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Data to Insights with Google Cloud Platform

Course#:DE-D2I
Duration:3 Days
Price:0.00

Course Description

This three-day instructor-led class teaches course participants how to derive insights through data analysis and visualization using the Google Cloud Platform. The course features interactive scenarios and hands-on labs where participants explore, mine, load, visualize, and extract insights from diverse Google BigQuery datasets. The course covers data loading, querying, schema modeling, optimizing performance, query pricing, data visualization, and machine learning.

Objectives

This course teaches participants the following skills:

Derive insights from data using the analysis and visualization tools on Google Cloud Platform
Load, clean, and transform data at scale with Google Cloud Dataprep
Explore and Visualize data using Google Data Studio
Troubleshoot, optimize, and write high performance queries
Practice with pre-built ML APIs for image and text understanding
Train classification and forecasting ML models using SQL with BQML

Audience

This class is intended for the following:

Data Analysts, Business Analysts, Business Intelligence professionals
Cloud Data Engineers who will be partnering with Data Analysts to build scalable data solutions on

Prerequisites

To get the most out of this course, participants should have:
Basic proficiency with ANSI

Content

The course includes presentations, demonstrations, and hands-on labs.

Module 1: Introduction to Data on the Google Cloud Platform Before and Now: Scalable Data Analysis in the Cloud

Highlight Analytics Challenges Faced by Data Analysts
Compare Big Data On-Premise vs. on the Cloud
Learn from Real-World Use Cases of Companies Transformed Through Analytics on the Cloud
Navigate Google Cloud Platform Project Basics
Lab: Getting started with Google Cloud Platform

Module 2: Big Data Tools Overview Sharpen the Tools in your Data Analyst toolkit

Walkthrough Data Analyst Tasks, Challenges, and Introduce Google Cloud Platform Data Tools
Demo: Analyze 10 Billion Records with Google BigQuery
Explore 9 Fundamental Google BigQuery Features
Compare GCP Tools for Analysts, Data Scientists, and Data Engineers

Module 3: Exploring your Data Get Familiar with Google BigQuery and Learn SQL Best Practices

Compare Common Data Exploration Techniques

Learn How to Code High Quality Standard SQL
Explore Google BigQuery Public Datasets
Visualization Preview: Google Data Studio
Lab 3: Troubleshoot Common SQL Errors

Module 4: Google BigQuery Pricing Calculate Google BigQuery Storage and Query Costs

Walkthrough of a BigQuery Job
Calculate BigQuery Pricing: Storage, Querying, and Streaming Costs
Optimize Queries for Cost
Lab 4: Calculate Google BigQuery Pricing

Module 5: Cleaning and Transforming your Data Wrangle your Raw Data into a Cleaner and Richer Dataset

Examine the 5 Principles of Dataset Integrity
Characterize Dataset Shape and Skew
Clean and Transform Data using SQL
Clean and Transform Data using a new UI: Introducing Cloud Dataprep
Lab 5: Explore and Shape Data with Cloud Dataprep

Module 6: Storing and Exporting Data Create new Tables and Exporting Results

Compare Permanent vs. Temporary Tables
Save and Export Query Results
Performance Preview: Query Cache
Lab 6: Creating New Permanent Tables

Module 7: Ingesting New Datasets into Google BigQuery Bring your Data into the Cloud

Query from External Data Sources
Avoid Data Ingesting Pitfalls
Ingest New Data into Permanent Tables
Discuss Streaming Inserts
Lab 7: Ingesting and Querying New Datasets

Module 8: Data Visualization Effectively Explore and Explain Data through Visualization

Overview of Data Visualization Principles
Exploratory vs. Explanatory Analysis Approaches
Demo: Google Data Studio UI
Connect Google Data Studio to Google BigQuery
Lab 8: Exploring a Dataset in Google Data Studio
Lab 8: Exploring a Dataset in Google Data Studio

Module 9: Joining and Merging Datasets Combine and Enrich Datasets with More Data

Merge Historical Data Tables with UNION
Introduce Table Wildcards for Easy Merges
Review Data Schemas: Linking Data Across Multiple Tables
Walkthrough JOIN Examples and Pitfalls
Lab 9: Join and Union Data from Multiple Tables

Module 10: Advanced Functions and Clauses Dive Deeper into Advanced Query Writing with Google BigQuery

Review SQL Case Statements
Introduce Analytical Window Functions
Safeguard Data with One-Way Field Encryption
Discuss Effective Sub-query and CTE design
Compare SQL and Javascript UDFs
Lab 10: Deriving Insights with Advanced SQL Functions

Module 11: Schema Design and Nested Data Structures Model Datasets for Scale in Google BigQuery

Compare Google BigQuery vs. Traditional RDBMS Data Architecture
Normalization vs. Denormalization: Performance Trade-Offs
Schema Review: The Good, The Bad, and The Ugly
Arrays and Nested Data in Google BigQuery
Lab 11: Querying Nested and Repeated Data

Module 12: More Visualization with Google Data Studio Create Pixel-Perfect Dashboards

Create Case Statements and Calculated Fields
Avoid Performance Pitfalls with Cache Considerations
Share Dashboards and Discuss Data Access Considerations

Module 13: Optimizing for Performance Troubleshoot and Solve Query Performance Problems

Avoid Google BigQuery Performance Pitfalls
Prevent Hotspots in Data
Diagnose Performance Issues with the Query Explanation Map
Lab 13: Optimizing and Troubleshooting Query Performance

Module 14: Data Access Keep Data Security Top-of-Mind in the Cloud

Cloud Datalab
Compute Engine and Cloud Storage
Lab: Rent-a-VM to process earthquakes data
Data Analysis with BigQuery

Module 16: How Google does Machine Learning Leverage pre-built ML APIs for your projects

Introduction to Machine Learning for analysts
Practice with Pretrained ML APIs for image and text understanding
Lab: Pretrained ML APIs

Module 17: Applying Machine Learning to your Datasets (BQML)

Building Machine Learning datasets and analyzing features
Creating classification and forecasting models with BQML
Lab: Predict Visitor Purchases with a Classification Model in BQML
Lab: Predict Taxi Fare with a BigQuery ML Forecasting Model