

Google

Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam



NEW QUESTION 1

- (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: C

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: D

NEW QUESTION 3

- (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 TS 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 4

- (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 5

- (Exam Topic 1)

You want to use a database of information about tissue samples to classify future tissue samples as either normal or mutated. You are evaluating an unsupervised anomaly detection method for classifying the tissue samples. Which two characteristics support this method? (Choose two.)

- A. There are very few occurrences of mutations relative to normal samples.
- B. There are roughly equal occurrences of both normal and mutated samples in the database.
- C. You expect future mutations to have different features from the mutated samples in the database.
- D. You expect future mutations to have similar features to the mutated samples in the database.
- E. You already have labels for which samples are mutated and which are normal in the database.

Answer: BC

NEW QUESTION 6

- (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 7

- (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 of 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 8

- (Exam Topic 1)

Your company is in a highly regulated industry. One of your requirements is to ensure individual users have access only to the minimum amount of information required to do their jobs. You want to enforce this requirement with Google BigQuery. Which three approaches can you take? (Choose three.)

- A. Disable writes to certain tables.
- B. Restrict access to tables by role.
- C. Ensure that the data is encrypted at all times.
- D. Restrict BigQuery API access to approved users.
- E. Segregate data across multiple tables or databases.
- F. Use Google Stackdriver Audit Logging to determine policy violations.

Answer: BDF

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 are building a model to make clothing recommendations. You know a user's fashion preference is likely to change over time, so you build a data pipeline to stream new data back to the model as it becomes available.

How should you use this data to train the model?

- A. Continuously retrain the model on just the new data.
- B. Continuously retrain the model on a combination of existing data and the new data.
- C. Train on the existing data while using the new data as your test set.
- D. Train on the new data while using the existing data as your test set.

Answer: D

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 11

- (Exam Topic 1)

Your company's on-premises Apache Hadoop servers are approaching end-of-life, and IT has decided to migrate the cluster to Google Cloud Dataproc. A like-for-like migration of the cluster would require 50 TB of Google Persistent Disk per node. The CIO is concerned about the cost of using that much block storage. You want to minimize the storage cost of the migration. What should you do?

- A. Put the data into Google Cloud Storage.
- B. Use preemptible virtual machines (VMs) for the Cloud Dataproc cluster.
- C. Tune the Cloud Dataproc cluster so that there is just enough disk for all data.
- D. Migrate some of the cold data into Google Cloud Storage, and keep only the hot data in Persistent Disk.

Answer: B

NEW QUESTION 12

- (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 17

- (Exam Topic 1)

You are creating a model to predict housing prices. Due to budget constraints, you must run it on a single resource-constrained virtual machine. Which learning algorithm should you use?

- A. Linear regression
- B. Logistic classification
- C. Recurrent neural network
- D. Feedforward neural network

Answer: A

NEW QUESTION 19

- (Exam Topic 1)

You create an important report for your large team in Google Data Studio 360. The report uses Google BigQuery as its data source. You notice that visualizations are not showing data that is less than 1 hour old. What should you do?

- A. Disable caching by editing the report settings.
- B. Disable caching in BigQuery by editing table details.
- C. Refresh your browser tab showing the visualizations.
- D. Clear your browser history for the past hour then reload the tab showing the virtualizations.

Answer: A

Explanation:

Reference <https://support.google.com/datastudio/answer/7020039?hl=en>

NEW QUESTION 21

- (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 serves 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

NEW QUESTION 25

- (Exam Topic 2)

Flowlogistic's management has determined that the current Apache Kafka servers cannot handle the data volume for their real-time inventory tracking system. You need to build a new system on Google Cloud Platform (GCP) that will feed the proprietary tracking software. The system must be able to ingest data from a variety of global sources, process and query in real-time, and store the data reliably. Which combination of GCP products should you choose?

- A. Cloud Pub/Sub, Cloud Dataflow, and Cloud Storage
- B. Cloud Pub/Sub, Cloud Dataflow, and Local SSD

- C. Cloud Pub/Sub, Cloud SQL, and Cloud Storage
- D. Cloud Load Balancing, Cloud Dataflow, and Cloud Storage

Answer: C

NEW QUESTION 30

- (Exam Topic 3)

MJTelco needs you to create a schema in Google Bigtable that will allow for the historical analysis of the last 2 years of records. Each record that comes in is sent every 15 minutes, and contains a unique identifier of the device and a data record. The most common query is for all the data for a given device for a given day. Which schema should you use?

