

Google

Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam



NEW QUESTION 1

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 2

- (Exam Topic 1)

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

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

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

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

Answer: D

NEW QUESTION 3

- (Exam Topic 1)

Your company is migrating their 30-node Apache Hadoop cluster to the cloud. They want to re-use Hadoop jobs they have already created and minimize the management of the cluster as much as possible. They also want to be able to persist data beyond the life of the cluster. What should you do?

- A. Create a Google Cloud Dataflow job to process the data.
- B. Create a Google Cloud Dataproc cluster that uses persistent disks for HDFS.
- C. Create a Hadoop cluster on Google Compute Engine that uses persistent disks.
- D. Create a Cloud Dataproc cluster that uses the Google Cloud Storage connector.
- E. Create a Hadoop cluster on Google Compute Engine that uses Local SSD disks.

Answer: A

NEW QUESTION 4

- (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 5

- (Exam Topic 1)

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

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

Answer: A

NEW QUESTION 6

- (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: BCE

NEW QUESTION 7

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 8

- (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 9

- (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 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)

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 13

- (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 16

- (Exam Topic 1)

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

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

Answer: B

NEW QUESTION 17

- (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 Cloud 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 20

- (Exam Topic 3)

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

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

Answer: D

NEW QUESTION 22

- (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 27

- (Exam Topic 3)

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

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

Answer: B

NEW QUESTION 31

- (Exam Topic 3)

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

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

Answer: A

NEW QUESTION 36

- (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 39

- (Exam Topic 4)

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

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

Answer: C

NEW QUESTION 42

- (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 43

- (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 46

- (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

NEW QUESTION 47

- (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 52

- (Exam Topic 5)

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

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

Answer: B

Explanation:

When you create a Cloud Bigtable instance and cluster, your choice of SSD or HDD storage for the cluster is permanent. You cannot use the Google Cloud Platform Console to change the type of storage that is used for the cluster.

If you need to convert an existing HDD cluster to SSD, or vice-versa, you can export the data from the existing instance and import the data into a new instance.

Alternatively, you can write

a Cloud Dataflow or Hadoop MapReduce job that copies the data from one instance to another. Reference: <https://cloud.google.com/bigtable/docs/choosing-ssd-hdd->

NEW QUESTION 57

- (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 59

- (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 63

- (Exam Topic 5)

Does Dataflow process batch data pipelines or streaming data pipelines?

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

Answer: B

Explanation:

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

NEW QUESTION 64

- (Exam Topic 5)

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

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

Answer: D

Explanation:

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

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

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

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

Reference:

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

NEW QUESTION 65

- (Exam Topic 5)

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

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

Answer: C

Explanation:

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

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

NEW QUESTION 68

- (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 71

- (Exam Topic 5)

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

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

Answer: C

Explanation:

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

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

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

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

NEW QUESTION 76

- (Exam Topic 5)

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

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

Answer: B

Explanation:

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

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

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

Reference:

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

NEW QUESTION 78

- (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 80

- (Exam Topic 5)

Google Cloud Bigtable indexes a single value in each row. This value is called the .

- A. primary key
- B. unique key
- C. row key
- D. master key

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.

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

NEW QUESTION 85

- (Exam Topic 5)

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

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

Answer: AB

Explanation:

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

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

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

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

Reference:

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

NEW QUESTION 89

- (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 90

- (Exam Topic 5)

How would you query specific partitions in a BigQuery table?

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

Answer: C

Explanation:

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

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

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

NEW QUESTION 93

- (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 98

- (Exam Topic 5)

Which of the following are feature engineering techniques? (Select 2 answers)

- A. Hidden feature layers
- B. Feature prioritization
- C. Crossed feature columns
- D. Bucketization of a continuous feature

Answer: CD

Explanation:

Selecting and crafting the right set of feature columns is key to learning an effective model. Bucketization is a process of dividing the entire range of a continuous

feature into a set of consecutive bins/buckets, and then converting the original numerical feature into a bucket ID (as a categorical feature) depending on which bucket that value falls into. Using each base feature column separately may not be enough to explain the data. To learn the differences between different feature combinations, we can add crossed feature columns to the model.
Reference: https://www.tensorflow.org/tutorials/wide#selecting_and_engineering_features_for_the_model

NEW QUESTION 99

- (Exam Topic 5)

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

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

Answer: AB

Explanation:

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

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

NEW QUESTION 102

- (Exam Topic 5)

Which of the following is NOT a valid use case to select HDD (hard disk drives) as the storage for Google Cloud Bigtable?

