

## Professional-Data-Engineer Dumps

### Google Professional Data Engineer Exam

<https://www.certleader.com/Professional-Data-Engineer-dumps.html>



**NEW QUESTION 1**

- (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:** AD

**Explanation:**

Unsupervised anomaly detection techniques detect anomalies in an unlabeled test data set under the assumption that the majority of the instances in the data set are normal by looking for instances that seem to fit least to the remainder of the data set. [https://en.wikipedia.org/wiki/Anomaly\\_detection](https://en.wikipedia.org/wiki/Anomaly_detection)

**NEW QUESTION 2**

- (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 3**

- (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 4**

- (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 5**

- (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 6**

- (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 7

- (Exam Topic 1)

You want to process payment transactions in a point-of-sale application that will run on Google Cloud Platform. Your user base could grow exponentially, but you do not want to manage infrastructure scaling.

Which Google database service should you use?

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

**Answer:** A

#### NEW QUESTION 8

- (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 9

- (Exam Topic 1)

Your company is running their first dynamic campaign, serving different offers by analyzing real-time data during the holiday season. The data scientists are collecting terabytes of data that rapidly grows every hour during their 30-day campaign. They are using Google Cloud Dataflow to preprocess the data and collect the feature (signals) data that is needed for the machine learning model in Google Cloud Bigtable. The team is observing suboptimal performance with reads and writes of their initial load of 10 TB of data. They want to improve this performance while minimizing cost. What should they do?

- A. Redefine the schema by evenly distributing reads and writes across the row space of the table.
- B. The performance issue should be resolved over time as the size of the Bigtable cluster is increased.
- C. Redesign the schema to use a single row key to identify values that need to be updated frequently in the cluster.
- D. Redesign the schema to use row keys based on numeric IDs that increase sequentially per user viewing the offers.

**Answer:** A

#### NEW QUESTION 10

- (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 10

- (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 13

- (Exam Topic 1)

Business owners at your company have given you a database of bank transactions. Each row contains the user ID, transaction type, transaction location, and transaction amount. They ask you to investigate what type of machine learning can be applied to the data. Which three machine learning applications can you use? (Choose three.)

- A. Supervised learning to determine which transactions are most likely to be fraudulent.
- B. Unsupervised learning to determine which transactions are most likely to be fraudulent.
- C. Clustering to divide the transactions into N categories based on feature similarity.
- D. Supervised learning to predict the location of a transaction.
- E. Reinforcement learning to predict the location of a transaction.
- F. Unsupervised learning to predict the location of a transaction.

**Answer:** BCD

#### NEW QUESTION 15

- (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 clini
- E. Run queries against the smaller table pairs, and use unions for consolidated reports.

**Answer:** C

#### NEW QUESTION 20

- (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 23

- (Exam Topic 1)

You are deploying 10,000 new Internet of Things devices to collect temperature data in your warehouses globally. You need to process, store and analyze these very large datasets in real time. What should you do?

- A. Send the data to Google Cloud Datastore and then export to BigQuery.
- B. Send the data to Google Cloud Pub/Sub, stream Cloud Pub/Sub to Google Cloud Dataflow, and store the data in Google BigQuery.
- C. Send the data to Cloud Storage and then spin up an Apache Hadoop cluster as needed in Google Cloud Dataproc whenever analysis is required.
- D. Export logs in batch to Google Cloud Storage and then spin up a Google Cloud SQL instance, import the data from Cloud Storage, and run an analysis as needed.

**Answer:** B

#### NEW QUESTION 25

- (Exam Topic 2)

Flowlogistic is rolling out their real-time inventory tracking system. The tracking devices will all send package-tracking messages, which will now go to a single Google Cloud Pub/Sub topic instead of the Apache Kafka cluster. A subscriber application will then process the messages for real-time reporting and store them in Google BigQuery for historical analysis. You want to ensure the package data can be analyzed over time.

Which approach should you take?

- A. Attach the timestamp on each message in the Cloud Pub/Sub subscriber application as they are received.
- B. Attach the timestamp and Package ID on the outbound message from each publisher device as they are sent to Clod Pub/Sub.
- C. Use the NOW () function in BigQuery to record the event's time.
- D. Use the automatically generated timestamp from Cloud Pub/Sub to order the data.

**Answer:** B

#### NEW QUESTION 28

- (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 32

- (Exam Topic 3)

You need to compose visualizations for operations teams with the following requirements: Which approach meets the requirements?

- A. Load the data into Google Sheets, use formulas to calculate a metric, and use filters/sorting to show only suboptimal links in a table.
- B. Load the data into Google BigQuery tables, write Google Apps Script that queries the data, calculates the metric, and shows only suboptimal rows in a table in Google Sheets.
- C. Load the data into Google Cloud Datastore tables, write a Google App Engine Application that queries all rows, applies a function to derive the metric, and then renders results in a table using the Google charts and visualization API.
- D. Load the data into Google BigQuery tables, write a Google Data Studio 360 report that connects to your data, calculates a metric, and then uses a filter expression to show only suboptimal rows in a table.

