



Google

Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam

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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

NEW QUESTION 2

- (Exam Topic 1)

You want to use Google Stackdriver Logging to monitor Google BigQuery usage. You need an instant notification to be sent to your monitoring tool when new data is appended to a certain table using an insert job, but you do not want to receive notifications for other tables. What should you do?

- A. Make a call to the Stackdriver API to list all logs, and apply an advanced filter.
- B. In the Stackdriver logging admin interface, and enable a log sink export to BigQuery.
- C. In the Stackdriver logging admin interface, enable a log sink export to Google Cloud Pub/Sub, and subscribe to the topic from your monitoring tool.
- D. Using the Stackdriver API, create a project sink with advanced log filter to export to Pub/Sub, and subscribe to the topic from your monitoring tool.

Answer: B

NEW QUESTION 3

- (Exam Topic 1)

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

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

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

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

Answer: C

NEW QUESTION 4

- (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 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 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 8

- (Exam Topic 1)

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

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

Answer: C

NEW QUESTION 9

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 10

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

- A. The message body for the sensor event is too large.
- B. Your custom endpoint has an out-of-date SSL certificate.

- C. The Cloud Pub/Sub topic has too many messages published to it.
- D. Your custom endpoint is not acknowledging messages within the acknowledgement deadline.

Answer: B

NEW QUESTION 11

- (Exam Topic 1)

Your company is performing data preprocessing for a learning algorithm in Google Cloud Dataflow. Numerous data logs are being generated during this step, and the team wants to analyze them. Due to the dynamic nature of the campaign, the data is growing exponentially every hour.

The data scientists have written the following code to read the data for a new key features in the logs. BigQueryIO.Read

```
.named("ReadLogData")
```

```
.from("clouddataflow-readonly:samples.log_data")
```

You want to improve the performance of this data read. What should you do?

- A. Specify the TableReference object in the code.
- B. Use .fromQuery operation to read specific fields from the table.
- C. Use of both the Google BigQuery TableSchema and TableFieldSchema classes.
- D. Call a transform that returns TableRow objects, where each element in the PCollection represents a single row in the table.

Answer: D

NEW QUESTION 16

- (Exam Topic 1)

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

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

Answer: C

NEW QUESTION 19

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 22

- (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 visualizations.

Answer: A

Explanation:

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

NEW QUESTION 23

- (Exam Topic 1)

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

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

Answer: C

Explanation:

Reference

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

NEW QUESTION 24

- (Exam Topic 2)

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

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

Answer: C

NEW QUESTION 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 33

- (Exam Topic 2)

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

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

Answer: B

NEW QUESTION 35

- (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 39

- (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 40

- (Exam Topic 3)

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

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

- A. Ensure all the tables are included in global dataset.

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

Answer: BD

NEW QUESTION 42

- (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 46

- (Exam Topic 4)

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

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

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

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

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

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

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

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

Answer: A

NEW QUESTION 50

- (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 file
- F. Create a Google Cloud Dataproc job to process the CSV file and output a new CSV file containing the proper values for FirstName, LastName and FullNam
- G. Run a BigQuery load job to load the new CSV file into BigQuery.

Answer: C

NEW QUESTION 53

- (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 55

- (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 58

- (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 60

- (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 62

- (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 64

- (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 69

- (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 72

- (Exam Topic 5)

Which Java SDK class can you use to run your Dataflow programs locally?

- A. LocalRunner
- B. DirectPipelineRunner
- C. MachineRunner
- D. LocalPipelineRunner

Answer: B

Explanation:

DirectPipelineRunner allows you to execute operations in the pipeline directly, without any optimization. Useful for small local execution and tests

Reference:

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

NEW QUESTION 75

- (Exam Topic 5)

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

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

Answer: A

Explanation:

At a minimum, you must specify four values when creating a new cluster with the `projects.regions.clusters.create` operation:
The project in which the cluster will be created
The region to use
The name of the cluster
The zone in which the cluster will be created
You can specify many more details beyond these minimum requirements. For example, you can also specify the number of workers, whether preemptible compute should be used, and the network settings. Reference:
https://cloud.google.com/dataproc/docs/tutorials/python-library-example#create_a_new_cloud_dataproc_cluste

NEW QUESTION 79

- (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 80

- (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 82

- (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 86

- (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 90

- (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 95

- (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 100

- (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 105

- (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 106

- (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 108

- (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 112

- (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 113

- (Exam Topic 6)

You're using Bigtable for a real-time application, and you have a heavy load that is a mix of read and writes. You've recently identified an additional use case and need to perform hourly an analytical job to calculate certain statistics across the whole database. You need to ensure both the reliability of your production application as well as the analytical workload.

