to ensure that you can recover from errors after deployment?

- A. Use Cloud Build for your deployment if an error occurs after deployment, use a Seek operation to locate a timestamp logged by Cloud Build at the start of the deployment
- B. Create a Pub/Sub snapshot before deploying new subscriber cod
- C. Use a Seek operation to re-deliver messages that became available after the snapshot was created
- D. Set up the Pub/Sub emulator on your local machine Validate the behavior of your new subscriber togs before deploying it to production
- E. Enable dead-lettering on the Pub/Sub topic to capture messages that aren't successful acknowledged if an error occurs after deployment, re-deliver any messages captured by the dead-letter queue

Answer: B

NEW QUESTION 195

- (Exam Topic 6)

You are creating a new pipeline in Google Cloud to stream IoT data from Cloud Pub/Sub through Cloud Dataflow to BigQuery. While previewing the data, you notice that roughly 2% of the data appears to be corrupt. You need to modify the Cloud Dataflow pipeline to filter out this corrupt data. What should you do?

- A. Add a SideInput that returns a Boolean if the element is corrupt.
- B. Add a ParDo transform in Cloud Dataflow to discard corrupt elements.
- C. Add a Partition transform in Cloud Dataflow to separate valid data from corrupt data.
- D. Add a GroupByKey transform in Cloud Dataflow to group all of the valid data together and discard the rest.

Answer: B

NEW QUESTION 197

- (Exam Topic 6)

You have data pipelines running on BigQuery, Cloud Dataflow, and Cloud Dataproc. You need to perform health checks and monitor their behavior, and then notify the team managing the pipelines if they fail. You also need to be able to work across multiple projects. Your preference is to use managed products of features of the platform. What should you do?

- A. Export the information to Cloud Stackdriver, and set up an Alerting policy
- B. Run a Virtual Machine in Compute Engine with Airflow, and export the information to Stackdriver
- C. Export the logs to BigQuery, and set up App Engine to read that information and send emails if you find a failure in the logs

D. Develop an App Engine application to consume logs using GCP API calls, and send emails if you find a failure in the logs

Answer: B

NEW QUESTION 198

- (Exam Topic 6)

You want to automate execution of a multi-step data pipeline running on Google Cloud. The pipeline includes Cloud Dataproc and Cloud Dataflow jobs that have multiple dependencies on each other. You want to use managed services where possible, and the pipeline will run every day. Which tool should you use?

- A. cron
- B. Cloud Composer
- C. Cloud Scheduler
- D. Workflow Templates on Cloud Dataproc

Answer: B

NEW QUESTION 200

- (Exam Topic 6)

You need to create a new transaction table in Cloud Spanner that stores product sales data. You are deciding what to use as a primary key. From a performance perspective, which strategy should you choose?

- A. The current epoch time
- B. A concatenation of the product name and the current epoch time
- C. A random universally unique identifier number (version 4 UUID)
- D. The original order identification number from the sales system, which is a monotonically increasing integer

Answer: C

NEW QUESTION 203

- (Exam Topic 6)

You have a data pipeline that writes data to Cloud Bigtable using well-designed row keys. You want to monitor your pipeline to determine when to increase the size of your Cloud Bigtable cluster. Which two actions can you take to accomplish this? Choose 2 answers.

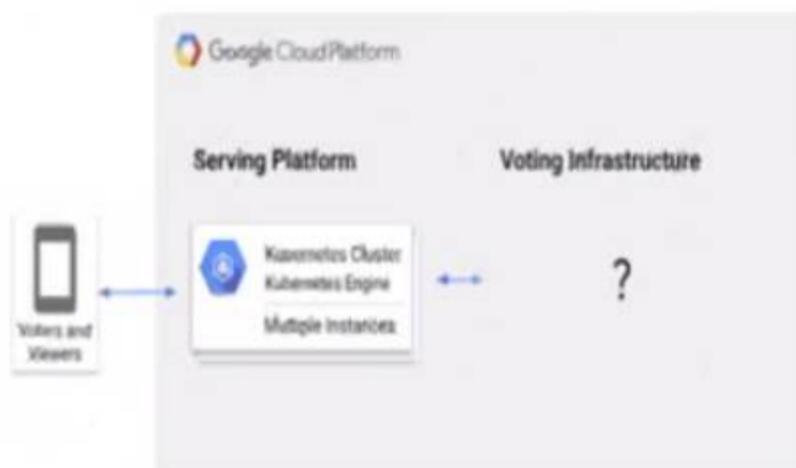
- A. Review Key Visualizer metric
- B. Increase the size of the Cloud Bigtable cluster when the Read pressure index is above 100.
- C. Review Key Visualizer metric
- D. Increase the size of the Cloud Bigtable cluster when the Write pressure index is above 100.
- E. Monitor the latency of write operation
- F. Increase the size of the Cloud Bigtable cluster when there is a sustained increase in write latency.
- G. Monitor storage utilization
- H. Increase the size of the Cloud Bigtable cluster when utilization increases above 70% of max capacity.
- I. Monitor latency of read operation
- J. Increase the size of the Cloud Bigtable cluster if read operations take longer than 100 ms.

Answer: AC

NEW QUESTION 205

- (Exam Topic 6)

A live TV show asks viewers to cast votes using their mobile phones. The event generates a large volume of data during a 3 minute period. You are in charge of the Voting restructure* and must ensure that the platform can handle the load and that all votes are processed. You must display partial results while voting is open. After voting ends you need to count the votes exactly once while optimizing cost. What should you do?



