

I am **Mr. Sai Phanindra**, trainer for **Microsoft Cloud Data Engineer** Course.
With over 20 Years of experience in Microsoft Database Technologies, I am strongly committed to share my guided knowledge, technical expertise with use case scenarios, projects. Let's Connect on LinkedIn: linkedin.com/in/saiphanindra/

This Microsoft Cloud Engineer Course is divided into FIVE Comprehensive Modules:

Module 1: MSSQL & TSQL Queries, Tuning
Module 2: Azure Data Engineering (ADF, Databricks, Spark, PySpark, ADLS, IoT)
Module 3: Fabric Data Engineering (FDF, LakeHouse, DataFlow, PySpark, SparkSQL, AI)
Module 4: Power BI [Optional, Highly Recommended]
Module 5: End to End Realtime Projects & Migrations

This course includes Complete Guidance for:

- **DP-750 Exam** (Azure)
- **DP-700 Exam** (Fabric)
- **PL-300 Exam** (Power BI)
- **Databricks Data Engineer Associate Exam**

Training Details:

✓ **100% Practical & Realtime**
✓ **Training Modes:**
  - **LIVE Online Training**
  - **Self-Paced Videos** (Detailed, step by Step, Latest Videos with Notes, Project Solution)

Who Should Join?

- Freshers
- SQL Developers
- BI Developers
- Data Analysts
- SDEs & SREs

Prerequisites

- No pre-requisites needed.
- We start from the basics and build your skills step by step.



🔥Detailed Course Content🔥

Module 1: 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

- ✓ Data Imports with Excel
- ✓ Data Imports with CSV
- ✓ Data Types Detection
- ✓ OLE-DB Connections
- ✓ ORDER BY, TOP, OFFSET

Ch 7: Schemas & Batches

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

Ch 8: Constraints, Keys & RDBMS

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

Ch 9: 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 10: Joins & Queries

- ✓ Joins: Table Comparisons

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

Ch 11: Sub Queries

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

Ch 12: Group By Queries

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

Ch 13: Joins with Group By, Sub Queries

- ✓ 3 Table, 4 Table Joins
- ✓ Join Queries & WHERE
- ✓ Join & Group By, Sub Queries
- ✓ IIF(), CASE Statement
- ✓ EXISTS, NOT EXISTS
- ✓ Query Execution Order

Ch 14: Views & RLS

- ✓ Views: Realtime Usage
- ✓ DML, SELECT with Views
- ✓ WITH CHECK OPTION
- ✓ Row Level Security (RLS)
- ✓ Important System Views

Ch 15: Functions & Queries

- ✓ User Defined Functions
- ✓ Scalar, Table Value Functions
- ✓ Variables & Parameters
- ✓ Date & Time Functions
- ✓ String Functions
- ✓ Aggregated Functions
- ✓ Data Conversion Functions

Ch 16: Advanced SQL & Window Functions

- ✓ Window Functions (Rank)
- ✓ Row_Number, DenseRank
- ✓ Partition By & Order By

- ✓ Lag & Lead Functions
- ✓ Pivot, UnPivot
- ✓ Running Totals
- ✓ Moving Average

Ch 17: Stored Procedures - 1

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

Ch 18: Stored Procedures - 2

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

Ch 19: Triggers & Automations

- ✓ Need for Triggers in Real-world
- ✓ DDL & DML Triggers
- ✓ For / After Triggers
- ✓ Instead Of Triggers
- ✓ Disabling DMLs Triggers

Ch 20: Transactions & ACID

- ✓ Auto Commit Transaction
- ✓ Explicit Transactions
- ✓ COMMIT, ROLLBACK
- ✓ Checkpoint & Query Blocking
- ✓ READPAST, LOCKHINT
- ✓ TRY...CATCH & Error Handling

Ch 21: SQL Query Performance & Indexing

- ✓ Clustered vs Nonclustered Indexes
- ✓ Index Seek vs Scan
- ✓ SARGable Queries
- ✓ Tuning Queries
- ✓ Indexing JOIN/WHERE columns
- ✓ Query Optimization Examples

Ch 22: CTEs & Tuning

- ✓ Common Table Expression
- ✓ CTEs for Data Retrieval
- ✓ CTEs for DML Operations
- ✓ Data Cleansing Techniques
- ✓ Duplicate Detection/Removal

