Complete Practical, Real-time Job Oriented Training

Data Architect

Whom we are?

Over 19 Years of strong commitment in training excellence, **SQL School** assure you 100% practical, step by step learning process paired with Assignments, Use Case Scenarios and Realtime Project Implementations for your Resume and Job Work. We are sure, you will have a wonderful journey with us. Visit Us at www.sqlschool.com

Who is Data Architect?

Data Architects design the blueprints that organizations use for their data management systems. This includes drafting a data management framework to meet business and technology requirements while ensuring data security and compliance with regulations.

What are the Job Roles for Data Architect?

- ✓ Data mining to uncover patterns, anomalies, and correlations in large data sets
- ✓ Data management to efficiently and cost-effectively collect, store, and use data
- ✓ Coding languages like Python and Spark for data analysis
- ✓ AI Integrations with ETL for Big Data, Cloud Computing and Data Warehousing
- ✓ Structured query language (SQL) to manipulate data
- ✓ Data modelling tools like Erwin or Visio to visualise metadata and database schema

Who can join this course?

1. Developers
2. Administrators
3. Data Engineers
4. Experienced IT Professionals

Data Architect: Training Modules:

- ➢ **Module 1: MSSQL & TSQL Queries**
  - MSSQL Queries
  - Query Tuning, CTEs
  - Procedures, Functions
  - Merge, Rank, Sub Queries
- ➢ **Module 2: Azure Data Engineer**
  - Azure Concepts
  - Azure Data Factory
  - Azure Databricks & Open Source Databricks
  - Azure Functions, Logic Apps, IoT, ADLS
  - CI-CD Integrations
- ➢ **Module 3: Snowflake**
  - Snowflake
  - SnowSQL
  - SnowPark, DBT
- ➢ **Module 4: Power BI**
  - Power Query, DAX
  - Power BI Cloud Service
  - Power BI Report Server
  - AI & CoPilot
- ➢ **Module 5: Erwin**
  - Data Modelling
  - Logical & Physical Models

Course Duration: 5 Months

🔥 Detailed Course Content 🔥

Module 1: SQL Server TSQL (MS SQL) Queries

Ch 1: Data Engineer Job Roles
- ✓ Introduction to Databases
- ✓ Data Architect Job Roles
- ✓ Data Architect Challenges
- ✓ Data Architect technologies
- ✓ Data and Databases Intro

Ch 2: Database Intro & Installations
- ✓ Database Types (OLTP, DWH, ..)
- ✓ DBMS: Basics
- ✓ SQL Server 2025 Installations
- ✓ SSMS Tool Installation
- ✓ Server Connections, Authentications

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

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: Normal Forms & RDBMS
- ✓ **Normal Forms: 1 NF, 2 NF**
- ✓ **3 NF, BCNF and 4 NF**
- ✓ **Adding Keys to Tables**
- ✓ **Cascading Keys**
- ✓ **Self Referencing Keys**
- ✓ **Data Modelling (OLTP)**
- ✓ **ER Models**

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
- ✓ **Stored Procedures: Realtime Use**
- ✓ **Parameters Concept with SPs**
- ✓ **Procedures with SELECT**

- ✓ **System Stored Procedures**
- ✓ **Metadata Access with SPs**
- ✓ **SP Recompilations**

Ch 13: User Defined Functions
- ✓ **Using Functions in MSSQL**
- ✓ **Scalar Functions in Real-world**
- ✓ **Inline & Multiline Functions**
- ✓ **Date & Time Functions**
- ✓ **String Functions & Queries**
- ✓ **Aggregated Functions & Usage**

Ch 14: 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 15: Transactions & ACID
- ✓ **Transaction Concepts in OLTP**
- ✓ **Auto Commit Transaction**
- ✓ **Explicit Transactions**
- ✓ **COMMIT, ROLLBACK**
- ✓ **Checkpoint & Logging**
- ✓ **Lock Hints & Query Blocking**
- ✓ **READPAST, LOCKHINT**