- A. Create a Memorystore instance with a high availability (HA) configuration
- B. Write votes to a Pub Sub topic and have Cloud Functions subscribe to it and write votes to BigQuery
- C. Write votes to a Pub/Sub topic and load into both Bigtable and BigQuery via a Dataflow pipeline Query Bigtable for real-time results and BigQuery for later analysis Shutdown the Bigtable instance when voting concludes
- D. Create a Cloud SQL for PostgreSQL database with high availability (HA) configuration and multiple read replicas

Answer: C

NEW QUESTION 208

- (Exam Topic 6)

An online brokerage company requires a high volume trade processing architecture. You need to create a secure queuing system that triggers jobs. The jobs will run in Google Cloud and call the company's Python API to execute trades. You need to efficiently implement a solution. What should you do?

- A. Use Cloud Composer to subscribe to a Pub/Sub topic and call the Python API.
- B. Use a Pub/Sub push subscription to trigger a Cloud Function to call the Python API.
- C. Write an application that makes a queue in a NoSQL database
- D. Write an application hosted on a Compute Engine instance that makes a push subscription to the Pub/Sub topic

Answer: C

NEW QUESTION 210

- (Exam Topic 6)

You operate an IoT pipeline built around Apache Kafka that normally receives around 5000 messages per second. You want to use Google Cloud Platform to create an alert as soon as the moving average over 1 hour drops below 4000 messages per second. What should you do?

- A. Consume the stream of data in Cloud Dataflow using Kafka I
- B. Set a sliding time window of 1 hour every 5 minute
- C. Compute the average when the window closes, and send an alert if the average is less than 4000 messages.
- D. Consume the stream of data in Cloud Dataflow using Kafka I
- E. Set a fixed time window of 1 hour. Compute the average when the window closes, and send an alert if the average is less than 4000 messages.
- F. Use Kafka Connect to link your Kafka message queue to Cloud Pub/Sub
- G. Use a Cloud Dataflow template to write your messages from Cloud Pub/Sub to Cloud Bigtable
- H. Use Cloud Scheduler to run a script every hour that counts the number of rows created in Cloud Bigtable in the last hour
- I. If that number falls below 4000, send an alert.
- J. Use Kafka Connect to link your Kafka message queue to Cloud Pub/Sub
- K. Use a Cloud Dataflow template to write your messages from Cloud Pub/Sub to BigQuery
- L. Use Cloud Scheduler to run a script every five minutes that counts the number of rows created in BigQuery in the last hour
- M. If that number falls below 4000, send an alert.

Answer: C

NEW QUESTION 211

- (Exam Topic 6)

You've migrated a Hadoop job from an on-prem cluster to Dataproc and GCS. Your Spark job is a complicated analytical workload that consists of many shuffling operations and initial data are parquet files (on average 200-400 MB size each). You see some degradation in performance after the migration to Dataproc, so you'd like to optimize for it. You need to keep in mind that your organization is very cost-sensitive, so you'd like to continue using Dataproc on preemptibles (with 2 non-preemptible workers only) for this workload. What should you do?

- A. Increase the size of your parquet files to ensure them to be 1 GB minimum.
- B. Switch to TFRecords formats (approx 200MB per file) instead of parquet files.
- C. Switch from HDDs to SSDs, copy initial data from GCS to HDFS, run the Spark job and copy results back to GCS.
- D. Switch from HDDs to SSDs, override the preemptible VMs configuration to increase the boot disk size.

Answer: A

NEW QUESTION 215

- (Exam Topic 6)

Your company is migrating its on-premises data warehousing solution to BigQuery. The existing data warehouse uses trigger-based change data capture (CDC) to apply daily updates from transactional database sources. Your company wants to use BigQuery to improve its handling of CDC and to optimize the performance of the data warehouse. Source system changes must be available for query in near-real time using log-based CDC streams. You need to ensure that changes in the BigQuery reporting table are available with minimal latency and reduced overhead. What should you do? Choose 2 answers

- A. Perform a DML INSERT, UPDATE, or DELETE to replicate each CDC record in the reporting table in real time.
- B. Periodically DELETE outdated records from the reporting table. Periodically use a DML MERGE to simultaneously perform DML INSERT, UPDATE, and DELETE operations in the reporting table
- C. Insert each new CDC record and corresponding operation type into a staging table in real time
- D. Insert each new CDC record and corresponding operation type into the reporting table in real time and use a materialized view to expose only the current version of each unique record.

Answer: BD

NEW QUESTION 216

- (Exam Topic 6)

You need to deploy additional dependencies to all of a Cloud Dataproc cluster at startup using an existing initialization action. Company security policies require that Cloud Dataproc nodes do not have access to the Internet so public initialization actions cannot fetch resources. What should you do?

- A. Deploy the Cloud SQL Proxy on the Cloud Dataproc master
- B. Use an SSH tunnel to give the Cloud Dataproc cluster access to the Internet
- C. Copy all dependencies to a Cloud Storage bucket within your VPC security perimeter
- D. Use Resource Manager to add the service account used by the Cloud Dataproc cluster to the Network User role

Answer: D

NEW QUESTION 218

- (Exam Topic 6)

You're training a model to predict housing prices based on an available dataset with real estate properties. Your plan is to train a fully connected neural net, and

you've discovered that the dataset contains latitude and longitude of the property. Real estate professionals have told you that the location of the property is highly influential on price, so you'd like to engineer a feature that incorporates this physical dependency. What should you do?

- A. Provide latitude and longitude as input vectors to your neural net.
- B. Create a numeric column from a feature cross of latitude and longitude.
- C. Create a feature cross of latitude and longitude, bucketize at the minute level and use L1 regularization during optimization.
- D. Create a feature cross of latitude and longitude, bucketize it at the minute level and use L2 regularization during optimization.

