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QUESTION 1

You are a data scientist at an industrial equipment manufacturing company. You are developing a regression model to estimate the power consumption in the company\\'s manufacturing plants based on sensor data collected from all of the plants. The sensors collect tens of millions of records every day. You need to schedule daily training runs for your model that use all the data collected up to the current date. You want your model to scale smoothly and require minimal development work. What should you do?

- A. Train a regression model using AutoML Tables.
- B. Develop a custom TensorFlow regression model, and optimize it using Vertex Al Training.
- C. Develop a custom scikit-learn regression model, and optimize it using Vertex AI Training.
- D. Develop a regression model using BigQuery ML.

Correct Answer: D

The key is to understand the amount of data that needs to be used for training - the sensor collects tens of millions of records every day and the model needs to use all the data up to the current date. There is a limitation for AutoML is 100M rows -> https://cloud.google.com/vertex-ai/docs/tabular-data/classification-regression/prepare-data

QUESTION 2

Your company manages an application that aggregates news articles from many different online sources and sends them to users. You need to build a recommendation model that will suggest articles to readers that are similar to the articles they are currently reading. Which approach should you use?

- A. Create a collaborative filtering system that recommends articles to a user based on the user\\'s past behavior.
- B. Encode all articles into vectors using word2vec, and build a model that returns articles based on vector similarity.
- C. Build a logistic regression model for each user that predicts whether an article should be recommended to a user.
- D. Manually label a few hundred articles, and then train an SVM classifier based on the manually classified articles that categorizes additional articles into their respective categories.

Correct Answer: B

https://cloud.google.com/blog/topics/developers-practitioners/meet-ais-multitool-vector-embeddings

QUESTION 3

You are working on a Neural Network-based project. The dataset provided to you has columns with different ranges. While preparing the data for model training, you discover that gradient optimization is having difficulty moving weights to a good solution. What should you do?

- A. Use feature construction to combine the strongest features.
- B. Use the representation transformation (normalization) technique.

- C. Improve the data cleaning step by removing features with missing values.
- D. Change the partitioning step to reduce the dimension of the test set and have a larger training set.

Correct Answer: B

https://developers.google.com/machine-learning/data-prep/transform/transform-numeric

QUESTION 4

You are working on a system log anomaly detection model for a cybersecurity organization. You have developed the model using TensorFlow, and you plan to use it for real-time prediction. You need to create a Dataflow pipeline to ingest data via Pub/Sub and write the results to BigQuery. You want to minimize the serving latency as much as possible. What should you do?

- A. Containerize the model prediction logic in Cloud Run, which is invoked by Dataflow.
- B. Load the model directly into the Dataflow job as a dependency, and use it for prediction.
- C. Deploy the model to a Vertex AI endpoint, and invoke this endpoint in the Dataflow job.
- D. Deploy the model in a TFServing container on Google Kubernetes Engine, and invoke it in the Dataflow job.

Correct Answer: C

https://cloud.google.com/architecture/minimizing-predictive-serving-latency-in-machine-learning

QUESTION 5

Your team is building an application for a global bank that will be used by millions of customers. You built a forecasting model that predicts customers\\' account balances 3 days in the future. Your team will use the results in a new feature that will notify users when their account balance is likely to drop below \$25. How should you serve your predictions?

- A. 1. Create a Pub/Sub topic for each user.
- 2. Deploy a Cloud Function that sends a notification when your model predicts that a user\\'s account balance will drop below the \$25 threshold.
- B. 1. Create a Pub/Sub topic for each user.
- 2. Deploy an application on the App Engine standard environment that sends a notification when your model predicts that a user\\'s account balance will drop below the \$25 threshold.
- C. 1. Build a notification system on Firebase.
- 2. Register each user with a user ID on the Firebase Cloud Messaging server, which sends a notification when the average of all account balance predictions drops below the \$25 threshold.
- D. 1. Build a notification system on Firebase.
- 2. Register each user with a user ID on the Firebase Cloud Messaging server, which sends a notification when your model predicts that a user\\'s account balance will drop below the \$25 threshold.



Correct Answer: D

Firebase is designed for exactly this sort of scenario. Also, it would not be possible to create millions of pubsub topics due to GCP quotas https://cloud.google.com/pubsub/quotas#quotas https://firebase.google.com/docs/cloud-messaging

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