Google Cloud Developer Course

Course Duration: 40 Hours **Course code: GCD**

1. Course Overview

During this five-day course, learners focus on developing, deploying, and managing applications on Google Cloud Platform (GCP). The course covers core services such as Compute Engine, App Engine, Cloud Functions, and Kubernetes Engine. Learners will gain hands-on experience in building scalable, secure, and highly available cloud-native applications while integrating cloud services like databases, APIs, and messaging systems.

2. What you'll learn?

By the end of the course, you will be able to:

- Understand Google Cloud architecture and core services
- Develop and deploy applications using Compute Engine and App Engine
- Build serverless applications using Cloud Functions and Cloud Run
- Use Cloud Storage and Firestore for application data management
- Implement authentication and authorization using IAM
- Integrate APIs and use Google Cloud SDK
- Work with containerized applications using Kubernetes Engine (GKE)
- Implement CI/CD pipelines using Cloud Build
- Monitor and debug cloud applications
- Optimize application performance and scalability

3. Target Audience

Software developers, application developers, backend engineers, full-stack developers, DevOps engineers, and cloud application architects.

4. Pre-Requisites

Before taking this course, you should have:

- Basic knowledge of any programming language (Python, Java, Node.js, etc.)
- Understanding of web application architecture
- Familiarity with REST APIs and databases
- Basic knowledge of cloud computing (recommended)

5. Course content

Module 1: Course Introduction

- Introduction and course logistics
- Course objectives and roadmap
- Overview of Google Cloud Platform

Module 2: Google Cloud Fundamentals for Developers

- GCP global infrastructure and services
- Projects, billing, and resource hierarchy
- Identity and Access Management (IAM) basics
- Using Cloud Console and Cloud Shell

Module 3: Setting Up Development Environment

- Installing and configuring Google Cloud SDK
- Using gcloud CLI
- Managing projects and resources
- Authentication and service accounts

Module 4: Compute Services for Application Development

- Introduction to Compute Engine
- Creating and managing virtual machines
- Autoscaling and load balancing
- Best practices for compute resources

Module 5: App Engine (Platform as a Service)

- Overview of App Engine
- Standard vs Flexible environment
- Deploying applications
- Versioning and traffic splitting

Module 6: Serverless Application Development

- Introduction to Cloud Functions
- Event-driven architecture
- Using Cloud Run for containerized apps
- Comparing serverless options

Module 7: Working with Storage Services

- Cloud Storage fundamentals
- Storage classes and lifecycle policies
- Uploading and managing objects
- Integrating storage with applications

Module 8: Databases for Developers

- Overview of GCP databases
- Firestore and Datastore
- Cloud SQL (Relational DB)
- BigQuery basics for developers

Module 9: APIs and Microservices

- Designing RESTful APIs
- Using API Gateway
- Service-to-service communication
- Managing APIs in GCP

Module 10: Containerization and Kubernetes Engine (GKE)

- Introduction to containers and Docker
- Kubernetes basics
- Deploying applications on GKE
- Scaling and managing clusters

Module 11: CI/CD and DevOps on GCP

- Introduction to CI/CD pipelines
- Using Cloud Build
- Artifact Registry
- Automating deployments

Module 12: Messaging and Event-Driven Systems

- Introduction to Pub/Sub
- Event-driven architectures
- Integrating messaging in applications
- Real-time application use cases

Module 13: Monitoring, Logging, and Debugging

- Cloud Monitoring and Logging
- Error reporting and debugging tools
- Performance monitoring
- Alerting and incident management

Module 14: Security Best Practices

- IAM advanced concepts
- Securing APIs and applications
- Managing secrets (Secret Manager)
- Compliance and data protection

Module 15: Application Optimization and Capstone Project

- Performance tuning strategies
- Cost optimization
- High availability and scalability design
- End-to-end project deployment
- Course summary and next steps

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