



Google

Exam Questions Professional-Machine-Learning-Engineer

Google Professional Machine Learning Engineer

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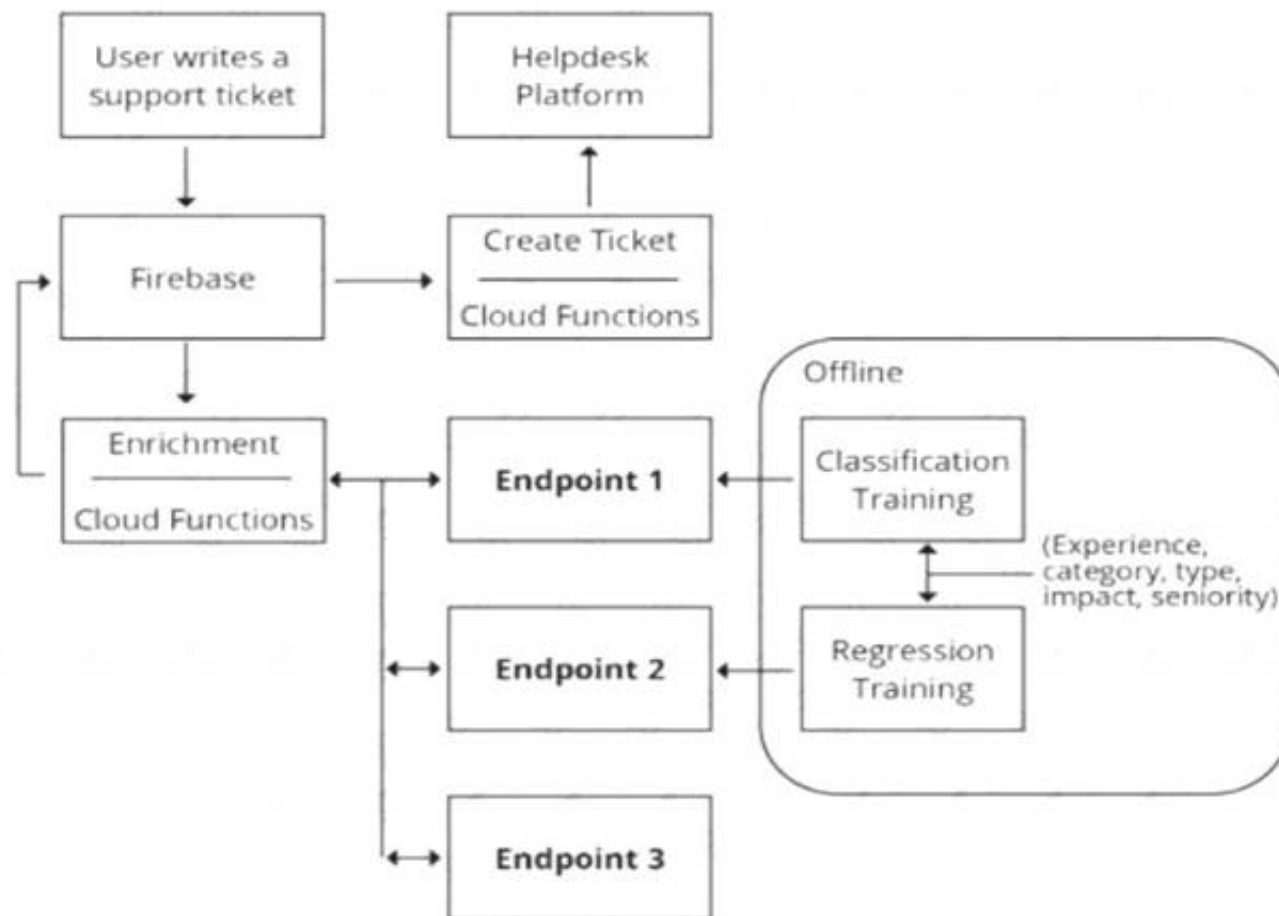
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NEW QUESTION 1

You are designing an architecture with a serverless ML system to enrich customer support tickets with informative metadata before they are routed to a support agent. You need a set of models to predict ticket priority, predict ticket resolution time, and perform sentiment analysis to help agents make strategic decisions when they process support requests. Tickets are not expected to have any domain-specific terms or jargon. The proposed architecture has the following flow:



Which endpoints should the Enrichment Cloud Functions call?