**Answer:** C

### NEW QUESTION 33

- (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 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 36

- (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 37

- (Exam Topic 4)

You work for an economic consulting firm that helps companies identify economic trends as they happen. As part of your analysis, you use Google BigQuery to correlate customer data with the average prices of the 100 most common goods sold, including bread, gasoline, milk, and others. The average prices of these goods are updated every 30 minutes. You want to make sure this data stays up to date so you can combine it with other data in BigQuery as cheaply as possible. What should you do?

- A. Load the data every 30 minutes into a new partitioned table in BigQuery.
- B. Store and update the data in a regional Google Cloud Storage bucket and create a federated data source in BigQuery
- C. Store the data in Google Cloud Datastor
- D. Use Google Cloud Dataflow to query BigQuery and combine the data programmatically with the data stored in Cloud Datastore
- E. Store the data in a file in a regional Google Cloud Storage bucke
- F. Use Cloud Dataflow to query BigQuery and combine the data programmatically with the data stored in Google Cloud Storage.



**Answer:** A

**NEW QUESTION 41**

- (Exam Topic 5)

The Dataflow SDKs have been recently transitioned into which Apache service?

- A. Apache Spark
- B. Apache Hadoop
- C. Apache Kafka
- D. Apache Beam

**Answer:** D

**Explanation:**

Dataflow SDKs are being transitioned to Apache Beam, as per the latest Google directive Reference: <https://cloud.google.com/dataflow/docs/>

**NEW QUESTION 42**

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

**NEW QUESTION 43**

- (Exam Topic 5)

What are two of the characteristics of using online prediction rather than batch prediction?

- A. It is optimized to handle a high volume of data instances in a job and to run more complex models.
- B. Predictions are returned in the response message.
- C. Predictions are written to output files in a Cloud Storage location that you specify.
- D. It is optimized to minimize the latency of serving predictions.

**Answer:** BD

**Explanation:**

Online prediction

Optimized to minimize the latency of serving predictions.

Predictions returned in the response message. Batch prediction

Optimized to handle a high volume of instances in a job and to run more complex models. Predictions written to output files in a Cloud Storage location that you specify.

Reference:

[https://cloud.google.com/ml-engine/docs/prediction-overview#online\\_prediction\\_versus\\_batch\\_prediction](https://cloud.google.com/ml-engine/docs/prediction-overview#online_prediction_versus_batch_prediction)

**NEW QUESTION 46**

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

**NEW QUESTION 50**

- (Exam Topic 5)

Cloud Bigtable is Google's Big Data database service.

- A. Relational
- B. mySQL
- C. NoSQL
- D. SQL Server

**Answer: C**

**Explanation:**

Cloud Bigtable is Google's NoSQL Big Data database service. It is the same database that Google uses for services, such as Search, Analytics, Maps, and Gmail. It is used for requirements that are low latency and high throughput including Internet of Things (IoT), user analytics, and financial data analysis.

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

**NEW QUESTION 52**

- (Exam Topic 5)

The for Cloud Bigtable makes it possible to use Cloud Bigtable in a Cloud Dataflow pipeline.

- A. Cloud Dataflow connector
- B. DataFlow SDK
- C. BigQuery API
- D. BigQuery Data Transfer Service

**Answer: A**

**Explanation:**

The Cloud Dataflow connector for Cloud Bigtable makes it possible to use Cloud Bigtable in a Cloud Dataflow pipeline. You can use the connector for both batch and streaming operations.

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

**NEW QUESTION 56**

- (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 60**

- (Exam Topic 5)

Which TensorFlow function can you use to configure a categorical column if you don't know all of the possible values for that column?

- A. categorical\_column\_with\_vocabulary\_list
- B. categorical\_column\_with\_hash\_bucket
- C. categorical\_column\_with\_unknown\_values
- D. sparse\_column\_with\_keys

**Answer: B**

**Explanation:**

If you know the set of all possible feature values of a column and there are only a few of them, you can use categorical\_column\_with\_vocabulary\_list. Each key in the list will get assigned an auto-incremental ID starting from 0.

What if we don't know the set of possible values in advance? Not a problem. We can use categorical\_column\_with\_hash\_bucket instead. What will happen is that each possible value in the feature column occupation will be hashed to an integer ID as we encounter them in training.

Reference: <https://www.tensorflow.org/tutorials/wide>

**NEW QUESTION 63**

- (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 66**

- (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](https://cloud.google.com/bigquery/docs/access-control#primitive_iam_roles)

**NEW QUESTION 70**

- (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 75**

- (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 80**

- (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](https://cloud.google.com/ml-engine/docs/technical-overview#what_it_does)

**NEW QUESTION 82**

- (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 84**

- (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 87**

- (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 89**

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

**NEW QUESTION 94**

- (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 95**

- (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 98**

- (Exam Topic 5)

Which of these statements about BigQuery caching is true?

- A. By default, a query's results are not cached.
- B. BigQuery caches query results for 48 hours.
- C. Query results are cached even if you specify a destination table.
- D. There is no charge for a query that retrieves its results from cache.

**Answer:** D

**Explanation:**

When query results are retrieved from a cached results table, you are not charged for the query. BigQuery caches query results for 24 hours, not 48 hours.