- A. You expect to store at least 10 TB of data.
- B. You will mostly run batch workloads with scans and writes, rather than frequently executing random reads of a small number of rows.
- C. You need to integrate with Google BigQuery.
- D. You will not use the data to back a user-facing or latency-sensitive application.

Answer: C

Explanation:

For example, if you plan to store extensive historical data for a large number of remote-sensing devices and then use the data to generate daily reports, the cost savings for HDD storage may justify the performance tradeoff. On the other hand, if you plan to use the data to display a real-time dashboard, it probably would not make sense to use HDD storage—reads would be much more frequent in this case, and reads are much slower with HDD storage.

Reference: <https://cloud.google.com/bigtable/docs/choosing-ssd-hdd>

NEW QUESTION 106

- (Exam Topic 5)

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

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

Answer: C

Explanation:

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

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

It is recommended to avoid creating your Compute Engine instance in a different region from your Cloud Bigtable instance, which can add hundreds of milliseconds of latency to each Cloud Bigtable request.

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

NEW QUESTION 107

- (Exam Topic 5)

When a Cloud Bigtable node fails, is lost.

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

Answer: B

Explanation:

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

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

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

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

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

NEW QUESTION 111

- (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. BiqQuery 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 116

- (Exam Topic 5)

Cloud Dataproc charges you only for what you really use with billing.

- A. month-by-month
- B. minute-by-minute
- C. week-by-week
- D. hour-by-hour

Answer: B

Explanation:

One of the advantages of Cloud Dataproc is its low cost. Dataproc charges for what you really use with minute-by-minute billing and a low, ten-minute-minimum billing period.

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

NEW QUESTION 117

- (Exam Topic 5)

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

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

Answer: B

Explanation:

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

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

NEW QUESTION 119

- (Exam Topic 5)

Which is the preferred method to use to avoid hotspotting in time series data in Bigtable?

- A. Field promotion
- B. Randomization
- C. Salting
- D. Hashing

Answer: A

Explanation:

By default, prefer field promotion. Field promotion avoids hotspotting in almost all cases, and it tends to make it easier to design a row key that facilitates queries.

Reference:

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

NEW QUESTION 123

- (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

NEW QUESTION 127

- (Exam Topic 5)

You are planning to use Google's Dataflow SDK to analyze customer data such as displayed below. Your project requirement is to extract only the customer name from the data source and then write to an output PCollection.

Tom,555 X street Tim,553 Y street Sam, 111 Z street

Which operation is best suited for the above data processing requirement?

- A. ParDo
- B. Sink API
- C. Source API
- D. Data extraction

Answer: A

Explanation:

In Google Cloud dataflow SDK, you can use the ParDo to extract only a customer name of each element in your PCollection.

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

NEW QUESTION 128

- (Exam Topic 5)

Which of these numbers are adjusted by a neural network as it learns from a training dataset (select 2 answers)?

- A. Weights
- B. Biases
- C. Continuous features
- D. Input values

Answer: AB

Explanation:

A neural network is a simple mechanism that's implemented with basic math. The only difference between the traditional programming model and a neural network is that you let the computer determine the parameters (weights and bias) by learning from training datasets.

Reference:

<https://cloud.google.com/blog/big-data/2016/07/understanding-neural-networks-with-tensorflow-playground>

NEW QUESTION 130

- (Exam Topic 5)

Which of the following is not possible using primitive roles?

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

Answer: C

Explanation:

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

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

NEW QUESTION 135

- (Exam Topic 6)

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

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

Answer: A

Explanation:

Reference:

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

NEW QUESTION 136

- (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: DE

NEW QUESTION 138

- (Exam Topic 6)

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

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

Answer: D

NEW QUESTION 141

- (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 146

- (Exam Topic 6)

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

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

What should you do?

