

Professional-Data-Engineer Dumps

Google Professional Data Engineer Exam

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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)

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

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

Answer: C

NEW QUESTION 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)

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

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

Answer: A

NEW QUESTION 5

- (Exam Topic 1)

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 6

- (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 7

- (Exam Topic 1)

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

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

Answer: B

NEW QUESTION 8

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 9

- (Exam Topic 1)

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

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

Answer: D

NEW QUESTION 10

- (Exam Topic 1)

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 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 11

- (Exam Topic 1)

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

- A. Put the data into Google Cloud Storage.
- B. Use preemptible virtual machines (VMs) for the Cloud Dataproc cluster.

- C. Tune the Cloud Dataproc cluster so that there is just enough disk for all data.
- D. Migrate some of the cold data into Google Cloud Storage, and keep only the hot data in Persistent Disk.

Answer: B

NEW QUESTION 16

- (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 18

- (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 19

- (Exam Topic 1)

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

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

Answer: A

Explanation:

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

NEW QUESTION 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 25

- (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 29

- (Exam Topic 4)

You are choosing a NoSQL database to handle telemetry data submitted from millions of Internet-of-Things (IoT) devices. The volume of data is growing at 100 TB per year, and each data entry has about 100 attributes. The data processing pipeline does not require atomicity, consistency, isolation, and durability (ACID). However, high availability and low latency are required.

You need to analyze the data by querying against individual fields. Which three databases meet your requirements? (Choose three.)

- A. Redis
- B. HBase
- C. MySQL
- D. MongoDB
- E. Cassandra
- F. HDFS with Hive

Answer: BDF

NEW QUESTION 34

- (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 Datastore
- 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 bucket
- F. Use Cloud Dataflow to query BigQuery and combine the data programmatically with the data stored in Google Cloud Storage.

Answer: A

NEW QUESTION 36

- (Exam Topic 4)

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

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

Answer: B

NEW QUESTION 40

- (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 45

- (Exam Topic 5)

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

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

Answer: C

Explanation:

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

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

NEW QUESTION 48

- (Exam Topic 5)

What are all of the BigQuery operations that Google charges for?

- A. Storage, queries, and streaming inserts
- B. Storage, queries, and loading data from a file
- C. Storage, queries, and exporting data
- D. Queries and streaming inserts

Answer: A

Explanation:

Google charges for storage, queries, and streaming inserts. Loading data from a file and exporting data are free operations.

Reference: <https://cloud.google.com/bigquery/pricing>

NEW QUESTION 53

- (Exam Topic 5)

What is the HBase Shell for Cloud Bigtable?

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

Answer: B

Explanation:

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

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

NEW QUESTION 57

- (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 62

- (Exam Topic 5)

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

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

Answer: A

Explanation:

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

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

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

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

NEW QUESTION 66

- (Exam Topic 5)

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

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

Answer: BD

Explanation:

The following rules will apply when you use preemptible workers with a Cloud Dataproc cluster: Processing only—Since preemptibles can be reclaimed at any time, preemptible workers do not store data.

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

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

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

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

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

NEW QUESTION 69

- (Exam Topic 5)

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

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

Answer: A

Explanation:

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

Reference:

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

NEW QUESTION 70

- (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 75

- (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. You need to set a query language for each dataset and the default is Standard SQL.

Answer: D

Explanation:

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

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

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

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

Reference:

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

NEW QUESTION 76

- (Exam Topic 5)

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

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

Answer: A

Explanation:

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

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

NEW QUESTION 78

- (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 83

- (Exam Topic 5)

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

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

Answer: C

Explanation:

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

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

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

Feature engineering is difficult to perform on raw image data.

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

NEW QUESTION 84

- (Exam Topic 5)

Cloud Bigtable is Google’s Big Data database service.

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

Answer: C

Explanation:

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

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

NEW QUESTION 86

- (Exam Topic 5)

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

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

Answer: A

Explanation:

Service accounts used with Cloud Dataproc must have Dataproc/Dataproc Worker role (or have all the permissions granted by Dataproc Worker role).

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

NEW QUESTION 91

- (Exam Topic 5)

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

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

Answer: B

Explanation:

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

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

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

Reference:

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

NEW QUESTION 94

- (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 97

- (Exam Topic 5)

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

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

Answer: D

Explanation:

You can load data into BigQuery from a file upload, Google Cloud Storage, Google Drive, or Google Cloud Bigtable. It is not possible to load data into BigQuery directly from Google Cloud SQL. One way to get data from Cloud SQL to BigQuery would be to export data from Cloud SQL to Cloud Storage and then load it from there.

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

NEW QUESTION 102

- (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 106

- (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 107

- (Exam Topic 5)

Scaling a Cloud Dataproc cluster typically involves .

