[sfeir] Institute

Google Cloud, Google Cloud | GCP100AIML

Introduction to AI and Machine Learning on Google Cloud

7h

What you'll learn

- Recognize the data-to-AI technologies and tools provided by Google Cloud.
- Build generative AI projects by using Gemini multimodal, efficient prompts, and model tuning.
- Explore various options for developing an AI project on Google Cloud.
- Create an ML model from end-to-end by using Vertex AI.

Target audience

Professional AI developers, data scientists, and ML engineers who want to build predictive and generative AI projects on Google Cloud

Prerequisites

Having one or more of the following:

- Basic knowledge of machine learning concepts
- Prior experience with programming languages such as SQL and Python

Course Outline

Module 01: AI Foundations

Topics

- Why AI?
- AI/ML framework on Google Cloud
- Google Cloud infrastructure
- Data and AI products
- ML model categories
- BigQuery ML
- Lab introduction: BigQuery ML

Objectives

- Recognize the AI/ML framework on Google Cloud.
- Identify the major components of Google Cloud infrastructure.
- Define the data and ML products on Google Cloud and how they support the data-to-AI lifecycle.
- Build an ML model with BigQueryML to bring data to AI.

Activities

- Lab: Predicting Visitor Purchases with BigQuery ML
- Quiz
- Reading

Module 02: AI Development Options

Topics

- AI development options
- Pre-trained APIs
- Vertex AI
- AutoML
- Custom training
- Lab introduction: Natural Language API

Objectives

- Define different options to build an ML model on Google Cloud.
- Recognize the primary features and applicable situations of pre-trained APIs, AutoML, and custom training.
- Use the Natural Language API to analyze text.

Activities

- Lab: Entity and Sentiment Analysis with Natural Language API
- Quiz
- Reading

Module 03: AI Development Workflow

- ML workflow
- Data preparation
- Model development
- Model serving
- MLOps and workflow automation
- Lab introduction: AutoML
- How a machine learns

Objectives

- Define the workflow of building an ML model.
- Describe MLOps and workflow automation on Google Cloud.
- Build an ML model from end to end by using AutoML on Vertex AI.

Activities

- Lab: Vertex AI: Predicting Loan Risk with AutoML
- Quiz
- Reading

Module 04: Generative AI

Topics

- Generative AI and workflow
- Gemini multimodal
- Prompt design
- Model tuning
- Model Garden
- AI solutions
- Lab introduction: Vertex AI Studio

Objectives

- Define generative AI and foundation models.
- Use Gemini multimodal with Vertex AI Studio.

- Design efficient prompt and tune models with different methods.
- Recognize the AI solutions and the embedded Gen AI features.

Activities

- Lab: Getting Started with Vertex AI Studio
- Quiz
- Reading

Module 05: Course Summary

Topics

- Course summary

Objectives

- Recognize the primary concepts, tools, technologies, and products learned in the course.

Activities

- Reading