



Azure Data Engineer Training

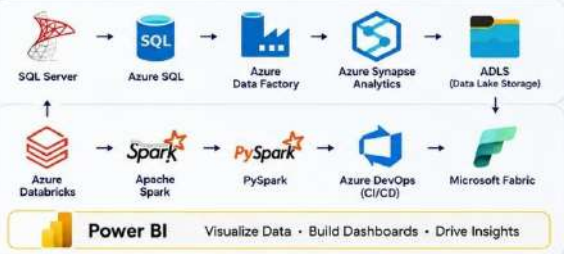
100% Practical Training

What You'll Learn

- ✓ SQL Server & T-SQL
- ✓ Azure SQL Database
- ✓ Azure Data Factory
- ✓ Azure Synapse Analytics
- ✓ Azure Data Lake Storage
- ✓ Azure Databricks (Apache Spark)
- ✓ PySpark & Delta Lake
- ✓ Power BI **NEW**
- ✓ Azure DevOps (CI/CD)
- ✓ End-to-End Industry Project
- ✓ Microsoft Fabric

From SQL to Cloud. From Data to Decisions.

Become a Job-Ready Azure Data Engineer with Real-World Skills





20+ YEARS
of Experience in Database, Azure & BI Technologies

Trainer: Mr. Sai Phanindra
20+ Years of Expertise in Database, Azure, BI Technologies & Data Engineering
[linkedin.com/in/saiphanindra/](https://www.linkedin.com/in/saiphanindra/)

- 100%** Practical Training
- 6** Comprehensive Modules
- 75+** Hands-on Labs
- 200+** Interview Questions
- 1** End-to-End Industry Project
- 20+** Years of Trainer Experience

- Real-World Skills**
Learn by building practical solutions used in real industry scenarios.
- Azure Expertise**
Master Microsoft Azure services end-to-end.
- Job Ready**
Projects, best practices & interviews to boost your career.
- Career Growth**
Get trained. Get certified. Get ahead.
- Call For Free Demo**
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Thank you for your interest in SQL School's Azure Data Engineering Training Program.

I'm **Mr. Sai Phanindra**, your trainer and mentor for this course. With 20+ years of experience in Database Technologies, Data Engineering, Business Intelligence, and Data Warehousing, I bring extensive real-world expertise into every training session.

This course is designed to be 100% practical and job-oriented, with step-by-step hands-on learning, real-time Azure Data Engineering projects, industry best practices, and scenarios to help you build strong, industry-ready skills. **Let's connect:** [linkedin.com/in/saiphanindra/](https://www.linkedin.com/in/saiphanindra/)

Azure Data Engineer Training – 100% Practical & Project-Based

This hands-on training program is divided into **FOUR** comprehensive modules:

Module 1: SQL Server (MSSQL) & T-SQL

Phase 1: Installations, Configurations & Design Concepts

Phase 2: Queries & Data Analytics

Phase 3: Query Optimization & Performance Tuning

Module 2: Azure Data Engineering – Azure, ADF, Spark, Python & PySpark

Part 1: Azure Fundamentals, Azure Data Factory & Synapse

Part 2: Databricks Concepts, Lake House and Azure

Part 3: Realtime Projects

Part 4: Fabric Migrations

Module 3: Power BI & Big Data Analytics

Module 4: Certifications, Interview & Career Preparation

Azure Data Engineering Training Plans

PLAN	WHAT YOU'LL LEARN	DURATION	REALTIME PROJECTS
 PLAN A	1 Azure Data Engineer (ADF, Synapse, Databricks, Spark, PySpark, Microsoft Fabric , Genie AI, ADLS, more..)	 8 Weeks	 2 Realtime Projects  –
 PLAN B	1 MSSQL & TSQL, Tuning 2 Azure Data Engineer (ADF, Synapse, Databricks, Spark, PySpark, Microsoft Fabric , Genie AI, ADLS, more..)	 11 Weeks	 2 Realtime Projects  1 Capstone Project
 PLAN C	1 MSSQL & TSQL, Tuning 2 Azure Data Engineer (ADF, Synapse, Databricks, Spark, PySpark, Microsoft Fabric , Genie AI, ADLS, more..) 3 Power BI with Big Data Analytics & Co-Pilot	 15 Weeks	 3 Realtime Projects  1 Capstone Project

 100% Practical Training
 |
  Industry Expert Trainers
 |
  Real-World Projects
 |
  Job-Ready Skills

This course include complete guidance for below Certifications:

- **Microsoft DP-750 Exam** (Azure Databricks)
- **Databricks Data Engineer Associate Exam** (Open Source Databricks)
- **PL-300 Exam** (Power BI with Azure)

Program Details:

- ✓ **100% Practical & Real-Time**
- ✓ **Training Modes:**
 - LIVE Online Training
 - Self-Paced Videos – Detailed step-by-step lessons, notes, labs & project solutions