- A. Rowkey: date#device_idColumn data: data_point
- B. Rowkey: dateColumn data: device_id, data_point
- C. Rowkey: device_idColumn data: date, data_point
- D. Rowkey: data_pointColumn data: device_id, date
- E. Rowkey: date#data_pointColumn data: device_id

Answer: D

NEW QUESTION 32

- (Exam Topic 3)

MJTelco is building a custom interface to share data. They have these requirements:

- ▶ They need to do aggregations over their petabyte-scale datasets.
- ▶ They need to scan specific time range rows with a very fast response time (milliseconds). Which combination of Google Cloud Platform products should you recommend?

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

Answer: C

NEW QUESTION 34

- (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 35

- (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 38

- (Exam Topic 3)

You create a new report for your large team in Google Data Studio 360. The report uses Google BigQuery as its data source. It is company policy to ensure employees can view only the data associated with their region, so you create and populate a table for each region. You need to enforce the regional access policy to the data.

Which two actions should you take? (Choose two.)

- A. Ensure all the tables are included in global dataset.
- B. Ensure each table is included in a dataset for a region.

- C. Adjust the settings for each table to allow a related region-based security group view access.
- D. Adjust the settings for each view to allow a related region-based security group view access.
- E. Adjust the settings for each dataset to allow a related region-based security group view access.

Answer: BD

NEW QUESTION 41

- (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 46

- (Exam Topic 4)

Your company is loading comma-separated values (CSV) files into Google BigQuery. The data is fully imported successfully; however, the imported data is not matching byte-to-byte to the source file. What is the most likely cause of this problem?

- A. The CSV data loaded in BigQuery is not flagged as CSV.
- B. The CSV data has invalid rows that were skipped on import.
- C. The CSV data loaded in BigQuery is not using BigQuery's default encoding.
- D. The CSV data has not gone through an ETL phase before loading into BigQuery.

Answer: B

NEW QUESTION 49

- (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 51

- (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 52

- (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 53

- (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 56

- (Exam Topic 5)

Which methods can be used to reduce the number of rows processed by BigQuery?

- A. Splitting tables into multiple tables; putting data in partitions
- B. Splitting tables into multiple tables; putting data in partitions; using the LIMIT clause
- C. Putting data in partitions; using the LIMIT clause
- D. Splitting tables into multiple tables; using the LIMIT clause

Answer: A

Explanation:

If you split a table into multiple tables (such as one table for each day), then you can limit your query to the data in specific tables (such as for particular days). A better method is to use a partitioned table, as long as your data can be separated by the day.

If you use the LIMIT clause, BigQuery will still process the entire table. Reference: <https://cloud.google.com/bigquery/docs/partitioned-tables>

NEW QUESTION 58

- (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-vms>

NEW QUESTION 61

- (Exam Topic 5)

When running a pipeline that has a BigQuery source, on your local machine, you continue to get permission denied errors. What could be the reason for that?

- A. Your gcloud does not have access to the BigQuery resources
- B. BigQuery cannot be accessed from local machines
- C. You are missing gcloud on your machine
- D. Pipelines cannot be run locally

Answer: A

Explanation:

When reading from a Dataflow source or writing to a Dataflow sink using DirectPipelineRunner, the Cloud Platform account that you configured with the gcloud executable will need access to the corresponding source/sink

Reference:

<https://cloud.google.com/dataflow/java-sdk/JavaDoc/com/google/cloud/dataflow/sdk/runners/DirectPipelineRun>

NEW QUESTION 66

- (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 67

- (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 72

- (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 75

- (Exam Topic 5)

To run a TensorFlow training job on your own computer using Cloud Machine Learning Engine, what would your command start with?

- A. gcloud ml-engine local train
- B. gcloud ml-engine jobs submit training
- C. gcloud ml-engine jobs submit training local
- D. You can't run a TensorFlow program on your own computer using Cloud ML Engine .

Answer: A

Explanation:

gcloud ml-engine local train - run a Cloud ML Engine training job locally

This command runs the specified module in an environment similar to that of a live Cloud ML Engine Training Job.

This is especially useful in the case of testing distributed models, as it allows you to validate that you are

properly interacting with the Cloud ML Engine cluster configuration. Reference: <https://cloud.google.com/sdk/gcloud/reference/ml-engine/local/train>

NEW QUESTION 77

- (Exam Topic 5)

Which of these statements about exporting data from BigQuery is false?

- A. To export more than 1 GB of data, you need to put a wildcard in the destination filename.
- B. The only supported export destination is Google Cloud Storage.
- C. Data can only be exported in JSON or Avro format.
- D. The only compression option available is GZIP.

Answer: C

Explanation:

Data can be exported in CSV, JSON, or Avro format. If you are exporting nested or repeated data, then CSV format is not supported.
Reference: <https://cloud.google.com/bigquery/docs/exporting-data>

NEW QUESTION 79

- (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 82

- (Exam Topic 5)

The CUSTOM tier for Cloud Machine Learning Engine allows you to specify the number of which types of cluster nodes?