What should you do?

- A. Export Bigtable dump to GCS and run your analytical job on top of the exported files.
- B. Add a second cluster to an existing instance with a multi-cluster routing, use live-traffic app profile for your regular workload and batch-analytics profile for the analytics workload.
- C. Add a second cluster to an existing instance with a single-cluster routing, use live-traffic app profile for your regular workload and batch-analytics profile for the analytics workload.
- D. Increase the size of your existing cluster twice and execute your analytics workload on your new resized cluster.

Answer: B

NEW QUESTION 118

- (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 122

- (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 123

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 124

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

Answer: A

NEW QUESTION 127

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 128

- (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 129

- (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 134

- (Exam Topic 6)

You architect a system to analyze seismic data. Your extract, transform, and load (ETL) process runs as a series of MapReduce jobs on an Apache Hadoop

cluster. The ETL process takes days to process a data set because some steps are computationally expensive. Then you discover that a sensor calibration step has been omitted. How should you change your ETL process to carry out sensor calibration systematically in the future?

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

Answer: A

NEW QUESTION 136

- (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: C

Explanation:

<https://cloud.google.com/dataproc/docs/tutorials/bigquery-sparkml>

NEW QUESTION 141

- (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 146

- (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 147

- (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?

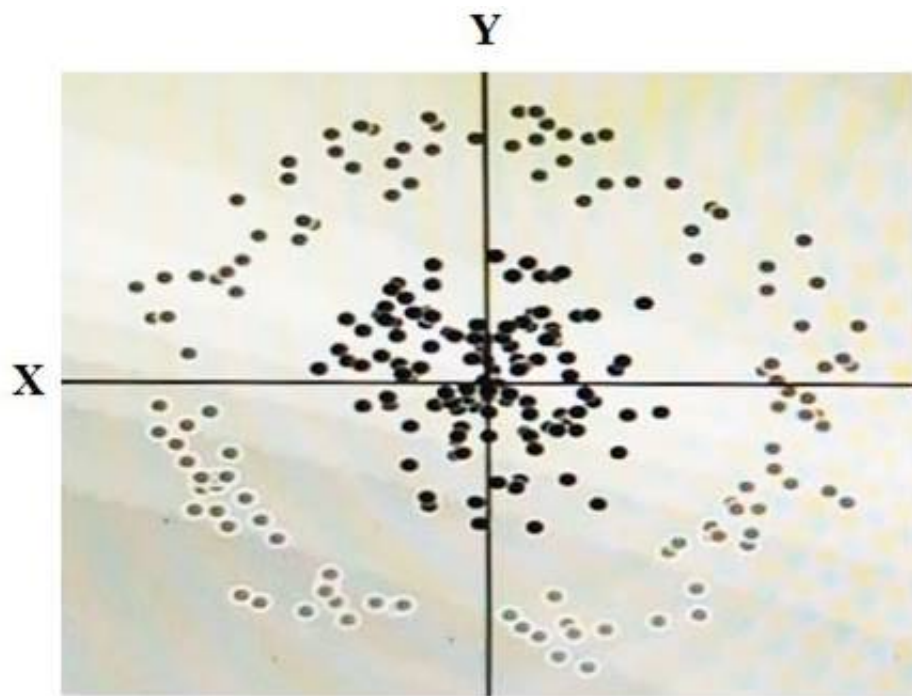
- A. Cloud SQL
- B. Cloud Bigtable
- C. Cloud Spanner
- D. Cloud Datastore

Answer: C

NEW QUESTION 151

- (Exam Topic 6)

You have some data, which is shown in the graphic below. The two dimensions are X and Y, and the shade of each dot represents what class it is. You want to classify this data accurately using a linear algorithm.