Answer: C

Explanation:

Reference <https://cloud.google.com/bigquery/docs/gis-data>

NEW QUESTION 219

- (Exam Topic 6)

You are migrating your data warehouse to BigQuery. You have migrated all of your data into tables in a dataset. Multiple users from your organization will be using the data. They should only see certain tables based on their team membership. How should you set user permissions?

- A. Assign the users/groups data viewer access at the table level for each table
- B. Create SQL views for each team in the same dataset in which the data resides, and assign the users/groups data viewer access to the SQL views
- C. Create authorized views for each team in the same dataset in which the data resides, and assign the users/groups data viewer access to the authorized views
- D. Create authorized views for each team in datasets created for each team
- E. Assign the authorized views data viewer access to the dataset in which the data reside
- F. Assign the users/groups data viewer access to the datasets in which the authorized views reside

Answer: A

NEW QUESTION 224

- (Exam Topic 6)

You work for a shipping company that has distribution centers where packages move on delivery lines to route them properly. The company wants to add cameras to the delivery lines to detect and track any visual damage to the packages in transit. You need to create a way to automate the detection of damaged packages and flag them for human review in real time while the packages are in transit. Which solution should you choose?

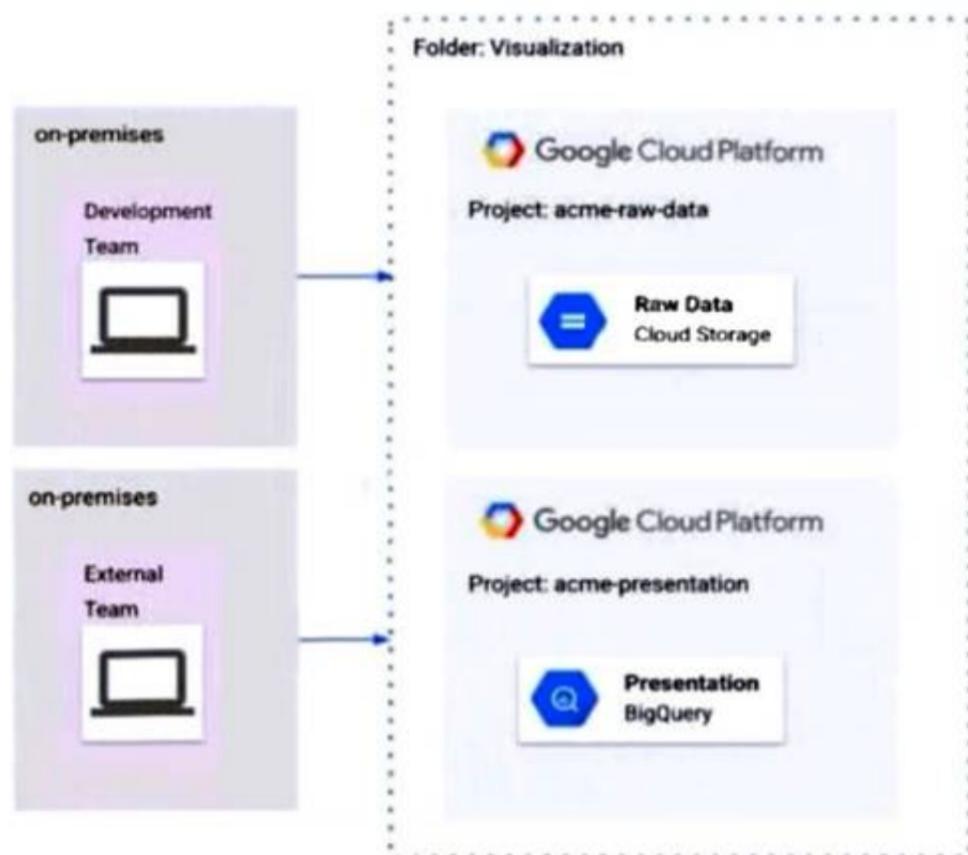
- A. Use BigQuery machine learning to be able to train the model at scale, so you can analyze the packages in batches.
- B. Train an AutoML model on your corpus of images, and build an API around that model to integrate with the package tracking applications.
- C. Use the Cloud Vision API to detect for damage, and raise an alert through Cloud Function
- D. Integrate the package tracking applications with this function.
- E. Use TensorFlow to create a model that is trained on your corpus of image
- F. Create a Python notebook in Cloud Datalab that uses this model so you can analyze for damaged packages.

Answer: A

NEW QUESTION 225

- (Exam Topic 6)

The Development and External teams have the project viewer Identity and Access Management (IAM) role in a folder named Visualization. You want the Development Team to be able to read data from both Cloud Storage and BigQuery, but the External Team should only be able to read data from BigQuery. What should you do?



- A. Remove Cloud Storage IAM permissions to the External Team on the acme-raw-data project
- B. Create Virtual Private Cloud (VPC) firewall rules on the acme-raw-data project that deny all Ingress traffic from the External Team CIDR range
- C. Create a VPC Service Controls perimeter containing both projects and BigQuery as a restricted API. Add the External Team users to the perimeter's Access

Level

- D. Create a VPC Service Controls perimeter containing both protects and Cloud Storage as a restricted AP
- E. Add the Development Team users to the perimeter's Access Level

Answer: C

NEW QUESTION 230

- (Exam Topic 6)

You need to give new website users a globally unique identifier (GUID) using a service that takes in data points and returns a GUID. This data is sourced from both internal and external systems via HTTP calls that you will make via microservices within your pipeline. There will be tens of thousands of messages per second and that can be multithreaded, and you worry about the backpressure on the system. How should you design your pipeline to minimize that backpressure?

