DATA ENGINEERING AND ANALYTICS

Microsoft Azure Data Fundamentals (DP-900)

Level: Foundation • 2 days (expandable to 3) • Virtual, In-person

Overview

Every organization now runs on data, but the vocabulary around it (relational, NoSQL, warehouses, lakes, streaming) can make the field feel impenetrable to someone starting out. The hard part is not any single service; it is building a mental model of what kinds of data exist, which workloads they serve, and which Azure service fits which job. That model is exactly what the DP-900 certification measures, and exactly what this course builds.

This is a hands-on, foundation course. It follows the DP-900 domains but does not race through them as a checklist: we start with core data concepts that everything else depends on, then work through relational data, non-relational data, and analytics in an order where each idea builds on the last. In keeping with a less-but-deeper philosophy, we spend real time on the concepts that unlock the rest and leave exhaustive service-by-service coverage to the documentation. Every module includes a lab in the Azure portal, and each module builds on the one before.

Who Should Attend

- People beginning a career in data: aspiring analysts, data engineers, and database professionals
- Developers, IT professionals, and technical salespeople who need a grounded picture of Azure data services
- Business and project professionals who work with data teams and want the vocabulary and concepts, plus the DP-900 credential

Prerequisites

- No prior data or Azure experience required
- Basic comfort using a web browser and following guided exercises
- General cloud familiarity helps but is not assumed; *Microsoft Azure Fundamentals (AZ-900)* is a natural companion, not a prerequisite

What You Will Learn

- Explain core data concepts: structured and unstructured data, transactional versus analytical workloads, and common data roles
- Describe how relational databases organize data and read basic SQL queries
- Identify the Azure relational services (Azure SQL Database, SQL Managed Instance, open-source options) and when each fits
- Describe non-relational data and choose appropriate Azure storage and Cosmos DB options
- Explain modern analytics: data warehouses, data lakes, real-time processing, and Power BI
- Prepare confidently for the DP-900 exam with a working mental model rather than memorized facts

Course Outline

Day one: core concepts and relational data

- How to Think About Data
  - Structured, semi-structured, and unstructured data, with real examples of each
  - Transactional versus analytical workloads, and why the distinction drives everything else
  - Data roles: what database administrators, data engineers, and data analysts actually do
  - Lab: explore sample datasets and classify each by shape and workload
- Relational Data Concepts
  - Tables, keys, and relationships: how relational databases keep data consistent
  - Reading and writing basic SQL: SELECT, filtering, and joins at a fundamentals level
  - Views, indexes, and stored procedures as ideas, not implementation details
  - Lab: query a sample relational database in the Azure portal
- Relational Data on Azure
  - The Azure SQL family: Database, Managed Instance, and SQL Server on VMs, and how to choose
  - Open-source options: Azure Database for PostgreSQL and MySQL
  - What "managed service" really means: what Azure does for you and what remains your job
  - Lab: provision an Azure SQL Database and connect to it with a query tool

Day two: non-relational data and analytics

- Non-Relational Data on Azure
  - Why not everything fits in tables: documents, key-value pairs, graphs, and files
  - Azure Blob Storage, Azure Files, and Azure Table Storage
  - Azure Cosmos DB and its APIs, at a what-and-when level
  - Lab: store and retrieve JSON documents in Azure Cosmos DB
- Analytics Workloads
  - Data warehouses and data lakes, and how data gets into them (ingestion and pipelines)
  - Batch versus real-time processing, with streaming examples
  - The Azure analytics landscape: Azure Synapse Analytics, Microsoft Fabric, and Azure Databricks in one map
  - Lab: trace a dataset from raw files through a pipeline into an analytical store
- From Data to Insight
  - What Power BI does: models, reports, and dashboards
  - Choosing the right visualization for the question being asked
  - Pulling the course together: mapping DP-900 exam objectives to what you now know
  - Lab: build a simple Power BI report from the data prepared in earlier labs

Extended Version

The three-day version keeps the same gradient and adds room to practice and to prepare deliberately for the exam:

- More guided SQL practice, including aggregation and multi-table queries
- A deeper tour of Cosmos DB data models and consistency concepts

- Structured DP-900 exam preparation: practice questions, question-style walkthroughs, and study planning
- A capstone that takes one business scenario and selects, provisions, and justifies the right Azure data services end to end