To do this you need to add a synthetic feature. What should the value of that feature be?

- A. $X^2 + Y^2$
- B. X^2
- C. Y^2
- D. $\cos(X)$

Answer: D

NEW QUESTION 155

- (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?

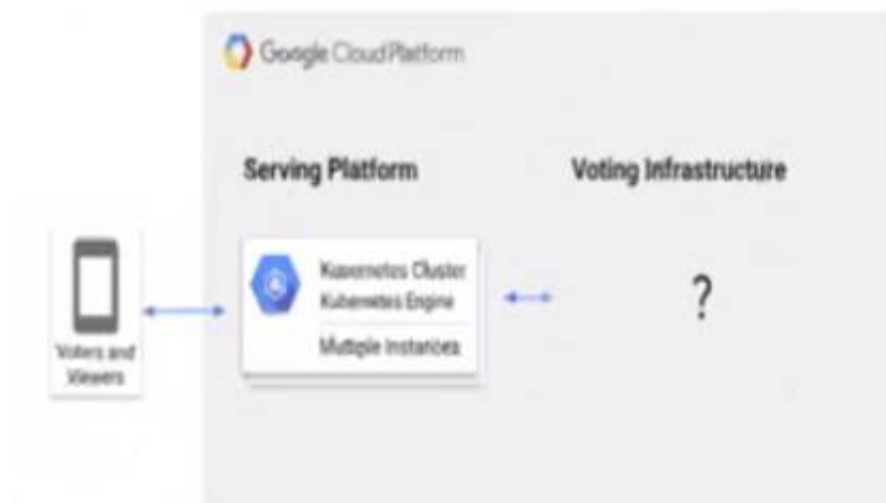
- A. The current epoch time
- B. A concatenation of the product name and the current epoch time
- C. A random universally unique identifier number (version 4 UUID)
- D. The original order identification number from the sales system, which is a monotonically increasing integer

Answer: C

NEW QUESTION 160

- (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 Hal all votes are processed. You must display partial results write voting is open. After voting doses you need to count the votes exactly once white optimizing cost. What should you do?



- A. Create a Memorystore instance with a high availability (HA) configuration
- B. Write votes to a Pub Sub tope and have Cloud Functions subscribe to it and write voles to BigQuery
- C. Write votes to a Pub/Sub tope and toad 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 concludesD Create a Cloud SQL for PostgreSQL database with high availability (HA) configuration and multiple read replicas

Answer: C

NEW QUESTION 164

- (Exam Topic 6)

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

- A. Use Cloud Composer to subscribe to a Pub/Sub tope and can the Python API.
- B. Use a Pub/Sub push subscription to trigger a Cloud Function to pass the data to tie Python API.
- C. Write an application that makes a queue in a NoSQL database

D. Write an application hosted on a Compute Engine instance that makes a push subscription to the Pub/Sub topic

Answer: C

NEW QUESTION 165

- (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: A

NEW QUESTION 167

- (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 171

- (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 175

- (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: C

NEW QUESTION 180

- (Exam Topic 6)

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

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

Answer: D

Explanation:

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

NEW QUESTION 184

- (Exam Topic 6)

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

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

What should you do?

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

Answer: A

Explanation:

you can use dataprep for continuously changing target schema

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

Names of columns

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

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

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

NEW QUESTION 189

- (Exam Topic 6)

Government regulations in your industry mandate that you have to maintain an auditable record of access to certain types of data. Assuming that all expiring logs will be archived correctly, where should you store data that is subject to that mandate?

- A. Encrypted on Cloud Storage with user-supplied encryption key
- B. A separate decryption key will be given to each authorized user.
- C. In a BigQuery dataset that is viewable only by authorized personnel, with the Data Access log used to provide the auditability.
- D. In Cloud SQL, with separate database user names to each use
- E. The Cloud SQL Admin activity logs will be used to provide the auditability.
- F. In a bucket on Cloud Storage that is accessible only by an AppEngine service that collects user information and logs the access before providing a link to the bucket.

Answer: B

NEW QUESTION 192

- (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 196

- (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 198

- (Exam Topic 6)

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

What should you do?