- A. Workers
- B. Masters, workers, and parameter servers
- C. Workers and parameter servers
- D. Parameter servers

Answer: C

Explanation:

The CUSTOM tier is not a set tier, but rather enables you to use your own cluster specification. When you use this tier, set values to configure your processing cluster according to these guidelines:

You must set TrainingInput.masterType to specify the type of machine to use for your master node. You may set TrainingInput.workerCount to specify the number of workers to use.

You may set TrainingInput.parameterServerCount to specify the number of parameter servers to use.

You can specify the type of machine for the master node, but you can't specify more than one master node. Reference: https://cloud.google.com/ml-engine/docs/training-overview#job_configuration_parameters

NEW QUESTION 86

- (Exam Topic 5)

How can you get a neural network to learn about relationships between categories in a categorical feature?

- A. Create a multi-hot column
- B. Create a one-hot column
- C. Create a hash bucket
- D. Create an embedding column

Answer: D

Explanation:

There are two problems with one-hot encoding. First, it has high dimensionality, meaning that instead of having just one value, like a continuous feature, it has many values, or dimensions. This makes computation more time-consuming, especially if a feature has a very large number of categories. The second problem is that it doesn't encode any relationships between the categories. They are completely independent from each other, so the network has no way of knowing which ones are similar to each other.

Both of these problems can be solved by representing a categorical feature with an embedding

column. The idea is that each category has a smaller vector with, let's say, 5 values in it. But unlike a one-hot vector, the values are not usually 0. The values are weights, similar to the weights that are used for basic features in a neural network. The difference is that each category has a set of weights (5 of them in this case).

You can think of each value in the embedding vector as a feature of the category. So, if two categories are very similar to each other, then their embedding vectors should be very similar too.

Reference:

<https://cloudacademy.com/google/introduction-to-google-cloud-machine-learning-engine-course/a-wide-and-dee>

NEW QUESTION 91

- (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 96

- (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 99

- (Exam Topic 5)

Which of these sources can you not load data into BigQuery from?

- A. File upload
- B. Google Drive
- C. Google Cloud Storage
- D. Google Cloud SQL

Answer: D

Explanation:

You can load data into BigQuery from a file upload, Google Cloud Storage, Google Drive, or Google Cloud Bigtable. It is not possible to load data into BigQuery directly from Google Cloud SQL. One way to get data from Cloud SQL to BigQuery would be to export data from Cloud SQL to Cloud Storage and then load it from there. Reference: <https://cloud.google.com/bigquery/loading-data>

NEW QUESTION 101

- (Exam Topic 5)

Which of the following is not true about Dataflow pipelines?

- A. Pipelines are a set of operations
- B. Pipelines represent a data processing job
- C. Pipelines represent a directed graph of steps
- D. Pipelines can share data between instances

Answer: D

Explanation:

The data and transforms in a pipeline are unique to, and owned by, that pipeline. While your program can create multiple pipelines, pipelines cannot share data or transforms Reference: <https://cloud.google.com/dataflow/model/pipelines>

NEW QUESTION 102

- (Exam Topic 5)

Which is not a valid reason for poor Cloud Bigtable performance?

- A. The workload isn't appropriate for Cloud Bigtable.
- B. The table's schema is not designed correctly.
- C. The Cloud Bigtable cluster has too many nodes.
- D. There are issues with the network connection.

Answer: C

Explanation:

The Cloud Bigtable cluster doesn't have enough nodes. If your Cloud Bigtable cluster is overloaded, adding more nodes can improve performance. Use the monitoring tools to check whether the cluster is overloaded. Reference: <https://cloud.google.com/bigtable/docs/performance>

NEW QUESTION 107

- (Exam Topic 5)

When you store data in Cloud Bigtable, what is the recommended minimum amount of stored data?

- A. 500 TB
- B. 1 GB
- C. 1 TB
- D. 500 GB

Answer: C

Explanation:

Cloud Bigtable is not a relational database. It does not support SQL queries, joins, or multi-row transactions. It is not a good solution for less than 1 TB of data.
Reference: https://cloud.google.com/bigtable/docs/overview#title_short_and_other_storage_options

NEW QUESTION 110

- (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 114

- (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 119

- (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 120

- (Exam Topic 5)

You want to use a BigQuery table as a data sink. In which writing mode(s) can you use BigQuery as a sink?