Ch 23: Temp Tables & Query Techniques

- ✓ Local & Global Temp Tables
- ✓ SELECT..INTO Statement
- ✓ Cursor Basics – When to Use & Avoid
- ✓ NULLIF

Ch 24: Bonus / Advanced Module: SQL Server Internals

- ✓ Database Engine Components
- ✓ Parser, Compiler & Optimizer
- ✓ Parsing and Compilation
- ✓ Memory Manager & IO Managers

Module 2: Azure Data Engineer

Section 1: Databricks (Spark, PySpark, Big Data, Genie AI)

Ch 1: Databricks Introduction

- ✓ Cloud ETL, DWH
- ✓ Cloud Computing
- ✓ Databricks Concepts
- ✓ ETL Components
- ✓ Lakehouse & Big Data Concepts
- ✓ Databricks Workspace UI
- ✓ Databricks Account

Ch 2: Databricks Basic Operations

- ✓ Catalog
- ✓ Schema
- ✓ Volumes, Files
- ✓ Tables
- ✓ Need for ETL
- ✓ Need for PySpark
- ✓ Catalog Explorer

Ch 3: Databricks Architecture

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

Ch 4: Unity Catalog

- ✓ Unity Catalog Concepts
- ✓ Catalogs & Volumes
- ✓ Table Types
- ✓ Parquet & Delta Tables
- ✓ Managed & External Tables
- ✓ Spark Table Creations

Ch 5: Spark SQL: Basics

- ✓ Spark SQL Notebooks
- ✓ Catalog, Schemas
- ✓ Tables, Data Types
- ✓ Notebooks: Exports, Clone

Ch 6: Spark SQL: Functions

- ✓ Math, Sort Functions
- ✓ String Functions
- ✓ Date Time Functions
- ✓ Conditional Statements
- ✓ Window (Rank) Functions

Ch 7: Spark SQL: Time Travel

- ✓ Time Travel Concepts
- ✓ Spark DB: Logical Architecture
- ✓ Describe, Extended
- ✓ History, Versions
- ✓ Timestamps, Data Recovery

Ch 8: Python: Introduction, Print

- ✓ Python Introduction
- ✓ Python Versions
- ✓ Python in Databricks
- ✓ Python Print()
- ✓ Single, Multiline Statements

Ch 9: Python: Variables

- ✓ Python Variables
- ✓ Variable Declarations
- ✓ Multi Variable Values
- ✓ Common Variable Values
- ✓ Variables in Real-Time

Ch 10: Python: Operators

- ✓ Operators & Real-Time Use
- ✓ Arithmetic Operators
- ✓ Assignment Operators
- ✓ Comparison Operators
- ✓ Index Operators
- ✓ Format Operators

Ch 11: Python: Data Types

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

- ✓ Dictionary Data Type
- ✓ Tuple Data Type

Ch 12: Python: Control Statements

- ✓ Python Control Structures
- ✓ If ... Else Statement
- ✓ ELIF & ELSE IF Statements
- ✓ FOR Loop & IF Conditions
- ✓ Range & List Ranges
- ✓ WHILE Loop

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, Aggregations
- ✓ Writing DataFrames

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
- ✓ 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

Ch 20: PySpark: Auto Loader

- ✓ Cloud Files Architecture
- ✓ Checkpoint Configurations
- ✓ Schema Location
- ✓ Checkpoint Location
- ✓ Data Stream
- ✓ Schema Evaluation Modes
- ✓ Incremental File Ingestion
- ✓ Rescued Data Column

Ch 21: LakeFlow Declarative Pipelines

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

Ch 22: Databricks Optimizations

- ✓ Lazy Evaluation
- ✓ Explain Plan
- ✓ Caching, Data Shuffling
- ✓ Broadcast Joins

- ✓ Partitions, Data Skew
- ✓ Liquid Clustering
- ✓ VACUUM
- ✓ OPTIMIZE, Z Ordering

Ch 23: Databricks Security, AI

- ✓ ACL: Access Control List
- ✓ Workspace Access Control
- ✓ Catalog Security
- ✓ Schema, Volume Security
- ✓ Table Security
- ✓ Column Security

Ch 24: Genie AI

- ✓ Genie AI Concepts
- ✓ Unity Catalog
- ✓ AI Components in Databricks
- ✓ Debugging Controls
- ✓ Using AI for Notebook Design

