Google Cloud

Build, Train, and Deploy ML Models with Keras on Google Cloud

Quiz Question Answers

Module 1: Introduction to TensorFlow

Question 1
Which of the following statements is true of TensorFlow?

A: TensorFlow is a scalable and single-platform programming interface for implementing and running machine learning algorithms, including convenience wrappers for deep learning.
Feedback: This answer is incorrect, please review the module again.

B: Although able to run on other processing platforms, TensorFlow 2.0 is not yet able to run on Tensor Processing Units (or TPU's).
Feedback: This answer is incorrect, please review the module again.

C: Although able to run on other processing platforms, TensorFlow 2.0 is not yet able to run on Graphical Processing Units (or GPU's).
Feedback: This answer is incorrect, please review the module again.

*D: TensorFlow is a scalable and multi platform programming interface for implementing and running machine learning algorithms, including convenience wrappers for deep learning.
Feedback: This answer is correct.

Question 2
How does TensorFlow represent numeric computations?

*A: Using a Directed Acyclic Graph (or DAG)
Feedback: This answer is correct.

B: Flow chart
Feedback: This answer is incorrect, please review the module again.

C: Both Using a Directed Acyclic Graph (or DAG) and Flow chart
Feedback: This answer is incorrect, please review the module again

D: None of the options are correct
Feedback: This answer is incorrect, please review the module again.

Question 3
Which are useful components when building custom Neural Network models?

A: tf.losses
Feedback: This answer is partially correct, please review the module again.

B: tf.metrics
Feedback: This answer is partially correct, please review the module again.

C: tf.optimizers
Feedback: This answer is partially correct, please review the module again.

*D: All of the options are correct.
Feedback: This answer is correct.

Question 4
Which API is used to build performant, complex input pipelines from simple, re-usable pieces that will feed your model's training or evaluation loops.

A: tf.Tensor
Feedback: This answer is incorrect, please review the module again.

*B: tf.data.Dataset
Feedback: This answer is correct.

C: tf.device
Feedback: This answer is incorrect, please review the module again.

D: All of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 5
What operations can be performed on tensors?

A: They can be reshaped
Feedback: This answer is partially correct, please review the module again.

B: They can be sliced

Feedback: This answer is partially correct, please review the module again.

*C: They can be both reshaped and sliced
Feedback: This answer is correct.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 6
Which of the following is true when we compute a loss gradient?

A: TensorFlow records all operations executed inside the context of a tf.GradientTape onto a tape.
Feedback: This answer is partially correct, please review the module again.

B: It uses tape and the gradients associated with each recorded operation to compute the gradients.
Feedback: This answer is partially correct, please review the module again.

C: The computed gradient of a recorded computation will be used in reverse mode differentiation.
Feedback: This answer is partially correct, please review the module again.

*D: All options are correct.
Feedback: This answer is correct.

Module 2: Design and Build a TensorFlow Input Data Pipeline

Question 1
What are distinct ways to create a dataset?

A: A data source constructs a Dataset from data stored in memory or in one or more files.
Feedback: This answer is partially correct, please review the module again.

B: A data transformation constructs a dataset from one or more tf.data.Dataset objects.
Feedback: This answer is partially correct, please review the module again.

*C: A data source constructs a Dataset from data stored in memory or in one or more files and a data transformation constructs a dataset from one or more tf.data.Dataset objects.
Feedback: This answer is correct.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 2
Which is true regarding feature columns?

A: Feature columns describe how the model should use raw output data from your features dictionary.
Feedback: This answer is incorrect, please review the module again.

B: Feature columns describe how the model should use raw output data from your TPU's.
Feedback: This answer is incorrect, please review the module again.

*C: Feature columns describe how the model should use raw input data from your features dictionary.
Feedback: This answer is correct.

D: Feature columns describe how the model should use a graph to plot a line.
Feedback: This answer is incorrect, please review the module again.

Question 3
Which of the following is true about embedding?

A: An embedding is a weighted sum of the feature crossed values.
Feedback: This answer is partially correct, please review the module again.

B: Embedding is a handy adapter that allows a network to incorporate sparse or categorical data.
Feedback: This answer is partially correct, please review the module again.