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

Answer: D

NEW QUESTION 151

- (Exam Topic 6)

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

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

Answer: AC

NEW QUESTION 156

- (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 160

- (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 161

- (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 162

- (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: D

NEW QUESTION 165

- (Exam Topic 6)

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

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

Answer: A

Explanation:

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

NEW QUESTION 167

- (Exam Topic 6)

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

- A. Call the Cloud Natural Language API from your applicatio
- B. Process the generated Entity Analysis as labels.
- C. Call the Cloud Natural Language API from your applicatio

- D. Process the generated Sentiment Analysis as labels.
- E. Build and train a text classification model using TensorFlow
- F. Deploy the model using Cloud Machine Learning Engine
- G. Call the model from your application and process the results as labels.
- H. Build and train a text classification model using TensorFlow
- I. Deploy the model using a Kubernetes Engine cluster
- J. Call the model from your application and process the results as labels.

Answer: B

NEW QUESTION 172

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 177

- (Exam Topic 6)

Your organization has been collecting and analyzing data in Google BigQuery for 6 months. The majority of the data analyzed is placed in a time-partitioned table named events_partitioned. To reduce the cost of queries, your organization created a view called events, which queries only the last 14 days of data. The view is described in legacy SQL. Next month, existing applications will be connecting to BigQuery to read the events data via an ODBC connection. You need to ensure the applications can connect. Which two actions should you take? (Choose two.)

- A. Create a new view over events using standard SQL
- B. Create a new partitioned table using a standard SQL query
- C. Create a new view over events_partitioned using standard SQL
- D. Create a service account for the ODBC connection to use for authentication
- E. Create a Google Cloud Identity and Access Management (Cloud IAM) role for the ODBC connection and shared "events"

Answer: AE

NEW QUESTION 178

- (Exam Topic 6)

You operate a logistics company, and you want to improve event delivery reliability for vehicle-based sensors. You operate small data centers around the world to capture these events, but leased lines that provide connectivity from your event collection infrastructure to your event processing infrastructure are unreliable, with unpredictable latency. You want to address this issue in the most cost-effective way. What should you do?

- A. Deploy small Kafka clusters in your data centers to buffer events.
- B. Have the data acquisition devices publish data to Cloud Pub/Sub.
- C. Establish a Cloud Interconnect between all remote data centers and Google.
- D. Write a Cloud Dataflow pipeline that aggregates all data in session windows.

Answer: A

NEW QUESTION 180

- (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 181

- (Exam Topic 6)

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

- A. cron
- B. Cloud Composer

- C. Cloud Scheduler
- D. Workflow Templates on Cloud Dataproc

Answer: D

NEW QUESTION 182

- (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 186

- (Exam Topic 6)

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

What should you do?

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

Answer: C

NEW QUESTION 189

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

Answer: A

NEW QUESTION 194

- (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 196

- (Exam Topic 6)

You are designing an Apache Beam pipeline to enrich data from Cloud Pub/Sub with static reference data from BigQuery. The reference data is small enough to fit in memory on a single worker. The pipeline should write enriched results to BigQuery for analysis. Which job type and transforms should this pipeline use?

- A. Batch job, PubSubIO, side-inputs
- B. Streaming job, PubSubIO, JdbcIO, side-outputs
- C. Streaming job, PubSubIO, BigQueryIO, side-inputs
- D. Streaming job, PubSubIO, BigQueryIO, side-outputs

Answer: A

NEW QUESTION 198

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 203

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 204

- (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 208

- (Exam Topic 6)

You work for a manufacturing company that sources up to 750 different components, each from a different supplier. You've collected a labeled dataset that has on average 1000 examples for each unique component. Your team wants to implement an app to help warehouse workers recognize incoming components based on a photo of the component. You want to implement the first working version of this app (as Proof-Of-Concept) within a few working days. What should you do?

- A. Use Cloud Vision AutoML with the existing dataset.
- B. Use Cloud Vision AutoML, but reduce your dataset twice.
- C. Use Cloud Vision API by providing custom labels as recognition hints.
- D. Train your own image recognition model leveraging transfer learning techniques.