Query results are not cached if you specify a destination table.

A query's results are always cached except under certain conditions, such as if you specify a destination table. Reference:

<https://cloud.google.com/bigquery/querying-data#query-caching>

**NEW QUESTION 102**

- (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 106**

- (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 107**

- (Exam Topic 5)

Which of these are examples of a value in a sparse vector? (Select 2 answers.)

- A. [0, 5, 0, 0, 0, 0]
- B. [0, 0, 0, 1, 0, 0, 1]

- C. [0, 1]  
D. [1, 0, 0, 0, 0, 0, 0]

**Answer:** CD

**Explanation:**

Categorical features in linear models are typically translated into a sparse vector in which each possible value has a corresponding index or id. For example, if there are only three possible eye colors you can represent 'eye\_color' as a length 3 vector: 'brown' would become [1, 0, 0], 'blue' would become [0, 1, 0] and 'green' would become [0, 0, 1]. These vectors are called "sparse" because they may be very long, with many zeros, when the set of possible values is very large (such as all English words).

[0, 0, 0, 1, 0, 0, 1] is not a sparse vector because it has two 1s in it. A sparse vector contains only a single 1. [0, 5, 0, 0, 0, 0] is not a sparse vector because it has a 5 in it. Sparse vectors only contain 0s and 1s. Reference: [https://www.tensorflow.org/tutorials/linear#feature\\_columns\\_and\\_transformations](https://www.tensorflow.org/tutorials/linear#feature_columns_and_transformations)

**NEW QUESTION 111**

- (Exam Topic 5)

Dataprocs contain many configuration files. To update these files, you will need to use the --properties option. The format for the option is: file\_prefix:property= .

- A. details  
B. value  
C. null  
D. id

**Answer:** B

**Explanation:**

To make updating files and properties easy, the --properties command uses a special format to specify the configuration file and the property and value within the file that should be updated. The formatting is as follows: file\_prefix:property=value.

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

**NEW QUESTION 115**

- (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](https://cloud.google.com/dataproc/docs/concepts/service-accounts#important_notes)

**NEW QUESTION 120**

- (Exam Topic 5)

All Google Cloud Bigtable client requests go through a front-end server they are sent to a Cloud Bigtable node.

- A. before  
B. after  
C. only if  
D. once

**Answer:** A

**Explanation:**

In a Cloud Bigtable architecture all client requests go through a front-end server before they are sent to a Cloud Bigtable node.

The nodes are organized into a Cloud Bigtable cluster, which belongs to a Cloud Bigtable instance, which is a container for the cluster. Each node in the cluster handles a subset of the requests to the cluster.

When additional nodes are added to a cluster, you can increase the number of simultaneous requests that the cluster can handle, as well as the maximum throughput for the entire cluster.

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

**NEW QUESTION 121**

- (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 an 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 126

- (Exam Topic 5)

You have a job that you want to cancel. It is a streaming pipeline, and you want to ensure that any data that is in-flight is processed and written to the output.

Which of the following commands can you use on the Dataflow monitoring console to stop the pipeline job?

- A. Cancel
- B. Drain
- C. Stop
- D. Finish

**Answer: B**

#### Explanation:

Using the Drain option to stop your job tells the Dataflow service to finish your job in its current state. Your job will immediately stop ingesting new data from input sources, but the Dataflow service will preserve any existing resources (such as worker instances) to finish processing and writing any buffered data in your pipeline.

Reference: <https://cloud.google.com/dataflow/pipelines/stopping-a-pipeline>

#### NEW QUESTION 129

- (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 133

- (Exam Topic 5)

Which of the following statements about the Wide & Deep Learning model are true? (Select 2 answers.)

- A. The wide model is used for memorization, while the deep model is used for generalization.
- B. A good use for the wide and deep model is a recommender system.
- C. The wide model is used for generalization, while the deep model is used for memorization.
- D. A good use for the wide and deep model is a small-scale linear regression problem.

**Answer: AB**

#### Explanation:

Can we teach computers to learn like humans do, by combining the power of memorization and generalization? It's not an easy question to answer, but by jointly training a wide linear model (for memorization) alongside a deep neural network (for generalization), one can combine the strengths of both to bring us one step closer. At Google, we call it Wide & Deep Learning. It's useful for generic large-scale regression and classification problems with sparse inputs (categorical features with a large number of possible feature values), such as recommender systems, search, and ranking problems.

Reference: <https://research.googleblog.com/2016/06/wide-deep-learning-better-together-with.html>

#### NEW QUESTION 134

- (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 138

- (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 141**

- (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 145**

- (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 146**

- (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 148**

- (Exam Topic 5)

Which of the following job types are supported by Cloud Dataproc (select 3 answers)?

- A. Hive
- B. Pig
- C. YARN
- D. Spark

**Answer:** ABD



**Explanation:**

Cloud Dataproc provides out-of-the box and end-to-end support for many of the most popular job types, including Spark, Spark SQL, PySpark, MapReduce, Hive, and Pig jobs.

