



Databricks Data Engineer Training

From Data to Real-time Projects – Become a Job-Ready Data Engineer with Databricks



MODULE 1 **MSSQL & TSQL Queries**
• MS SQL Server Administration
• T-SQL Queries, Joins, CTE, Views
• Indexing, Query Optimization, Execution Plans

MODULE 2 **Databricks (Python, Spark, PySpark..)**
• Databricks Workspace & Notebooks
• Python for Data Engineering
• PySpark – RDD, DataFrame, Spark SQL
• Delta Lake (ACID), Schema Evolution, Time Travel

MODULE 3 **Realtime Projects & Resume**
• End-to-End Real-time Data Engineering Projects
• Best Practices & Performance Tuning
• Resume Building, Interview Preparation



Trainer:
Mr. Sai Phanindra Tholeti
Alumni of Microsoft
Trainer Profile:
www.linkedin.com/in/saiphanindra

Training Highlights

- ✓ Step-by-step Classes
- ✓ 100% Interactive
- ✓ Projects For Resume
- ✓ Job Assistance, Mocks
- ✓ Certification Guidance

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Thank you for contacting our **SQL School**. I am **Mr. Sai Phanindra**, trainer for this **Databricks Training Course**. With 20+ Years of technical expertise exclusively on Database and Cloud, DWH & BI and AI Technologies, I assure you 100% Practical, Step by Step Classes for this in-depth course. My Profile @ [linkedin.com/in/saiphanindra/](https://www.linkedin.com/in/saiphanindra/)

Detailed Course Content

Module 1: SQL Server TSQL (MS SQL) Queries

Ch 1: SQL Database Job Roles

- ✓ Introduction to Databases
- ✓ Database Types: OLTP, DWH
- ✓ Data Engineer Jobs
- ✓ Need for Databricks
- ✓ Databricks Platform Job Roles

Ch 2: Database Intro & Installations

- ✓ DBMS Concepts
- ✓ SQL Server 2025 Installations
- ✓ AI Components in OLTP
- ✓ SSMS Tool Installation
- ✓ AI Workloads Installations
- ✓ Server Connections
- ✓ Authentication Options

Ch 3: SQL Basics V1 (Commands)

- ✓ Creating Databases (GUI)
- ✓ Creating Tables, Columns (GUI)
- ✓ 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, Add, modify, etc..
- ✓ DML: Insert, Update, Delete, select into, etc..
- ✓ DQL: Fetch, Insert... Select, etc..
- ✓ SQL Operations: LIKE, BETWEEN, IN, etc..
- ✓ Special Operators

Ch 5: Server Architecture

- ✓ Database Engine Components
- ✓ Parser, Compiler & Optimizer
- ✓ Protocols and Query Processing
- ✓ MDAC, CLR & Memory
- ✓ Parsing and Compilation
- ✓ SQL OS Components

Ch 6: Excel Data Imports

- ✓ Data Imports with Excel
- ✓ SQL Native Client
- ✓ Order By: Asc, Desc
- ✓ Order By with WHERE
- ✓ TOP & OFFSET
- ✓ UNION, UNION ALL

Ch 7: Schemas & Batches

- ✓ Schemas: Creation, Usage
- ✓ 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 Constraint
- ✓ Primary Key Constraint
- ✓ Foreign Key & References
- ✓ Default Constraint & Usage
- ✓ DB Diagrams & ER Models

Ch 9: Indexes Basics, Tuning

- ✓ Indexes & Tuning
- ✓ Clustered Index, Primary Key
- ✓ Non Clustered Index & Unique
- ✓ Creating Indexes Manually
- ✓ Composite Keys, Query Optimizer
- ✓ Composite Indexes & Usage

Ch 10: Joins & Queries

- ✓ Joins: Table Comparisons
- ✓ Inner Joins & Matching Data
- ✓ Outer Joins: LEFT, RIGHT
- ✓ Full Outer Joins & Aliases
- ✓ Cross Join & Table Combination
- ✓ Joining more than 2 tables