Ch 25: GitHub & Asset Bundle

- ✓ GitHub Concepts
- ✓ GIT: Main, Branches
- ✓ Asset Bundle
- ✓ Integrating GIT with Asset Bundle
- ✓ Process Integration

Ch 26: Apache Airflow

- ✓ Apache Airflow Concepts
- ✓ Airflow Operators & DAG
- ✓ Python Scripts for Airflow
- ✓ DatabricksRunNowOperator
- ✓ DatabricksSubmitRunOperator
- ✓ Airflow Jobs

Section 2: Azure Data Factory & Synapse, ADLS

Ch 1: Azure Fundamentals

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

Ch 2: Azure Storage & ADLS

- ✓ Azure Data Lake Storage
- ✓ Azure BLOB Containers
- ✓ Access Keys

- ✓ SAS Keys
- ✓ IAM & ACLs

Ch 3: Azure Deployments, Azure SQL

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

Ch 4: Azure SQL DB Migrations

- ✓ Azure Storage Account
- ✓ On-Premise SQL DB, bacpac
- ✓ Azure SQL DB Migration
- ✓ SQL Server Imports from BLOB
- ✓ Migration Verifications

Ch 5: Azure Synapse Analytics (DWH)

- ✓ Synapse Pool Architecture
- ✓ Control Node, Compute Node
- ✓ DMS (Data Movement Service)
- ✓ Azure DWH Tables: Partitions
- ✓ Distributions & MAXDOP

Ch 6: Azure Data Factory – Pipelines

- ✓ ADF Intro & Pipeline Artifacts
- ✓ Integration Runtime (IR)
- ✓ Linked Services, Datasets
- ✓ Copy Data Activity
- ✓ Azure SQL DB Loads
- ✓ Azure Synapse Analytics Writes
- ✓ Pipeline Validation, Runs

Ch 7: ADF: Azure Blob Data Loads

- ✓ ADF Author & Pipeline Runs
- ✓ Azure BLOB Storage Access
- ✓ Storage Containers in ADF
- ✓ Pipeline Staging
- ✓ Pipeline Logging
- ✓ Validations & Schedules

Ch 8: 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 Logging

Ch 9: ADF Data Flow - 1

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

Ch 10: ADF Data Flow - 2

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

Ch 11: ADF Data Flow - 3

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

Ch 12: ADF Data Flow - 4

- ✓ Get Metadata
- ✓ IF & Lookup Transformation
- ✓ Cache Lookup
- ✓ Broadcast Options
- ✓ DIU, DOCP

Ch 13: ADF Parameters, Security

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

Ch 14: 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 15: ADF Metrics, Alerts

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

Ch 16: ADF with DevOps & CI/CD

- ✓ Git repositories and branching
- ✓ ADF Git integration
- ✓ Development / Test / Production environments
- ✓ Parameterized deployments
- ✓ Production release workflow

Ch 17: Azure Databricks

- ✓ Azure Databricks Deployments
- ✓ Azure Databricks Regions
- ✓ Classic Deployments
- ✓ Access connector for Databricks

Ch 18: Azure Databricks with ADLS

- ✓ Creating IAM Users
- ✓ ADLS Security for Databricks
- ✓ Creating Service Principals
- ✓ Enterprise Applications
- ✓ Client ID, Secret ID
- ✓ External Tables (Delta)

Ch 19: Azure Stream Analytics

- ✓ Azure IoT Hubs
- ✓ Azure Stream Analytics
- ✓ LIVE Data Ingestions
- ✓ SAQL Queries
- ✓ Stream Analytics Jobs
- ✓ Handling JSON Data

Ch 20: Azure Key Vaults

- ✓ Azure Key Vaults
- ✓ Azure Keys & Secrets
- ✓ Access Policies
- ✓ Secret Management
- ✓ Managed Identity

Ch 21: Azure Logic Apps

- ✓ Azure Logic Apps
- ✓ Logic Apps & Automations
- ✓ Azure Events
- ✓ Azure Triggers & Signals
- ✓ ADLS with Logic Apps

Module 3: Fabric Data Engineering

Section 1: Fabric Concepts, DWH & Fabric Data Factory

Ch 1: Fabric Introduction

- ✓ Need for Fabric, Big Data
- ✓ Fabric Data Engineering Model
- ✓ Fabric Components (Items)
- ✓ Microsoft Fabric: Advantages
- ✓ Azure Versus Fabric DWH

