# Google

## Exam Questions Professional-Data-Engineer

Google Professional Data Engineer Exam

**NEW QUESTION 1**
- (Exam Topic 1)
Your software uses a simple JSON format for all messages. These messages are published to Google Cloud Pub/Sub, then processed with Google Cloud Dataflow to create a real-time dashboard for the CFO. During testing, you notice that some messages are missing in the dashboard. You check the logs, and all messages are being published to Cloud Pub/Sub successfully. What should you do next?

A. Check the dashboard application to see if it is not displaying correctly.
B. Run a fixed dataset through the Cloud Dataflow pipeline and analyze the output.
C. Use Google Stackdriver Monitoring on Cloud Pub/Sub to find the missing messages.
D. Switch Cloud Dataflow to pull messages from Cloud Pub/Sub instead of Cloud Pub/Sub pushing messages to Cloud Dataflow.

**Answer:** B

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

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

**Answer:** BDF

**NEW QUESTION 4**
- (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 5**
- (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 6**
- (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 site of the BigDate 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 7**
- (Exam Topic 1)
You need to store and analyze social media postings in Google BigQuery at a rate of 10,000 messages per minute in near real-time. Initially, design the application to use streaming inserts for individual postings. Your application also performs data aggregations right after the streaming inserts. You discover that the queries after streaming inserts do not exhibit strong consistency, and reports from the queries might miss in-flight data. How can you adjust your application design?

A. Re-write the application to load accumulated data every 2 minutes.
B. Convert the streaming insert code to batch load for individual messages.
C. Load the original message to Google Cloud SQL, and export the table every hour to BigQuery via streaming inserts.
D. Estimate the average latency for data availability after streaming inserts, and always run queries after waiting twice as long.

**Answer:** A

**NEW QUESTION 8**
- (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 9**
- (Exam Topic 1)
Your weather app queries a database every 15 minutes to get the current temperature. The frontend is powered by Google App Engine and server millions of users. How should you design the frontend to respond to a database failure?

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

**Answer:** B

**NEW QUESTION 10**
- (Exam Topic 4)
Your company has recently grown rapidly and now ingesting data at a significantly higher rate than it was previously. You manage the daily batch MapReduce analytics jobs in Apache Hadoop. However, the recent increase in data has meant the batch jobs are falling behind. You were asked to recommend ways the development team could increase the responsiveness of the analytics without increasing costs. What should you recommend they do?

A. Rewrite the job in Pig.
B. Rewrite the job in Apache Spark.
C. Increase the size of the Hadoop cluster.
D. Decrease the size of the Hadoop cluster but also rewrite the job in Hive.

**Answer:** A

**NEW QUESTION 10**
- (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 13**
- (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 15**
- (Exam Topic 5)
Which of these are examples of a value in a sparse vector? (Select 2 answers.)

A. [0, 5, 0, 0, 0, 0]
B. [0, 0, 0, 1, 0, 0, 1]
C. [0, 1]
D. [1, 0, 0, 0, 0, 0, 0]

**Answer:** CD

**Explanation:**
Categorical features in linear models are typically translated into a sparse vector in which each possible value has a corresponding index or id. For example, if there are only three possible eye colors you can represent 'eye_color' as a length 3 vector: 'brown' would become [1, 0, 0], 'blue' would become [0, 1, 0] and 'green' would become [0, 0, 1]. These vectors are called "sparse" because they may be very long, with many zeros, when the set of possible values is very large (such as all English words).
[0, 0, 0, 1, 0, 0, 1] is not a sparse vector because it has two 1s in it. A sparse vector contains only a single 1. [0, 5, 0, 0, 0, 0] is not a sparse vector because it has a 5 in it. Sparse vectors only contain 0s and 1s. Reference: https://www.tensorflow.org/tutorials/linear#feature_columns_and_transformations

**NEW QUESTION 20**
- (Exam Topic 5)
Which of these is NOT a way to customize the software on Dataproc cluster instances?

