Developing Applications with Google Cloud

Category: Software Development & Programming | **Vendor:** Google Cloud

Duration: 24.00 hours (3 days) **19.5 CPD Hours** **Rating:** ⭐ 4.6 (5,878 reviews)

Course Information

Delivery Format: Instructor Led - Online

Course Overview

Learn how to design, develop, and deploy applications that seamlessly integrate components from the Google Cloud ecosystem. This course uses lectures, demos, and hands-on labs to show you how to use Google Cloud services and pre-trained machine learning APIs to build secure, scalable, and intelligent cloud-native applications.

About This Course

Learn how to design, develop, and deploy applications that seamlessly integrate components from the Google Cloud ecosystem. This course uses lectures, demos, and hands-on labs to show you how to use Google Cloud services and pre-trained machine learning APIs to build secure, scalable, and intelligent cloud-native applications.

Who Should Attend

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

Prerequisites & Entry Requirements

General Prerequisites:

- Completed Google Cloud Fundamentals: Core Infrastructure (GCF-CI) or have equivalent experience
- Working knowledge of Node.js, Python, or Java
- Basic proficiency with command-line tools and Linux operating system environments

Learning Outcomes

Upon successful completion of this course, participants will be able to:

- 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

Detailed Course Outline

Module 1: Best Practices for Application Development

Topics:

- 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

Objectives:

- Design and develop secure, loosely coupled application components and microservices.
- Understand how to rearchitect applications for the cloud.

Activities:

- Module quiz

Module 2 - Getting Started with Google Cloud Development

Topics:

- Overview of Google Cloud services for apps and scripts:
- Google Cloud APIs
- Cloud SDK
- Cloud Client Libraries
- Cloud Shell
- Cloud Code
- Demo: Google APIs Explorer
- Lab: Setting up a Development Environment

Objectives:

- Identify different Google Cloud services for hosting applications and scripts.

Activities:

- 1 demo, 1 lab, 1 quiz

Module 3 - Overview of Data Storage Options

Topics:

- Overview of options to store application data
- Use cases for Cloud Storage, Firestore, Cloud Bigtable, Cloud SQL, and Cloud Spanner
- Demo: Connecting Securely to a Cloud SQL Database

Objectives:

- Choose the appropriate data storage option for application data.

Activities:

- 1 demo, 1 quiz

Module 4 - Best Practices for Using Datastore

Topics:

- Best practices related to using Firestore in Datastore mode for:
- Queries
- Built-in and composite indexes
- Inserting and deleting data (batch operations)
- Transactions
- Error handling
- Demo: Explore Datastore
- Demo: Use Dataflow to Bulk-load Data into Datastore

- Lab: Storing Application Data in Datastore

Objectives:

- Bulk-load data into Firestore by using Dataflow
- Understand best practices related to queries, built in and composite indexes, inserting and deleting data (batch data operations), and transactions error handling.

Activities:

- 2 demos, 1 quiz

Module 5 - Performing Operations on Buckets and Objects

Topics:

- Cloud Storage concepts
- Consistency model
- Demo: Explore Cloud Storage
- Request endpoints
- Composite objects and parallel uploads
- Truncated exponential backoff
- Demo: Enable CORS Configuration in Cloud Storage

Objectives:

- Understand Cloud Storage concepts.

- Differentiate between strongly consistent and eventually consistent operations.

- Access Cloud Storage through request endpoints.

- Use object composition to upload an object in parallel.

- Use truncated exponential backoff to deal with network failures.

Activities:

- 2 demos, 1 quiz

Module 6 - Best Practices for Using Cloud Storage

Topics:

- Naming buckets for static websites and other uses

- Naming objects (from an access distribution perspective)

- Performance considerations

- Lab: Storing Image and Video Files in Cloud Storage

Objectives:

- Understand how to name buckets for static websites and other uses, how to name objects (from an access distribution perspective, and performance considerations.

Activities:

- 1 lab and 1 quiz

Module 7 - Handling Authentication and Authorization

Topics:

- Identity and Access Management (IAM) roles and service accounts
- User authentication by using Firebase Authentication
- User authentication and authorization by using Identity-Aware Proxy
- Lab: Adding User Authentication to your Application

Objectives:

- Implement federated identity management

Activities:

- 1 lab and 1 quiz

Module 8 - Using Pub/Sub to Integrate Components of Your Application

Topics:

- Topics, publishers, and subscribers
- Pull and push subscriptions
- Use cases for Pub/Sub
- Lab: Developing a Backend Service

Objectives:

- Understand Pub/Sub topics, and subscribers.