Ch 16: CTEs & Tuning
- ✓ **Common Table Expression**
- ✓ **CTEs, In-Memory Processing**
- ✓ **Using CTEs for DML Operations**
- ✓ **Using CTEs for Tuning**
- ✓ **CTEs: Duplicate Row Deletion**

Ch 17: Indexes Basics, Tuning
- ✓ **Indexes & Tuning**
- ✓ **Clustered Index, Primary Key**
- ✓ **Non Clustered Index & Unique**
- ✓ **Creating Indexes Manually**
- ✓ **Composite Keys, Query Optimizer**
- ✓ **Composite Indexes & Usage**

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

Ch 22: Window Functions, CASE
- ✓ **IIF Function and Usage**
- ✓ **CASE Statement Usage**
- ✓ **Window Functions (Rank)**
- ✓ **Row_Number( )**
- ✓ **Rank( ), DenseRank( )**
- ✓ **Partition By & Order By**

Ch 23: Merge (Upsert) & CASE, IIF
- ✓ **Merge Statement**
- ✓ **Upsert Operations with Merge**
- ✓ **Matched and Not Matched**
- ✓ **IIF & CASE Statements**
- ✓ **Merge Statement inside SPs**
- ✓ **Merge with OLTP & DWH**

Module 2: Azure Data Engineer
Section 1: ADF, Synapse
Ch 1: Azure ETL, DWH Introduction
- ✓ Data Warehouse (DWH)
- ✓ Cloud Concepts: IaaS, PaaS
- ✓ SaaS & Azure Cloud Concepts
- ✓ Azure Resources & Groups
- ✓ Storage, ETL, IoT Resources

Ch 2: Azure Intro, Azure SQL
- ✓ Azure SQL Server, SQL DB
- ✓ Azure SQL Database (OLTP)
- ✓ Azure SQL Pool (DWH)
- ✓ Connections from SSMS Tool
- ✓ Connections from ADS Tool
- ✓ Pause / Resume SQL Pool
- ✓ Source Data Configurations

Ch 3: Azure Synapse (DWH)
- ✓ Synapse Pool Architecture
- ✓ Control Node, Compute Node
- ✓ DMS & Partitioned Tables
- ✓ Creating Tables with TSQL
- ✓ Distributions: RR, Hash, Repl
- ✓ Big Data Loads with TQL
- ✓ Important DMFs & DMVs

Ch 4: 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 5: Azure SQL DB Loads
- ✓ ADF: Author
- ✓ Azure SQL Database Reads
- ✓ Azure SQL Pool Writes
- ✓ Synapse Analytics with IR
- ✓ Pipeline Design, Validation
- ✓ Pipeline Runs, Monitoring

Ch 6: BLOB Data Loads
- ✓ Azure Storage Account
- ✓ Azure BLOB Containers
- ✓ BLOB Storage in ADF
- ✓ Synapse Analytics with IR
- ✓ ADF Pipeline Edits
- ✓ Pipeline Runs, Monitoring

Ch 7: Pipeline Settings
- ✓ ADF Pipeline Settings
- ✓ Staging : Advantages
- ✓ Reliable Logging
- ✓ Best Effort Logging
- ✓ DIU & DOCP with IR
- ✓ Compressions, Health Check

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: 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 10: ADF Data Flow - 1
- ✓ Data Flow Transformations
- ✓ Spark Clusters for Debugging
- ✓ Optimized Clusters, Preview
- ✓ Conditional Split, SELECT
- ✓ Sort, Union Transformations
- ✓ Pipelines with Data Flow

Ch 11: ADF Data Flow - 2
- ✓ Working with Multiple Tables
- ✓ Join Transform, Broadcast

- ✓ **Row Filters, Column Filters**
- ✓ **Surrogate Keys, Derived Cols**
- ✓ **ETL Loads Dates, Sink Options**
- ✓ **Aggregated Data Loads**

Ch 12: ADF Data Flow - 3
- ✓ **Pivot Transformation**
- ✓ **Group By & Pivot Keys**
- ✓ **Column Pattern, Deduplicate**
- ✓ **Lookup, Cached Lookup**
- ✓ **Tuning Transformations**
- ✓ **Tuning Data Flow, Spark**