A. Set initialization actions
B. Modify configuration files using cluster properties
C. Configure the cluster using Cloud Deployment Manager
D. Log into the master node and make changes from there

**Answer:** C

**Explanation:**
You can access the master node of the cluster by clicking the SSH button next to it in the Cloud Console.
You can easily use the --properties option of the dataproc command in the Google Cloud SDK to modify many common configuration files when creating a cluster.
When creating a Cloud Dataproc cluster, you can specify initialization actions in executables and/or scripts that Cloud Dataproc will run on all nodes in your Cloud Dataproc cluster immediately after the cluster is set up. [https://cloud.google.com/dataproc/docs/concepts/configuring-clusters/init-actions]
Reference: https://cloud.google.com/dataproc/docs/concepts/configuring-clusters/cluster-properties

**NEW QUESTION 25**
- (Exam Topic 5)
Dataproc clusters contain many configuration files. To update these files, you will need to use the --properties option. The format for the option is: file_prefix:property= .

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

**Answer:** B

**Explanation:**
To make updating files and properties easy, the --properties command uses a special format to specify the configuration file and the property and value within the file that should be updated. The formatting is as follows: file_prefix:property=value.
Reference: https://cloud.google.com/dataproc/docs/concepts/cluster-properties#formatting

**NEW QUESTION 26**
- (Exam Topic 5)
Which of these operations can you perform from the BigQuery Web UI?

A. Upload a file in SQL format.
B. Load data with nested and repeated fields.
C. Upload a 20 MB file.
D. Upload multiple files using a wildcard.

**Answer:** B

**Explanation:**
You can load data with nested and repeated fields using the Web UI. You cannot use the Web UI to:
- Upload a file greater than 10 MB in size
- Upload multiple files at the same time
- Upload a file in SQL format
All three of the above operations can be performed using the "bq" command. Reference: https://cloud.google.com/bigquery/loading-data

**NEW QUESTION 31**
- (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 36**
- (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 40**
- (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 42**
- (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 43**
- (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 48**
- (Exam Topic 5)
Which of the following are examples of hyperparameters? (Select 2 answers.)

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

**Answer:** AB

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

engine/docs/hyperparameter-tuning-overview

**NEW QUESTION 51**
- (Exam Topic 5)
Which of these is not a supported method of putting data into a partitioned table?

A. If you have existing data in a separate file for each day, then create a partitioned table and upload each file into the appropriate partition.
B. Run a query to get the records for a specific day from an existing table and for the destination table, specify a partitioned table ending with the day in the format "$YYYYMMDD".
C. Create a partitioned table and stream new records to it every day.
D. Use ORDER BY to put a table's rows into chronological order and then change the table's type to "Partitioned".

**Answer:** D

**Explanation:**
You cannot change an existing table into a partitioned table. You must create a partitioned table from scratch. Then you can either stream data into it every day and the data will automatically be put in the right partition, or you can load data into a specific partition by using "$YYYYMMDD" at the end of the table name.
Reference: https://cloud.google.com/bigquery/docs/partitioned-tables

**NEW QUESTION 52**
- (Exam Topic 5)
The for Cloud Bigtable makes it possible to use Cloud Bigtable in a Cloud Dataflow pipeline.

A. Cloud Dataflow connector
B. DataFlow SDK
C. 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 54**
- (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 55**
- (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 60**
- (Exam Topic 5)
Which of the following is NOT true about Dataflow pipelines?

A. Dataflow pipelines are tied to Dataflow, and cannot be run on any other runner
B. Dataflow pipelines can consume data from other Google Cloud services

C. Dataflow pipelines can be programmed in Java
D. Dataflow pipelines use a unified programming model, so can work both with streaming and batch data sources

**Answer:** A

**Explanation:**
Dataflow pipelines can also run on alternate runtimes like Spark and Flink, as they are built using the Apache Beam SDKs
Reference: https://cloud.google.com/dataflow/

**NEW QUESTION 64**
- (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 65**
- (Exam Topic 5)
Cloud Bigtable is a recommended option for storing very large amounts of _____ ?

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

**Answer:** C

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

**NEW QUESTION 67**
- (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 68**
- (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 73**
- (Exam Topic 6)
You're training a model to predict housing prices based on an available dataset with real estate properties. Your plan is to train a fully connected neural net, and you've discovered that the dataset contains latitude and longtitude of the property. Real estate professionals have told you that the location of the property is highly influential on price, so you'd like to engineer a feature that incorporates this physical dependency.
What should you do?