- A. Call out to the service via HTTP
- B. Create the pipeline statically in the class definition
- C. Create a new object in the startBundle method of DoFn
- D. Batch the job into ten-second increments

Answer: A

NEW QUESTION 232

- (Exam Topic 6)

You are migrating an application that tracks library books and information about each book, such as author or year published, from an on-premises data warehouse to BigQuery. In your current relational database, the author information is kept in a separate table and joined to the book information on a common key. Based on Google's recommended practice for schema design, how would you structure the data to ensure optimal speed of queries about the author of each book that has been borrowed?

- A. Keep the schema the same, maintain the different tables for the book and each of the attributes, and query as you are doing today
- B. Create a table that is wide and includes a column for each attribute, including the author's first name, last name, date of birth, etc
- C. Create a table that includes information about the books and authors, but nest the author fields inside the author column
- D. Keep the schema the same, create a view that joins all of the tables, and always query the view

Answer: C

NEW QUESTION 236

- (Exam Topic 6)

An organization maintains a Google BigQuery dataset that contains tables with user-level data. They want to expose aggregates of this data to other Google Cloud projects, while still controlling access to the user-level data. Additionally, they need to minimize their overall storage cost and ensure the analysis cost for other projects is assigned to those projects. What should they do?

- A. Create and share an authorized view that provides the aggregate results.
- B. Create and share a new dataset and view that provides the aggregate results.
- C. Create and share a new dataset and table that contains the aggregate results.
- D. Create dataViewer Identity and Access Management (IAM) roles on the dataset to enable sharing.

Answer: D

Explanation:

Reference: <https://cloud.google.com/bigquery/docs/access-control>

NEW QUESTION 239

- (Exam Topic 6)

You receive data files in CSV format monthly from a third party. You need to cleanse this data, but every third month the schema of the files changes. Your requirements for implementing these transformations include:

- > Executing the transformations on a schedule
- > Enabling non-developer analysts to modify transformations
- > Providing a graphical tool for designing transformations

What should you do?

- A. Use Cloud Dataprep to build and maintain the transformation recipes, and execute them on a scheduled basis
- B. Load each month's CSV data into BigQuery, and write a SQL query to transform the data to a standard schema
- C. Merge the transformed tables together with a SQL query
- D. Help the analysts write a Cloud Dataflow pipeline in Python to perform the transformation
- E. The Python code should be stored in a revision control system and modified as the incoming data's schema changes
- F. Use Apache Spark on Cloud Dataproc to infer the schema of the CSV file before creating a Dataframe. Then implement the transformations in Spark SQL before writing the data out to Cloud Storage and loading into BigQuery

Answer: A

Explanation:

you can use dataprep for continuously changing target schema

In general, a target consists of the set of information required to define the expected data in a dataset. Often referred to as a "schema," this target schema information can include:

Names of columns

Order of columns Column data types Data type format Example rows of data

A dataset associated with a target is expected to conform to the requirements of the schema. Where there are differences between target schema and dataset schema, a validation indicator (or schema tag) is displayed.

https://cloud.google.com/dataprep/docs/html/Overview-of-RapidTarget_136155049

NEW QUESTION 242

- (Exam Topic 6)

You have a petabyte of analytics data and need to design a storage and processing platform for it. You must be able to perform data warehouse-style analytics on the data in Google Cloud and expose the dataset as files for batch analysis tools in other cloud providers. What should you do?

- A. Store and process the entire dataset in BigQuery.
- B. Store and process the entire dataset in Cloud Bigtable.
- C. Store the full dataset in BigQuery, and store a compressed copy of the data in a Cloud Storage bucket.
- D. Store the warm data as files in Cloud Storage, and store the active data in BigQuery.
- E. Keep this ratio as 80% warm and 20% active.

Answer: C

NEW QUESTION 246

- (Exam Topic 6)

You are a retailer that wants to integrate your online sales capabilities with different in-home assistants, such as Google Home. You need to interpret customer voice commands and issue an order to the backend systems. Which solutions should you choose?

- A. Cloud Speech-to-Text API
- B. Cloud Natural Language API
- C. Dialogflow Enterprise Edition
- D. Cloud AutoML Natural Language

Answer: C

NEW QUESTION 247

- (Exam Topic 6)

Your globally distributed auction application allows users to bid on items. Occasionally, users place identical bids at nearly identical times, and different application servers process those bids. Each bid event contains the item, amount, user, and timestamp. You want to collate those bid events into a single location in real time to determine which user bid first. What should you do?

- A. Create a file on a shared file and have the application servers write all bid events to that file.
- B. Process the file with Apache Hadoop to identify which user bid first.
- C. Have each application server write the bid events to Cloud Pub/Sub as they occur.
- D. Push the events from Cloud Pub/Sub to a custom endpoint that writes the bid event information into Cloud SQL.
- E. Set up a MySQL database for each application server to write bid events into.
- F. Periodically query each of those distributed MySQL databases and update a master MySQL database with bid event information.
- G. Have each application server write the bid events to Google Cloud Pub/Sub as they occur.
- H. Use a pull subscription to pull the bid events using Google Cloud Dataflow.
- I. Give the bid for each item to the user in the bid event that is processed first.

Answer: C

NEW QUESTION 249

- (Exam Topic 6)

You work for a bank. You have a labelled dataset that contains information on already granted loan applications and whether these applications have been defaulted. You have been asked to train a model to predict default rates for credit applicants. What should you do?

- A. Increase the size of the dataset by collecting additional data.
- B. Train a linear regression to predict a credit default risk score.
- C. Remove the bias from the data and collect applications that have been declined loans.
- D. Match loan applicants with their social profiles to enable feature engineering.