Ch 13: ADF Data Flow - 4
- ✓ **Lookup Transformation**
- ✓ **Cache Lookup**
- ✓ **Inline Datasets**
- ✓ **Data Validations**
- ✓ **Lookup Versus Joins**
- ✓ **Broadcast Options**

Ch 14: ADF Metrics, Alerts
- ✓ **Azure Insights**
- ✓ **Azure Metrics for ADF**
- ✓ **Azure Metrics for Synapse**
- ✓ **CPU, Memory Metrics**
- ✓ **Alerts and Notifications**
- ✓ **Action Groups, Tuning Options**

Ch 15: ADF Parameters, Security
- ✓ **Linked Service Parameters**
- ✓ **Creating Logins**
- ✓ **Users and ETL Permissions**
- ✓ **Parameterize Logins**
- ✓ **Parameterize Users**
- ✓ **Dynamic Linked Services**

Ch 16: Parameters, SCD & ETL
- ✓ **ADF Templates in Realtime**
- ✓ **Implementing ADF SCD**
- ✓ **Table Incremental Loads**
- ✓ **Control Tables, Watermarks**
- ✓ **Pipeline Parameters, SPs**
- ✓ **Dynamic Data Sets, SCD**

Ch 17: Synapse Analytics
- ✓ Azure Synapse Analytics
- ✓ Dedicated SQL Pools
- ✓ TSQL: Stored Procedures
- ✓ Synapse Pipelines, Tuning
- ✓ SP Activity in Pipelines, Jobs
- ✓ Comparing ADF & Synapse

Ch 18: CI CD with GitHub
- ✓ Creating Github Account
- ✓ GIT: Main, Branches
- ✓ Connecting with ADF
- ✓ Version Changes
- ✓ Builds and Deployments
- ✓ CI-CD Integrations

Section 2: ADLS, IoT, Migrations
Ch 1: Azure Storage Security, ADF
- ✓ Access Keys & Admin Access
- ✓ SAS Keys Generation, Ips
- ✓ Azure AD Users, Groups
- ✓ IAM & RBAC with Entra Users
- ✓ ACLs and ADLS Security
- ✓ ADF with Azure Storage Security

Ch 2: Azure SQL DB Migrations
- ✓ On-Premise SQL DB bacpac
- ✓ Azure SQL Deployment
- ✓ Azure Storage from SSMS
- ✓ Azure SQL DB Migration
- ✓ Migration Verifications
- ✓ Testing Migrations in SQL

Ch 3: Azure Tables & ADF
- ✓ Azure Tables
- ✓ Entities and Properties
- ✓ Storage Service Operations
- ✓ OData Queries & Filters
- ✓ Data Loads with ADF

Ch 4: Azure Stream Analytics
- ✓ Azure IoT Hubs & Devices

- ✓ **APIs with Connection Strings**
- ✓ **Azure Steam Analytic Jobs**
- ✓ **Inputs, Outputs, SAQL Query**
- ✓ **LIVE Feed: JSON, AVRO Files**
- ✓ **Watermark & LIVE Streams**

Ch 5: Azure Key Vaults
- ✓ **Azure Encryptions at REST**
- ✓ **SMK & CMK Encryptions**
- ✓ **Azure Key Vaults & Keys**
- ✓ **Key Access Policies**
- ✓ **Rest, Transit Encryptions**
- ✓ **Realtime Considerations**

Ch 6: Azure Logic Apps
- ✓ **Azure Logic Apps**
- ✓ **Consumption Logic**
- ✓ **Standard Logic**
- ✓ **Logic App Connectors**
- ✓ **Triggers & Parallel Branches**
- ✓ **Schedules & Automations**

Section 3: Python, Spark, PySpark, 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