- A. Both batch and streaming
- B. BigQuery cannot be used as a sink
- C. Only batch
- D. Only streaming

Answer: A

Explanation:

When you apply a BigQueryIO.Write transform in batch mode to write to a single table, Dataflow invokes a BigQuery load job. When you apply a BigQueryIO.Write transform in streaming mode or in batch mode using a function to specify the destination table, Dataflow uses BigQuery's streaming inserts
Reference: <https://cloud.google.com/dataflow/model/bigquery-io>

NEW QUESTION 123

- (Exam Topic 5)

Which of the following are examples of hyperparameters? (Select 2 answers.)

- A. Number of hidden layers
- B. Number of nodes in each hidden layer
- C. Biases
- D. Weights

Answer: AB

Explanation:

If model parameters are variables that get adjusted by training with existing data, your hyperparameters are the variables about the training process itself. For example, part of setting up a deep neural network is deciding how many "hidden" layers of nodes to use between the input layer and the output layer, as well as how many nodes each layer should use. These variables are not directly related to the training data at all. They are configuration variables. Another difference is that parameters change during a training job, while the hyperparameters are usually constant during a job.

Weights and biases are variables that get adjusted during the training process, so they are not hyperparameters. Reference: <https://cloud.google.com/ml-engine/docs/hyperparameter-tuning-overview>

NEW QUESTION 127

- (Exam Topic 5)

By default, which of the following windowing behavior does Dataflow apply to unbounded data sets?

- A. Windows at every 100 MB of data
- B. Single, Global Window
- C. Windows at every 1 minute
- D. Windows at every 10 minutes

Answer: B

Explanation:

Dataflow's default windowing behavior is to assign all elements of a PCollection to a single, global window, even for unbounded PCollections

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

NEW QUESTION 130

- (Exam Topic 5)

The YARN ResourceManager and the HDFS NameNode interfaces are available on a Cloud Dataproc cluster .

- A. application node
- B. conditional node
- C. master node
- D. worker node

Answer: C

Explanation:

The YARN ResourceManager and the HDFS NameNode interfaces are available on a Cloud Dataproc cluster master node. The cluster master-host-name is the name of your Cloud Dataproc cluster followed by an -m suffix—for example, if your cluster is named "my-cluster", the master-host-name would be "my-cluster-m".

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

NEW QUESTION 132

- (Exam Topic 5)

For the best possible performance, what is the recommended zone for your Compute Engine instance and Cloud Bigtable instance?

- A. Have the Compute Engine instance in the furthest zone from the Cloud Bigtable instance.
- B. Have both the Compute Engine instance and the Cloud Bigtable instance to be in different zones.
- C. Have both the Compute Engine instance and the Cloud Bigtable instance to be in the same zone.
- D. Have the Cloud Bigtable instance to be in the same zone as all of the consumers of your data.

Answer: C

Explanation:

It is recommended to create your Compute Engine instance in the same zone as your Cloud Bigtable instance for the best possible performance,

If it's not possible to create a instance in the same zone, you should create your instance in another zone within the same region. For example, if your Cloud Bigtable instance is located in us-central1-b, you could create your instance in us-central1-f. This change may result in several milliseconds of additional latency for each Cloud Bigtable request.

It is recommended to avoid creating your Compute Engine instance in a different region from

your Cloud Bigtable instance, which can add hundreds of milliseconds of latency to each Cloud Bigtable request.

Reference: <https://cloud.google.com/bigtable/docs/creating-compute-instance>

NEW QUESTION 135

- (Exam Topic 5)

When a Cloud Bigtable node fails, is lost.

- A. all data
- B. no data
- C. the last transaction
- D. the time dimension

Answer: B

Explanation:

A Cloud Bigtable table is sharded into blocks of contiguous rows, called tablets, to help balance the workload of queries. Tablets are stored on Colossus, Google's file system, in SSTable format. Each tablet is associated with a specific Cloud Bigtable node.

Data is never stored in Cloud Bigtable nodes themselves; each node has pointers to a set of tablets that are stored on Colossus. As a result:

Rebalancing tablets from one node to another is very fast, because the actual data is not copied. Cloud Bigtable simply updates the pointers for each node.

Recovery from the failure of a Cloud Bigtable node is very fast, because only metadata needs to be migrated to the replacement node.

When a Cloud Bigtable node fails, no data is lost Reference: <https://cloud.google.com/bigtable/docs/overview>

NEW QUESTION 139

- (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 140

- (Exam Topic 5)

Cloud Dataproc is a managed Apache Hadoop and Apache service.

- A. Blaze
- B. Spark
- C. Fire
- D. Ignite

Answer: B

Explanation:

Cloud Dataproc is a managed Apache Spark and Apache Hadoop service that lets you use open source data tools for batch processing, querying, streaming, and machine learning.

Reference: <https://cloud.google.com/dataproc/docs/>

NEW QUESTION 144

- (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 147

- (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 152

- (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 155

- (Exam Topic 5)

Cloud Bigtable is a recommended option for storing very large amounts of _____ ?

