Developing Applications with Google Cloud Platform

Duration: 3 Days **Course Code: GO6593**

Overview:

In this Google Cloud Platform 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.

Target Audience:

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

Objectives:

- 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

Prerequisites:

To get the most of out of this course, participants should have:

- 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:

Module 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

Module 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

Module 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

Module 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

Module 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

Module 7: Handling Authentication and Authorization

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

Module 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

Module 9: Adding ?Intelligence ?to Your ?Application

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

Open ?API ?deployment ?configuration

- Lab: ?Deploy ?an ?API ?for ?your ?application

Module 12: Deploying ?an Application ?by ?Using ?Google ?Cloud ?Build, ?Google ?Cloud Container ?Registry, ?and ?Google Cloud ?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

Module 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

- Lab: ?Deploying ?your ?application ?on ?App ?Engine flexible environment

Module 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

Error ?handling

Bulk-loading ?data ?into ?Cloud ?Datastore ?by ?using ?Google ?Cloud Dataflow

- Lab: ?Store ?application ?data ?in ?Cloud ?Datastore

Module 5: Performing ?Operations on ?Buckets ?and ?Objects

Operations ?that ?can ?be ?performed ?on ?buckets ?and ?objects

Consistency ?model

- Error ?handling

Module 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

Module 11: ?Managing APIs with Google Cloud Endpoints

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

Further Information:

For More information, or to book your course, please call us on 0800/84.009

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