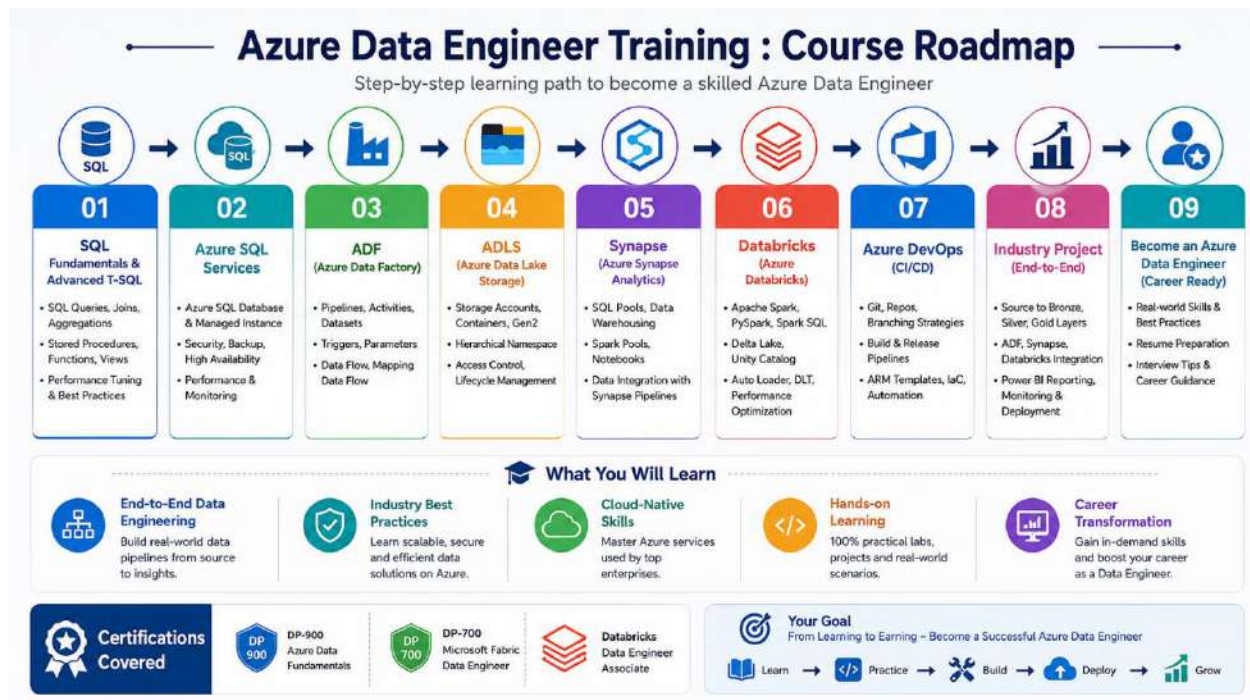
Prerequisites

- ✓ **None**
- ✓ The course starts from the fundamentals and progresses step by step to advanced Databricks Data Engineering concepts !

Learning Outcomes

By the end of this course, you will be able to:

- Design enterprise-grade ETL & Data Warehouse Architectures
- Build scalable ETL pipelines using Azure Data Factory and Databricks
- Implement Bronze, Silver, and Gold data layers in ADF, Databricks
- Perform advanced data transformations using PySpark
- Automate production workflows with GIT & Spark
- Secure data using Unity Catalog and Azure Key Vaults



🔒 Detailed Course Content 🔒

Module 1: SQL Server (MSSQL), TSQL

Ch 1: SQL Database Job Roles

- ✓ Database Intro
- ✓ OLTP, DWH, OLAP
- ✓ DBMS Basics
- ✓ Data Engineer Job Roles

Ch 2: Database Intro & Installations

- ✓ SQL Server Installations
- ✓ Instance & Collations
- ✓ SSMS Tool Installation
- ✓ Connections, Authentications

Ch 3: SQL Basics V1 (Commands)

- ✓ SQL Basics (DDL, DML, etc..)
- ✓ Creating Databases, Tables
- ✓ Data Inserts (GUI, SQL)
- ✓ Basic SELECT Queries

Ch 4: SQL Basics V2 (Commands, Operators)

- ✓ DDL: Create, Alter, Drop
- ✓ DML: Insert, Update, Delete
- ✓ DQL: Select, Fetch
- ✓ Add, Truncate Statements
- ✓ SQL Operators

Ch 5: Data Types & Variables

- ✓ Integer Data Types
- ✓ Character, MAX Data Types
- ✓ Decimal & Boolean Data Types
- ✓ Date and Time Data Types
- ✓ SQL_Variant Type

Ch 6: Data Imports From Files

- ✓ Data Imports with Excel
- ✓ Data Imports with CSV
- ✓ Auto Detection of DataTypes
- ✓ OLE-DB Connections
- ✓ Order By, TOP, OFFSET

Ch 7: Sub Queries

- ✓ Basic Sub Queries
- ✓ Aggregations
- ✓ Combining Queries
- ✓ UNION, UNION ALL