- A. multi-keyed data with very high latency
- B. multi-keyed data with very low latency
- C. single-keyed data with very low latency
- D. single-keyed data with very high latency

Answer: C

Explanation:

Cloud Bigtable is a sparsely populated table that can scale to billions of rows and thousands of columns, allowing you to store terabytes or even petabytes of data. A single value in each row is indexed; this value is known as the row key. Cloud Bigtable is ideal for storing very large amounts of single-keyed data with very low latency. It supports high read and write throughput at low latency, and it is an ideal data source for MapReduce operations.

Reference: <https://cloud.google.com/bigtable/docs/overview>

NEW QUESTION 157

- (Exam Topic 6)

You have enabled the free integration between Firebase Analytics and Google BigQuery. Firebase now automatically creates a new table daily in BigQuery in the format app_events_YYYYMMDD. You want to query all of the tables for the past 30 days in legacy SQL. What should you do?

- A. Use the TABLE_DATE_RANGE function
- B. Use the WHERE_PARTITIONTIME pseudo column
- C. Use WHERE date BETWEEN YYYY-MM-DD AND YYYY-MM-DD
- D. Use SELECT IF.(date >= YYYY-MM-DD AND date <= YYYY-MM-DD

Answer: A

Explanation:

Reference:

<https://cloud.google.com/blog/products/gcp/using-bigquery-and-firebase-analytics-to-understandyour-mobile-ap>

NEW QUESTION 160

- (Exam Topic 6)

You are running a pipeline in Cloud Dataflow that receives messages from a Cloud Pub/Sub topic and writes the results to a BigQuery dataset in the EU. Currently, your pipeline is located in europe-west4 and has a maximum of 3 workers, instance type n1-standard-1. You notice that during peak periods, your pipeline is struggling to process records in a timely fashion, when all 3 workers are at maximum CPU utilization. Which two actions can you take to increase performance of your pipeline? (Choose two.)

- A. Increase the number of max workers
- B. Use a larger instance type for your Cloud Dataflow workers
- C. Change the zone of your Cloud Dataflow pipeline to run in us-central1
- D. Create a temporary table in Cloud Bigtable that will act as a buffer for new dat
- E. Create a new step in your pipeline to write to this table first, and then create a new pipeline to write from Cloud Bigtable to BigQuery
- F. Create a temporary table in Cloud Spanner that will act as a buffer for new dat
- G. Create a new step in your pipeline to write to this table first, and then create a new pipeline to write from Cloud Spanner to BigQuery

Answer: BE

NEW QUESTION 164

- (Exam Topic 6)

You have a requirement to insert minute-resolution data from 50,000 sensors into a BigQuery table. You expect significant growth in data volume and need the data to be available within 1 minute of ingestion for real-time analysis of aggregated trends. What should you do?

- A. Use bq load to load a batch of sensor data every 60 seconds.
- B. Use a Cloud Dataflow pipeline to stream data into the BigQuery table.
- C. Use the INSERT statement to insert a batch of data every 60 seconds.

D. Use the MERGE statement to apply updates in batch every 60 seconds.

Answer: C

NEW QUESTION 166

- (Exam Topic 6)

Your infrastructure includes a set of YouTube channels. You have been tasked with creating a process for sending the YouTube channel data to Google Cloud for analysis. You want to design a solution that allows your world-wide marketing teams to perform ANSI SQL and other types of analysis on up-to-date YouTube channels log data. How should you set up the log data transfer into Google Cloud?

- A. Use Storage Transfer Service to transfer the offsite backup files to a Cloud Storage Multi-Regional storage bucket as a final destination.
- B. Use Storage Transfer Service to transfer the offsite backup files to a Cloud Storage Regional bucket as a final destination.
- C. Use BigQuery Data Transfer Service to transfer the offsite backup files to a Cloud Storage Multi-Regional storage bucket as a final destination.
- D. Use BigQuery Data Transfer Service to transfer the offsite backup files to a Cloud Storage Regional storage bucket as a final destination.

Answer: B

NEW QUESTION 171

- (Exam Topic 6)

As your organization expands its usage of GCP, many teams have started to create their own projects. Projects are further multiplied to accommodate different stages of deployments and target audiences. Each project requires unique access control configurations. The central IT team needs to have access to all projects. Furthermore, data from Cloud Storage buckets and BigQuery datasets must be shared for use in other projects in an ad hoc way. You want to simplify access control management by minimizing the number of policies. Which two steps should you take? Choose 2 answers.