Ch 11: Views & RLS

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

Ch 12: Stored Procedures - 1

- ✓ Stored Procedures: Realtime Use
- ✓ Parameters Concept with SPs
- ✓ Procedures with SELECT
- ✓ System Stored Procedures
- ✓ Metadata Access with SPs
- ✓ SP Recompilations
- ✓ Stored Procedures, Tuning

Ch 13: Stored Procedures - 2

- ✓ Merge Statement
- ✓ Upsert Operations with Merge
- ✓ Merge with OLTP & DWH
- ✓ Matched and Not Matched
- ✓ Merge Statement inside SPs

Ch 14: Transactions & ACID

- ✓ Transaction Concepts in OLTP
- ✓ Auto Commit Transaction
- ✓ Explicit Transactions
- ✓ COMMIT, ROLLBACK
- ✓ Checkpoint & Logging
- ✓ Lock Hints & Query Blocking

- ✓ READPAST, LOCKHINT

Ch 15: User Defined Functions

- ✓ Using Functions in MSSQL
- ✓ Scalar Functions in Real-world
- ✓ Inline & Multiline Functions
- ✓ Parameterized Queries
- ✓ Date & Time Functions
- ✓ String Functions & Queries
- ✓ Aggregated Functions & Usage

Ch 16: Window Functions, CASE

- ✓ IIF Function and Usage
- ✓ CASE Statement Usage
- ✓ Window Functions (Rank)
- ✓ Row_Number()
- ✓ Rank(), 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 Keywords
- ✓ GROUP BY, HAVING
- ✓ Cube() and Rollup()
- ✓ Sub Totals & Grand Totals
- ✓ Grouping() & Usage
- ✓ Group By with UNION
- ✓ Group By with UNION ALL

Ch 19: Joins with Group By

- ✓ Joins with Group By
- ✓ 3 Table, 4 Table Joins
- ✓ Join Queries with Aliases
- ✓ Join Queries & WHERE
- ✓ Join Queries & Group By
- ✓ Joins with Sub Queries
- ✓ Query Execution Order

Ch 20: Sub Queries

- ✓ Sub Queries Concept
- ✓ Sub Queries & Aggregations

- ✓ Joins with Sub Queries
- ✓ Sub Queries with Aliases
- ✓ Sub Queries, Joins, Where
- ✓ Correlated Queries

Ch 21: Data Types & Variables

- ✓ Integer Data Types
- ✓ Character, MAX Data Types
- ✓ Decimal & Money Data Types
- ✓ Boolean & Binary Data Types
- ✓ Date and Time Data Types
- ✓ SQL_Variant Type
- ✓ Variables in SQL

Ch 22: Cursors & Fetch

- ✓ Cursors: Realtime Usage
- ✓ Local & Global Cursors
- ✓ Scroll & Forward Only Cursors
- ✓ Static & Dynamic Cursors
- ✓ Fetch, Absolute Cursors

Ch 23: Normal Forms & Self Joins

- ✓ Normal Forms: 1 NF, 2 NF
- ✓ 3 NF, BCNF and 4 NF
- ✓ Adding PK to Tables
- ✓ Adding FK to Tables
- ✓ Cascading Keys
- ✓ Self Referencing Keys
- ✓ Database Diagrams

Ch 24: CTEs & Tuning

- ✓ Common Table Expression
- ✓ Creating and Using CTEs
- ✓ CTEs, In-Memory Processing
- ✓ Using CTEs for DML Operations
- ✓ Using CTEs for Tuning
- ✓ CTEs: Duplicate Row Deletion

Key Take-Aways:

- ✓ Case Study 1: Medicare: Tasks, Solutions
- ✓ Case Study 2: ECommerce: Task, Solutions
- ✓ Chapter Wise Assignments: Solutions
- ✓ Dailly Assignments: Review (Feedback)

Module 2: Databricks

Ch 1: Databricks Introduction

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

Ch 2: Databricks Architecture

- ✓ Unity Catalog, Volume
- ✓ Spark Clusters
- ✓ Apache Spark and Databricks
- ✓ Apache Spark Ecosystem
- ✓ Compute Operations
- ✓ Hadoop, MapReduce
- ✓ Apache Spark & HIVE