- A. increasing or decreasing the number of worker nodes
- B. increasing or decreasing the number of master nodes
- C. moving memory to run more applications on a single node
- D. deleting applications from unused nodes periodically

Answer: A

Explanation:

After creating a Cloud Dataproc cluster, you can scale the cluster by increasing or decreasing the number of worker nodes in the cluster at any time, even when jobs are running on the cluster. Cloud Dataproc clusters are typically scaled to:

- 1) increase the number of workers to make a job run faster
- 2) decrease the number of workers to save money
- 3) increase the number of nodes to expand available Hadoop Distributed Filesystem (HDFS) storage

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

NEW QUESTION 109

- (Exam Topic 5)

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

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

Answer: C

Explanation:

An authorized view allows you to share query results with particular users and groups without giving them read access to the underlying tables. Authorized views can only be created in a dataset that does not contain the tables queried by the view. When you create an authorized view, you use the view's SQL query to restrict access to only the rows and columns you want the users to see. Reference: <https://cloud.google.com/bigquery/docs/views#authorized-views>

NEW QUESTION 114

- (Exam Topic 5)

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

- A. Unsupervised learning
- B. Regressor
- C. Classifier
- D. Clustering estimator

Answer: B

Explanation:

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

NEW QUESTION 119

- (Exam Topic 5)

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 122

- (Exam Topic 5)

You have a job that you want to cancel. It is a streaming pipeline, and you want to ensure that any data that is in-flight is processed and written to the output. Which of the following commands can you use on the Dataflow monitoring console to stop the pipeline job?

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

Answer: B

Explanation:

Using the Drain option to stop your job tells the Dataflow service to finish your job in its current state. Your job will immediately stop ingesting new data from input sources, but the Dataflow service will preserve any existing resources (such as worker instances) to finish processing and writing any buffered data in your pipeline. Reference: <https://cloud.google.com/dataflow/pipelines/stopping-a-pipeline>

NEW QUESTION 126

- (Exam Topic 5)

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

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

Answer: A

Explanation:

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

NEW QUESTION 128

- (Exam Topic 5)

If a dataset contains rows with individual people and columns for year of birth, country, and income, how many of the columns are continuous and how many are categorical?

- A. 1 continuous and 2 categorical
- B. 3 categorical
- C. 3 continuous
- D. 2 continuous and 1 categorical

Answer: D

Explanation:

The columns can be grouped into two types—categorical and continuous columns:

A column is called categorical if its value can only be one of the categories in a finite set. For example, the native country of a person (U.S., India, Japan, etc.) or the education level (high school, college, etc.) are categorical columns.

A column is called continuous if its value can be any numerical value in a continuous range. For example, the capital gain of a person (e.g. \$14,084) is a continuous column.

Year of birth and income are continuous columns. Country is a categorical column.

You could use bucketization to turn year of birth and/or income into categorical features, but the raw columns are continuous.

Reference: https://www.tensorflow.org/tutorials/wide#reading_the_census_data

NEW QUESTION 129

- (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 134

- (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 135

- (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 140

- (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 145

- (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 147

- (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 148

- (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 153

- (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 155

- (Exam Topic 5)

Suppose you have a table that includes a nested column called "city" inside a column called "person", but when you try to submit the following query in BigQuery, it gives you an error.

```
SELECT person FROM `project1.example.table1` WHERE city = "London"
```

How would you correct the error?

- A. Add ", UNNEST(person)" before the WHERE clause.
- B. Change "person" to "person.city".
- C. Change "person" to "city.person".
- D. Add ", UNNEST(city)" before the WHERE clause.

Answer: A

Explanation:

To access the `person.city` column, you need to "UNNEST(person)" and JOIN it to `table1` using a comma. Reference:

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

NEW QUESTION 157

- (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 158

- (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 161

- (Exam Topic 6)

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

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

Answer: BE

NEW QUESTION 164

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 169

- (Exam Topic 6)

You currently have a single on-premises Kafka cluster in a data center in the us-east region that is responsible for ingesting messages from IoT devices globally. Because large parts of globe have poor internet connectivity, messages sometimes batch at the edge, come in all at once, and cause a spike in load on your Kafka cluster. This is becoming difficult to manage and prohibitively expensive. What is the Google-recommended cloud native architecture for this scenario?

- A. Edge TPUs as sensor devices for storing and transmitting the messages.
- B. Cloud Dataflow connected to the Kafka cluster to scale the processing of incoming messages.
- C. An IoT gateway connected to Cloud Pub/Sub, with Cloud Dataflow to read and process the messages from Cloud Pub/Sub.
- D. A Kafka cluster virtualized on Compute Engine in us-east with Cloud Load Balancing to connect to the devices around the world.