Answer: A

NEW QUESTION 209

- (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 214

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 217

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 219

- (Exam Topic 6)

Your United States-based company has created an application for assessing and responding to user actions. The primary table's data volume grows by 250,000 records per second. Many third parties use your application's APIs to build the functionality into their own frontend applications. Your application's APIs should comply with the following requirements:

- ▶ Single global endpoint
 - ▶ ANSI SQL support
 - ▶ Consistent access to the most up-to-date data
- What should you do?

- A. Implement BigQuery with no region selected for storage or processing.
- B. Implement Cloud Spanner with the leader in North America and read-only replicas in Asia and Europe.
- C. Implement Cloud SQL for PostgreSQL with the master in North America and read replicas in Asia and Europe.
- D. Implement Cloud Bigtable with the primary cluster in North America and secondary clusters in Asia and Europe.

Answer: B

NEW QUESTION 222

- (Exam Topic 6)

You launched a new gaming app almost three years ago. You have been uploading log files from the previous day to a separate Google BigQuery table with the table name format LOGS_yyyymmdd. You have been using table wildcard functions to generate daily and monthly reports for all time ranges. Recently, you discovered that some queries that cover long date ranges are exceeding the limit of 1,000 tables and failing. How can you resolve this issue?

- A. Convert all daily log tables into date-partitioned tables
- B. Convert the sharded tables into a single partitioned table
- C. Enable query caching so you can cache data from previous months
- D. Create separate views to cover each month, and query from these views

Answer: A

NEW QUESTION 227

- (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 232

- (Exam Topic 6)

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

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

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

Answer: D

NEW QUESTION 237

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 238

- (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 241

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 242

- (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 244

- (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 availability
- B. Store the data in HDFS, and perform analysis as needed.
- C. Store the data in BigQuery
- D. Access the data using the BigQuery Connector or Cloud Dataproc and Compute Engine.
- E. Store the data in a regional Cloud Storage bucket
- 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: C

NEW QUESTION 245

- (Exam Topic 6)

You are deploying MariaDB SQL databases on GCE VM Instances and need to configure monitoring and alerting. You want to collect metrics including network connections, disk IO and replication status from MariaDB with minimal development effort and use StackDriver for dashboards and alerts. What should you do?

- A. Install the OpenCensus Agent and create a custom metric collection application with a StackDriver exporter.
- B. Place the MariaDB instances in an Instance Group with a Health Check.
- C. Install the StackDriver Logging Agent and configure fluentd in_tail plugin to read MariaDB logs.
- D. Install the StackDriver Agent and configure the MySQL plugin.

Answer: C

NEW QUESTION 246

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 250

- (Exam Topic 6)

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

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

Answer: CD

NEW QUESTION 254

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 258

- (Exam Topic 6)

You work for an advertising company, and you've developed a Spark ML model to predict click-through rates at advertisement blocks. You've been developing everything at your on-premises data center, and now your company is migrating to Google Cloud. Your data center will be migrated to BigQuery. You periodically retrain your Spark ML models, so you need to migrate existing training pipelines to Google Cloud. What should you do?

- A. Use Cloud ML Engine for training existing Spark ML models
- B. Rewrite your models on TensorFlow, and start using Cloud ML Engine
- C. Use Cloud Dataproc for training existing Spark ML models, but start reading data directly from BigQuery
- D. Spin up a Spark cluster on Compute Engine, and train Spark ML models on the data exported from BigQuery

Answer: A

NEW QUESTION 259

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 261

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 263

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 268

- (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 269

- (Exam Topic 6)

You are building a data pipeline on Google Cloud. You need to prepare data using a casual method for a machine-learning process. You want to support a logistic regression model. You also need to monitor and adjust for null values, which must remain real-valued and cannot be removed. What should you do?

- A. Use Cloud Dataprep to find null values in sample source data
- B. Convert all nulls to 'none' using a Cloud Dataproc job.
- C. Use Cloud Dataprep to find null values in sample source data
- D. Convert all nulls to 0 using a Cloud Dataprep job.
- E. Use Cloud Dataflow to find null values in sample source data
- F. Convert all nulls to 'none' using a Cloud Dataprep job.
- G. Use Cloud Dataflow to find null values in sample source data
- H. Convert all nulls to using a custom script.

Answer: C

NEW QUESTION 271

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