Ch 8: Schemas & Batches

- ✓ Schemas: Creation, Usage
- ✓ Schemas & Table Grouping
- ✓ Real-world Banking Database
- ✓ 2 Part, 3 Part & 4 Part Naming
- ✓ Batch Concept & “Go” Command

Ch 9: Constraints, Keys & RDBMS

- ✓ Null, Not Null Constraints
- ✓ Unique Key & Check
- ✓ Primary Key Constraint
- ✓ Foreign Keys, Default
- ✓ DB Diagrams & ER Models

Ch 10: Normal Forms & RDBMS

- ✓ Normal Forms: 1 NF, 2 NF
- ✓ 3 NF, BCNF and 4 NF
- ✓ 1:1, 1:M, M:1 Cardinality
- ✓ Cascading Keys
- ✓ Self Referencing Keys

Ch 11: Joins & Queries

- ✓ Joins: Table Comparisons
- ✓ Inner Joins & Matching Data
- ✓ Outer Joins: LEFT, RIGHT
- ✓ Full Outer Joins & Aliases
- ✓ Self Joins & Aliases

Ch 12: Views & RLS

- ✓ Views: Realtime Usage
- ✓ DML, SELECT with Views
- ✓ Excel Analytics with Views
- ✓ Important System Views

Ch 13: Stored Procedures - 1

- ✓ Stored Procedures: Realtime Use
- ✓ Parameters Concept with SPs
- ✓ Procedures with SELECT
- ✓ System Stored Procedures
- ✓ Stored Procedures, Tuning

Ch 14: Stored Procedures - 2

- ✓ Merge Statement (Upsert)
- ✓ Merge with OLTP & DWH
- ✓ Matched and Not Matched
- ✓ Merge Statement inside SPs
- ✓ SP Recompilations

Ch 15: User Defined Functions - 1

- ✓ Scalar Functions in Real-world
- ✓ Inline & Multiline Functions
- ✓ Parameterized Queries
- ✓ Variables & Parameters
- ✓ Function Executions

Ch 16: User Defined Functions - 2

- ✓ Date & Time Functions
- ✓ String Functions & Queries
- ✓ Aggregated Functions & Usage
- ✓ Window Functions (Rank)
- ✓ Row_Number, DenseRank
- ✓ Partition By & Order By

Ch 17: Triggers & Automations

- ✓ Need for Triggers in Real-world
- ✓ DDL & DML Triggers
- ✓ For / After Triggers
- ✓ Instead Of Triggers
- ✓ Memory Tables with Triggers

- ✓ Disabling DMLs Triggers

Ch 18: Group By Queries

- ✓ Group By, Distinct
- ✓ GROUP BY, HAVING
- ✓ Cube() and Rollup()
- ✓ Sub Totals & Grand Totals
- ✓ Grouping() & Usage

Ch 19: Joins with Group By

- ✓ 3 Table, 4 Table Joins
- ✓ Join Queries & WHERE
- ✓ Join Queries & Group By
- ✓ IIF(), CASE Statement
- ✓ Query Execution Order

Ch 20: Transactions & ACID

- ✓ Auto Commit Transaction
- ✓ Explicit Transactions
- ✓ COMMIT, ROLLBACK
- ✓ Checkpoint & Query Blocking
- ✓ READPAST, LOCKHINT

Ch 21: Indexes Basics, Tuning

- ✓ Clustered Index, Primary Key
- ✓ Non Clustered Index
- ✓ Query Optimizer
- ✓ Tuning Join Queries
- ✓ Tuning Group By Queries

Ch 22: CTEs & Tuning

- ✓ Common Table Expression
- ✓ CTEs for Data Retrieval
- ✓ CTEs for DML Operations
- ✓ CTEs for Data Cleansing
- ✓ Using CTEs with Row Number

Ch 23: Cursors & Temp Tables

- ✓ Cursors & Fetch
- ✓ Scroll, Absolute Types
- ✓ Local Temp Tables
- ✓ Global Temp Tables
- ✓ SELECT..INTO Statement

Ch 24: SQL Server Architecture

- ✓ Network Protocols
- ✓ Storage Engine

- ✓ Query Processing Engine
- ✓ Query Execution Order
- ✓ SQL OS Components

Ch 25: Capstone Project (HealthCare Management System)

- ✓ ECommerce Database
- ✓ Data Validations
- ✓ Query Writing
- ✓ Query Tuning
- ✓ Excel Analytics

Module 2: Azure Data Engineer

Part 1: Azure Data Factory & Synapse

Ch 1: Azure Fundamentals

- ✓ Cloud Introduction, Azure
- ✓ Cloud Implementations
- ✓ Azure Account, Subscription
- ✓ Azure ETL & DWH Resources
- ✓ Azure Storage, IoT Resources

Ch 2: Azure Deployments, Azure SQL

- ✓ Azure SQL Server, SQL DB
- ✓ Azure SQL Database (OLTP)
- ✓ Azure Firewall Rules
- ✓ Connections from SSMS Tool