- A. Use Cloud Deployment Manager to automate access provision.
- B. Introduce resource hierarchy to leverage access control policy inheritance.
- C. Create distinct groups for various teams, and specify groups in Cloud IAM policies.
- D. Only use service accounts when sharing data for Cloud Storage buckets and BigQuery datasets.
- E. For each Cloud Storage bucket or BigQuery dataset, decide which projects need access.
- F. Find all the active members who have access to these projects, and create a Cloud IAM policy to grant access to all these users.

Answer: AC

NEW QUESTION 172

- (Exam Topic 6)

You are building an application to share financial market data with consumers, who will receive data feeds. Data is collected from the markets in real time. Consumers will receive the data in the following ways:

- ☒ Real-time event stream
- ☒ ANSI SQL access to real-time stream and historical data
- ☒ Batch historical exports

Which solution should you use?

- A. Cloud Dataflow, Cloud SQL, Cloud Spanner
- B. Cloud Pub/Sub, Cloud Storage, BigQuery
- C. Cloud Dataproc, Cloud Dataflow, BigQuery
- D. Cloud Pub/Sub, Cloud Dataproc, Cloud SQL

Answer: A

NEW QUESTION 176

- (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 180

- (Exam Topic 6)

Your company needs to upload their historic data to Cloud Storage. The security rules don't allow access from external IPs to their on-premises resources. After an initial upload, they will add new data from existing on-premises applications every day. What should they do?

- A. Execute gsutil rsync from the on-premises servers.
- B. Use Cloud Dataflow and write the data to Cloud Storage.
- C. Write a job template in Cloud Dataproc to perform the data transfer.

D. Install an FTP server on a Compute Engine VM to receive the files and move them to Cloud Storage.

Answer: B

NEW QUESTION 181

- (Exam Topic 6)

Your financial services company is moving to cloud technology and wants to store 50 TB of financial timeseries data in the cloud. This data is updated frequently and new data will be streaming in all the time. Your company also wants to move their existing Apache Hadoop jobs to the cloud to get insights into this data. Which product should they use to store the data?

- A. Cloud Bigtable
- B. Google BigQuery
- C. Google Cloud Storage
- D. Google Cloud Datastore

Answer: A

Explanation:

Reference: <https://cloud.google.com/bigtable/docs/schema-design-time-series>

NEW QUESTION 184

- (Exam Topic 6)

You are developing an application that uses a recommendation engine on Google Cloud. Your solution should display new videos to customers based on past views. Your solution needs to generate labels for the entities in videos that the customer has viewed. Your design must be able to provide very fast filtering suggestions based on data from other customer preferences on several TB of data. What should you do?

- A. Build and train a complex classification model with Spark MLlib to generate labels and filter the results. Deploy the models using Cloud Datapro
- B. Call the model from your application.
- C. Build and train a classification model with Spark MLlib to generate label
- D. Build and train a second classification model with Spark MLlib to filter results to match customer preference
- E. Deploy the Models using Cloud Datapro
- F. Call the models from your application.
- G. Build an application that calls the Cloud Video Intelligence API to generate label
- H. Store data in Cloud Bigtable, and filter the predicted labels to match the user's viewing history to generate preferences.
- I. Build an application that calls the Cloud Video Intelligence API to generate label
- J. Store data in Cloud SQL, and join and filter the predicted labels to match the user's viewing history to generate preferences.

Answer: C

NEW QUESTION 189

- (Exam Topic 6)

You are developing an application on Google Cloud that will automatically generate subject labels for users' blog posts. You are under competitive pressure to add this feature quickly, and you have no additional developer resources. No one on your team has experience with machine learning. What should you do?

- A. Call the Cloud Natural Language API from your applicatio
- B. Process the generated Entity Analysis as labels.
- C. Call the Cloud Natural Language API from your applicatio
- D. Process the generated Sentiment Analysis as labels.
- E. Build and train a text classification model using TensorFlo
- F. Deploy the model using Cloud Machine Learning Engin
- G. Call the model from your application and process the results as labels.
- H. Build and train a text classification model using TensorFlo
- I. Deploy the model using a KubernetesEngine cluste
- J. Call the model from your application and process the results as labels.

Answer: B

NEW QUESTION 193

- (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: D

NEW QUESTION 197

- (Exam Topic 6)

You decided to use Cloud Datastore to ingest vehicle telemetry data in real time. You want to build a storage system that will account for the long-term data growth, while keeping the costs low. You also want to create snapshots of the data periodically, so that you can make a point-in-time (PIT) recovery, or clone a copy of the data for Cloud Datastore in a different environment. You want to archive these snapshots for a long time. Which two methods can accomplish this? Choose 2 answers.

- A. Use managed export, and store the data in a Cloud Storage bucket using Nearline or Coldline class.
- B. Use managed exportm, and then import to Cloud Datastore in a separate project under a unique namespace reserved for that export.