Reference: [https://cloud.google.com/dataproc/docs/resources/faq#what\\_type\\_of\\_jobs\\_can\\_i\\_run](https://cloud.google.com/dataproc/docs/resources/faq#what_type_of_jobs_can_i_run)

**NEW QUESTION 151**

- (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 155**

- (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](https://cloud.google.com/ml-engine/docs/training-overview#job_configuration_parameters)

**NEW QUESTION 159**

- (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 161**

- (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 162**

- (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 166

- (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 168

- (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 171

- (Exam Topic 6)

You are managing a Cloud Dataproc cluster. You need to make a job run faster while minimizing costs, without losing work in progress on your clusters. What should you do?

- A. Increase the cluster size with more non-preemptible workers.
- B. Increase the cluster size with preemptible worker nodes, and configure them to forcefully decommission.
- C. Increase the cluster size with preemptible worker nodes, and use Cloud Stackdriver to trigger a script to preserve work.
- D. Increase the cluster size with preemptible worker nodes, and configure them to use graceful decommissioning.

**Answer:** D

#### Explanation:

Reference <https://cloud.google.com/dataproc/docs/concepts/configuring-clusters/flex>

**NEW QUESTION 175**

- (Exam Topic 6)

You need to copy millions of sensitive patient records from a relational database to BigQuery. The total size of the database is 10 TB. You need to design a solution that is secure and time-efficient. What should you do?

- A. Export the records from the database as an Avro fil
- B. Upload the file to GCS using gsutil, and then load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.
- C. Export the records from the database as an Avro fil
- D. Copy the file onto a Transfer Appliance and send it to Google, and then load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.
- E. Export the records from the database into a CSV fil
- F. Create a public URL for the CSV file, and then use Storage Transfer Service to move the file to Cloud Storag
- G. Load the CSV file into BigQuery using the BigQuery web UI in the GCP Console.
- H. Export the records from the database as an Avro fil
- I. Create a public URL for the Avro file, and then use Storage Transfer Service to move the file to Cloud Storag
- J. Load the Avro file into BigQuery using the BigQuery web UI in the GCP Console.

**Answer:** A

**NEW QUESTION 179**

- (Exam Topic 6)

You are migrating a table to BigQuery and are deeding 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 tome cluster by store ID first, then city, then stale
- C. Top-level cluster by stale first, then city then store
- D. Top-level cluster by store ID first, then city then state.

**Answer:** C

**NEW QUESTION 183**

- (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 184**

- (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 tabl
- E. Create a BigQuery job that merges the new records with the existing records and writes the results to a new BigQuery table.

**Answer:** D

**NEW QUESTION 185**

- (Exam Topic 6)

You work on a regression problem in a natural language processing domain, and you have 100M labeled exmaples 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 of batch normalization) to avoid overfitting.
- D. Increase the complexity of your model by, e.g., introducing an additional layer or increase sizing the size of vocabularies or n-grams used.

**Answer:** D

**NEW QUESTION 188**

- (Exam Topic 6)

You use BigQuery as your centralized analytics platform. New data is loaded every day, and an ETL pipeline modifies the original data and prepares it for the final users. This ETL pipeline is regularly modified and can generate errors, but sometimes the errors are detected only after 2 weeks. You need to provide a method to recover from these errors, and your backups should be optimized for storage costs. How should you organize your data in BigQuery and store your backups?

- A. Organize your data in a single table, export, and compress and store the BigQuery data in Cloud Storage.
- B. Organize your data in separate tables for each month, and export, compress, and store the data in Cloud Storage.
- C. Organize your data in separate tables for each month, and duplicate your data on a separate dataset in BigQuery.
- D. Organize your data in separate tables for each month, and use snapshot decorators to restore the table to a time prior to the corruption.

**Answer:** D

#### NEW QUESTION 191

- (Exam Topic 6)

Your team is working on a binary classification problem. You have trained a support vector machine (SVM) classifier with default parameters, and received an area under the Curve (AUC) of 0.87 on the validation set. You want to increase the AUC of the model. What should you do?

- A. Perform hyperparameter tuning
- B. Train a classifier with deep neural networks, because neural networks would always beat SVMs
- C. Deploy the model and measure the real-world AUC; it's always higher because of generalization
- D. Scale predictions you get out of the model (tune a scaling factor as a hyperparameter) in order to get the highest AUC

**Answer:** A

#### Explanation:

<https://towardsdatascience.com/understanding-hyperparameters-and-its-optimisation-techniques-f0debba07568>

#### NEW QUESTION 193

- (Exam Topic 6)

You are building a real-time 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 bucket.
- 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 198

- (Exam Topic 6)

You are building a new data pipeline to share data between two different types of applications: jobs generators and job runners. Your solution must scale to accommodate increases in usage and must accommodate the addition of new applications without negatively affecting the performance of existing ones. What should you do?

- A. Create an API using App Engine to receive and send messages to the applications.
- B. Use a Cloud Pub/Sub topic to publish jobs, and use subscriptions to execute them.
- C. Create a table on Cloud SQL, and insert and delete rows with the job information.
- D. Create a table on Cloud Spanner, and insert and delete rows with the job information.