Ch 3: Azure Storage & ADLS

- ✓ Azure Storage Account
- ✓ Azure Data Lake Storage
- ✓ Azure BLOB Containers
- ✓ Blob File Uploads
- ✓ Azure Tables

Ch 4: Azure SQL DB Migrations

- ✓ On-Premise SQL DB, bacpac
- ✓ Azure SQL Deployment
- ✓ Azure Storage from SSMS
- ✓ Azure SQL DB Migration
- ✓ Migration Verifications

Ch 5: Azure Synapse (DWH)

- ✓ Synapse Pool Architecture
- ✓ Control Node, Compute Node
- ✓ DMS (Data Movement Service)

- ✓ Azure DWH Tables: Partitions
- ✓ Distributions & MAXDOP

Ch 6: Azure Data Factory (ADF)

- ✓ Need for ADF & Pipelines
- ✓ Data Orchestration with IR
- ✓ Integration Runtime Engine
- ✓ Linked Services, Datasets
- ✓ Pipelines: Copy Data Activity
- ✓ Data Flow Activity with IR

Ch 7: Azure SQL DB Loads

- ✓ ADF: Author, Azure SQL DB Reads
- ✓ Azure SQL Pool Writes
- ✓ Synapse Analytics with IR
- ✓ Pipeline Design, Validation
- ✓ Pipeline Runs, Monitoring

Ch 8: File Incremental Loads

- ✓ File Incremental Loads
- ✓ Storage Account, Data Lake
- ✓ Binary Copy, Schema Drift
- ✓ Staging Concept in ADF
- ✓ Initial, Incremental Loads
- ✓ Schema & Data Changes

Ch 9: Pipeline Settings

- ✓ ADF Pipeline Settings
- ✓ Staging: Advantages
- ✓ Reliable Logging
- ✓ Best Effort Logging
- ✓ DIU & DOCP with IR
- ✓ Compressions, Health Check

Ch 10: Table Incremental Loads

- ✓ Implement SCD with ADF
- ✓ Self Hosted IR: Realtime Use
- ✓ On-premise Data: Incr Loads
- ✓ Copy Method: Upsert, Keys
- ✓ Staging & ADF Optimizations
- ✓ Pipeline Runs, Activity IDs

Ch 11: ADF Data Flow - 1

- ✓ Creating Data Flow Items

- ✓ Using Multiple Sinks
- ✓ Conditional Split Transformation
- ✓ Select, Sort, Union, Loops
- ✓ ADF Debug Options

Ch 12: ADF Data Flow - 2

- ✓ Working with Multiple Tables
- ✓ Join Transform, Broadcast
- ✓ Surrogate Keys, Derived Cols
- ✓ ETL Loads Dates, Sink Options
- ✓ Aggregated Data Loads

Ch 13: ADF Data Flow - 3

- ✓ Pivot Transformation
- ✓ Group By & Pivot Keys
- ✓ Column Pattern, Deduplicate
- ✓ Lookup, Cached Lookup
- ✓ Tuning Transformations
- ✓ Tuning Data Flow, Spark

Ch 14: ADF Data Flow - 4

- ✓ Get Metadata
- ✓ IF & Lookup Transformation
- ✓ Cache Lookup
- ✓ Data Validations
- ✓ Lookup Versus Joins

Ch 15: ADF Metrics, Alerts

- ✓ Azure Insights
- ✓ Azure Metrics for ADF
- ✓ Azure Metrics for Synapse
- ✓ CPU, Memory Metrics
- ✓ Alerts and Notifications
- ✓ Action Groups, Tuning Options

Ch 16: ADF with Azure Functions

- ✓ Azure Functions
- ✓ Function Activity in ADF
- ✓ Linked Services
- ✓ Pipeline Debug
- ✓ ADF Activity Controls

Ch 17: ADF Optimizations

- ✓ Synapse SQL Pool Partitions

- ✓ ADF Partitions
- ✓ Broadcast Options
- ✓ Staging, Logging
- ✓ DIU, DOCP
- ✓ Spar Cluster Optimizations

Ch 18: ADF Parameters, Security

- ✓ Linked Service Parameters
- ✓ Creating Logins & Users
- ✓ Schemas, ETL Permissions
- ✓ Logins Parameters in ADF
- ✓ Dynamic Linked Services

Ch 19: SCD & ETL with Control Tables

- ✓ ADF Templates in Realtime
- ✓ Incremental Loads (SCD)
- ✓ Control Tables, Watermarks
- ✓ Lookup Activity, Delta Queries
- ✓ SP Activity & Parameters
- ✓ Pipeline Parameters, SPs

Ch 20: Azure Key Vaults

- ✓ Azure Key Vaults
- ✓ Access Policies
- ✓ Secret Management
- ✓ Managed Identity
- ✓ Key Vault Integrations