Ch 2: Fabric Account, Workspace

- ✓ Need for Fabric Workspace
- ✓ Workspace Creation Process
- ✓ ETL, Storage, Analytical
- ✓ Streaming, Monitoring
- ✓ Compute & Separation

Ch 3: Fabric OneLake Architecture

- ✓ Intelligent Data Foundation
- ✓ Polaris Distributed Engine
- ✓ Stateless & Stateful
- ✓ Cache, Metadata, Xact & Data
- ✓ Fabric Tasks, Inputs & DAG
- ✓ State Machine & Statistics
- ✓ Hot Spot Recovery

Ch 4: Fabric Warehouse

- ✓ Fabric Warehouse Creation
- ✓ Fabric Warehouse Properties
- ✓ DWH Internal Operations
- ✓ Default Schemas & Objects
- ✓ SSMS Connections

Ch 5: Fabric Data Types

- ✓ Exact, Approximate Numbers
- ✓ Date and Time Data Types
- ✓ Fixed & Variable Length
- ✓ Binary & String Data Types
- ✓ Fabric Type Limitations

Ch 6: Fabric Caching, Tuning

- ✓ Fabric Caching Process
- ✓ In-memory Cache, Disk Cache
- ✓ Cache Types: LRU /MRU
- ✓ Cold Cache / Cold Run
- ✓ Warehouse Optimizations

Ch 7: Fabric Statistics, Tuning

- ✓ Query Engine Options
- ✓ Auto, Manual Statistics
- ✓ Update Statistics
- ✓ Statistics Lists & Reports

Ch 8: Time Travel

- ✓ Continuous Data Protection
- ✓ Data Storage, Retention
- ✓ FOR TIMESTAMP AS OF
- ✓ Time Travel Scenarios
- ✓ Time Travel on Queries

Ch 9: Zero Copy Cloning

- ✓ User Layer, Storage Layer
- ✓ Cloning & Parquet Files
- ✓ Synapse Data Warehouse
- ✓ Point In Time, Schema Level
- ✓ Zero Copy Cloning Limitations

Ch 10: Fabric Security

- ✓ Workspace Security
- ✓ Warehouse Security
- ✓ Item Security & Roles
- ✓ MFA & Client Security

Ch 11: Fabric Copy Job

- ✓ ETL Implementation Options
- ✓ Copy Job Item
- ✓ Data Loads with Copy Job
- ✓ Full Loads
- ✓ Testing Copy Jobs

Ch 12: Fabric Copy Job

- ✓ Incremental Loads with Copy Job
- ✓ DWH: Data Storage
- ✓ Testing Initial Loads
- ✓ Testing Incremental Loads
- ✓ Copy Job Limitations

Ch 13: Fabric Data Factory

- ✓ Need for Fabric Data Factory
- ✓ ETL Operations in FDF
- ✓ Data Sources, Transformations
- ✓ Activities and Connections
- ✓ Data Destinations (Sinks)
- ✓ Creating Pipelines

Ch 14: Fabric Pipelines Design

- ✓ Creation Options for Pipelines
- ✓ Azure SQL DB Data Loads
- ✓ Copy Command Usage
- ✓ Run ID & Monitoring
- ✓ Pipeline Creation, Verification

Ch 15: Data Loads with Azure

- ✓ Azure Data Lake Storage (ADLS)
- ✓ Azure BLOB Containers
- ✓ Fabric Data Loads From Azure Files
- ✓ Fabric Warehouse with Azure
- ✓ Run IDs and Activity
- ✓ Compressions & Advantages

Ch 16: ETL Staging

- ✓ Caching & Storing Concept
- ✓ Staging Types in Fabric
- ✓ Workspace & External
- ✓ External Stages in Pipelines
- ✓ Pipeline Trigger, Monitor

Ch 17: Fabric Aggr Data Loads

- ✓ Aggregation Scenarios
- ✓ Creating Views in TSQL
- ✓ Views in FDF Pipelines
- ✓ Data Loads to Warehouse
- ✓ Pipeline Verifications

Ch 18: Fabric Incremental Loads - 1

- ✓ Upsert (Incremental Loads)
- ✓ SCD: Slowly Changing Dimension
- ✓ Full Loads Vs Incr Loads
- ✓ Testing Incrementing Loads
- ✓ Pipeline Execution Tests