- A. 1 = AI Platform, 2 = AI Platform, 3 = AutoML Vision
- B. 1 = AI Platform, 2 = AI Platform, 3 = AutoML Natural Language
- C. 1 = AI Platform, 2 = AI Platform, 3 = Cloud Natural Language API
- D. 1 = cloud Natural Language API, 2 = AI Platform, 3 = Cloud Vision API

Answer: B

NEW QUESTION 2

You work for a large hotel chain and have been asked to assist the marketing team in gathering predictions for a targeted marketing strategy. You need to make predictions about user lifetime value (LTV) over the next 30 days so that marketing can be adjusted accordingly. The customer dataset is in BigQuery, and you are preparing the tabular data for training with AutoML Tables. This data has a time signal that is spread across multiple columns. How should you ensure that AutoML fits the best model to your data?

- A. Manually combine all columns that contain a time signal into an array Allow AutoML to interpret this array appropriatelyChoose an automatic data split across the training, validation, and testing sets
- B. Submit the data for training without performing any manual transformations Allow AutoML to handle the appropriate transformations Choose an automatic data split across the training, validation, and testing sets
- C. Submit the data for training without performing any manual transformations, and indicate an appropriate column as the Time column Allow AutoML to split your data based on the time signal provided, and reserve the more recent data for the validation and testing sets
- D. Submit the data for training without performing any manual transformations Use the columns that have a time signal to manually split your data Ensure that the data in your validation set is from 30 days after the data in your training set and that the data in your testing set is from 30 days after your validation set

Answer: D

NEW QUESTION 3

You need to design a customized deep neural network in Keras that will predict customer purchases based on their purchase history. You want to explore model performance using multiple model architectures, store training data, and be able to compare the evaluation metrics in the same dashboard. What should you do?

- A. Create multiple models using AutoML Tables
- B. Automate multiple training runs using Cloud Composer
- C. Run multiple training jobs on AI Platform with similar job names
- D. Create an experiment in Kubeflow Pipelines to organize multiple runs

Answer: C

NEW QUESTION 4

You are training a Resnet model on AI Platform using TPUs to visually categorize types of defects in automobile engines. You capture the training profile using the Cloud TPU profiler plugin and observe that it is highly input-bound. You want to reduce the bottleneck and speed up your model training process. Which modifications should you make to the tf.data dataset?

Choose 2 answers

- A. Use the interleave option for reading data

- B. Reduce the value of the repeat parameter
- C. Increase the buffer size for the shuffle option.
- D. Set the prefetch option equal to the training batch size
- E. Decrease the batch size argument in your transformation

Answer: AD

NEW QUESTION 5

You are going to train a DNN regression model with Keras APIs using this code:

```
model = tf.keras.Sequential()  
model.add(tf.keras.layers.Dense(  
    256,  
    use_bias=True,  
    activation='relu',  
    kernel_initializer=None,  
    kernel_regularizer=None,  
    input_shape=(500,)))  
model.add(tf.keras.layers.Dropout(rate=0.25))  
model.add(tf.keras.layers.Dense(  
    128, use_bias=True,  
    activation='relu',  
    kernel_initializer='uniform',  
    kernel_regularizer='l2'))  
model.add(tf.keras.layers.Dropout(rate=0.25))  
model.add(tf.keras.layers.Dense(  
    2, use_bias=False,  
    activation='softmax'))  
model.compile(loss='mse')
```

How many trainable weights does your model have? (The arithmetic below is correct.)

- A. $501 \times 256 + 257 \times 128 + 2 = 161154$
- B. $500 \times 256 + 256 \times 128 + 128 \times 2 = 161024$
- C. $501 \times 256 + 257 \times 128 + 128 \times 2 = 161408$
- D. $500 \times 256 + 256 \times 128 + 128 \times 2 = 40448$

Answer: D

NEW QUESTION 6

You are developing a Kubeflow pipeline on Google Kubernetes Engine. The first step in the pipeline is to issue a query against BigQuery. You plan to use the results of that query as the input to the next step in your pipeline. You want to achieve this in the easiest way possible. What should you do?

- A. Use the BigQuery console to execute your query and then save the query results into a new BigQuery table.
- B. Write a Python script that uses the BigQuery API to execute queries against BigQuery. Execute this script as the first step in your Kubeflow pipeline.
- C. Use the Kubeflow Pipelines domain-specific language to create a custom component that uses the Python BigQuery client library to execute queries.
- D. Locate the Kubeflow Pipelines repository on GitHub. Find the BigQuery Query Component, copy that component's URL, and use it to load the component into your pipeline.
- E. Use the component to execute queries against BigQuery.

Answer: A

NEW QUESTION 7

You are an ML engineer at a regulated insurance company. You are asked to develop an insurance approval model that accepts or rejects insurance applications from potential customers. What factors should you consider before building the model?