A. Provide latitude and longtitude as input vectors to your neural net.

B. Create a numeric column from a feature cross of latitude and longtitude.
C. Create a feature cross of latitude and longtitude, bucketize at the minute level and use L1 regularization during optimization.
D. Create a feature cross of latitude and longtitude, bucketize it at the minute level and use L2 regularization during optimization.

**Answer:** B

**Explanation:**
Reference https://cloud.google.com/bigquery/docs/gis-data

**NEW QUESTION 78**
- (Exam Topic 6)
Your company maintains a hybrid deployment with GCP, where analytics are performed on your anonymized customer data. The data are imported to Cloud Storage from your data center through parallel uploads to a data transfer server running on GCP. Management informs you that the daily transfers take too long and have asked you to fix the problem. You want to maximize transfer speeds. Which action should you take?

A. Increase the CPU size on your server.
B. Increase the size of the Google Persistent Disk on your server.
C. Increase your network bandwidth from your datacenter to GCP.
D. Increase your network bandwidth from Compute Engine to Cloud Storage.

**Answer:** C

**NEW QUESTION 81**
- (Exam Topic 6)
You are a retailer that wants to integrate your online sales capabilities with different in-home assistants, such as Google Home. You need to interpret customer voice commands and issue an order to the backend systems. Which solutions should you choose?

A. Cloud Speech-to-Text API
B. Cloud Natural Language API
C. Dialogflow Enterprise Edition
D. Cloud AutoML Natural Language

**Answer:** D

**NEW QUESTION 85**
- (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 90**
- (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 Bigtabl
H. Use Cloud Scheduler to run a script every hour that counts the number of rows created in Cloud Bigtable in the last hou
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 BigQuer
L. Use Cloud Scheduler to run a script every five minutes that counts the number of rows created in BigQuery in the last hou
M. If that number falls below 4000, send an alert.

**Answer:** C

**NEW QUESTION 93**
- (Exam Topic 6)
You decided to use Cloud Datastore to ingest vehicle telemetry data in real time. You want to build a storage system that will account for the long-term data growth, while keeping the costs low. You also want to create snapshots of the data periodically, so that you can make a point-in-time (PIT) recovery, or clone a

copy of the data for Cloud Datastore in a different environment. You want to archive these snapshots for a long time. Which two methods can accomplish this? Choose 2 answers.

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

**Answer:** CE

**NEW QUESTION 96**
- (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 98**
- (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 99**
- (Exam Topic 6)
You are integrating one of your internal IT applications and Google BigQuery, so users can query BigQuery from the application's interface. You do not want individual users to authenticate to BigQuery and you do not want to give them access to the dataset. You need to securely access BigQuery from your IT application.
What should you do?

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

**Answer:** C

**NEW QUESTION 102**
- (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 107**
- (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 111**
- (Exam Topic 6)
You are operating a streaming Cloud Dataflow pipeline. Your engineers have a new version of the pipeline with a different windowing algorithm and triggering strategy. You want to update the running pipeline with the new version. You want to ensure that no data is lost during the update. What should you do?

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

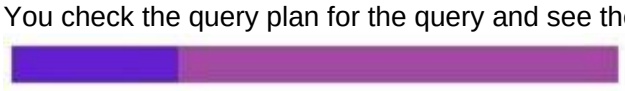
**Answer:** A

**NEW QUESTION 112**
- (Exam Topic 6)
You have historical data covering the last three years in BigQuery and a data pipeline that delivers new data to BigQuery daily. You have noticed that when the Data Science team runs a query filtered on a date column and limited to 30–90 days of data, the query scans the entire table. You also noticed that your bill is increasing more quickly than you expected. You want to resolve the issue as cost-effectively as possible while maintaining the ability to conduct SQL queries. What should you do?

