Understanding Cloud Spanner

Category: AI, Data & Analytics | **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

In this course, you learn about Cloud Spanner. You will get an introduction to Cloud Spanner and understand how it differs from other database products. You also learn when and how to use Cloud Spanner to solve your relational database needs at scale.

About This Course

In this course, you learn about Cloud Spanner. You will get an introduction to Cloud Spanner and understand how it differs from other database products. You also learn when and how to use Cloud Spanner to solve your relational database needs at scale.

Who Should Attend

Database administrators, engineers/developers, and cloud architects who want to learn how to create, optimize, and manage Spanner databases and migrate existing databases into Spanner.

Prerequisites & Entry Requirements

General Prerequisites:

Some prior Google Cloud experience at the fundamental level and experience with relational databases, the SQL language, and some programming are assumed.

Learning Outcomes

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

- Build scalable, managed, relational databases using Cloud Spanner
- Create and manage Cloud Spanner databases using the CLI, Terraform, Python API, and the Cloud Console
- Program and run queries and transactions using the Cloud Spanner API
- Integrate Cloud Spanner with applications

Detailed Course Outline

Module 1 - The Need for Spanner

Topics

- What is Spanner?
- Spanner and the CAP Theorem
- History of Spanner
- Cloud Spanner Use Cases

Objectives:

- Explain the core concepts and features of Cloud Spanner.
- Understand how Cloud Spanner fits in the CAP theorem.
- Describe the history of Cloud Spanner.
- Explain Cloud Spanner use cases.

Module 2 - Getting Started with Spanner

Topics:

- Planning Spanner Instances
- Automating Instance Creating
- Creating Databases in Spanner

Objectives:

- Architect Cloud Spanner instances based on location, capacity, availability, and cost.
- Create Spanner instances by using the Google Cloud console, Google Cloud CLI, and Terraform.
- Create Spanner databases by using SQL

Activities:

- Lab: Creating Spanner Instances and Databases (Console)
- Lab: Creating Spanner Instances and Databases (CLI and Terraform)

Module 3 - Optimizing Spanner Schemas

Topics:

- Spanner Architecture
- Choosing Primary Keys
- Defining Database Schemas in Spanner

- Understanding Interleaving and Foreign Keys

- Understanding Secondary Indexes

Objectives:

- Optimize schemas for Spanner architecture.

- Choose appropriate primary keys.

- Manage relationships with primary and foreign keys and with interleaved tables

Activities:

- Lab: Choosing Primary Keys

- Lab: Managing relationships with Foreign Keys and Interleaved Tables

Module 4 - Programming Spanner Applications, Queries, and Transactions

Topics:

- Authentication and Authorization

- Using the Spanner Client Libraries

- Running Queries

- Managing Transactions

Objectives:

- Authenticate users and applications that access Spanner databases using Identity Access Management.
- Program Spanner applications using Google Cloud client libraries and Python.
- Optimize queries using strong reads, stale reads, and indexes.
- Manage transactions in Spanner.

Activities:

- Lab: Programming Spanner Applications with Python
- Lab: Running Queries and Transactions

Module 5 - Deploying Spanner Applications

Topics:

- Using Spanner from Applications
- Building Data Pipelines into and out of Spanner

Objectives:

- Deploy Spanner applications to Google Cloud serverless runtimes.
- Migrate data to and from Cloud Spanner by using Dataflow jobs and Apache Beam.

Activities:

- Lab: Deploying Spanner Applications with Cloud Functions and Cloud Run

- Lab: Migrating Data to and from Spanner with Dataflow

Module 6 - Spanner Administration

Topics:

- Managing your Data in Spanner

- Managing Change Operations

Objectives:

- Administer Cloud Spanner instances.

- Backup, restore, import, and export data.

- Modify database schemas with no downtime.

- Monitor your Cloud Spanner databases and applications

Activities:

- Lab: Reconciling Account Data with Cloud Spanner Change Streams

- Lab: Leverage the Autoscaler Tool for Cloud Spanner to Achieve Workload Elasticity

Module 7 - Spanner Best Practices

Topics:

- Spanner Best Practices

- Challenge Lab

Objectives:

- Review best practices for using Cloud Spanner

Activities:

- Challenge Lab: Administering a Spanner Database

Skills You Will Learn:

- Build scalable, managed, relational databases using Cloud Spanner
- Create and manage Cloud Spanner databases using the CLI, Terraform, Python API, and the Cloud Console
- Program and run queries and transactions using the Cloud Spanner API
- Integrate Cloud Spanner with applications

Frequently Asked Questions

Q: What delivery options are available for Understanding Cloud Spanner?

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 Understanding Cloud Spanner 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 Understanding Cloud Spanner 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 Understanding Cloud Spanner?

Yes, we provide corporate training, dedicated training, and closed classes for Understanding Cloud Spanner. 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: Understanding Cloud Spanner, Data Engineering, UCS

Q: Why choose Nexus Human for Understanding Cloud Spanner?

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 Understanding Cloud Spanner 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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