**Answer:** A

#### NEW QUESTION 201

- (Exam Topic 6)

You work for a shipping company that uses handheld scanners to read shipping labels. Your company has strict data privacy standards that require scanners to only transmit recipients' personally identifiable information (PII) to analytics systems, which violates user privacy rules. You want to quickly build a scalable solution using cloud-native managed services to prevent exposure of PII to the analytics systems. What should you do?

- A. Create an authorized view in BigQuery to restrict access to tables with sensitive data.
- B. Install a third-party data validation tool on Compute Engine virtual machines to check the incoming data for sensitive information.
- C. Use Stackdriver logging to analyze the data passed through the total pipeline to identify transactions that may contain sensitive information.
- D. Build a Cloud Function that reads the topics and makes a call to the Cloud Data Loss Prevention API.
- E. Use the tagging and confidence levels to either pass or quarantine the data in a bucket for review.

**Answer:** D

#### NEW QUESTION 202

- (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 206**

- (Exam Topic 6)

You need to choose a database for a new project that has the following requirements:

- Fully managed
- Able to automatically scale up
- Transactionally consistent
- Able to scale up to 6 TB
- Able to be queried using SQL Which database do you choose?

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

**Answer:** C

**NEW QUESTION 207**

- (Exam Topic 6)

You have historical data covering the last three years in BigQuery and a data pipeline that delivers new data to BigQuery daily. You have noticed that when the Data Science team runs a query filtered on a date column and limited to 30–90 days of data, the query scans the entire table. You also noticed that your bill is increasing more quickly than you expected. You want to resolve the issue as cost-effectively as possible while maintaining the ability to conduct SQL queries. What should you do?

- A. Re-create the tables using DD
- B. Partition the tables by a column containing a TIMESTAMP or DATETIME.
- C. Recommend that the Data Science team export the table to a CSV file on Cloud Storage and use Cloud Datalab to explore the data by reading the files directly.
- D. Modify your pipeline to maintain the last 30–90 days of data in one table and the longer history in a different table to minimize full table scans over the entire history.
- E. Write an Apache Beam pipeline that creates a BigQuery table per day
- F. Recommend that the Data Science team use wildcards on the table name suffixes to select the data they need.

**Answer:** C

**NEW QUESTION 208**

- (Exam Topic 6)

Each analytics team in your organization is running BigQuery jobs in their own projects. You want to enable each team to monitor slot usage within their projects. What should you do?

- A. Create a Stackdriver Monitoring dashboard based on the BigQuery metric query/scanned\_bytes
- B. Create a Stackdriver Monitoring dashboard based on the BigQuery metric slots/allocated\_for\_project
- C. Create a log export for each project, capture the BigQuery job execution logs, create a custom metric based on the totalSlotMs, and create a Stackdriver Monitoring dashboard based on the custom metric
- D. Create an aggregated log export at the organization level, capture the BigQuery job execution logs, create a custom metric based on the totalSlotMs, and create a Stackdriver Monitoring dashboard based on the custom metric

**Answer:** D

**NEW QUESTION 210**

- (Exam Topic 6)

An aerospace company uses a proprietary data format to store its night data. You need to connect this new data source to BigQuery and stream the data into BigQuery. You want to efficiently import the data into BigQuery while consuming as few resources as possible. What should you do?

- A. Use a standard Dataflow pipeline to store the raw data in BigQuery and then transform the format later when the data is used.
- B. Write a shell script that triggers a Cloud Function that performs periodic ETL batch jobs on the new data source
- C. Use Apache Hive to write a Dataproc job that streams the data into BigQuery in CSV format
- D. Use an Apache Beam custom connector to write a Dataflow pipeline that streams the data into BigQuery in Avro format

**Answer:** D

**NEW QUESTION 215**

- (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 220**

- (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.

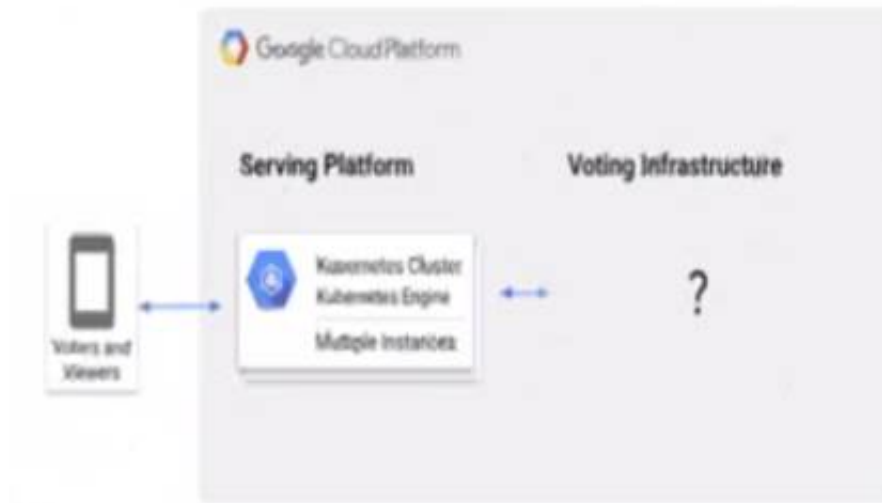
- A. Review Key Visualizer metric
- B. Increase the size of the Cloud Bigtable cluster when the Read pressure index is above 100.
- C. Review Key Visualizer metric
- D. Increase the size of the Cloud Bigtable cluster when the Write pressure index is above 100.
- E. Monitor the latency of write operation
- 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 of read operations take longer than 100 ms.