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: Unity Catalog Operations, Spark SQL - 1
- ✓ Spark SQL Notebooks
- ✓ Creating Catalog
- ✓ Creating Schemas, Tables
- ✓ Spark Data Types
- ✓ Data Partitioning
- ✓ Managed Tables
- ✓ SQL Queries with the PySpark API
- ✓ Union, Views in Spark
- ✓ Dropping Objects
- ✓ External Tables, External Volumes
- ✓ Spark SQL Notebooks: Exports, Clone

Ch 5: Spark SQL Notebooks - 2
- ✓ 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 6: Python Concepts - 1
- ✓ Python Introduction
- ✓ Python Versions
- ✓ Python Implementations
- ✓ Python in Spark (PySpark)
- ✓ Python Print()
- ✓ Single, Multiline Statements

Ch 7: Python Concepts - 2
- ✓ Python Data Types
- ✓ Integer / Int Data Types
- ✓ Float, String Data Types
- ✓ Arithmetic, Assignment Ops
- ✓ Comparison Operators
- ✓ Operator Precedence
- ✓ If ... Else Statement
- ✓ Short Hand If, OR, AND
- ✓ ELIF and ELSE IF Statements

Ch 8: Python Concepts - 3

- ✓ Python Lists
- ✓ List Items, Indexes
- ✓ Python Dictionaries
- ✓ Tables Versus Dictionaries
- ✓ Python Modules & Pandas
- ✓ import pandas.DataFrame
- ✓ Pandas Series, arrays
- ✓ Indexes, Indexed Lists

Ch 9: PySpark - 1
- ✓ Dataframes with SQL DB
- ✓ Pandas Dataframes
- ✓ Dataframe()
- ✓ List Values, Mixed Values
- ✓ spark.read.csv()
- ✓ spark.read.format()
- ✓ Filtering DataFrames
- ✓ Grouping your DataFrame
- ✓ Pivot your DataFrame

Ch 10: PySpark - 2
- ✓ DataFrameReader
- ✓ DataFrameWriter Methods
- ✓ CSV Data into a DataFrame
- ✓ Reading Single Files
- ✓ Reading Multiple Files
- ✓ Schema with an SQL String
- ✓ Schema Programmatically

Ch 11: PySpark – 3
- ✓ Writing DataFrames to CSV
- ✓ Working with JSON
- ✓ Working with ORC
- ✓ Working with Parquet
- ✓ Working with Delta Lake
- ✓ Rendering your DataFrame
- ✓ Creating DataFrames from Python Data Structures

Ch 12: PySpark Transformations - 1
- ✓ Data Preparation
- ✓ Selecting Columns
- ✓ Column Transformations
- ✓ Renaming Columns
- ✓ Changing Data Types
- ✓ select() and selectExpr()
- ✓ Column Transformations

- ✓ withColumn()

Ch 13: PySpark Transformations - 2
- ✓ Basic Arithmetic and Math Functions
- ✓ String Functions
- ✓ Datetime Conversions
- ✓ Date and Time Functions
- ✓ Joining DataFrames
- ✓ Unioning DataFrames
- ✓ Joining DataFrames

Ch 14: PySpark Transformations - 3
- ✓ Filtering DataFrame Records
- ✓ Removing Duplicate Records
- ✓ Sorting and Limiting Records
- ✓ Filtering Null Values
- ✓ Grouping and Aggregating
- ✓ Pivoting and Unpivoting
- ✓ Conditional Expressions

Ch 15: Medallion Architecture
- ✓ Medallion Architecture
- ✓ Aggregated Data Loads
- ✓ Broze, Silver and Gold
- ✓ Temp Views
- ✓ Spark Tables (Parquet)
- ✓ Work with File, Table Sources

Ch 16: Delta Lake - 1
- ✓ Storage Layer
- ✓ Delta Table API
- ✓ Deleting Records
- ✓ Updating Records
- ✓ Merging Records
- ✓ History and Time Travel

Ch 17: Delta Lake – 2 (SCD)
- ✓ Schema Evolution
- ✓ Delta Lake Data Files
- ✓ Deleting and Updating Records
- ✓ Merge Into
- ✓ Table Utility Commands
- ✓ Exploratory Data Analysis
- ✓ Incremental Loads
- ✓ Old History Retention
- ✓ Delta Transaction Log