C: The number of embeddings is the hyperparameter to your machine learning model.
Feedback: This answer is partially correct, please review the module again.

*D: All options are correct.
Feedback: This answer is correct

Question 4
What is the use of tf.keras.layers.TextVectorization?

A: It performs feature-wise normalization of input features.
Feedback: This answer is incorrect, please review the module again.

B: It turns continuous numerical features into bucket data with discrete ranges.
Feedback: This answer is incorrect, please review the module again.

*C: It turns raw strings into an encoded representation that can be read by an Embedding layer or Dense layer.
Feedback: This answer is correct.

D: It turns string categorical values into encoded representations that can be read by an Embedding layer or Dense layer.
Feedback: This answer is incorrect, please review the module again.

Question 5
Which of the following is not a part of Categorical features preprocessing?

A: tf.keras.layers.CategoryEncoding
Feedback: This answer is incorrect, please review the module again.

B: tf.keras.layers.Hashing
Feedback: This answer is incorrect, please review the module again.

C: tf.keras.layers.IntegerLookup
Feedback: This answer is incorrect, please review the module again.

*D: tf.keras.layers.Discretization
Feedback: This answer is correct.

Question 6
Which of the following layers is not non-trainable?

A: Discretization
Feedback: This answer is incorrect, please review the module again.

*B: Hashing
Feedback: This answer is correct.

C: Normalization
Feedback: This answer is incorrect, please review the module again.

D: StringLookup

Feedback: This answer is incorrect, please review the module again.

Question 7
When should you avoid using the Keras function adapt()?

*A: When working with lookup layers with very large vocabularies
Feedback: This answer is correct.

B: When using TextVectorization while training on a TPU pod
Feedback: This answer is incorrect, please review the module again.

C: When using StringLookup while training on multiple machines via ParameterServerStrategy
Feedback: This answer is incorrect, please review the module again.

D: When working with lookup layers with very small vocabularies
Feedback: This answer is incorrect, please review the module again.

Question 8
Which of the following is a part of Keras preprocessing layers?

A: Image data augmentation
Feedback: This answer is partially correct, please review the module again.

B: Image preprocessing
Feedback: This answer is partially correct, please review the module again.

C: Numerical features preprocessing
Feedback: This answer is partially correct, please review the module again.

*D: All of the options are correct.
Feedback: This answer is correct.

Module 3: Building Neural Networks with the TensorFlow and Keras API

Question 1
Non-linearity helps in training your model at a much faster rate and with more accuracy without the loss of your important information?

*A: True
Feedback: This answer is correct.

B: False
Feedback: This answer is incorrect, please review the module again.

Question 2
During the training process, each additional layer in your network can successively reduce signal vs. noise. How can we fix this?

A: Use non-saturating, linear activation functions.
Feedback: This answer is incorrect, please review the module again.

*B: Use non-saturating, nonlinear activation functions such as ReLUs.
Feedback: This answer is correct.

C: Use sigmoid or tanh activation functions.
Feedback: This answer is incorrect, please review the module again.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 3
How does Adam (optimization algorithm) help in compiling the Keras model?

A: By updating network weights iteratively based on training data
Feedback: This answer is partially correct, please review the module again.

B: By diagonal rescaling of the gradients
Feedback: This answer is partially correct, please review the module again.

*C: Both by updating network weights iteratively based on training data by diagonal rescaling of the gradients
Feedback: This answer is correct.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 4
The predict function in the tf.keras API returns what?

*A: Numpy array(s) of predictions
Feedback: This answer is correct.

B: Input_samples of predictions
Feedback: This answer is incorrect, please review the module again.

C: Both numpy array(s) of predictions & input_samples of predictions
Feedback: This answer is incorrect, please review the module again.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 5
What is the significance of the Fit method while training a Keras model?

A: Defines the number of steps per epochs
Feedback: This answer is incorrect, please review the module again.

*B: Defines the number of epochs
Feedback: This answer is correct.

C: Defines the validation steps
Feedback: This answer is incorrect, please review the module again.

D: Defines the batch size
Feedback: This answer is incorrect, please review the module again.

Question 6
Select the correct statement regarding the Keras Functional API.

A: Unlike the Keras Sequential API, we do not have to provide the shape of the input to the model.
Feedback: This answer is incorrect, please review the module again.