Answer: B

NEW QUESTION 252

- (Exam Topic 6)

You plan to deploy Cloud SQL using MySQL. You need to ensure high availability in the event of a zone failure. What should you do?

- A. Create a Cloud SQL instance in one zone, and create a failover replica in another zone within the same region.
- B. Create a Cloud SQL instance in one zone, and create a read replica in another zone within the same region.
- C. Create a Cloud SQL instance in one zone, and configure an external read replica in a zone in a different region.
- D. Create a Cloud SQL instance in a region, and configure automatic backup to a Cloud Storage bucket in the same region.

Answer: C

NEW QUESTION 256

- (Exam Topic 6)

Your neural network model is taking days to train. You want to increase the training speed. What can you do?

- A. Subsample your test dataset.
- B. Subsample your training dataset.
- C. Increase the number of input features to your model.
- D. Increase the number of layers in your neural network.

Answer: D

Explanation:

Reference: <https://towardsdatascience.com/how-to-increase-the-accuracy-of-a-neural-network-9f5d1c6f407d>

NEW QUESTION 261

- (Exam Topic 6)

You need to create a data pipeline that copies time-series transaction data so that it can be queried from within BigQuery by your data science team for analysis. Every hour, thousands of transactions are updated with a new status. The size of the initial dataset is 1.5 PB, and it will grow by 3 TB per day. The data is heavily structured, and your data science team will build machine learning models based on this data. You want to maximize performance and usability for your data science team. Which two strategies should you adopt? Choose 2 answers.

- A. Denormalize the data as much as possible.
- B. Preserve the structure of the data as much as possible.
- C. Use BigQuery UPDATE to further reduce the size of the dataset.
- D. Develop a data pipeline where status updates are appended to BigQuery instead of updated.
- E. Copy a daily snapshot of transaction data to Cloud Storage and store it as an Avro file.
- F. Use BigQuery's support for external data sources to query.

Answer: AE

NEW QUESTION 264

- (Exam Topic 6)

You set up a streaming data insert into a Redis cluster via a Kafka cluster. Both clusters are running on Compute Engine instances. You need to encrypt data at rest with encryption keys that you can create, rotate, and destroy as needed. What should you do?

- A. Create a dedicated service account, and use encryption at rest to reference your data stored in your Compute Engine cluster instances as part of your API service calls.
- B. Create encryption keys in Cloud Key Management Service.
- C. Use those keys to encrypt your data in all of the Compute Engine cluster instances.
- D. Create encryption keys locally.
- E. Upload your encryption keys to Cloud Key Management Service.
- F. Use those keys to encrypt your data in all of the Compute Engine cluster instances.
- G. Create encryption keys in Cloud Key Management Service.
- H. Reference those keys in your API service calls when accessing the data in your Compute Engine cluster instances.

Answer: C

NEW QUESTION 268

- (Exam Topic 6)

You need to create a near real-time inventory dashboard that reads the main inventory tables in your BigQuery data warehouse. Historical inventory data is stored as inventory balances by item and location. You have several thousand updates to inventory every hour. You want to maximize performance of the dashboard and ensure that the data is accurate. What should you do?

- A. Leverage BigQuery UPDATE statements to update the inventory balances as they are changing.
- B. Partition the inventory balance table by item to reduce the amount of data scanned with each inventory update.
- C. Use the BigQuery streaming table to capture changes into a daily inventory movement table.
- D. Calculate balances in a view that joins it to the historical inventory balance table.
- E. Update the inventory balance table nightly.
- F. Use the BigQuery bulk loader to batch load inventory changes into a daily inventory movement table. Calculate balances in a view that joins it to the historical inventory balance table.
- G. Update the inventory balance table nightly.

Answer: A

NEW QUESTION 273

- (Exam Topic 6)

You want to rebuild your batch pipeline for structured data on Google Cloud. You are using PySpark to conduct data transformations at scale, but your pipelines are taking over twelve hours to run. To expedite development and pipeline run time, you want to use a serverless tool and SQL syntax. You have already moved your raw data into Cloud Storage. How should you build the pipeline on Google Cloud while meeting speed and processing requirements?

- A. Convert your PySpark commands into SparkSQL queries to transform the data; and then run your pipeline on Dataproc to write the data into BigQuery.
- B. Ingest your data into Cloud SQL, convert your PySpark commands into SparkSQL queries to transform the data, and then use federated queries from BigQuery for machine learning.
- C. Ingest your data into BigQuery from Cloud Storage, convert your PySpark commands into BigQuery SQL queries to transform the data, and then write the transformations to a new table.
- D. Use Apache Beam Python SDK to build the transformation pipelines, and write the data into BigQuery.

Answer: A

NEW QUESTION 275

- (Exam Topic 6)

You are working on a linear regression model on BigQuery ML to predict a customer's likelihood of purchasing your company's products. Your model uses a city name variable as a key predictive component in order to train and serve the model. Your data must be organized in columns. You want to prepare your data using the least amount of coding while maintaining the predictable variables. What should you do?

- A. Use SQL in BigQuery to transform the state column using a one-hot encoding method, and make each city a column with binary values.
- B. Create a new view with BigQuery that does not include a column which city information.
- C. Use Cloud Data Fusion to assign each city to a region that is labeled as 1, 2, 3, 4, or 5, and then use that number to represent the city in the model.
- D. Use TensorFlow to create a categorical variable with a vocabulary list.

E. Create the vocabulary file and upload that as part of your model to BigQuery ML.

Answer: C

NEW QUESTION 278

- (Exam Topic 6)

You want to migrate an on-premises Hadoop system to Cloud Dataproc. Hive is the primary tool in use, and the data format is Optimized Row Columnar (ORC). All ORC files have been successfully copied to a Cloud Storage bucket. You need to replicate some data to the cluster's local Hadoop Distributed File System (HDFS) to maximize performance. What are two ways to start using Hive in Cloud Dataproc? (Choose two.)

