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QUESTION 1

While running a model training pipeline on Vertex AI, you discover that the evaluation step is failing because of an out-of-memory error. You are currently using TensorFlow Model Analysis (TFMA) with a standard Evaluator TensorFlow Extended (TFX) pipeline component for the evaluation step. You want to stabilize the pipeline without downgrading the evaluation quality while minimizing infrastructure overhead. What should you do?

A. Include the flag -runner=DataflowRunner in beam_pipeline_args to run the evaluation step on Dataflow.

B. Move the evaluation step out of your pipeline and run it on custom Compute Engine VMs with sufficient memory.

C. Migrate your pipeline to Kubeflow hosted on Google Kubernetes Engine, and specify the appropriate node parameters for the evaluation step.

D. Add tfma.MetricsSpec () to limit the number of metrics in the evaluation step.

Correct Answer: A

https://blog.tensorflow.org/2020/03/tensorflow-extended-tfx-using-apache-beam-large-scale-data-processing.html

QUESTION 2

You are the Director of Data Science at a large company, and your Data Science team has recently begun using the Kubeflow Pipelines SDK to orchestrate their training pipelines. Your team is struggling to integrate their custom Python code into the Kubeflow Pipelines SDK. How should you instruct them to proceed in order to quickly integrate their code with the Kubeflow Pipelines SDK?

A. Use the func_to_container_op function to create custom components from the Python code.

B. Use the predefined components available in the Kubeflow Pipelines SDK to access Dataproc, and run the custom code there.

C. Package the custom Python code into Docker containers, and use the load_component_from_file function to import the containers into the pipeline.

D. Deploy the custom Python code to Cloud Functions, and use Kubeflow Pipelines to trigger the Cloud Function.

Correct Answer: A

https://kubeflow-pipelines.readthedocs.io/en/stable/source/kfp.components.html?highlight=func_to_container_op%20#kfp.components.func_to_container_op

QUESTION 3

You work on a data science team at a bank and are creating an ML model to predict loan default risk. You have collected and cleaned hundreds of millions of records worth of training data in a BigQuery table, and you now want to develop and compare multiple models on this data using TensorFlow and Vertex AI. You want to minimize any bottlenecks during the data ingestion state while considering scalability. What should you do?

A. Use the BigQuery client library to load data into a dataframe, and use tf.data.Dataset.from_tensor_slices() to read it.

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B. Export data to CSV files in Cloud Storage, and use tf.data.TextLineDataset() to read them.

C. Convert the data into TFRecords, and use tf.data.TFRecordDataset() to read them.

D. Use TensorFlow I/O\\'s BigQuery Reader to directly read the data.

Correct Answer: D

https://www.tensorflow.org/io/api_docs/python/tfio/bigquery

QUESTION 4

You are developing ML models with AI Platform for image segmentation on CT scans. You frequently update your
model architectures based on the newest available research papers, and have to rerun training on the same dataset to
benchmark their performance. You want to minimize computation costs and manual intervention while having version
control for your code. What should you do?

A. Use Cloud Functions to identify changes to your code in Cloud Storage and trigger a retraining job.

B. Use the gcloud command-line tool to submit training jobs on AI Platform when you update your code.

C. Use Cloud Build linked with Cloud Source Repositories to trigger retraining when new code is pushed to the
repository.

D. Create an automated workflow in Cloud Composer that runs daily and looks for changes in code in Cloud Storage
using a sensor.

Correct Answer: C

At the heart of this architecture is Cloud Build, infrastructure. Cloud Build can import source from Cloud Source
Repositories, GitHub, or Bitbucket, and then execute a build to your specifications, and produce artifacts such as
Docker containers or Python tar files.

QUESTION 5

You were asked to investigate failures of a production line component based on sensor readings. After receiving the
dataset, you discover that less than 1% of the readings are positive examples representing failure incidents. You have
tried to train several classification models, but none of them converge. How should you resolve the class imbalance
problem?

A. Use the class distribution to generate 10% positive examples.

B. Use a convolutional neural network with max pooling and softmax activation.

C. Downsample the data with upweighting to create a sample with 10% positive examples.

D. Remove negative examples until the numbers of positive and negative examples are equal.

Correct Answer: C

https://developers.google.com/machine-learning/data-prep/construct/sampling-splitting/imbalanced-data#downsampling-
and-upweighting

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-less than 1% of the readings are positive

-none of them converge.

Downsampling (in this context) means training on a disproportionately low subset of the majority class examples.

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