Databricks Fundamentals: Getting Started with Data, AI, and Administration

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Duration: 40 hours (5 days)
Courseware: Unofficial PDF / PPT will be provided
Lab: Azurepass will be provided for lab performance. Lab files will also be shared for future learning
Course Objectives:

- Understand Databricks Architecture: Learn the core components and structure of the Databricks platform.
- Navigate Databricks Workspace: Gain skills in using the workspace for data analysis and collaboration.
- Manage Data and Resources: Learn data storage, management, and compute resource allocation.
- Implement Machine Learning: Explore building, training, and deploying ML models.
- Administer and Govern: Understand data governance, user management, and platform security.

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Module 01: Getting Started with Databricks

You will learn about the benefits the Lakehouse provides to their businesses through this introductory content.

- Introduction to Databricks
- Working with Databricks Teams
- How Databricks Supports Data Governance and Security
- How Databricks Brings Down the Cost of Ownership

Module 02: Data Analysis on Databricks

You will learn about the functionality offered by Databricks SQL, as well as how to use Databricks SQL to complete basic daily workflows.

Section I: Introducing Databricks SQL

- What is Databricks
- What is Databricks SQL

Section II: Administration in Databricks SQL

- 2-1 Controlling Access to Databricks SQL
- 2-2 Create a Simple Databricks SQL Warehouse
- 2-3 Advanced SQL Warehouse Options in Azure
- 2-4 Create Entities and Configure Permissions in Databricks SQL
- 2-5 Create a Slack Alert Destination in Databricks SQL

Section III: Data Analysis in Databricks SQL

- 3-1 Create and Run a Query in the Databricks SQL Editor
- 3-2 Create a Bar Chart in Databricks SQL
- 3-3 Create a Dashboard in Databricks SQL
- 3-4 Create an Alert in Databricks SQL

Module 03: Databricks for Data Engineering
You will learn how to how use repos, computes, notebook on Databricks platform to perform data engineering tasks

Section I: Introduction to Data on Databricks

- Databricks Fundamentals
- Demo: The Databricks Platform
- Introduction to Repos on Databricks
- Demo: Working With Repos on Databricks
- Introduction to Compute Resources
- Demo: Compute Resources
- Databricks Notebooks
- Demo: Working with Notebooks

Section II: Data in the Databricks DI Platform
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- Data Storage and Delta Lake
- Unity Catalog
- Demo: Data Management
- Demo: Data Governance and Security
- Introduction to Workflows
- Demo: Using Workflows
- Databricks SQL for Data Engineers
- Demo: Using Databricks SQL

Module 04: Databricks for Machine Learning
You'll learn Databricks fundamentals, workspace navigation, notebook usage, data management, and end-to-end machine learning workflows with AutoML.

Section I: Databricks for Machine Learning Professionals
- Databricks DI Platform Fundamentals
- Demo: Exploring the Workspace
- Working with Notebooks
- Demo: Working with Notebooks
- Data Storage and Management
- Demo: Data Storage and Management

Section II: Complete a Machine Learning Workflow
- Introduction to Databricks Machine Learning

- Demo: Experimentation with AutoML
- End-to-end ML on the Databricks
- Demo: End-to-end ML on the Databricks

Module 05: Get Started with Databricks for Generative AI
You'll learn Databricks and Mosaic AI basics, prompt engineering, building RAG systems, fine-tuning, and AI governance practices.

- Introduction to Databricks and Mosaic AI for GenAI
- Introduction to Prompt Engineering
- Building a Compound AI System with RAG
- Introduction to Fine-tuning and Pre-training
- LLM Ops and Governance for AI Applications

Module 06: Introduction to Databricks Platform Administration

You'll learn how to manage data governance, principles, metastores, compute resources, and data access control in Databricks Unity Catalog.

Section I: Unity Catalog Overview
- Data Governance in Unity Catalog
- Key Concepts in Unity Catalog
- Unity Catalog Architecture
- Roles in Unity Catalog
- Databricks Marketplace

Section II: Managing Principles in Unity Catalog
- Managing Principals overview
- Demo: Adding and Deleting Users
- Demo: Adding and Deleting Service Principals
- Demo: Adding and Deleting Groups
- Demo: Assigning Users Service Principals and Groups to Workspaces

Section III: Managing Unity Catalog Metastores
- Demo: Creating and Deleting Metastores in Unity Catalog
- Demo: Assigning a Metastore to a Workspace in Unity Catalog
- Demo: Assigning Metastore Administrators in Unity Catalog

Section IV: Compute Resources and Unity Catalog
- Compute Resources and Unity Catalog
- Demo: Creating a Cluster in Unity Catalog
- Demo: Creating SQL Warehouses in Unity Catalog

Section V: Data Access Control in Unity Catalog

- Data access control in Unity Catalog
- Demo: Creating and Governing Data Objects with Unity Catalog

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