- A. Redaction, reproducibility, and explainability
- B. Traceability, reproducibility, and explainability
- C. Federated learning, reproducibility, and explainability
- D. Differential privacy, federated learning, and explainability

Answer: B

NEW QUESTION 8

You work for an advertising company and want to understand the effectiveness of your company's latest advertising campaign. You have streamed 500 MB of

campaign data into BigQuery. You want to query the table, and then manipulate the results of that query with a pandas dataframe in an AI Platform notebook. What should you do?

- A. Use AI Platform Notebooks' BigQuery cell magic to query the data, and ingest the results as a pandas dataframe
- B. Export your table as a CSV file from BigQuery to Google Drive, and use the Google Drive API to ingest the file into your notebook instance
- C. Download your table from BigQuery as a local CSV file, and upload it to your AI Platform notebook instance Use panda
- D. read_csv to ingest the file as a pandas dataframe
- E. From a bash cell in your AI Platform notebook, use the bq extract command to export the table as a CSV file to Cloud Storage, and then use gsutil cp to copy the data into the notebook Use panda
- F. read_csv to ingest the file as a pandas dataframe

Answer: B

NEW QUESTION 9

Your team trained and tested a DNN regression model with good results. Six months after deployment, the model is performing poorly due to a change in the distribution of the input data. How should you address the input differences in production?

- A. Create alerts to monitor for skew, and retrain the model.
- B. Perform feature selection on the model, and retrain the model with fewer features
- C. Retrain the model, and select an L2 regularization parameter with a hyperparameter tuning service
- D. Perform feature selection on the model, and retrain the model on a monthly basis with fewer features

Answer: C

NEW QUESTION 10

You work for an online retail company that is creating a visual search engine. You have set up an end-to-end ML pipeline on Google Cloud to classify whether an image contains your company's product. Expecting the release of new products in the near future, you configured a retraining functionality in the pipeline so that new data can be fed into your ML models. You also want to use AI Platform's continuous evaluation service to ensure that the models have high accuracy on your test data set. What should you do?

- A. Keep the original test dataset unchanged even if newer products are incorporated into retraining
- B. Extend your test dataset with images of the newer products when they are introduced to retraining
- C. Replace your test dataset with images of the newer products when they are introduced to retraining.
- D. Update your test dataset with images of the newer products when your evaluation metrics drop below a pre-decided threshold.

Answer: C

NEW QUESTION 10

You are building a linear model with over 100 input features, all with values between -1 and 1. You suspect that many features are non-informative. You want to remove the non-informative features from your model while keeping the informative ones in their original form. Which technique should you use?

- A. Use Principal Component Analysis to eliminate the least informative features.
- B. Use L1 regularization to reduce the coefficients of uninformative features to 0.
- C. After building your model, use Shapley values to determine which features are the most informative.
- D. Use an iterative dropout technique to identify which features do not degrade the model when removed.

Answer: C

NEW QUESTION 13

You built and manage a production system that is responsible for predicting sales numbers. Model accuracy is crucial, because the production model is required to keep up with market changes. Since being deployed to production, the model hasn't changed; however the accuracy of the model has steadily deteriorated. What issue is most likely causing the steady decline in model accuracy?

- A. Poor data quality
- B. Lack of model retraining
- C. Too few layers in the model for capturing information
- D. Incorrect data split ratio during model training, evaluation, validation, and test

Answer: D

NEW QUESTION 14

You are an ML engineer at a global shoe store. You manage the ML models for the company's website. You are asked to build a model that will recommend new products to the user based on their purchase behavior and similarity with other users. What should you do?

- A. Build a classification model
- B. Build a knowledge-based filtering model
- C. Build a collaborative-based filtering model
- D. Build a regression model using the features as predictors

Answer: C

NEW QUESTION 15

You are an ML engineer in the contact center of a large enterprise. You need to build a sentiment analysis tool that predicts customer sentiment from recorded phone conversations. You need to identify the best approach to building a model while ensuring that the gender, age, and cultural differences of the customers who called the contact center do not impact any stage of the model development pipeline and results. What should you do?

- A. Extract sentiment directly from the voice recordings

- B. Convert the speech to text and build a model based on the words
- C. Convert the speech to text and extract sentiments based on the sentences
- D. Convert the speech to text and extract sentiment using syntactical analysis

Answer: C

NEW QUESTION 16

Your team needs to build a model that predicts whether images contain a driver's license, passport, or credit card. The data engineering team already built the pipeline and generated a dataset composed of 10,000 images with driver's licenses, 1,000 images with passports, and 1,000 images with credit cards. You now have to train a model with the following label map: ['driverslicense', 'passport', 'credit_card']. Which loss function should you use?

- A. Categorical hinge
- B. Binary cross-entropy
- C. Categorical cross-entropy
- D. Sparse categorical cross-entropy

Answer: B

NEW QUESTION 17

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