Ch 19: Fabric Incremental Loads - 2

- ✓ Control Tables
- ✓ Watermark Columns
- ✓ Lookup Activity
- ✓ Stored Procedure Activity
- ✓ Parameters & Runs
- ✓ Concurrency & Batch Count

Ch 20: OnPrem Gateways

- ✓ On-Premise Gateway
- ✓ Installing & Configuring

- ✓ Authentication, Usage
- ✓ On-Premise Connections
- ✓ Pipelines for Data Loads
- ✓ Warehouse Data Storage
- ✓ Data Refresh with Gateways

Ch 21: Data Factory Pipeline Tuning

- ✓ Intelligent Throughput
- ✓ DOCP & Optimizations
- ✓ Staging & In-Memory
- ✓ Spark Compute Options
- ✓ ETL Partitions in Real World

Section 2: Fabric Data Flow, Lake House

Ch 1: Fabric Lakehouse

- ✓ Fabric Lakehouse Architecture
- ✓ Files and Tables Storage
- ✓ Direct Lake & AI
- ✓ Azure SQL Database Source

Ch 2: Lakehouse File Loads

- ✓ Creating Lakehouse
- ✓ Incremental Refresh
- ✓ Computed Tables
- ✓ Reusable Transformations
- ✓ Scheduling, Monitoring

Ch 3: Power Query Level 1

- ✓ Power Query Concept
- ✓ ETL, ELT Process with AI
- ✓ Data Combine: Union, Append
- ✓ Duplicate / Reference Queries
- ✓ Warehouse Data Loads

Ch 4: Power Query Level 2

- ✓ Table Transformations
- ✓ Group By, Transpose
- ✓ Header Row Promotion
- ✓ Reverse Rows, Count Rows
- ✓ Data Type, Fill & Pivot

Ch 5: Power Query Level 3

- ✓ Text Transformations
- ✓ Format, SubString
- ✓ Number Transformations
- ✓ Date Time Transformations
- ✓ Add Column Transformation

Ch 6: Power Query Level 4

- ✓ Column From Examples
- ✓ Conditional Column
- ✓ Index Transformation
- ✓ Duplicate Rows, Errors
- ✓ Advanced Editor

Ch 7: Power Query Level 5

- ✓ ETL Parameters
- ✓ Big Data Access
- ✓ Dynamic Parameters
- ✓ List Queries
- ✓ M Language Expressions

Ch 8: Stream House, KQL

- ✓ Need for Stream House
- ✓ Auto creation of KQL
- ✓ Manual KQL Databases
- ✓ Differences with Warehouse
- ✓ Differences with Lakehouse

Ch 9: KQL Query Sets

- ✓ KQL Database Extraction
- ✓ File Imports - on Premises
- ✓ Metadata Edit Options
- ✓ Query Analytics
- ✓ Exports, Visualizations

Ch 10: Fabric Data Activator

- ✓ Need for Alerts, Notifications
- ✓ Fabric Data Activator Options
- ✓ Alert Conditions, Thresholds
- ✓ Events & Email Notifications
- ✓ Edit / Enable / Disable

Ch 11: Mirror Database

- ✓ Need for Mirror Databases
- ✓ Configure Mirror Databases
- ✓ Connections & Usage
- ✓ Mirror DB Practical uses

Section 3: Python, PySpark, DWH

Ch 1: Fabric Notebooks

- ✓ Fabric Notebook Types
- ✓ Creating Environment
- ✓ Creating Spark Clusters
- ✓ Standard, High Concurrency

Ch 2: Spark SQL - 1

- ✓ Spark SQL Notebooks
- ✓ Creating Schemas
- ✓ Delta Tables
- ✓ Parquet Tables
- ✓ Spark Joins
- ✓ Data Partitioning

Ch 3: Spark SQL - 2

- ✓ Math, Sort Functions
- ✓ String, Date Time Functions
- ✓ Conditional Statements
- ✓ Data Recovery & Undo
- ✓ Version Number
- ✓ Describe Extended

Ch 4: Python Intro & Print

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

Ch 5: Python Variables

- ✓ Working with Variables
- ✓ Printing Variables
- ✓ Display Variables
- ✓ Variable Types
- ✓ Multi Value Variables
- ✓ If ... Else Statement

Ch 6: Python Operators

- ✓ Integer Operators
- ✓ String Operators
- ✓ Arithmetic Operators
- ✓ Assignment Operators
- ✓ Comparison Operators
- ✓ Formatted Strings
- ✓ Indexing Operators
- ✓ ELIF, ELSE IF Statements

