Developing Applications with Google Cloud Platform

Course#:AD-DevAp
Duration:3 Days
Price:0.00

Course Description

 In this course, application developers learn how to design, develop, and deploy applications that seamlessly integrate components from the Google Cloud ecosystem. Through a combination of presentations, demos, and hands-on labs, participants learn how to use GCP services and pre-trained machine learning APIs to build secure, scalable, and intelligent cloud-native applications.

Objectives

 Application developers who want to build cloud-native applications or redesign existing applications that will run on Google Cloud Platform
 This course teaches participants the following skills:

 Use best practices for application development.

 Choose the appropriate data storage option for application data.

 Implement federated identity management.

 Develop loosely coupled application components or microservices.

 Integrate application components and data sources.

 Debug, trace, and monitor applications.

 Perform repeatable deployments with containers and deployment services.

 Choose the appropriate application runtime environment; use Google Container.

 Engine as a runtime environment and later switch to a no-ops solution with Google App Engine Flex.

Audience

This class is intended for the following:

Application developers who want to build cloud-native applications or redesign existing applications that will run on Google Cloud Platform

Prerequisites

To get the most benefit from this course, participants should have the following prerequisites:

Completed Google Cloud Platform Fundamentals or have equivalent experience
Working knowledge of Node.js
Basic proficiency with command line tools and Linux operating system environments

Content

The course includes presentations, demonstrations, and hands-on labs.

1. Best Practices for Application Development

Code and environment management
Design and development of secure, scalable, reliable, loosely coupled application components and microservices
Continuous integration and delivery
Re-architecting applications for the cloud

2. Google Cloud Client Libraries, Google Cloud SDK, and Google Firebase SDK

How to set up and use Google Cloud Client Libraries, Google Cloud SDK, and Google Firebase SDK

Lab: Set up Google Client Libraries, Google Cloud SDK, and Firebase SDK on a Linux instance and set up application credentials

3. Overview of Data Storage Options

Overview of options to store application data
Use cases for Google Cloud Storage, Google Cloud Datastore, Cloud Bigtable, Google Cloud SQL, and Cloud Spanner

4. Best Practices for Using Cloud Datastore

Best practices related to the following:
Queries, Built-in and composite indexes, Inserting and deleting data (batch operations)
Transactions, Error handling and Bulk-loading data into Cloud Datastore by using Google Cloud Dataflow
Lab: Store application data in Cloud Datastore

5. Performing Operations on Buckets and Objects

Operations that can be performed on buckets and objects
Consistency model
Error handling

6. Best Practices for Using Cloud Storage

Naming buckets for static websites and other uses
Naming objects (from an access distribution perspective)
Performance considerations
Setting up and debugging a CORS configuration on a bucket
Lab: Store files in Cloud Storage

7. Securing Your Application

Cloud Identity and Access Management (IAM) roles and service accounts

User authentication by using Firebase Authentication

User authentication and authorization by using Cloud Identity-Aware Proxy

Lab: Authenticate users by using Firebase Authentication

8. Using Google Cloud Pub/Sub to Integrate Components of Your Application

Topics, publishers, and subscribers

Pull and push subscriptions

Use cases for Cloud Pub/Sub

Lab: Develop a backend service to process messages in a message queue

9. Adding Intelligence to Your Application

Overview of pre-trained machine learning APIs such as Cloud Vision API and Cloud Natural Language Processing API

10. Using Cloud Functions for Event-Driven Processing

Key concepts such as triggers, background functions, HTTP functions

Use cases, Developing and deploying functions

Logging, error reporting, and monitoring

11. Managing APIs with Google Cloud Endpoints

Open API deployment configuration

Lab: Deploy an API for your application

12. Cloud Deploying an Application by Using Google Cloud Container Builder, Google Cloud Container Registry, and Google Deployment Manager

Creating and storing container images

Repeatable deployments with deployment configuration and templates

Lab: Use Deployment Manager to deploy a web application into Google App Engine flexible environment test and production environments

13. Execution Environments for Your Application

Considerations for choosing an execution environment for your application or service:

Google Compute Engine

Kubernetes Engine

App Engine flexible environment

Cloud Functions

Cloud Dataflow

Repeatable deployments with deployment configuration and templates

Lab: Deploying your application on App Engine flexible environment

14. Debugging, Monitoring, and Tuning Performance by Using Google Stackdriver

Stackdriver Debugger

Stackdriver Error Reporting

Lab: Debugging an application error by using Stackdriver Debugger and Error Reporting

Stackdriver Logging

Key concepts related to Stackdriver Trace and Stackdriver Monitoring. Lab: Use Stackdriver

Monitoring and Stackdriver Trace to trace a request across services, observe, and optimize performance