- Understand pull and push subscriptions.

- Explore use cases for Pub/Sub.

Activities:

- 1 lab, 1 quiz

Module 9 - Adding Intelligence to Your Application

Topics:

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

Objectives:

- Explore pre-trained machine learning APIs such as Cloud Vision API and Cloud Natural Language API.

Activities:

- 1 quiz

Module 10 - Using Cloud Functions for Event-Driven Processing

Topics:

- Key concepts such as triggers, background functions, HTTP functions

- Use cases

- Developing and deploying functions

- Logging, error reporting, and monitoring

- Demo: Invoke Cloud Functions Through Direct Request-response

- Lab: Processing Pub/Sub Data using Cloud Functions

Objectives:

- Use Cloud Functions for event-driven processing.

Activities:

- 1 demo, 1 quiz

Module 11 - Managing APIs with Cloud Endpoints

Topics:

- Open API deployment configuration

- Lab: Deploying an API for the Quiz Application

Objectives:

- Understand OpenAPI deployment configuration.

Activities:

- 1 lab, 1 quiz

Module 12 - Deploying Applications

Topics:

- Creating and storing container images
- Repeatable deployments with deployment configuration and templates
- Demo: Exploring Cloud Build and Cloud Container Registry
- Lab: Deploying the Application into Kubernetes Engine

Objectives:

- Understand how to create and store container images.
- Create repeatable deployments with deployment configuration and templates.

Activities:

- 1 demo, 1 quiz

Module 13 - Compute Options for Your Application

Topics:

- Considerations for choosing a compute option for your application or service:
- Compute Engine

- Google Kubernetes Engine (GKE)

- Cloud Run

- Cloud Functions

- Platform comparisons.

- Comparing App Engine and Cloud Run

Objectives:

- Explore considerations for choosing a compute option for your application or service.

Activities:

- 1 quiz

Module 14 - Debugging, monitoring, and Tuning Performance

Topics:

- Google Cloud’s operations suite

- Managing performance

- Lab: Debugging Application Errors

- Logging

- Monitoring and tuning performance

- Identifying and troubleshooting performance issues

- Lab: Harnessing Cloud Trace and Cloud Monitoring

Objectives:

- Debug an application error by using Cloud Debugger and Error Reporting.

- Use Cloud Monitoring and Cloud Trace to trace a request across services, observe, and optimize performance.

Activities:

- 1 demo, 2 labs, 1 quiz

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Skills You Will Learn:

- 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
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Frequently Asked Questions

Q: What delivery options are available for Developing Applications with Google Cloud?

We offer multiple delivery formats:

- Live Instructor-Led Classroom Online (Virtual/Live Online)
- Traditional Instructor-Led Classroom Training (ILT)
- On-site delivery at your offices anywhere in United Kingdom
- Private dedicated courses customized for your team

Q: How many CPD hours does this course provide?

The 3-day Developing Applications with Google Cloud course provides up to 19.5 CPD hours of structured learning. CPD certificates can be provided upon request.

Q: What is the duration of the Developing Applications with Google Cloud training?

The training takes place over 3 day(s), with each day lasting approximately 24.00 hours including breaks for lunch and refreshments.

Q: Do you provide corporate training for Developing Applications with Google Cloud?

Yes, we provide corporate training, dedicated training, and closed classes for Developing Applications with Google Cloud. Training can take place anywhere in United Kingdom including London, Manchester, Birmingham, Edinburgh, or live online allowing teams from across United Kingdom or internationally to attend.

Q: What related terms do people search for?

Popular related searches include: Developing Applications with Google Cloud, Application Development, DAGCP, Google Cloud, vILT

Q: Why choose Nexus Human for Developing Applications with Google Cloud?

Nexus Human is recognized as one of the leading training providers. Our trainers have won multiple awards including:

- Small Firms Best Trainer Award
- National Training Partner of the Year (Ireland) - Multiple Years
- Global Top 30 Instructor Awards (2012, 2019, 2021)
- Tech Excellence Award Nominations
- Learning Performance Institute (LPI) External Training Provider Sponsor 2024

Q: Are there any discount codes available?

Yes! Use discount code **PENPAL5** when booking your Developing Applications with Google Cloud training. Please note that only one discount code can be used per booking and cannot be combined with other special offers.

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