Ch 3: Unity Catalog

- ✓ Unity Catalog Concepts
- ✓ Workspace Objects
- ✓ Databricks Notebooks
- ✓ Databricks Workspace UI
- ✓ Organizing Workspace Objects
- ✓ Creating Volumes
- ✓ Spark Table Creations
- ✓ UI : Limitations

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
- ✓ List Items, Indexes
- ✓ Tables Versus Dictionaries

Ch 13: Python: Modules & Dataframes

- ✓ Python Modules
- ✓ Pandas
- ✓ NumPy
- ✓ Dataframe Concepts
- ✓ Handling Nulls
- ✓ Data Cleansing Concepts
- ✓ Pandas Series, arrays
- ✓ Indexes, Indexed Lists

Ch 14: PySpark Concepts

- ✓ Constructing Dataframes
- ✓ Single List Dataframes
- ✓ Multi List Dataframes
- ✓ Pandas Dataframes
- ✓ Contact & Union
- ✓ Merge
- ✓ Join Options with Dataframes

Ch 15: Medallion Architecture - 1

- ✓ Medallion Architecture
- ✓ Aggregated Data Loads
- ✓ Broze, 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
- ✓ Dataframes, Temp Views
- ✓ Aggregated Data Loads
- ✓ Gold Data Consumption

Ch 15: Delta Lake

- ✓ Databricks DeltaLake
- ✓ Schema Evolution
- ✓ Azure SQL DB Connections
- ✓ Dataframes, Temp Views
- ✓ Delta Table API
- ✓ Deleting Records
- ✓ Updating Records
- ✓ Merging Records
- ✓ Old History Retention
- ✓ Delta Transaction Log

Ch 16: PySpark: Widgets

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

Ch 17: 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 18: Pyspark: Auto Loader - 1

- ✓ AutoLoader Concept
- ✓ Cloudfiles Architecture
- ✓ Checkpoint Configurations
- ✓ Creating Directories
- ✓ Reading Databricks Cloud Sources
- ✓ Initial Loads

Ch 19: PySpark: Auto Loader - 2

- ✓ Reading Streams with Auto Loader
- ✓ Reading a Data Stream
- ✓ Manually Cancel your Data Streams
- ✓ Writing to a Data Stream
- ✓ Schema Evaluation Modes
- ✓ Adding New Columns
- ✓ Workspace Modules

Ch 20: Lake Flow Declarative Pipelines

- ✓ Delta LIVE Tables
- ✓ Data Generator Notebook
- ✓ Pipeline Clusters
- ✓ Databricks CLI
- ✓ Data Quality Checks
- ✓ Streaming Dataset "Simulator"
- ✓ Streaming Live Tables

Ch 21: Databricks Optimizations

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

Ch 22: Security Concepts

- ✓ Overview of ACLs
- ✓ Adding a New User to Workspace
- ✓ Workspace Access Control
- ✓ Cluster Access Control
- ✓ Groups & LakeBridge
- ✓ Access Keys (Tokens)











Ch 23: Version Control & GitHub

- ✓ Local Development
- ✓ Runtime Compatibility
- ✓ Git and GitHub Pre-requisites
- ✓ Git and GitHub Basics
- ✓ Linking to GitHub & Databricks
- ✓ Databricks Git Folders

- ✓ Project Code to GitHub
- ✓ Adding Modules to the Project Code
- ✓ Databricks Job Updates, Runs

Module 3: Realtime Project

- ✓ Project Requirement
- ✓ Data Sheet
- ✓ Data Models
- ✓ Solution
- ✓ Project FAQs

Databricks Training Plans			
Training Plan	Modules Included (with Icons)	Duration	Number of Projects
Plan A  databricks	1.  Databricks Learn Databricks Lakehouse Platform, Delta Lake, Spark, Notebooks, and more.	 3 Weeks	 1 Real-time Project
Plan B  databricks	1.  MSSQL, TSQL Master SQL Server, T-SQL queries, functions, stored procedures, and more. <hr/> 2.  Databricks Learn Databricks Lakehouse Platform, Delta Lake, Spark, Notebooks, and more.	 7 Weeks	 1 Real-time Project <hr/>  2 Real-time Case Studies

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