*B: Unlike the Keras Sequential API, we have to provide the shape of the input to the model.
Feedback: This answer is correct.

C: The Keras Functional API does not provide a more flexible way for defining models.
Feedback: This answer is incorrect, please review the module again.

D: None of the options are correct.

Feedback: This answer is incorrect, please review the module again.

Question 7
The Keras Functional API can be characterized by having:

*A: Multiple inputs and outputs and models with shared layers.
Feedback: This answer is correct.

B: Single inputs and outputs and models with shared layers.
Feedback: This answer is incorrect, please review the module again.

C: Multiple inputs and outputs and models with non-shared layers.
Feedback: This answer is incorrect, please review the module again.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 8
How does regularization help build generalizable models ?

*A: By adding dropout layers to our neural networks
Feedback: This answer is correct.

B: By using image processing APIS to find out accuracy
Feedback: This answer is incorrect, please review the module again.

C: By adding dropout layers to our neural networks and by using image processing APIS to find out accuracy
Feedback: This answer is incorrect, please review the module again.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Question 9
The L2 regularization provides which of the following?

A: It subtracts a sum of the squared parameter weights term to the loss function.
Feedback: This answer is incorrect, please review the module again.

B: It multiplies a sum of the squared parameter weights term to the loss function.
Feedback: This answer is incorrect, please review the module again.

*C: It adds a sum of the squared parameter weights term to the loss function.
Feedback: This answer is correct.

D: None of the options are correct.
Feedback: This answer is incorrect, please review the module again.

Module 4: Training at Scale with Vertex AI

Question 1
Fill in the blanks. When sending training jobs to Vertex AI, it is common to split most of the logic into a _____ and a _____ file.

*A: task.py, model.py
Feedback: This answer is correct.

B: task.json, model.json
Feedback: This answer is incorrect, please review the module again.

C: task.avro, model.avro
Feedback: This answer is incorrect, please review the module again.

D: task.xml, model.xml
Feedback: This answer is incorrect.

Question 2
Which file is the entry point to your code that Vertex AI will start and contains details such as "how to parse command-line arguments and where to write model outputs?

A: model.py
Feedback: This answer is incorrect.

B: tmodel.json
Feedback: This answer is incorrect, please review the module again.

C: tmodel.avro
Feedback: This answer is incorrect, please review the module again.

*D: task.py
Feedback: This answer is correct.

Question 3
When you package up a TensorFlow model as a Python Package, what statement should every Python module contain in every folder?

A: model.py
Feedback: This answer is incorrect.

B: tmodel.json
Feedback: This answer is incorrect, please review the module again.

C: tmodel.avro
Feedback: This answer is incorrect, please review the module again.

*D: an init_.py
Feedback: This answer is correct.

Question 4
To make your code compatible with Verte AI, there are three basic steps that must be completed in a specific order. Choose the answer that best describes those steps.

A: First, upload data to Google Cloud Storage. Then submit your training job with gcloud to train on Vertex AI. Next, move code into a trainer Python package.
Feedback: This answer is incorrect.

B: First, download data from Google Cloud Storage. Then submit your training job with gcloud to train on Vertex AI. Next, move code into a trainer Python package.
Feedback: This answer is incorrect, please review the module again.

*C: First, upload data to Google Cloud Storage. Next, move code into a trainer Python package. Then submit your training job with gcloud to train on Vertex AI.
Feedback: This answer is correct.

D: First, move code into a trainer Python package. Next, upload data to Google Cloud Storage. Then submit your training job with gcloud to train on Vertex AI.
Feedback: This answer is incorrect, please review the module again.

Question 5
Fill in the blanks. You can use either pre-built containers or custom containers to run training jobs. Both containers require you specify settings that Vertex AI needs to run your training code, including _____, _____, and _____.

A: Source distribution name, job name, worker pool
Feedback: This answer is incorrect.

B: Region, source distribution, custom URI
Feedback: This answer is incorrect, please review the module again.

*C: Region, display-name, worker-pool-spec
Feedback: This answer is correct.

D: Cloud storage bucket name, display-name, worker-pool-spec
Feedback: This answer is incorrect, please review the module again