Ch 21: Synapse Analytics

- ✓ Azure Synapse Analytics
- ✓ Synapse Deployments
- ✓ Synapse Configurations
- ✓ ADLS Containers
- ✓ Workspace Server Setup
- ✓ Synapse Studio (GUI)

Ch 22: Synapse: Dedicated SQL Pools

- ✓ Creating Dedicated SQL Pools
- ✓ BLOB Data Imports
- ✓ TSQL Queries, Data Imports
- ✓ Big Data Analytics

Ch 23: Synapse: Serverless Pools

- ✓ Serverless Pools, TSQL

- ✓ Serverless Architecture
- ✓ OPENROWSET Operations
- ✓ Big Data Analytics

Ch 24: Synapse: Apache Spark Pools

- ✓ Apache Spark Pools
- ✓ Nodes and Executors
- ✓ Big Data Analytics
- ✓ Pipeline Integrations

Part 2: Databricks (Spark, PySpark, Big Data, Genie AI)

Ch 1: Databricks Introduction

- ✓ Cloud ETL, DWH
- ✓ Cloud Computing
- ✓ Databricks Concepts
- ✓ Databricks Account
- ✓ Big Data in Cloud

Ch 2: Databricks Architecture

- ✓ Databricks Runtime (DBR)
- ✓ RDD & DAG
- ✓ Databricks Lakehouse Architecture
- ✓ Spark Compute Concepts
- ✓ Workers & Drivers
- ✓ Databricks Framework
- ✓ Databricks APIs

Ch 3: Unity Catalog

- ✓ Unity Catalog Concepts
- ✓ Metastore
- ✓ Catalogs & Schemas
- ✓ Managed & External Tables
- ✓ Storage Credentials
- ✓ External Locations
- ✓ Volumes
- ✓ GRANT / REVOKE
- ✓ Data Permissions
- ✓ Lineage
- ✓ Data Governance
- ✓ Databricks Workspace UI
- ✓ Spark Table Creations

Ch 4: Spark SQL: Basics

- ✓ Spark SQL Notebooks
- ✓ Creating Catalog
- ✓ Creating Schemas

- ✓ Creating Tables
- ✓ Spark Data Types
- ✓ PySpark API: SQL Queries
- ✓ Dropping Objects
- ✓ Notebooks: Exports, Clone

Ch 5: Spark SQL: Table Types

- ✓ Delta Tables
- ✓ Managed Tables
- ✓ External Tables
- ✓ Data Partitioning
- ✓ Union, Views in Spark
- ✓ External Volumes

Ch 6: Spark SQL: Functions

- ✓ Math, Sort Functions
- ✓ String, DateTime Functions
- ✓ Conditional Statements
- ✓ SQL Expressions with `expr()`
- ✓ Volume for our Data Assets
- ✓ File Formats, Schema Inference
- ✓ Spark SQL Aggregations

Ch 7: Spark SQL: Time Travel

- ✓ Time Travel Concepts
- ✓ Spark DB: Logical Architecture
- ✓ Spark DB: Physical Store
- ✓ Data File Store
- ✓ Log File Store
- ✓ Time Travel
- ✓ DESCRIBE, EXTENDED
- ✓ HISTORY
- ✓ Version Numbers

Ch 8: Python: Introduction, Print

- ✓ Python Introduction
- ✓ Python Versions
- ✓ Python Implementations
- ✓ Python in Spark (PySpark)
- ✓ Python `Print()`
- ✓ Single, Multiline Statements

Ch 9: Python: Variables

- ✓ Python Variables
- ✓ Variable Declarations
- ✓ Variable Values
- ✓ Value Types

- ✓ Multi Variable Values
- ✓ Common Variable Values
- ✓ Realtime use of Variables

Ch 10: Python: Operators

- ✓ Need for Operators
- ✓ Arithmetic Operators
- ✓ Assignment Operators
- ✓ Comparison Operators
- ✓ Operator Precedence
- ✓ Operands in Python

Ch 11: Python: Control Statements

- ✓ Python Control Structures
- ✓ If ... Else Statement
- ✓ Short Hand If
- ✓ ELIF & ELSE IF Statements
- ✓ OR, AND Concepts
- ✓ Python Loops

Ch 12: Python: Data Types

- ✓ Python Data Types
- ✓ Integer / Int Data Types
- ✓ Float, String Data Types
- ✓ List Data Type
- ✓ Dictionary Data Type
- ✓ Tuple Data Type

Ch 13: Python: Modules & DataFrames

- ✓ Python Modules
- ✓ Pandas
- ✓ NumPy
- ✓ DataFrame Concepts
- ✓ Handling Nulls
- ✓ Data Cleansing Concepts
- ✓ Python Functions

Ch 14: PySpark DataFrames & Transformations

- ✓ Creating PySpark DataFrames
- ✓ Reading Data Sources
- ✓ select(), filter(), withColumn()
- ✓ Handling NULL Values
- ✓ Data Type Casting
- ✓ Joins
- ✓ union() / unionByName()
- ✓ Aggregations
- ✓ Window Functions