- A. Run the gsutil utility to transfer all ORC files from the Cloud Storage bucket to HDF
- B. Mount the Hive tables locally.
- C. Run the gsutil utility to transfer all ORC files from the Cloud Storage bucket to any node of the Dataproc cluste
- D. Mount the Hive tables locally.
- E. Run the gsutil utility to transfer all ORC files from the Cloud Storage bucket to the master node of the Dataproc cluste
- F. Then run the Hadoop utility to copy them do HDF
- G. Mount the Hive tables from HDFS.
- H. Leverage Cloud Storage connector for Hadoop to mount the ORC files as external Hive table
- I. Replicate external Hive tables to the native ones.
- J. Load the ORC files into BigQuer
- K. Leverage BigQuery connector for Hadoop to mount the BigQuery tables as external Hive table
- L. Replicate external Hive tables to the native ones.

Answer: BC

NEW QUESTION 279

- (Exam Topic 6)

You are integrating one of your internal IT applications and Google BigQuery, so users can query BigQuery from the application's interface. You do not want individual users to authenticate to BigQuery and you do not want to give them access to the dataset. You need to securely access BigQuery from your IT application.

What should you do?

- A. Create groups for your users and give those groups access to the dataset
- B. Integrate with a single sign-on (SSO) platform, and pass each user's credentials along with the query request
- C. Create a service account and grant dataset access to that account
- D. Use the service account's private key to access the dataset
- E. Create a dummy user and grant dataset access to that use
- F. Store the username and password for that user in a file on the files system, and use those credentials to access the BigQuery dataset

Answer: C

NEW QUESTION 280

- (Exam Topic 6)

You are designing a cloud-native historical data processing system to meet the following conditions:

- The data being analyzed is in CSV, Avro, and PDF formats and will be accessed by multiple analysis tools including Cloud Dataproc, BigQuery, and Compute Engine.
- A streaming data pipeline stores new data daily.
- Peformance is not a factor in the solution.
- The solution design should maximize availability.

How should you design data storage for this solution?

- A. Create a Cloud Dataproc cluster with high availabilit
- B. Store the data in HDFS, and peform analysis as needed.
- C. Store the data in BigQuer
- D. Access the data using the BigQuery Connector or Cloud Dataproc and Compute Engine.
- E. Store the data in a regional Cloud Storage bucke
- F. Access the bucket directly using Cloud Dataproc, BigQuery, and Compute Engine.
- G. Store the data in a multi-regional Cloud Storage bucke
- H. Access the data directly using Cloud Dataproc, BigQuery, and Compute Engine.

Answer: D

NEW QUESTION 285

- (Exam Topic 6)

Your company has a hybrid cloud initiative. You have a complex data pipeline that moves data between cloud provider services and leverages services from each of the cloud providers. Which cloud-native service should you use to orchestrate the entire pipeline?

- A. Cloud Dataflow
- B. Cloud Composer
- C. Cloud Dataprep
- D. Cloud Dataproc

Answer: D

NEW QUESTION 286

- (Exam Topic 6)

You are working on a niche product in the image recognition domain. Your team has developed a model that is dominated by custom C++ TensorFlow ops your team has implemented. These ops are used inside your main training loop and are performing bulky matrix multiplications. It currently takes up to several days to train a model. You want to decrease this time significantly and keep the cost low by using an accelerator on Google Cloud. What should you do?

- A. Use Cloud TPUs without any additional adjustment to your code.
- B. Use Cloud TPUs after implementing GPU kernel support for your customs ops.
- C. Use Cloud GPUs after implementing GPU kernel support for your customs ops.
- D. Stay on CPUs, and increase the size of the cluster you're training your model on.

Answer: B

NEW QUESTION 291

- (Exam Topic 6)

You are collecting IoT sensor data from millions of devices across the world and storing the data in BigQuery. Your access pattern is based on recent data tittered by location_id and device_version with the following query:

```
SELECT
  MAX(temperature)
FROM
  acme_iot_data.sensors
WHERE
  create_date > DATE_SUB(CURRENT_DATE(), INTERVAL 7 day)
  AND location_id = "SW1W9TQ"
  AND device_version = "202007r3"
```

You want to optimize your queries for cost and performance. How should you structure your data?

- A. Partition table data by create_date, location_id and device_version
- B. Partition table data by create_date cluster table data by tocation_id and device_version
- C. Cluster table data by create_date location_id and device_version
- D. Cluster table data by create_date, partition by location and device_version

Answer: C

NEW QUESTION 296

- (Exam Topic 6)

You used Cloud Dataprep to create a recipe on a sample of data in a BigQuery table. You want to reuse this recipe on a daily upload of data with the same schema, after the load job with variable execution time completes. What should you do?

- A. Create a cron schedule in Cloud Dataprep.
- B. Create an App Engine cron job to schedule the execution of the Cloud Dataprep job.
- C. Export the recipe as a Cloud Dataprep template, and create a job in Cloud Scheduler.
- D. Export the Cloud Dataprep job as a Cloud Dataflow template, and incorporate it into a Cloud Composer job.

Answer: D

NEW QUESTION 297

- (Exam Topic 6)

You have several Spark jobs that run on a Cloud Dataproc cluster on a schedule. Some of the jobs run in sequence, and some of the jobs run concurrently. You need to automate this process. What should you do?