**Answer:** AC

#### NEW QUESTION 221

- (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 closes 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 226

- (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 format (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 227

- (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 228

- (Exam Topic 6)

You are selecting services to write and transform JSON messages from Cloud Pub/Sub to BigQuery for a data pipeline on Google Cloud. You want to minimize service costs. You also want to monitor and accommodate input data volume that will vary in size with minimal manual intervention. What should you do?

- A. Use Cloud Dataproc to run your transformation
- B. Monitor CPU utilization for the cluster
- C. Resize the number of worker nodes in your cluster via the command line.
- D. Use Cloud Dataproc to run your transformation
- E. Use the diagnose command to generate an operational output archive
- F. Locate the bottleneck and adjust cluster resources.
- G. Use Cloud Dataflow to run your transformation
- H. Monitor the job system lag with Stackdriver
- I. Use the default autoscaling setting for worker instances.
- J. Use Cloud Dataflow to run your transformation
- K. Monitor the total execution time for a sampling of jobs
- L. Configure the job to use non-default Compute Engine machine types when needed.

**Answer:** B

#### NEW QUESTION 233

- (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 234

- (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 239

- (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 241

- (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?

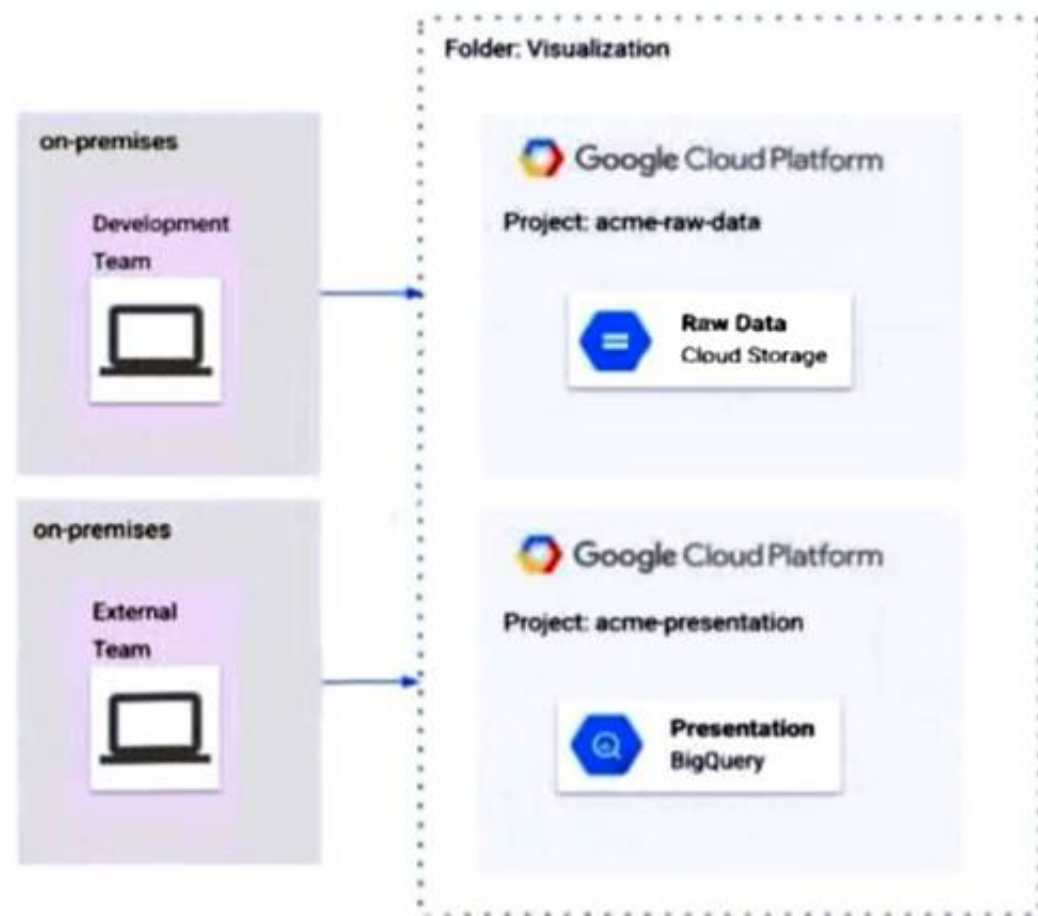
- A. Use BigQuery machine learning to be able to train the model at scale, so you can analyze the packages in batches.
- B. Train an AutoML model on your corpus of images, and build an API around that model to integrate with the package tracking applications.
- C. Use the Cloud Vision API to detect for 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 images
- F. Create a Python notebook in Cloud DataLab that uses this model so you can analyze for damaged packages.