Ch 18: Widgets
- ✓ Text Widgets
- ✓ User Parameters
- ✓ Manual Executions
- ✓ Lake Bridge
- ✓ Databricks BridgeOne

Ch 19: Lake Flow Jobs
- ✓ Worksflows & 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: Databricks Tuning
- ✓ How Spark Optimizes your Code
- ✓ Lazy Evaluation
- ✓ Explain Plan
- ✓ Inspecting Query Performance
- ✓ Caching, Data Shuffling
- ✓ Broadcast Joins
- ✓ When to Partition
- ✓ Data Skipping
- ✓ Z Ordering
- ✓ Liquid Clustering
- ✓ Spark Configurations

Ch 21: 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

Ch 22: Spark Structured Streaming
- ✓ Streaming Simulator Notebook
- ✓ Micro-batch Size
- ✓ Schema Inference and Evolution
- ✓ Time Based Aggregations, Watermarking

- ✓ Writing Streams
- ✓ Trigger Intervals
- ✓ Delta Table Streaming Reads, Writes

Ch 23: Auto Loader
- ✓ Reading Streams with Auto Loader
- ✓ Reading a Data Stream
- ✓ Manually Cancel your Data Streams
- ✓ Writing to a Data Stream
- ✓ Workspace Modules

Ch 24: Lake Flow Declarative Pipelines
- ✓ Delta LIVE Tables
- ✓ Data Generator Notebook
- ✓ Pipeline Clusters
- ✓ Databricks CLI
- ✓ Data Quality Checks
- ✓ Streaming Dataset "Simulator"
- ✓ Streaming Live Tables

Ch 25: Security: ACLs
- ✓ Overview of ACLs
- ✓ Adding a New User to our Workspace
- ✓ Workspace Access Control
- ✓ Cluster Access Control
- ✓ Groups & LakeBridge

Ch 26: Realtime Project 2 @ Ecommerce / Banking / Sales
- ✓ Detailed Project Requirements
- ✓ Project Solutions
- ✓ Project FAQs
- ✓ Project Flow
- ✓ Interview Questions & Answers
- ✓ Resume Guidance (1:1)

Module 3: Snowflake (Cloud ETL, DWH)

Ch 1: Introduction to Snowflake
- ✓ **Database, DWH Introduction**
- ✓ **Cloud Data Warehouse**
- ✓ **Cloud DWH Implementations**
- ✓ **Snowflake Cloud Intro**

- ✓ **Snowflake: SaaS Platform**

Ch 2: Snowflake Concepts
- ✓ **Snowflake Account (Cloud)**
- ✓ **Snowflake Components**
- ✓ **Snowflake Editions, Credits**
- ✓ **Snowflake Editions**
- ✓ **Virtual Private Edition (VPS)**
- ✓ **Snowflake Pricing**

Ch 3: Architecture, Warehouse
- ✓ **Compute Architecture**
- ✓ **Shared Disk Architecture**
- ✓ **CPU & Memory in Clusters**
- ✓ **Database Query & Data Cycle**
- ✓ **ColumnStore, Virtual Warehouse**
- ✓ **Classic UI with Snowflake**
- ✓ **Massively Parallel Processing**

Ch 4: Snowflake DB & Tables
- ✓ **DB Objects and Hierarchy**
- ✓ **DB Creation with Snowflake**
- ✓ **Snowflake Tables and Usage**
- ✓ **Retention Time, Connections**
- ✓ **Permanent, Transient Types**
- ✓ **CREATE TABLE AS SELECT**

Ch 5: Time Travel, Recovery
- ✓ **Time Travel in Snowflake**
- ✓ **Invoking Time Travel Feature**
- ✓ **Timestamp, Offset, Query ID**
- ✓ **Data Recovery, TIMESTAMP**
- ✓ **Fail Safe and UNDROP, OFFSET**
- ✓ **Transient Tables, Real-time**