- A. Create a Cloud Dataproc Workflow Template
- B. Create an initialization action to execute the jobs
- C. Create a Directed Acyclic Graph in Cloud Composer
- D. Create a Bash script that uses the Cloud SDK to create a cluster, execute jobs, and then tear down the cluster

Answer: C

NEW QUESTION 299

- (Exam Topic 6)

You need to move 2 PB of historical data from an on-premises storage appliance to Cloud Storage within six months, and your outbound network capacity is constrained to 20 Mb/sec. How should you migrate this data to Cloud Storage?

- A. Use Transfer Appliance to copy the data to Cloud Storage
- B. Use gsutil cp -J to compress the content being uploaded to Cloud Storage
- C. Create a private URL for the historical data, and then use Storage Transfer Service to copy the data to Cloud Storage
- D. Use trickle or ionice along with gsutil cp to limit the amount of bandwidth gsutil utilizes to less than 20 Mb/sec so it does not interfere with the production traffic

Answer: A

NEW QUESTION 301

- (Exam Topic 6)

You have uploaded 5 years of log data to Cloud Storage A user reported that some data points in the log data are outside of their expected ranges, which indicates errors You need to address this issue and be able to run the process again in the future while keeping the original data for compliance reasons. What should you

do?

- A. Import the data from Cloud Storage into BigQuery Create a new BigQuery table, and skip the rows with errors.
- B. Create a Compute Engine instance and create a new copy of the data in Cloud Storage Skip the rows with errors
- C. Create a Cloud Dataflow workflow that reads the data from Cloud Storage, checks for values outside the expected range, sets the value to an appropriate default, and writes the updated records to a new dataset in Cloud Storage
- D. Create a Cloud Dataflow workflow that reads the data from Cloud Storage, checks for values outside the expected range, sets the value to an appropriate default, and writes the updated records to the same dataset in Cloud Storage

Answer: D

NEW QUESTION 303

- (Exam Topic 6)

You are implementing security best practices on your data pipeline. Currently, you are manually executing jobs as the Project Owner. You want to automate these jobs by taking nightly batch files containing non-public information from Google Cloud Storage, processing them with a Spark Scala job on a Google Cloud Dataproc cluster, and depositing the results into Google BigQuery. How should you securely run this workload?

- A. Restrict the Google Cloud Storage bucket so only you can see the files
- B. Grant the Project Owner role to a service account, and run the job with it
- C. Use a service account with the ability to read the batch files and to write to BigQuery
- D. Use a user account with the Project Viewer role on the Cloud Dataproc cluster to read the batch files and write to BigQuery

Answer: B

NEW QUESTION 305

- (Exam Topic 6)

A shipping company has live package-tracking data that is sent to an Apache Kafka stream in real time. This is then loaded into BigQuery. Analysts in your company want to query the tracking data in BigQuery to analyze geospatial trends in the lifecycle of a package. The table was originally created with ingest-date partitioning. Over time, the query processing time has increased. You need to implement a change that would improve query performance in BigQuery. What should you do?

- A. Implement clustering in BigQuery on the ingest date column.
- B. Implement clustering in BigQuery on the package-tracking ID column.
- C. Tier older data onto Cloud Storage files, and leverage extended tables.
- D. Re-create the table using data partitioning on the package delivery date.

Answer: A

NEW QUESTION 308

- (Exam Topic 6)

You are building a report-only data warehouse where the data is streamed into BigQuery via the streaming API Following Google's best practices, you have both a staging and a production table for the data How should you design your data loading to ensure that there is only one master dataset without affecting performance on either the ingestion or reporting pieces?

- A. Have a staging table that is an append-only model, and then update the production table every three hours with the changes written to staging
- B. Have a staging table that is an append-only model, and then update the production table every ninety minutes with the changes written to staging
- C. Have a staging table that moves the staged data over to the production table and deletes the contents of the staging table every three hours
- D. Have a staging table that moves the staged data over to the production table and deletes the contents of the staging table every thirty minutes

Answer: D

NEW QUESTION 312

- (Exam Topic 6)

After migrating ETL jobs to run on BigQuery, you need to verify that the output of the migrated jobs is the same as the output of the original. You've loaded a table containing the output of the original job and want to compare the contents with output from the migrated job to show that they are identical. The tables do not contain a primary key column that would enable you to join them together for comparison. What should you do?

- A. Select random samples from the tables using the RAND() function and compare the samples.
- B. Select random samples from the tables using the HASH() function and compare the samples.
- C. Use a Dataproc cluster and the BigQuery Hadoop connector to read the data from each table and calculate a hash from non-timestamp columns of the table after sortin
- D. Compare the hashes of each table.
- E. Create stratified random samples using the OVER() function and compare equivalent samples from each table.

Answer: B

NEW QUESTION 316

- (Exam Topic 6)

Your company is currently setting up data pipelines for their campaign. For all the Google Cloud Pub/Sub streaming data, one of the important business requirements is to be able to periodically identify the inputs and their timings during their campaign. Engineers have decided to use windowing and transformation in Google Cloud Dataflow for this purpose. However, when testing this feature, they find that the Cloud Dataflow job fails for the all streaming insert. What is the most likely cause of this problem?

- A. They have not assigned the timestamp, which causes the job to fail
- B. They have not set the triggers to accommodate the data coming in late, which causes the job to fail
- C. They have not applied a global windowing function, which causes the job to fail when the pipeline is created

D. They have not applied a non-global windowing function, which causes the job to fail when the pipeline is created

Answer: C

NEW QUESTION 320

- (Exam Topic 6)

You have a data stored in BigQuery. The data in the BigQuery dataset must be highly available. You need to define a storage, backup, and recovery strategy of this data that minimizes cost. How should you configure the BigQuery table?