- ✓ Writing DataFrames
- ✓ DataFrame vs Spark SQL

Ch 15: Medallion Architecture - 1

- ✓ Medallion Architecture
- ✓ Aggregated Data Loads
- ✓ Bronze, Silver and Gold
- ✓ Temp Views
- ✓ Spark Tables (Parquet)
- ✓ Work with File Sources

Ch 16: Medallion Architecture - 2

- ✓ Medallion Architecture
- ✓ Azure SQL DB Connections
- ✓ Joining Source Tables
- ✓ Data Frames, Temp Views
- ✓ Aggregated Data Loads
- ✓ Gold Data Consumption
- ✓ Raw Sources → Bronze → Silver → Gold → BI/Analytics

Ch 17: Delta Lake

- ✓ Databricks Delta Lake
- ✓ Schema Evolution
- ✓ Azure SQL DB Connections
- ✓ DataFrames, Temp Views
- ✓ Delta Table API
- ✓ Update, Delete Records
- ✓ MERGE / Upsert Operations
- ✓ Version History & Data Retention
- ✓ Delta Transaction Log

Ch 18: PySpark: Widgets

- ✓ PySpark Parameters
- ✓ Text Widgets
- ✓ User Parameters
- ✓ Manual Executions
- ✓ Automations
- ✓ UI & JSON For Widgets

Ch 19: Lake Flow Jobs

- ✓ Workflows & CRON
- ✓ Job Compute, Running Tasks
- ✓ Python Script Tasks
- ✓ Parameters into Notebook Tasks
- ✓ Parameters into Python Script Tasks
- ✓ Concurrent Executions, Dependencies
- ✓ Branching Control with the If-Else Task

Ch 20: PySpark: Auto Loader - 1

- ✓ Auto Loader Concept
- ✓ Cloud Files Architecture
- ✓ Checkpoint Configurations
- ✓ Schema Location
- ✓ Checkpoint Location
- ✓ Initial Loads

Ch 21: PySpark: Auto Loader - 2

- ✓ Reading Streams
- ✓ Manually Cancel your Data Streams
- ✓ Writing to a Data Stream
- ✓ Schema Evaluation Modes
- ✓ Workspace Modules
- ✓ Incremental File Ingestion
- ✓ Schema Evolution
- ✓ Rescued Data Column
- ✓ Trigger Options
- ✓ Exactly-once processing concepts

Ch 22: LakeFlow Declarative Pipelines

- ✓ SDP: Spark Declarative Pipelines
- ✓ Delta LIVE Tables
- ✓ Streaming Data Loads
- ✓ Bronze, Silver, Gold Data
- ✓ Materialized Views
- ✓ Pipeline Clusters
- ✓ Databricks CLI
- ✓ Data Quality Checks

Ch 23: Databricks Optimizations

- ✓ Lazy Evaluation
- ✓ Explain Plan
- ✓ Caching
- ✓ Data Shuffling
- ✓ Broadcast Joins
- ✓ Partitions
- ✓ Data Skipping
- ✓ Liquid Clustering
- ✓ VACUUM
- ✓ OPTIMIZE, Z Ordering

Ch 24: Databricks Security, AI

- ✓ Overview of ACLs
- ✓ Adding a New User to Workspace
- ✓ Workspace Access Control

- ✓ Cluster Access Control
- ✓ Groups & Lake Bridge
- ✓ Access Keys (Tokens), Genie AI

Ch 25: GitHub Concepts

- ✓ Creating GitHub Account
- ✓ GIT Project Concept
- ✓ GIT Project Creation
- ✓ GIT: Main, Branches
- ✓ Connecting with ADF
- ✓ Connecting with Databricks

Part 3: Data Engineer Projects (For Resume)

Project 1: ECommerce Platform

Project Objective:

Build an end-to-end Azure Data Engineering solution to process, transform, and analyze e-commerce business data from multiple sources.

Skills Gained:

- Data Ingestion & ETL Development
- Azure Data Factory Pipelines
- Data Orchestration (End to End)
- Data Lake Architecture, RBAC
- Real-Time Industry Experience
- Azure IoT, Stream Analytics
- Azure Databricks with Data Factory

Components For Project

- ADF Pipelines
- Databricks Notebooks
- Synapse Analytics
- Apache Spark Schemas
- Power BI Reporting
- Monitoring & Alerts
- CI/CD Deployment
- End to End Integrations
- IAM & Managed Identity

Project 2: Retail Platform

Retail Sales Analytics Platform using Databricks (Medallion Architecture)

Project Overview

Students will build a production-style data platform using Lakehouse Architecture (Bronze, Silver, and Gold), implementing modern ETL practices, data quality validation, incremental processing, orchestration, optimization, and reporting.

