

How Google Does Machine Learning

Quiz Question Answers

Module 1: What It Means to be AI First

Question 1

What would you use to replace user input by machine learning?

*A: Pre-trained models.

Feedback: This answer is correct.

B: Neural networks.

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

C: Labeled data.

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

D: All options are correct.

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

Question 2

Which of the following refers to the type of data used in ML models?

A: Labeled data

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

B: Unlabeled data

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

C: Flagged data

Feedback: This answer is not correct, please review the module again.

*D: Both Labeled & Unlabeled data

Feedback: This answer is correct.

Question 3

Which of the following are best practices for Data preparation?

A: Avoid training-serving skew

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

B: Avoid target leakage

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

C: Provide a time signal

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

*D: All options are correct.

Feedback: This answer is correct

Question 4

Which of the following is not part of the ML training phase?

*A: Connecting Neural Networks

Feedback: This answer is correct.

B: Evaluating the models

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

C: Create the models

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

D: Data management

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

Question 5

What's the most efficient way to transcribe speech?

*A: You can use a speech API.

Feedback: This answer is correct.

B: You can collect audio data, train it and predict with it.

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

C: Use a Dictionary website for a partial transcription, then using ML to fill in what's missing.

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

D: All options are correct.

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

Module 2: How Google Does Machine Learning

Question 1

Which of the following networks is used in identifying faces, objects, and traffic signs?

*A: Convolutional Neural Networks

Feedback: This answer is correct.

B: Deep Neural Networks

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

C: Recurrent Neural Networks

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 2

Which of the following statement is true about ML systems?

A: It generates a lot of value for the organization, for customers and for end users.

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

B: Almost every single one has a team of people reviewing the algorithms, reviewing their responses and doing random sub-samples.

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

*C: Almost every single one has a team of people reviewing the algorithms, reviewing their responses and doing random sub-samples and it generates a lot of value for the organization, for customers and for end users.

Feedback: This answer is correct.

D: None of the options are correct.

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

Question 3

Which of the following are facets that differentiate deep learning networks in multilayer networks?

A: More complex ways of connecting layers

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

B: Cambrian explosion of computing power to train

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

C: Automatic feature extraction

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

*D: All options are correct.

Feedback: This answer is correct

Question 4

Which of the following statement is incorrect?

A: Machine learning performs some core and numerical tasks

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

B: Machine learning doesn't serve that task in a website.

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

C: Machine learning doesn't have unit tests of its own.

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

*D: None of the options are correct.

Feedback: This answer is correct

Module 3: Intro to ML Development with Vertex AI

Question 1

In Machine learning development, which phase identifies your use case?

A: Prepare training Data

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

B: Experimenting

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

*C: Framing the problem

Feedback: This answer is correct.

D: Evaluating the Model

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

Question 2

Typically, ML practitioners train models using different architectures, input data sets, hyperparameters, and hardware. What architectural type would you use for cyber-security, pattern recognition, self-driving cars, and reinforced learning?

A: Sorting/Clustering

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

B: RNNs or Recurrent Neural Networks

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

C: CNNs or Convolutional Neural Networks

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

*D: GANS or Generative Adversarial Networks

Feedback: This answer is correct.

Question 3

Which Vertex AI service lets you access data, process data in a Dataproc cluster, train a model, share your results, and more, all without leaving the JupyterLab interface?

*A: Workbench

Feedback: This answer is correct.

B: Datasets

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

C: Pipelines

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

D: Models

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

Question 4

Moving from experimentation to production requires packaging, deploying and monitoring your model - which can give you confidence that your model is making useful predictions in production. Monitoring measures key model performance metrics and includes:

*A: Model drift, model performance, model outliers and data quality.

Feedback: This answer is correct.

B: Architectural drift, TPU performance, zone outliers and RNNs.

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

C: Architectural drift, TPU hyperparameter performance, zone outliers and RNNs and CNNs.

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

D: TPU drift, RNN performance, CPU outliers and data quality.

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

Question 5

The way you deploy a TensorFlow model is different from how you deploy a PyTorch model, and even TensorFlow models might differ based on whether they were created using AutoML or by means of code. True or False: In the unified set of APIs that Vertex AI provides, you can treat all these models in the same way.