- A. Set the BigQuery dataset to be regional
- B. In the event of an emergency, use a point-in-time snapshot to recover the data.
- C. Set the BigQuery dataset to be regional
- D. Create a scheduled query to make copies of the data to tables suffixed with the time of the backup
- E. In the event of an emergency, use the backup copy of the table.
- F. Set the BigQuery dataset to be multi-regional
- G. In the event of an emergency, use a point-in-time snapshot to recover the data.
- H. Set the BigQuery dataset to be multi-regional
- I. Create a scheduled query to make copies of the data to tables suffixed with the time of the backup
- J. In the event of an emergency, use the backup copy of the table.

Answer: B

NEW QUESTION 324

- (Exam Topic 6)

You are operating a Cloud Dataflow streaming pipeline. The pipeline aggregates events from a Cloud Pub/Sub subscription source, within a window, and sinks the resulting aggregation to a Cloud Storage bucket. The source has consistent throughput. You want to monitor an alert on behavior of the pipeline with Cloud Stackdriver to ensure that it is processing data. Which Stackdriver alerts should you create?

- A. An alert based on a decrease of subscription/num_undelivered_messages for the source and a rate of change increase of instance/storage/used_bytes for the destination
- B. An alert based on an increase of subscription/num_undelivered_messages for the source and a rate of change decrease of instance/storage/used_bytes for the destination
- C. An alert based on a decrease of instance/storage/used_bytes for the source and a rate of change increase of subscription/num_undelivered_messages for the destination
- D. An alert based on an increase of instance/storage/used_bytes for the source and a rate of change decrease of subscription/num_undelivered_messages for the destination

Answer: B

NEW QUESTION 325

- (Exam Topic 6)

You are designing storage for two relational tables that are part of a 10-TB database on Google Cloud. You want to support transactions that scale horizontally. You also want to optimize data for range queries on nonkey columns. What should you do?

- A. Use Cloud SQL for storage
- B. Add secondary indexes to support query patterns.
- C. Use Cloud SQL for storage
- D. Use Cloud Dataflow to transform data to support query patterns.
- E. Use Cloud Spanner for storage
- F. Add secondary indexes to support query patterns.
- G. Use Cloud Spanner for storage
- H. Use Cloud Dataflow to transform data to support query patterns.

Answer: D

Explanation:

Reference: <https://cloud.google.com/solutions/data-lifecycle-cloud-platform>

NEW QUESTION 328

- (Exam Topic 6)

You want to build a managed Hadoop system as your data lake. The data transformation process is composed of a series of Hadoop jobs executed in sequence. To accomplish the design of separating storage from compute, you decided to use the Cloud Storage connector to store all input data, output data, and intermediary data. However, you noticed that one Hadoop job runs very slowly with Cloud Dataproc, when compared with the on-premises bare-metal Hadoop environment (8-core nodes with 100-GB RAM). Analysis shows that this particular Hadoop job is disk I/O intensive. You want to resolve the issue. What should you do?

- A. Allocate sufficient memory to the Hadoop cluster, so that the intermediary data of that particular Hadoop job can be held in memory
- B. Allocate sufficient persistent disk space to the Hadoop cluster, and store the intermediate data of that particular Hadoop job on native HDFS
- C. Allocate more CPU cores of the virtual machine instances of the Hadoop cluster so that the networking bandwidth for each instance can scale up
- D. Allocate additional network interface card (NIC), and configure link aggregation in the operating system to use the combined throughput when working with Cloud Storage

Answer: A

NEW QUESTION 332

- (Exam Topic 6)

You want to archive data in Cloud Storage. Because some data is very sensitive, you want to use the "Trust No One" (TNO) approach to encrypt your data to

prevent the cloud provider staff from decrypting your data. What should you do?

- A. Use `gcloud kms keys create` to create a symmetric key
- B. Then use `gcloud kms encrypt` to encrypt each archival file with the key and unique additional authenticated data (AAD). Use `gsutil cp` to upload each encrypted file to the Cloud Storage bucket, and keep the AAD outside of Google Cloud.
- C. Use `gcloud kms keys create` to create a symmetric key
- D. Then use `gcloud kms encrypt` to encrypt each archival file with the key
- E. Use `gsutil cp` to upload each encrypted file to the Cloud Storage bucket
- F. Manually destroy the key previously used for encryption, and rotate the key once and rotate the key once.
- G. Specify customer-supplied encryption key (CSEK) in the `.boto` configuration file
- H. Use `gsutil cp` to upload each archival file to the Cloud Storage bucket
- I. Save the CSEK in Cloud Memorystore as permanent storage of the secret.
- J. Specify customer-supplied encryption key (CSEK) in the `.boto` configuration file
- K. Use `gsutil cp` to upload each archival file to the Cloud Storage bucket
- L. Save the CSEK in a different project that only the security team can access.

Answer: B

NEW QUESTION 337

- (Exam Topic 6)

You are migrating your data warehouse to Google Cloud and decommissioning your on-premises data center. Because this is a priority for your company, you know that bandwidth will be made available for the initial data load to the cloud. The files being transferred are not large in number, but each file is 90 GB. Additionally, you want your transactional systems to continually update the warehouse on Google Cloud in real time. What tools should you use to migrate the data and ensure that it continues to write to your warehouse?

- A. Storage Transfer Service for the migration, Pub/Sub and Cloud Data Fusion for the real-time updates
- B. BigQuery Data Transfer Service for the migration, Pub/Sub and DataProc for the real-time updates
- C. `gsutil` for the migration; Pub/Sub and Dataflow for the real-time updates
- D. `gsutil` for both the migration and the real-time updates

Answer: A

NEW QUESTION 340

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