- C. Use managed export, and then import the data into a BigQuery table created just for that export, and delete temporary export files.
- D. Write an application that uses Cloud Datastore client libraries to read all the entitie
- E. Treat each entity as a BigQuery table row via BigQuery streaming inser
- F. Assign an export timestamp for each export, and attach it as an extra column for each ro
- G. Make sure that the BigQuery table is partitioned using the export timestamp column.
- H. Write an application that uses Cloud Datastore client libraries to read all the entitie
- I. Format the exported data into a JSON fil
- J. Apply compression before storing the data in Cloud Source Repositories.

Answer: CE

NEW QUESTION 201

- (Exam Topic 6)

You have developed three data processing jobs. One executes a Cloud Dataflow pipeline that transforms data uploaded to Cloud Storage and writes results to BigQuery. The second ingests data from on-premises servers and uploads it to Cloud Storage. The third is a Cloud Dataflow pipeline that gets information from third-party data providers and uploads the information to Cloud Storage. You need to be able to schedule and monitor the execution of these three workflows and manually execute them when needed. What should you do?

- A. Create a Direct Acyclic Graph in Cloud Composer to schedule and monitor the jobs.
- B. Use Stackdriver Monitoring and set up an alert with a Webhook notification to trigger the jobs.
- C. Develop an App Engine application to schedule and request the status of the jobs using GCP API calls.
- D. Set up cron jobs in a Compute Engine instance to schedule and monitor the pipelines using GCP API calls.

Answer: D

NEW QUESTION 204

- (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 208

- (Exam Topic 6)

You are operating a streaming Cloud Dataflow pipeline. Your engineers have a new version of the pipeline with a different windowing algorithm and triggering strategy. You want to update the running pipeline with the new version. You want to ensure that no data is lost during the update. What should you do?

- A. Update the Cloud Dataflow pipeline inflight by passing the --update option with the --jobName set to the existing job name
- B. Update the Cloud Dataflow pipeline inflight by passing the --update option with the --jobName set to a new unique job name
- C. Stop the Cloud Dataflow pipeline with the Cancel optio
- D. Create a new Cloud Dataflow job with the updated code
- E. Stop the Cloud Dataflow pipeline with the Drain optio
- F. Create a new Cloud Dataflow job with the updated code

Answer: A

NEW QUESTION 209

- (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 214

- (Exam Topic 6)

You are using Google BigQuery as your data warehouse. Your users report that the following simple query is running very slowly, no matter when they run the query:

```
SELECT country, state, city FROM [myproject:mydataset.mytable] GROUP BY country
```

You check the query plan for the query and see the following output in the Read section of Stage:1:



What is the most likely cause of the delay for this query?

- A. Users are running too many concurrent queries in the system
- B. The [myproject:mydataset.mytable] table has too many partitions
- C. Either the state or the city columns in the [myproject:mydataset.mytable] table have too many NULL values
- D. Most rows in the [myproject:mydataset.mytable] table have the same value in the country column, causing data skew

Answer: A

NEW QUESTION 218

- (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 223

- (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 departmen
- 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 departmen
- 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 departmen
- 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 departmen
- 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 224

- (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 227

- (Exam Topic 6)

You have a query that filters a BigQuery table using a WHERE clause on timestamp and ID columns. By using bq query --dry_run you learn that the query triggers a full scan of the table, even though the filter on timestamp and ID select a tiny fraction of the overall data. You want to reduce the amount of data scanned by BigQuery with minimal changes to existing SQL queries. What should you do?

- A. Create a separate table for each ID.
- B. Use the LIMIT keyword to reduce the number of rows returned.
- C. Recreate the table with a partitioning column and clustering column.
- D. Use the bq query --maximum_bytes_billed flag to restrict the number of bytes billed.

Answer: B

NEW QUESTION 228

- (Exam Topic 6)

Data Analysts in your company have the Cloud IAM Owner role assigned to them in their projects to allow them to work with multiple GCP products in their projects. Your organization requires that all BigQuery data access logs be retained for 6 months. You need to ensure that only audit personnel in your company can access the data access logs for all projects. What should you do?

- A. Enable data access logs in each Data Analyst's projec
- B. Restrict access to Stackdriver Logging via Cloud IAM roles.
- C. Export the data access logs via a project-level export sink to a Cloud Storage bucket in the Data Analysts' project
- D. Restrict access to the Cloud Storage bucket.
- E. Export the data access logs via a project-level export sink to a Cloud Storage bucket in a newly created projects for audit log
- F. Restrict access to the project with the exported logs.
- G. Export the data access logs via an aggregated export sink to a Cloud Storage bucket in a newly created project for audit log
- H. Restrict access to the project that contains the exported logs.