A. Re-create the tables using DD
B. Partition the tables by a column containing a TIMESTAMP or 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 115**
- (Exam Topic 6)
You are using Google BigQuery as your data warehouse. Your users report that the following simple query is running very slowly, no matter when they run the query:
SELECT country, state, city FROM [myproject:mydataset.mytable] GROUP BY country
You check the query plan for the query and see the following output in the Read section of Stage:1:



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

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

**Answer:** A

**NEW QUESTION 118**
- (Exam Topic 6)
You need to create a data pipeline that copies time-series transaction data so that it can be queried from within BigQuery by your data science team for analysis. Every hour, thousands of transactions are updated with a new status. The size of the intitial dataset is 1.5 PB, and it will grow by 3 TB per day. The data is heavily structured, and your data science team will build machine learning models based on this data. You want to maximize performance and usability for your data science team. Which two strategies should you adopt? Choose 2 answers.

A. Denormalize the data as must as possible.
B. Preserve the structure of the data as much as possible.
C. Use BigQuery UPDATE to further reduce the size of the dataset.
D. Develop a data pipeline where status updates are appended to BigQuery instead of updated.
E. Copy a daily snapshot of transaction data to Cloud Storage and store it as an Avro fil
F. Use BigQuery’ssupport for external data sources to query.

**Answer:** DE

**NEW QUESTION 123**
- (Exam Topic 6)

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

- Decoupling producer from consumer
- Space and cost-efficient storage of the raw ingested data, which is to be stored indefinitely
- Near real-time SQL query
- Maintain at least 2 years of historical data, which will be queried with SQ

Which pipeline should you use to meet these requirements?

A. Create an application that provides an AP
B. Write a tool to poll the API and write data to Cloud Storage as gzipped JSON files.
C. Create an application that writes to a Cloud SQL database to store the dat
D. Set up periodic exports of the database to write to Cloud Storage and load into BigQuery.
E. Create an application that publishes events to Cloud Pub/Sub, and create Spark jobs on Cloud Dataproc to convert the JSON data to Avro format, stored on HDFS on Persistent Disk.
F. Create an application that publishes events to Cloud Pub/Sub, and create a Cloud Dataflow pipeline that transforms the JSON event payloads to Avro, writing the data to Cloud Storage and BigQuery.

**Answer:** A

**NEW QUESTION 124**
- (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 129**
- (Exam Topic 6)
You need to copy millions of sensitive patient records from a relational database to BigQuery. The total size of the database is 10 TB. You need to design a solution that is secure and time-efficient. What should you do?

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

**Answer:** A

**NEW QUESTION 133**
- (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 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 140**
- (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 tothe 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 connecto
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 connecto
G. Use a Dataflow job to read fron PubSub and write to GCS.
H. Deploy the PubSub Kafka connector to your on-prem Kafka cluster and configure PubSub as a Sink connecto
I. Use a Dataflow job to read fron PubSub and write to GCS.

**Answer:** A

**NEW QUESTION 142**
- (Exam Topic 6)
You want to archive data in Cloud Storage. Because some data is very sensitive, you want to use the “Trust No One” (TNO) approach to encrypt your data to prevent the cloud provider staff from decrypting your data. What should you do?

A. Use gcloud kms keys create to create a symmetric ke
B. Then use gcloud kms encrypt to encrypt each archival file with the key and unique additional authenticated data (AAD). Use gsutil cp to upload each encrypted file to the Cloud Storage bucket, and keep the AAD outside of Google Cloud.
C. Use gcloud kms keys create to create a symmetric ke
D. Then use gcloud kms encrypt to encrypt each archival file with the ke
E. Use gsutil cp to upload each encrypted file to the Cloud Storage bucke
F. Manually destroy the key previously used for encryption, and rotate the key once and rotate the key once.
G. Specify customer-supplied encryption key (CSEK) in the .boto configuration fil
H. Use gsutil cp to upload each archival file to the Cloud Storage bucke
I. Save the CSEK in Cloud Memorystore as permanent storage of the secret.
J. Specify customer-supplied encryption key (CSEK) in the .boto configuration fil
K. Use gsutil cp to upload each archival file to the Cloud Storage bucke
L. Save the CSEK in a different project that only the security team can access.

**Answer:** B

**NEW QUESTION 146**
- (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 151**
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