Ch 7: Python Data Types

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

Ch 8: Python Dataframes

- ✓ Pandas Module (Python)

- ✓ **Dataframes from Lists**
- ✓ **Dataframe from Dict**
- ✓ **Pandas Dataframes**
- ✓ **Dataframe print, display**

Ch 9: Python Dataframes Transformations

- ✓ **Append with NoIndex**
- ✓ **Merge with ON, KIND**
- ✓ **spark.read.csv()**
- ✓ **spark.read.format()**

Ch 10: Medallion Architecture

- ✓ **Bronze, Gold and Silver**
- ✓ **Raw Data**
- ✓ **Data Preparation (Prepping)**
- ✓ **Temporary Views**

Ch 11: PySpark: Medallion Loads 1

- ✓ **Data Prep (Silver)**
- ✓ **Filtering DataFrame Records**
- ✓ **Removing Duplicate Records**
- ✓ **Sorting and Limiting Records**
- ✓ **Spark SQL Dataframes**
- ✓ **Gold Layer Implementation**
- ✓ **Testing Aggregated Loads**

Ch 12: PySpark: Medallion Loads 2

- ✓ **Azure SQL DB Connections**
- ✓ **SQL Queries in PySpark**
- ✓ **Data Prep (Silver)**
- ✓ **Filtering Null Values**
- ✓ **Grouping and Aggregating**
- ✓ **Spark SQL Dataframes**
- ✓ **Gold Layer Implementation**
- ✓ **Notebook Utilities**

Ch 13: PySpark: SCD

- ✓ **Slowly Changing Dimension**
- ✓ **Merge Into Statement**
- ✓ **Error Handling**
- ✓ **Merge with OLTP Data Sources**

Ch 14: PySpark: Widgets

- ✓ **Notebook Parameters**
- ✓ **Text Widgets**
- ✓ **Parameters & JSON**
- ✓ **Notebook Schedules, Retry**
- ✓ **Modular Notebook Design**
- ✓ **Notebook Chaining**

Ch 15: LakeHouse Optimizations

- ✓ Delta Log
- ✓ Delta Versioning
- ✓ Partition Strategy
- ✓ Small File Problem
- ✓ Adaptive Query Execution
- ✓ Explain Plan, Spark UI
- ✓ mssparkutils

Ch 16: LakeHouse Optimizations

- ✓ VACUUM, OPTIMIZE
- ✓ ZORDER
- ✓ Broadcast Join
- ✓ Cache, Persist
- ✓ Shuffle Optimization

Ch 17: Semantic Models

- ✓ Creating Semantic Model
- ✓ Spark SQL: DDL, DML
- ✓ Adding Refences, Keys
- ✓ Using Model Layouts

Ch 18: Fabric Security

- ✓ Workspace Security
- ✓ Lakehouse Security
- ✓ Security Principals
- ✓ Authentication Options
- ✓ MFA (Multi Factor Authentication)

Ch 19: Fabric Migrations

- ✓ Azure Data Factory to Fabric Data Factory
- ✓ Azure Synapse to Fabric Warehouse
- ✓ Azure One Lake Migrations
- ✓ Realtime Migration Considerations

Module 4: Power BI

Ch 1: Power BI Intro, Installation

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

Ch 2: Report Design Concepts

- ✓ Basic Report Design (PBIX)
- ✓ Data Points, Spotlight
- ✓ Visual Interactions & Edits
- ✓ Focus Mode, PDF Exports

Ch 3: Grouping, Hierarchies

- ✓ Creating Groups: Lists
- ✓ Creating Groups: Bins
- ✓ Hierarchies & Drilldowns
- ✓ Drill Up, Conditional Drill Down

Ch 4: 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 5: Filters & Drill Thru

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

Ch 6: Bookmarks, Buttons

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

Ch 7: SQL DB Access & Big Data

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

Ch 8: Power BI Visualizations

- ✓ Charts, Bars, Lines, Area
- ✓ Tree Maps & Axis Items
- ✓ Funnel, Card, Mult-Row Card
- ✓ Pie Charts & Waterfall
- ✓ Scatter Chart, Play Axis
- ✓ Infographics, Classifications

Ch 9: Power Query Transformations – 1

- ✓ Power Query (Mashup)
- ✓ ETL Transformations in PBI
- ✓ Table Combine Options
- ✓ Merge, Union All Options
- ✓ Missing Values, Duplicate Records