Answer: C

NEW QUESTION 170

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 171

- (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 176

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 179

- (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 180

- (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 185

- (Exam Topic 6)

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

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

Answer: D

Explanation:

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

NEW QUESTION 186

- (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 187

- (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 189

- (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/Su
- 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/Su
- 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 190

- (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 192

- (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 196

- (Exam Topic 6)

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

- A. Use managed export, and store the data in a Cloud Storage bucket using Nearline or Coldline class.
- B. Use managed export, and then import to Cloud Datastore in a separate project under a unique namespace reserved for that export.
- C. Use managed export, and then import the data into a BigQuery table created just for that export, and delete temporary export files.
- D. Write an application that uses Cloud Datastore client libraries to read all the entities
- E. Treat each entity as a BigQuery table row via BigQuery streaming insert
- F. Assign an export timestamp for each export, and attach it as an extra column for each row
- G. Make sure that the BigQuery table is partitioned using the export timestamp column.
- H. Write an application that uses Cloud Datastore client libraries to read all the entities
- I. Format the exported data into a JSON file
- J. Apply compression before storing the data in Cloud Source Repositories.

Answer: CE

NEW QUESTION 198

- (Exam Topic 6)

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

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

Answer: C

NEW QUESTION 201

- (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 sorting
- 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 205

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 206

- (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 208

- (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 213

- (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 214

- (Exam Topic 6)

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

- A. Re-create the tables using DDL
- B. Partition the tables by a column containing a TIMESTAMP or DATE Type.
- C. Recommend that the Data Science team export the table to a CSV file on Cloud Storage and use Cloud Datalab to explore the data by reading the files directly.
- D. Modify your pipeline to maintain the last 30–90 days of data in one table and the longer history in a different table to minimize full table scans over the entire

history.

E. Write an Apache Beam pipeline that creates a BigQuery table per da

F. Recommend that the Data Science team use wildcards on the table name suffixes to select the data they need.

Answer: C

NEW QUESTION 219

- (Exam Topic 6)

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

A. Review Key Visualizer metric

B. Increase the size of the Cloud Bigtable cluster when the Read pressure index is above 100.

C. Review Key Visualizer metric

D. Increase the size of the Cloud Bigtable cluster when the Write pressure index is above 100.

E. Monitor the latency of write operation

F. Increase the size of the Cloud Bigtable cluster when there is a sustained increase in write latency.

G. Monitor storage utilization

H. Increase the size of the Cloud Bigtable cluster when utilization increases above 70% of max capacity.

I. Monitor latency of read operation

J. Increase the size of the Cloud Bigtable cluster if read operations take longer than 100 ms.

Answer: AC

NEW QUESTION 221

- (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 225

- (Exam Topic 6)

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

Decoupling producer from consumer

Space and cost-efficient storage of the raw ingested data, which is to be stored indefinitely

Near real-time SQL query

Maintain at least 2 years of historical data, which will be queried with SQL

Which pipeline should you use to meet these requirements?

A. Create an application that provides an API

B. Write a tool to poll the API and write data to Cloud Storage as gzipped JSON files.

C. Create an application that writes to a Cloud SQL database to store the data

D. Set up periodic exports of the database to write to Cloud Storage and load into BigQuery.

E. Create an application that publishes events to Cloud Pub/Sub, and create Spark jobs on Cloud Dataproc to convert the JSON data to Avro format, stored on HDFS on Persistent Disk.

F. Create an application that publishes events to Cloud Pub/Sub, and create a Cloud Dataflow pipeline that transforms the JSON event payloads to Avro, writing the data to Cloud Storage and BigQuery.

Answer: A

NEW QUESTION 228

- (Exam Topic 6)

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

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

A. BigQuery

B. Cloud SQL

C. Cloud BigTable

D. Cloud Datastore

Answer: C

NEW QUESTION 232

- (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 233

- (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 238

- (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 240

- (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 241

- (Exam Topic 6)

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

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

Answer: A

NEW QUESTION 242

- (Exam Topic 6)

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

- A. Create a Cloud Dataproc Workflow Template
- B. Create an initialization action to execute the jobs
- C. Create a Directed Acyclic Graph in Cloud Composer

D. Create a Bash script that uses the Cloud SDK to create a cluster, execute jobs, and then tear down the cluster

Answer: A

NEW QUESTION 244

- (Exam Topic 6)

Your company 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 246

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 248

- (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 249

- (Exam Topic 6)

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

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

Answer: B

NEW QUESTION 251

- (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 253

- (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 254

- (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 255

- (Exam Topic 6)

You store historic data in Cloud Storage. You need to perform analytics on the historic data. You want to use a solution to detect invalid data entries and perform data transformations that will not require programming or knowledge of SQL. What should you do?

- A. Use Cloud Dataflow with Beam to detect errors and perform transformations.
- B. Use Cloud Dataprep with recipes to detect errors and perform transformations.
- C. Use Cloud Dataproc with a Hadoop job to detect errors and perform transformations.
- D. Use federated tables in BigQuery with queries to detect errors and perform transformations.

Answer: A

NEW QUESTION 259

- (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 262

- (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 265

- (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 268

- (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 270

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