

# Achieving Advanced Insights with BigQuery

## Introduction

- Course Introduction

## Advanced Functions and Clauses

- Advanced functions (Statistical, analytic, user-defined)
- Analytic functions, WITH clause, and RANK()
- BigQuery User-Defined Functions (UDFs)
- Sub-query and CTE design
- Lab Intro: Deriving Insights from Advanced SQL Functions
- LAB : Deriving Insights from Advanced SQL Functions v1.5

## Schema Design and Nested Data Structures

- BigQuery versus traditional relational data architecture
- Denormalized, column-based storage
- Table sharding
- Introducing nested and repeated fields
- Introducing arrays and structs
- Flattening arrays: Legacy versus Standard
- Module summary
- LAB : Working with JSON, Arrays, and Structs in BigQuery v1.5 1 hour

## Optimizing for Performance

- Avoid BigQuery performance pitfalls
- Prevent hotspots in your data
- Diagnose performance issues
- Lab Intro: Optimizing BigQuery for Cost and Performance

- LAB : Optimizing BigQuery for Cost and Performance v1.5

## **Advanced Insights with Vertex AI Workbench**

- LAB : BigQuery in JupyterLab on Vertex AI

## **Data Access**

- Data access roles, creating authorized views, and common pitfalls