Ch 10: Power Query Transformations – 2

- ✓ Group By Transformation
- ✓ Aggregate, Pivot Operation
- ✓ Reverse Rows, Count Rows
- ✓ Data Cleaning, Null Handling
- ✓ Data Type Detection, Change

Ch 11: Power Query Transformations – 3

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

Ch 12: Power Query Transformations – 4

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

Ch 13: Power BI Cloud & Fabric

- ✓ Power BI Cloud, Microsoft Fabric
- ✓ Microsoft Fabric Concepts
- ✓ Microsoft Fabric Workspace
- ✓ Report Uploads (PBIX)
- ✓ Report Edits, Semantic Models

Ch 14: Power BI Cloud Dashboards

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

Ch 15: Power BI Cloud Operations

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

Ch 16: Power BI Cloud Gateways

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

Ch 17: Power BI Cloud Apps

- ✓ Power BI Apps: Creation
- ✓ App Sections & Content
- ✓ Audience & App Security
- ✓ App URL, End User Access

Ch 18: Power BI Report Server, RDL

- ✓ RS Config Tool Options
- ✓ Report Database, TempDB
- ✓ Report Builder Tool
- ✓ Paginated Report (RDL)

Ch 19: DAX Concepts & Calculations

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

Ch 20: DAX Quick Measures

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

Ch 21: Data Modelling

- ✓ Dimensions Tables
- ✓ Fact Tables & DAX Measures
- ✓ Star & Snowflake Schemas
- ✓ Many-to-Many Relationships

Ch 22: DAX Joins, Variables

- ✓ CALCULATEX & Variables
- ✓ COUNT, COUNTA, etc..
- ✓ SUM, SUMX, etc..
- ✓ SELECTED MEMBER
- ✓ Filter Context, RETURN

Ch 23: DAX Models & Calculations

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

Ch 24: DAX Time Intelligence

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

Ch 25: DAX – Row Level Security

- ✓ **RLS: Row Level Security**
- ✓ **Data Modelling & Roles**
- ✓ **CoPilot & RLS, KPIs**

Ch 26: DAX – Analytical Reports

- ✓ **Analytical Reports**
- ✓ **Virtual Cube Concepts**
- ✓ **Cross Filter Reporting**
- ✓ **Alerts, Data Activator**

Ch 27: PL 300 Exam Guidance

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

Module 5: Real-Time Projects for Resume

Real-Time Project 1: HealthCare Domain

Project Requirement:
Solve 20+ Real-World Healthcare Business Requirements.

Project Workflow:
Database Design → SQL Development → Data Analysis → Performance Optimization

Project Operational Flow:
Healthcare DB → Patients → Doctors → Appointments → Treatments → Billing → Insurance → SQL Analysis → Stored Procedures → Performance Tuning → Business Reports

Real-Time Project 2: Online Travel Data Engineering Platform

Project Objective:
Build an end-to-end Azure Data Engineering solution to process, transform, and analyze Online Travel business data from multiple sources.

Project Workflow:
On-Premises Data Sources → Azure Data Factory → ADLS → Azure Databricks → Synapse DWH → Power BI, Big Data Analytics

Skills Gained:

- ✓ Data Ingestion & ETL Development
- ✓ Azure Data Factory Pipelines
- ✓ Data Orchestration (End to End)
- ✓ Data Lake Architecture, RBAC
- ✓ Azure IoT, Stream Analytics, CI-CD
- ✓ Azure Databricks with Data Factory

Realtime Project 3: ECommerce Platform using Microsoft Fabric

Project Objective:

A multinational e-commerce company wants to centralize sales, customers, products, orders, inventory, logistics and payment data into Microsoft Fabric.

Project Workflow:

On-Premises Data Sources → Fabric Data Factory → Fabric Lakehouse → Fabric Data Flow → PySpark → Fabric Warehouse → Power BI, Big Data Analytics

Skills Gained:

- ✓ Data Ingestion & ETL Development
- ✓ Fabric Data Factory Pipelines
- ✓ One Lake & Data Flow
- ✓ Spark, PySpark, KQL
- ✓ Real-Time Industry Experience
- ✓ Fabric Databricks with DB Mirroring

Bonus Module: Interview & Career Preparation

Resume Guidance & Optimization

LinkedIn Help & Profile Reach techniques

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