Answer: D

NEW QUESTION 229

- (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 233

- (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 237

- (Exam Topic 6)

You are planning to migrate your current on-premises Apache Hadoop deployment to the cloud. You need to ensure that the deployment is as fault-tolerant and cost-effective as possible for long-running batch jobs. You want to use a managed service. What should you do?

- A. Deploy a Cloud Dataproc cluste
- B. Use a standard persistent disk and 50% preemptible worker
- C. Store data in Cloud Storage, and change references in scripts from hdfs:// to gs://
- D. Deploy a Cloud Dataproc cluste
- E. Use an SSD persistent disk and 50% preemptible worker
- F. Store data in Cloud Storage, and change references in scripts from hdfs:// to gs://
- G. Install Hadoop and Spark on a 10-node Compute Engine instance group with standard instance
- H. Install the Cloud Storage connector, and store the data in Cloud Storag
- I. Change references in scripts from hdfs:// to gs://
- J. Install Hadoop and Spark on a 10-node Compute Engine instance group with preemptible instances.Store data in HDF
- K. Change references in scripts from hdfs:// to gs://

Answer: A

NEW QUESTION 241

- (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: A

NEW QUESTION 244

- (Exam Topic 6)

Your company receives both batch- and stream-based event data. You want to process the data using Google Cloud Dataflow over a predictable time period. However, you realize that in some instances data can arrive late or out of order. How should you design your Cloud Dataflow pipeline to handle data that is late or out of order?

- A. Set a single global window to capture all the data.
- B. Set sliding windows to capture all the lagged data.
- C. Use watermarks and timestamps to capture the lagged data.
- D. Ensure every datasource type (stream or batch) has a timestamp, and use the timestamps to define the logic for lagged data.

Answer: B

NEW QUESTION 247

- (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 the stream changes into a daily inventory movement tabl
- D. Calculate balances in a view that joins it to the historical inventory balance tabl
- 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 tabl
- G. Update the inventory balance table nightly.

Answer: A

NEW QUESTION 249

- (Exam Topic 6)

You are implementing several batch jobs that must be executed on a schedule. These jobs have many interdependent steps that must be executed in a specific order. Portions of the jobs involve executing shell scripts, running Hadoop jobs, and running queries in BigQuery. The jobs are expected to run for many minutes up to several hours. If the steps fail, they must be retried a fixed number of times. Which service should you use to manage the execution of these jobs?

- A. Cloud Scheduler
- B. Cloud Dataflow
- C. Cloud Functions
- D. Cloud Composer

Answer: A

NEW QUESTION 250

- (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.
- ▶ Performance 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 perform 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: C

NEW QUESTION 255

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

J. In the event of an emergency, use the backup copy of the table.

Answer: B

NEW QUESTION 256

- (Exam Topic 6)

The marketing team at your organization provides regular updates of a segment of your customer dataset. The marketing team has given you a CSV with 1 million records that must be updated in BigQuery. When you use the UPDATE statement in BigQuery, you receive a quotaExceeded error. What should you do?

- A. Reduce the number of records updated each day to stay within the BigQuery UPDATE DML statement limit.
- B. Increase the BigQuery UPDATE DML statement limit in the Quota management section of the Google Cloud Platform Console.
- C. Split the source CSV file into smaller CSV files in Cloud Storage to reduce the number of BigQuery UPDATE DML statements per BigQuery job.
- D. Import the new records from the CSV file into a new BigQuery table.
- E. Create a BigQuery job that merges the new records with the existing records and writes the results to a new BigQuery table.

Answer: A

NEW QUESTION 259

- (Exam Topic 6)

You have an Apache Kafka Cluster on-prem with topics containing web application logs. You need to replicate the data to Google Cloud for analysis in BigQuery and Cloud Storage. The preferred replication method is mirroring to avoid deployment of Kafka Connect plugins. What should you do?

- A. Deploy a Kafka cluster on GCE VM Instance
- B. Configure your on-prem cluster to mirror your topics to the cluster running in GC
- C. Use a Dataproc cluster or Dataflow job to read from Kafka and write to GCS.
- D. Deploy a Kafka cluster on GCE VM Instances with the PubSub Kafka connector configured as a Sink connector
- E. Use a Dataproc cluster or Dataflow job to read from Kafka and write to GCS.
- F. Deploy the PubSub Kafka connector to your on-prem Kafka cluster and configure PubSub as a Source connector
- G. Use a Dataflow job to read from PubSub and write to GCS.
- H. Deploy the PubSub Kafka connector to your on-prem Kafka cluster and configure PubSub as a Sink connector
- I. Use a Dataflow job to read from PubSub and write to GCS.

Answer: A

NEW QUESTION 260

- (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 265

- (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: C

NEW QUESTION 269

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