**Answer:** A

#### NEW QUESTION 243

- (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 projects and Cloud Storage as a restricted API
- E. Add the Development Team users to the perimeter's Access Level

**Answer: C**

#### NEW QUESTION 244

- (Exam Topic 6)

A TensorFlow machine learning model on Compute Engine virtual machines (n2-standard-32) takes two days to complete training. The model has custom TensorFlow operations that must run partially on a CPU. You want to reduce the training time in a cost-effective manner. What should you do?

- A. Change the VM type to n2-highmem-32
- B. Change the VM type to e2-standard-32
- C. Train the model using a VM with a GPU hardware accelerator
- D. Train the model using a VM with a TPU hardware accelerator

**Answer: C**

#### NEW QUESTION 245

- (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 data viewer 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 250

- (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 schem
- C. Merge the transformed tables together with a SQL query
- D. Help the analysts write a Cloud Dataflow pipeline in Python to perform the transformatio
- 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](https://cloud.google.com/dataprep/docs/html/Overview-of-RapidTarget_136155049)

**NEW QUESTION 255**

- (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 257**

- (Exam Topic 6)

Your team is responsible for developing and maintaining ETLs in your company. One of your Dataflow jobs is failing because of some errors in the input data, and you need to improve reliability of the pipeline (incl. being able to reprocess all failing data).

What should you do?

- A. Add a filtering step to skip these types of errors in the future, extract erroneous rows from logs.
- B. Add a try... catch block to your DoFn that transforms the data, extract erroneous rows from logs.
- C. Add a try... catch block to your DoFn that transforms the data, write erroneous rows to PubSub directly from the DoFn.
- D. Add a try... catch block to your DoFn that transforms the data, use a sideOutput to create a PCollection that can be stored to PubSub later.

**Answer:** C

**NEW QUESTION 262**

- (Exam Topic 6)

You are designing a pipeline that publishes application events to a Pub/Sub topic. You need to aggregate events across hourly intervals before loading the results to BigQuery for analysis. Your solution must be scalable so it can process and load large volumes of events to BigQuery. What should you do?

- A. Create a streaming Dataflow job to continually read from the Pub/Sub topic and perform the necessary aggregations using tumbling windows
- B. Schedule a batch Dataflow job to run hourly, pulling all available messages from the Pub-Sub topic and performing the necessary aggregations
- C. Schedule a Cloud Function to run hourly, pulling all avertable messages from the Pub/Sub topic and performing the necessary aggregations
- D. Create a Cloud Function to perform the necessary data processing that executes using the Pub/Sub trigger every time a new message is published to the topic.

**Answer:** A

**NEW QUESTION 263**

- (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 267**

- (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 268

- (Exam Topic 6)

You have a data pipeline with a Cloud Dataflow job that aggregates and writes time series metrics to Cloud Bigtable. This data feeds a dashboard used by thousands of users across the organization. You need to support additional concurrent users and reduce the amount of time required to write the data. Which two actions should you take? (Choose two.)

- A. Configure your Cloud Dataflow pipeline to use local execution
- B. Increase the maximum number of Cloud Dataflow workers by setting `maxNumWorkers` in `PipelineOptions`
- C. Increase the number of nodes in the Cloud Bigtable cluster
- D. Modify your Cloud Dataflow pipeline to use the Flatten transform before writing to Cloud Bigtable
- E. Modify your Cloud Dataflow pipeline to use the `CoGroupByKey` transform before writing to Cloud Bigtable

**Answer:** BC

#### NEW QUESTION 273

- (Exam Topic 6)

You are testing a Dataflow pipeline to ingest and transform text files. The files are compressed gzip, errors are written to a dead-letter queue, and you are using `SideInputs` to join data. You noticed that the pipeline is taking longer to complete than expected, what should you do to expedite the Dataflow job?

- A. Switch to compressed Avro files
- B. Reduce the batch size
- C. Retry records that throw an error
- D. Use `CoGroupByKey` instead of the `SideInput`

**Answer:** B

#### NEW QUESTION 276

- (Exam Topic 6)

You are using BigQuery and Data Studio to design a customer-facing dashboard that displays large quantities of aggregated data. You expect a high volume of concurrent users. You need to optimize the dashboard to provide quick visualizations with minimal latency. What should you do?

- A. Use BigQuery BI Engine with materialized views
- B. Use BigQuery BI Engine with streaming data.
- C. Use BigQuery BI Engine with authorized views
- D. Use BigQuery BI Engine with logical reviews

**Answer:** B

#### NEW QUESTION 278

- (Exam Topic 6)

You are using Cloud Bigtable to persist and serve stock market data for each of the major indices. To serve the trading application, you need to access only the most recent stock prices that are streaming in. How should you design your row key and tables to ensure that you can access the data with the most simple query?

- A. Create one unique table for all of the indices, and then use the index and timestamp as the row key design
- B. Create one unique table for all of the indices, and then use a reverse timestamp as the row key design.
- C. For each index, have a separate table and use a timestamp as the row key design
- D. For each index, have a separate table and use a reverse timestamp as the row key design

**Answer:** A

#### NEW QUESTION 283

- (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 284

- (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 289

- (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 294

- (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 295

- (Exam Topic 6)

An aerospace company uses a proprietary data format to store its night data. You need to connect this new data source to BigQuery and stream the data into BigQuery. You want to efficiently import the data into BigQuery while consuming as few resources as possible. What should you do?