Business Scenario

A multinational retail company receives daily data from multiple operational systems. The company wants to build a centralized analytics platform to:

- Consolidate data from different business domains
- Improve data quality and consistency
- Track sales performance across regions
- Analyse customer purchasing behaviour
- Monitor inventory levels
- Generate business KPIs for decision-makers
- Deliver Power BI dashboards with near real-time insights

Technologies Covered

- Apache Spark
- PySpark
- Spark SQL
- Delta Lake
- Unity Catalog
- Databricks Workflows
- Git Integration

Part 4: Microsoft Fabric Integrations

- Need for Microsoft Fabric
- Fabric Workspace
- Fabric DWH Items
- Fabric ETL Items
- Fabric Workspace Creation
- Fabric Warehouse Operations
- Fabric Data Factory
- Fabric ETL Pipelines
- Azure to Fabric Data Factory
- Azure Synapse to Fabric Migrations

Module 3: Power BI With AI, Co-Pilot

Ch 1: Power BI Intro, Installation

- ✓ Power BI & Data Analysis
- ✓ Power BI Eco System
- ✓ Power BI Design Tools
- ✓ PBI Hosting Solutions
- ✓ Power BI Installation

Ch 2: Report Design Concepts

- ✓ Basic Report Design (PBIX)
- ✓ Get Data, Canvas (Design)

- ✓ Data View, Data Models
- ✓ Data Points, Spotlight
- ✓ Focus Mode, PDF Exports

Ch 3: Visual Interactions, PBIT

- ✓ Visual Interactions & Edits
- ✓ Limitations with Visual Edits
- ✓ Creating Power BI Templates
- ✓ CSV Exports & PBIT Imports

Ch 4: Grouping, Hierarchies

- ✓ Creating Groups: Lists
- ✓ Creating Groups: Bins
- ✓ List Items & Group Edits
- ✓ Bin Size & Bin Count

Ch 5: Slicer & Visual Sync

- ✓ Slicer Visual in Power BI
- ✓ Slicer: Format Options
- ✓ Single Select, Multi Select
- ✓ Slicer: Select All On / Off
- ✓ Visual Sync with Slicers

Ch 6: Hierarchies & Drill-Down

- ✓ Hierarchies: Creation, Use
- ✓ Hierarchies: Advantages
- ✓ Drill Up, Drill Down
- ✓ Conditional Drill Down
- ✓ Filtered Drill Down, Table View

Ch 7: Filters & Drill Thru

- ✓ Power BI Filters
- ✓ Basic, Top & Advanced
- ✓ Visual Filters, Page Filters
- ✓ Report Level Filters, Clear Filter
- ✓ Drill Thru Filters & Usage

Ch 8: Bookmarks, Buttons

- ✓ Power BI Bookmarks
- ✓ Images: Actions, Bookmarks
- ✓ Buttons: Actions, Bookmarks
- ✓ Page to Page Navigations
- ✓ Score Cards, Master Pages

Ch 9: SQL DB Access & Big Data

- ✓ SQL DB Access, Queries
- ✓ Storage Modes: Direct Query
- ✓ Formatting & Date Time
- ✓ Storage Modes in Power BI
- ✓ Azure (Big Data) Access & Formatting

Ch 10: Power BI Visualizations

- ✓ Charts, Bars, Lines, Area
- ✓ TreeMaps & HeatMaps
- ✓ Funnel, Card, Multrow Card
- ✓ PieCharts & Waterfall
- ✓ Scatter Chart, Play Axis
- ✓ Infographics, Classifications

Ch 11: Power Query Introduction

- ✓ Power Query (Mashup)
- ✓ ETL Transformations in PBI
- ✓ Table Combine Options
- ✓ Merge, Union All Options
- ✓ Missing Values, Duplicate Records
- ✓ Wrong Data Types, Outliers
- ✓ Close, Apply & Visualize

Ch 12: Power Query: Table Transformations

- ✓ Table Duplicate, Header Promotion
- ✓ Group By Transformation
- ✓ Aggregate, Pivot Operation
- ✓ Reverse Rows, Count Rows
- ✓ Advanced Power Query Mode
- ✓ Data Cleaning, Null Handling

Ch 13: Power Query: Column Transformations

- ✓ Any Column Transformations
- ✓ Data Type Detection, Change
- ✓ Rename, Replace, Move
- ✓ Fill Up, Fill Down
- ✓ Step Edits & Rollbacks

Ch 14: Power Query: Text, Date Transformations

- ✓ String / Text Transformations
- ✓ Split, Merge, Extract, Format
- ✓ Numeric and Date Time
- ✓ Add Column & Expressions

- ✓ Column From Examples

Ch 15: Power Query: Parameters, Expressions

- ✓ Parameters in Power Query
- ✓ Static Parameters, Defaults
- ✓ Dynamic Dropdowns, Lists
- ✓ Linking with Table Queries
- ✓ Step Edits, Type Conversions
- ✓ API & Web Data Sources