*A: True

Feedback: This answer is correct.

B: False

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

Question 6

Select the correct word below to fill in the blank: Vertex AI is flexible. You choose your training method. _____ lets you create a training application optimized for your targeted outcome. You have complete control over training application functionality; you can target any objective, use any algorithm, develop your own loss functions or metrics, or do any other customization.

*A: Custom training

Feedback: This answer is correct.

B: AutoML

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

C: Custom training and AutoML

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

D: Containerized training

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

Question 7

What is a managed dataset in Vertex AI?

*A: Data loaded into Vertex AI - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.

Feedback: This answer is correct.

B: Data loaded into AutoML Tables - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.

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

C: Data loaded into a Pandas Dataframe - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.

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

D: Data loaded into Python - whether it be from Google Cloud Storage or BigQuery. This means, for example, that it can be linked to a model.

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

Module 4: Machine Learning Development with Vertex AI Notebooks

Question 1

Fill in the blank: Vertex AI Workbench provides two Jupyter notebook-based options for your data science workflow. _____ are Google-managed environments with integrations and features that help you set up and work in an end-to-end notebook-based production environment.

*A: Managed notebook instances

Feedback: This answer is correct.

B: User Managed notebook instances

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

C: UnManaged notebooks and User-defined notebooks

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

D: Managed notebooks and already created notebooks

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

Question 2

Fill in the blank: Vertex AI Workbench provides two Jupyter notebook-based options for your data science workflow. _____ are Deep Learning VM Images instances that are heavily customizable and are therefore ideal for users who need a lot of control over their environment.

*A: User-Managed notebook instances

Feedback: This answer is correct.

B: Managed notebook instances

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

C: UnManaged notebooks and User-defined notebooks

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

D: Managed notebooks and already created notebooks

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

Question 3

Which statement is correct regarding Vertex AI Workbench Notebooks?

A: Both options are pre-packaged with JupyterLab and have a pre-installed suite of deep learning packages, including support for the TensorFlow and PyTorch frameworks.
Feedback: This answer is partially correct, please review the module again.

B: Both options support GPU accelerators and the ability to sync with a GitHub repository.
Feedback: This answer is partially correct, please review the module again.

C: Both options are protected by Google Cloud authentication and authorization.
Feedback: This answer is partially correct, please review the module again.

*D: All of the above are correct.

Feedback: This answer is correct.

Question 4

True or False. In a Vertex AI Workbench Jupyter Notebook, you can access your data without leaving the JupyterLab interface.

*A: True

Feedback: This answer is correct.

B: False

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

Question 5

Where can you find the Cloud Storage and Bigquery extension to browse data?

*A: Left side-bar

Feedback: This answer is correct.

B: Top menu-bar

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

C: Bottom

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

D: In the notebook

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

Question 6

For users who have specific networking and security needs, _____ can be the best option. You can use VPC Service Controls to set up a _____ within a service perimeter and implement other built-in networking and security features. You can also configure user-managed notebooks instances manually to satisfy some specific networking and security needs.

*A: User-Managed notebook instances

Feedback: This answer is correct.

B: Managed notebook instances

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

C: UnManaged notebooks and User-defined notebooks

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

D: Managed notebooks and already created notebooks

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

Module 5: Best Practices for Implementing Machine Learning

Question 1

The data used to train a model can originate from any number of systems, for example, logs from an online service system, images from a local device, or documents scraped from the web. Which of the following is a Best Practice for Preparing and Storing unstructured data such as images, audio, and video?

*A: In Cloud storage

Feedback: This answer is correct.

B: In BigQuery

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

C: In BigTable

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

D: In Cloud SQL

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

Question 2

Your dataset is considered small, less than 5,000 rows and around 10MB. You are not using AutoML but a Jupyter Notebook instance. Which of the following is a Best Practice for Training a model with a small dataset?

*A: For small datasets, train the model within the notebook instance.

Feedback: This answer is correct.

B: For small datasets, train the model using the Vertex AI training service.

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

C: For small datasets, train the model within the notebook instance and use the Vertex AI training service.