- A. Use a standard Dataflow pipeline to store the raw data in BigQuery and then transform the format later when the data is used
- B. Write a shell script that triggers a Cloud Function that performs periodic ETL batch jobs on the new data source
- C. Use Apache Hive to write a Dataproc job that streams the data into BigQuery in CSV format
- D. Use an Apache Beam custom connector to write a Dataflow pipeline that streams the data into BigQuery in Avro format

**Answer:** D

#### NEW QUESTION 297

- (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 298

- (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 with 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 302

- (Exam Topic 6)

You are designing storage for 20 TB of text files as part of deploying a data pipeline on Google Cloud. Your input data is in CSV format. You want to minimize the cost of querying aggregate values for multiple users who will query the data in Cloud Storage with multiple engines. Which storage service and schema design should you use?

- A. Use Cloud Bigtable for storag
- B. Install the HBase shell on a Compute Engine instance to query the Cloud Bigtable data.
- C. Use Cloud Bigtable for storag
- D. Link as permanent tables in BigQuery for query.
- E. Use Cloud Storage for storag
- F. Link as permanent tables in BigQuery for query.
- G. Use Cloud Storage for storag
- H. Link as temporary tables in BigQuery for query.

**Answer:** A

#### NEW QUESTION 305

- (Exam Topic 6)

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 location\_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 locationed and device\_version

**Answer:** B

#### NEW QUESTION 307

- (Exam Topic 6)

You work for a global shipping company. You want to train a model on 40 TB of data to predict which ships in each geographic region are likely to cause delivery delays on any given day. The model will be based on multiple attributes collected from multiple sources. Telemetry data, including location in GeoJSON format, will be pulled from each ship and loaded every hour. You want to have a dashboard that shows how many and which ships are likely to cause delays within a region. You want to use a storage solution that has native functionality for prediction and geospatial processing. Which storage solution should you use?

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

**Answer:** A

#### NEW QUESTION 312

- (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 accoun
- 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 315

- (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 bucket
- H. Access the data directly using Cloud Dataproc, BigQuery, and Compute Engine.

**Answer:** D

#### NEW QUESTION 318

- (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 321

- (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 filtered 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 location\_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 324

- (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 326

- (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 328

- (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 331

- (Exam Topic 6)

Your company is implementing a data warehouse using BigQuery, and you have been tasked with designing the data model You move your on-premises sales data warehouse with a star data schema to BigQuery but notice performance issues when querying the data of the past 30 days Based on Google's recommended practices, what should you do to speed up the query without increasing storage costs?

- A. Denormalize the data
- B. Shard the data by customer ID
- C. Materialize the dimensional data in views
- D. Partition the data by transaction date

**Answer: C**

#### NEW QUESTION 333

- (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 334

- (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 337

- (Exam Topic 6)

Your analytics team wants to build a simple statistical model to determine which customers are most likely to work with your company again, based on a few different metrics. They want to run the model on Apache Spark, using data housed in Google Cloud Storage, and you have recommended using Google Cloud Dataproc to execute this job. Testing has shown that this workload can run in approximately 30 minutes on a 15-node cluster, outputting the results into Google BigQuery. The plan is to run this workload weekly. How should you optimize the cluster for cost?

- A. Migrate the workload to Google Cloud Dataflow
- B. Use pre-emptible virtual machines (VMs) for the cluster
- C. Use a higher-memory node so that the job runs faster
- D. Use SSDs on the worker nodes so that the job can run faster

**Answer: A**

#### NEW QUESTION 341

- (Exam Topic 6)

You work for a mid-sized enterprise that needs to move its operational system transaction data from an on-premises database to GCP. The database is about 20 TB in size. Which database should you choose?

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

**Answer: A**



**NEW QUESTION 345**

- (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 349**

- (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 353**

- (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 358**

- (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 360**

- (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 365**

- (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 storag
- B. Add secondary indexes to support query patterns.
- C. Use Cloud SQL for storag
- D. Use Cloud Dataflow to transform data to support query patterns.
- E. Use Cloud Spanner for storag
- F. Add secondary indexes to support query patterns.
- G. Use Cloud Spanner for storag
- 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 368**

- (Exam Topic 6)

You are designing a data processing pipeline. The pipeline must be able to scale automatically as load increases. Messages must be processed at least once, and must be ordered within windows of 1 hour. How should you design the solution?

- A. Use Apache Kafka for message ingestion and use Cloud Dataproc for streaming analysis.
- B. Use Apache Kafka for message ingestion and use Cloud Dataflow for streaming analysis.
- C. Use Cloud Pub/Sub for message ingestion and Cloud Dataproc for streaming analysis.
- D. Use Cloud Pub/Sub for message ingestion and Cloud Dataflow for streaming analysis.

**Answer:** D

**NEW QUESTION 373**

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