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GCPBigData

Google Cloud Big Data and Machine Learning Fundamentals

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Google Cloud Big Data and Machine Learning Fundamentals

GCPBigData - Version: 1

 1 days Course

Description:

This course introduces participants to the big data capabilities of Google Cloud. Through a combination of presentations, demos, and hands-on labs, participants get an overview of Google Cloud and a detailed view of the data processing and machine learning capabilities. This course showcases the ease, flexibility, and power of big data solutions on Google Cloud

Intended audience:

Prerequisites:

Objectives:

Recognize the data-to-AI lifecycle on Google Cloud and the major big data and machine learning products.

Design streaming pipelines with Dataflow and Pub/Sub.

Analyze big data at scale with BigQuery.

Identify different options to build machine learning solutions on Google Cloud.

Describe a machine learning workflow and the key steps with Vertex AI.

Build a machine learning pipeline using AutoML

Topics:



Course Introduction

- This section welcomes learners to the Big Data and Machine Learning Fundamentals course and provides an overview of the course structure and goals.
- Objectives:
 - Recognize the data-to-AI lifecycle on Google Cloud
 - Identify the connection between data engineering and machine learning

Big Data and Machine Learning on Google Cloud

- This section explores the key components of Google Cloud's infrastructure. We introduce many of the big data and machine learning products and services that support the data-to AI lifecycle on Google Cloud.
- Objectives:
 - Identify the different aspects of Google Cloud's infrastructure.
 - Identify the big data and machine learning products on Google Cloud.
- Activities:
 - Lab: Exploring a BigQuery Public Dataset
 - Quiz

Data Engineering for Streaming Data

- This section introduces Google Cloud's solution to managing streaming data.
- It examines an end-to-end pipeline, including data ingestion with Pub/Sub, data processing with Dataflow, and data visualization with Looker and Data Studio.
- Objectives:
 - Describe an end-to-end streaming data workflow from ingestion to data visualization.
 - Identify modern data pipeline challenges and how to solve them at scale



- with Dataflow.
- Activities:
 - • Build collaborative real-time dashboards with data visualization tools.
 - • Lab: Creating a Streaming Data Pipeline for a Real-Time Dashboard with Dataflow
 - • Quiz

Big Data with BigQuery

- This section introduces learners to BigQuery, Google's fully managed, serverless data warehouse. It also explores BigQuery ML and the processes and key commands that are used to build custom machine learning models.
- • Describe the essentials of BigQuery as a data warehouse.
- • Explain how BigQuery processes queries and stores data.
- Objectives:
 - • Define BigQuery ML project phases.
 - • Build a custom machine learning model with BigQuery ML.
- Activities:
 - • Lab: Predicting Visitor Purchases Using BigQuery ML
 - • Quiz

Machine Learning Options on Google Cloud

- This section explores four different options to build machine learning models on Google Cloud. It also introduces Vertex AI, Google's unified platform for building and managing the lifecycle of ML projects.
- Objectives:
 - • Identify different options to build ML models on Google Cloud.
 - • Define Vertex AI and its major features and benefits.
 - • Describe AI solutions in both horizontal and vertical markets.
- Activities- Quiz



The Machine Learning Workflow with Vertex AI

- This section focuses on the three key phases—data preparation, model training, and
- model preparation—of the machine learning workflow in Vertex AI. Learners can
- practice building a machine learning model with AutoML.
- Objectives:
 - • Describe a ML workflow and the key steps.
 - • Identify the tools and products to support each stage.
 - • Build an end-to-end ML workflow using AutoML.
 - • Lab: Vertex AI: Predicting Loan Risk with AutoML
 - • Quiz

Course Summary

- This section reviews the topics covered in the course and provides additional
- resources for further learning.
- Objectives:
 - Describe the data-to-AI lifecycle on Google Cloud and identify the major products of
 - big data and machine learning.