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

D: For small datasets, train the model within the notebook instance, the Vertex AI training service, and the containerized training service.

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

Question 3

Which of the following statements is correct for Explainable AI?

*A: It offers feature attributions to provide insights into why models generate predictions.

Feedback: This answer is correct.

B: It helps you better understand your model's data.

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

C: It supports only pre-trained models based on tabular and image data.

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

D: It details the importance of one feature that a model uses as input to make predictions.

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

Question 4

True or False: Use BigQuery to process tabular data and use Dataflow to process unstructured data.

*A: True

Feedback: This answer is correct.

B: False

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

Module 6: Responsible AI Development

Question 1

Human biases lead to bias in machine learning models. Unconscious biases exist in our data and exist in two forms. What are the two forms of unconscious biases in data?

*A: There are the human biases that exist in data because data found in “the world” has existing biases with regard to properties like gender, race, and sexual orientation. For example, there may be reporting bias by our subjects because they only choose to reveal certain aspects about themselves or their opinions. We can also run into human biases which arise as part of our data collection and labeling procedures.

Feedback: This answer is correct.

B: There are the human biases that exist in data because data found in “data silos” has existing biases with regard to properties like gender, race, and sexual orientation. We can also run into human biases which arise as part of our data collection and labeling procedures.

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

C: First, there is human bias as a result of reporting, data collection, and labeling. Second, there is human bias as a result of data visualization and analysis.

Feedback: This answer is incorrect.

D: All of the options are correct.

Feedback: This answer is incorrect.

Question 2

The impact of biases in collecting data and labeling data affects the entire machine learning pipeline. The biases in the original data are going to be reflected downstream in our models and consequently are going to result in potentially biased outcomes. You need to create a checklist for situations where you should watch out for bias-related issues. What questions should this checklist include?

A: Does your use case or product specifically use any of the following data: biometrics, race, skin color, religion, sexual orientation, socioeconomic status, income, country, location, health, language, or dialect?

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

B: Does your use case or product use data that is likely to be highly correlated with any personal characteristics (for example, zip code or other geospatial data is often correlated with socioeconomic status and/or income; image/video data can reveal information about race, gender, and age)?

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

C: Could your use case or product negatively affect individuals’ economic or other important life opportunities?

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

*D: All of the options are correct.

Feedback: This answer is correct

Question 3

Fill in the blank. One of the key tools to help in understanding inclusion and how to introduce inclusion across different kinds of groups across your data is by understanding the _____.

*A: Confusion matrix

Feedback: This answer is correct

B: Evaluation regression matrix

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

C: Sigmoid matrix

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

D: Equality of opportunity matrix

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

Question 4

Which of the following is an example of a “false negative”?

A: The label says there is no face, but the model finds a face. Perhaps there is a statue in the image and the model falsely identifies it as a face.

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

*B: When the label says something exists and the model doesn’t predict it—that’s a false negative. So, in the face detection example in this lesson, the model says that there is no face in the image—when the image’s label says there *is* a face.

Feedback: This answer is correct

C: The label says there is a face, and the model finds a face.

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

D: The label says there is no face, and the model finds no face.

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

Question 5

Datasets can contain hundreds of millions of data points, each consisting of hundreds (or even thousands) of features, making it nearly impossible to understand an entire dataset in an intuitive fashion. The key here is to utilize visualizations that help unlock nuances and insights in large datasets. Which tool would be most appropriate?

A: SQL

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

B: Firebase

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

*C: Facets

Feedback: This answer is correct.

D: Pandas

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

Question 6

Which approach is followed to achieve a better performance across subgroups?

*A: Equality of opportunity

Feedback: This answer is correct

B: Evaluation metrics

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

C: Confusion matrix

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 confusion matrix helps which of the following?

A: Understanding inclusion and how to introduce inclusion across different subgroups within your data

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

B: Evaluating performance in machine learning

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

*C: Both of the options are correct.

Feedback: This answer is correct.

D: None of the options are correct.

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

Question 8

What is it called when the label says something doesn't exist, but the model says it exists?

A: False negative

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

*B: False positive

Feedback: This answer is correct

C: True positive

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.