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

Answer: B

NEW QUESTION 202

- (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 204

- (Exam Topic 6)

You operate a database that stores stock trades and an application that retrieves average stock price for a given company over an adjustable window of time. The data is stored in Cloud Bigtable where the datetime of the stock trade is the beginning of the row key. Your application has thousands of concurrent users, and you notice that performance is starting to degrade as more stocks are added. What should you do to improve the performance of your application?

- A. Change the row key syntax in your Cloud Bigtable table to begin with the stock symbol.
- B. Change the row key syntax in your Cloud Bigtable table to begin with a random number per second.
- C. Change the data pipeline to use BigQuery for storing stock trades, and update your application.
- D. Use Cloud Dataflow to write summary of each day's stock trades to an Avro file on Cloud Storage. Update your application to read from Cloud Storage and Cloud Bigtable to compute the responses.

Answer: A

NEW QUESTION 208

- (Exam Topic 6)

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

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

Answer: D

Explanation:

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

NEW QUESTION 210

- (Exam Topic 6)

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

- A. Execute gsutil rsync from the on-premises servers.
- B. Use Cloud Dataflow and write the data to Cloud Storage.
- C. Write a job template in Cloud Dataproc to perform the data transfer.
- D. Install an FTP server on a Compute Engine VM to receive the files and move them to Cloud Storage.

Answer: B

NEW QUESTION 213

- (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 216

- (Exam Topic 6)

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

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

Answer: BC

NEW QUESTION 218

- (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 themodels 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 219

- (Exam Topic 6)

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

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

Answer: D

NEW QUESTION 221

- (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 222

- (Exam Topic 6)

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

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

Answer: D

NEW QUESTION 225

- (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 230

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 232

- (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 236

- (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 239

- (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 242

- (Exam Topic 6)

You need to choose a database to store time series CPU and memory usage for millions of computers. You need to store this data in one-second interval samples. Analysts will be performing real-time, ad hoc analytics against the database. You want to avoid being charged for every query executed and ensure that the

schema design will allow for future growth of the dataset. Which database and data model should you choose?

- A. Create a table in BigQuery, and append the new samples for CPU and memory to the table
- B. Create a wide table in BigQuery, create a column for the sample value at each second, and update the row with the interval for each second
- C. Create a narrow table in Cloud Bigtable with a row key that combines the Computer Engine computer identifier with the sample time at each second
- D. Create a wide table in Cloud Bigtable with a row key that combines the computer identifier with the sample time at each minute, and combine the values for each second as column data.

Answer: C

Explanation:

A tall and narrow table has a small number of events per row, which could be just one event, whereas a short and wide table has a large number of events per row. As explained in a moment, tall and narrow tables are best suited for time-series data. For time series, you should generally use tall and narrow tables. This is for two reasons: Storing one event per row makes it easier to run queries against your data. Storing many events per row makes it more likely that the total row size will exceed the recommended maximum (see Rows can be big but are not infinite).

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

NEW QUESTION 243

- (Exam Topic 6)

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

What should you do?

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

Answer: A

NEW QUESTION 244

- (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 245

- (Exam Topic 6)

You want to analyze hundreds of thousands of social media posts daily at the lowest cost and with the fewest steps.

You have the following requirements:

- You will batch-load the posts once per day and run them through the Cloud Natural Language API.
- You will extract topics and sentiment from the posts.
- You must store the raw posts for archiving and reprocessing.
- You will create dashboards to be shared with people both inside and outside your organization.

You need to store both the data extracted from the API to perform analysis as well as the raw social media posts for historical archiving. What should you do?

- A. Store the social media posts and the data extracted from the API in BigQuery.
- B. Store the social media posts and the data extracted from the API in Cloud SQL.
- C. Store the raw social media posts in Cloud Storage, and write the data extracted from the API into BigQuery.
- D. Feed to social media posts into the API directly from the source, and write the extracted data from the API into BigQuery.

Answer: D

NEW QUESTION 248

- (Exam Topic 6)

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

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

destination

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

Answer: B

NEW QUESTION 252

- (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 255

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

Answer: C

NEW QUESTION 259

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