Ch 16: Power BI Cloud & Fabric

- ✓ Power BI Cloud, Microsoft Fabric
- ✓ Microsoft Fabric Concepts
- ✓ Fabric One Lake (DWH, LH, etc.)
- ✓ Microsoft Fabric Workspace
- ✓ Power BI Desktop Connections
- ✓ Report Uploads (PBIX)
- ✓ Report Edits, Semantic Models

Ch 17: Power BI Cloud Dashboards

- ✓ Power BI Dashboards
- ✓ Dashboard Creation, Usage
- ✓ Pin Visuals, Pin LIVE Pages
- ✓ Add Image, Video Tiles
- ✓ Q&A & Pin Tiles

Ch 18: Power BI Cloud Operations

- ✓ Report Shares, Alerts
- ✓ Subscriptions, Exploration
- ✓ Downloads & Edits
- ✓ Report Cloning in Cloud
- ✓ QR Codes, Web Publish
- ✓ Lineage & Metrics

Ch 19: Power BI Cloud Gateways

- ✓ Data Gateways, Data Refresh
- ✓ Install, Configure Gateways
- ✓ Data Refresh & Scheduling
- ✓ Gateway Optimizations
- ✓ Incremental Refresh
- ✓ Large Dataset Optimization

Ch 20: Power BI Cloud Apps

- ✓ Power BI Apps: Creation

- ✓ App Sections & Content
- ✓ Audience & App Security
- ✓ App Updates, Favorites
- ✓ App URL, End User Access

Ch 21: Power BI Report Server

- ✓ SQL Server 2025
- ✓ Power BI Report Server
- ✓ RS Config Tool Options
- ✓ Report Database, TempDB
- ✓ Web Service & Server URL

Ch 22: Paginated Reports

- ✓ Report Builder Tool
- ✓ Paginated Report (RDL)
- ✓ Report Expressions (RDL)
- ✓ Tablix, Chart Wizards
- ✓ Fields & Drill-Down
- ✓ RDL Report Publish

Ch 23: DAX Concepts (Basics)

- ✓ DAX Concepts: Intro & Realtime Need
- ✓ DAX Columns: Creation, Use
- ✓ DAX Measures: Creation, Use
- ✓ DAX Functions: IIF, ISBLANK
- ✓ SUM, CALCULATE Functions

Ch 24: DAX Quick Measures

- ✓ Quick Measures in Power BI
- ✓ Running Totals
- ✓ Star Rating Calculations
- ✓ DAX Measures in Data View
- ✓ DAX in Cloud Reports

Ch 25: Data Modelling, DAX

- ✓ Dimensions Tables
- ✓ Fact Tables & DAX Measures
- ✓ Data Models & DDAX Joins
- ✓ Star & Snowflake Schemas
- ✓ Many-to-Many Relationships
- ✓ Calculation Groups

Ch 26: DAX Joins, Variables

- ✓ CALCULATEX & Variables
- ✓ COUNT, COUNTA, etc..

- ✓ SUM, SUMX, etc..
- ✓ SELECTED MEMEBER
- ✓ Filter Context, RETURN

Ch 27: DAX Models & Calculations

- ✓ VAR, SWITCH, SUMMARIZE
- ✓ TREATAS, USERELATIONSHIP
- ✓ CROSSFILTER, GENERATE
- ✓ RANKX, TOPN, WINDOW
- ✓ OFFSET, INDEX

Ch 28: DAX Time Intelligence

- ✓ Need for Time Intelligence
- ✓ Date Table Generation
- ✓ Time Intelligence with DAX
- ✓ PARALLELPERIOD, DATE
- ✓ CALENDAR, Total Functions
- ✓ YTD, QTD, MTD with DAX

Ch 29: DAX - Row Level Security

- ✓ RLS: Row Level Security
- ✓ Data Modelling & Roles
- ✓ Add Cloud Users & KPIs
- ✓ CoPilot with DAX

Ch 30: Analytical Reports

- ✓ Analytical Report Concepts
- ✓ Excel with Power BI Cloud
- ✓ SQL, AVRO, JSON Sources
- ✓ Analyze in Excel
- ✓ Excel Pivot Reports

Ch 31: PL 300 Exam Guidance

- ✓ PL 300 Exam Guidance
- ✓ Exam Samples
- ✓ Exam Scenarios

Realtime Project 3 (Health Care Platform) – For Your Resume

Project Objective

Design and implement a modern Healthcare Data Platform using Power BI Analytics and Reporting services to process patient, hospital, clinical, and operational data for reporting, analytics, and decision-making.

Technologies Used

- ✓ SQL Server

- ✓ Azure SQL Database
- ✓ Azure Data Lake
- ✓ Azure Synapse
- ✓ Databricks API
- ✓ Power BI Service
- ✓ Power Pivot
- ✓ CoPilot

Learning Outcomes

After completing this project, you can confidently showcase experience in:

- Power BI Reporting
- Azure Synapse with Power BI
- Spark Schemas with Power BI
- Performance Optimization
- End-to-End Azure Data Engineering Solutions

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