Ch 6: Schemas and Session Context
- ✓ **Schema Creation Usage**
- ✓ **Permanent, Transient Schemas**
- ✓ **Managed Schemas in Snowflake**
- ✓ **Invoking Schemas & Cloning**
- ✓ **Session Context & Schema**
- ✓ **Data Loading with GUI**

Ch 7: Constraints & Data Types
- ✓ **Constraints & Validations**
- ✓ **NULL, NOT NULL Properties**
- ✓ **Keys & Constraints, Usage**
- ✓ **Inline, Out Of LineConstraints**
- ✓ **ENFORCED Constraints**
- ✓ **Snowflake Data Types**

Ch 8: Snowflake Cloning
- ✓ **Cloning with Snowflake**
- ✓ **Zero Copy, Schema Cloning**
- ✓ **Snapshot, Metadata**
- ✓ **Accessing, Clone**
- ✓ **Storage & Metadata Layer**
- ✓ **Real-time Considerations**

Ch 9: Snowflake Procedures
- ✓ **Procedures and Functions**
- ✓ **SQL and JavaScript & CALL**
- ✓ **Transactions & Injection**
- ✓ **sqlText:command**
- ✓ **Cursoring Data and Operations**
- ✓ **Dynamic DML with SPs**
- ✓ **RETURN, RETURNS Statements**

Ch 10: Security Management
- ✓ **Security with Snowflake**
- ✓ **Users & Roles in Snowflake**
- ✓ **Privileges and Groups**
- ✓ **Organization, Account, Users**
- ✓ **Creating, Using Roles, Users**
- ✓ **System Defined Roles Usage**
- ✓ **Role Hierarchy, Dependency**
- ✓ **RBAC & DAC in Real-time**

Ch 11: Snowflake Transactions
- ✓ **Transaction ACID Properties**
- ✓ **Implicit, Explicit and Auto**
- ✓ **Durability and Data Storage**
- ✓ **current transaction() Usage**
- ✓ **to_timestamp_ltz and Usage**
- ✓ **Failed Transactions with SPs**

- ✓ **Transactions and SPs**
- ✓ **Scoped & INNER Transactions**

Ch 12: Snowflake Streams & Audits
- ✓ **Snowflake Streams & Usage**
- ✓ **Streams and DML Auditing**
- ✓ **Snapshot Creation, Offset**
- ✓ **METADATA Options & Streams**
- ✓ **Auditing DML Operations**
- ✓ **Data Flow & Snowflake Streams**
- ✓ **Streams on Transient Tables**

Ch 13: Snowflake Tasks, Partitions
- ✓ **Tasks, Serverless Compute**
- ✓ **Tasks Tree: Root and DAG**
- ✓ **Tasks Schedules and RESUME**
- ✓ **User & Snowflake Managed**
- ✓ **CRON Syntax with Tasks**
- ✓ **Virtual Warehouse Concepts**
- ✓ **Multi Cluster Warehouse**

Ch 14: SnowSQL and Variables
- ✓ **SnowSQL Configurations**
- ✓ **DDL, DML & SELECT**
- ✓ **SnowSQL Command Line**
- ✓ **Variables and Batch Process**
- ✓ **DECLARE, LET, BEGIN & END**
- ✓ **EXECUTE IMMEDIATE, FOR**
- ✓ **Creating Virtual Warehouse**
- ✓ **Writing Output to Files**

Ch 15: Snowflake Partitions, Stages
- ✓ **Snowflake Partitions, Use**
- ✓ **Micro Partition with DML, CDC**
- ✓ **Cluster Key, Depth and Overlap**
- ✓ **Internal Partition Types & Usage**
- ✓ **List, Range and Hash Partitions**
- ✓ **Snowflake Stages, Types**
- ✓ **Internal and External Stages**
- ✓ **COPY Command, Bulk Loads**

Ch 16: Azure & External Stages

- ✓ **Azure Storage Account, BLOB**
- ✓ **SAS: Shared Access Signature**
- ✓ **Using SAS Key and FILE PATH**
- ✓ **Azure Storage with BLOB**
- ✓ **COPY INTO Command Usage**
- ✓ **Snowflake Patterns & RegEx**
- ✓ **File Formats: Creation, Usage**

Ch 17: Snow Pipes & Incr Loads
- ✓ **SnowPipe Incremental Loads**
- ✓ **Azure Queues & Integrations**
- ✓ **Azure Active Directory**
- ✓ **External Stage, Enterprise AD**
- ✓ **Snow Pipes and Data Loads**
- ✓ **Incremental Data Loads**
- ✓ **File Format with Reg Expr**

Module 4: Power BI

Ch 1: Power BI Intro, Installation
- ✓ **Power BI & Data Analysis**
- ✓ **5 Design Tools, 3 Techniques**
- ✓ **2 Hosting Solutions**
- ✓ **Power BI with Co-Pilot & AI**
- ✓ **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**
- ✓ **Power Query Expressions**
- ✓ **Table Combine Options**
- ✓ **Merge, Union All Options**
- ✓ **Close, Apply & Visualize**

Ch 12: Power Query : Table Tfns
- ✓ **Table Duplicate, Header Promotion**
- ✓ **Group By Transformation**
- ✓ **Aggregate, Pivot Operation**
- ✓ **Reverse Rows, Count Rows**
- ✓ **Advanced Power Query Mode**

Ch 13: Power Query: Column Tfn
- ✓ **Any Column Transformations**
- ✓ **Data Type Detection, Change**
- ✓ **Rename, Replace, Move**
- ✓ **Fill Up, Fil Down**
- ✓ **Step Edits & Rollbacks**

Ch 14: Power Query: Text, Date
- ✓ **String / Text Transformations**
- ✓ **Split, Merge, Extract, Format**
- ✓ **Numeric and Date Time**
- ✓ **Add Column & Expressions**
- ✓ **Expressions and New Columns**
- ✓ **Column From Examples**

Ch 15: Power Query: Parameters
- ✓ **Parameters in Power Query**
- ✓ **Static Parameters, Defaults**
- ✓ **Dynamic Dropdowns, Lists**
- ✓ **Linking with Table Queries**
- ✓ **Step Edits, Type Conversions**

Ch 16: Power BI Cloud: Publish
- ✓ **Power BI Cloud Concepts**
- ✓ **Workspace Creation, Usage**
- ✓ **Report Publish Cloud**
- ✓ **Report Edits in Cloud**

✓ **Semantic Models & Usage**

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 Sources Configurations**
✓ **Data Refresh & Scheduling**
✓ **Gateway Optimizations**

Ch 20: Power BI Cloud Apps
✓ **Power BI Apps: Creation**
✓ **App Sections & Content**
✓ **Audience Options**
✓ **App Security & Sharing**
✓ **App Updates, Favourites**
✓ **App URL, End User Access**

Ch 21: Power BI Report Server
✓ **SQL Server 2025 (Mandatory Installations)**
✓ **Power BI Report Server**
✓ **Report Server Vs Cloud**
✓ **Installation, Configuration**
✓ **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**
- ✓ **DAX Cheat Sheet**

Ch 24: DAX Quick Measures
- ✓ **Quick Measures in Power BI**
- ✓ **Average & Filters**
- ✓ **Running Totals**
- ✓ **Star Rating Calculations**
- ✓ **DAX Measures in Data View**
- ✓ **DAX in Visuals**
- ✓ **DAX in Cloud Reports**

Ch 25: Data Modelling, DAX
- ✓ **Dimensions Tables**
- ✓ **Fact Tables & DAX Measures**
- ✓ **Data Models & Relations**
- ✓ **DAX Expressions**
- ✓ **Star & Snowflake Schemas**
- ✓ **DAX Joins & Expressions**

Ch 26: DAX Joins, Variables
- ✓ **CALCULATEX & Variables**
- ✓ **COUNT, COUNTA, etc..**
- ✓ **SUM, SUMX, etc..**
- ✓ **SELECTED MEMEBER**
- ✓ **Filter Context, RETRUN**
- ✓ **Dynamic Report with DAX**

Ch 27: 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 28: DAX - Row Level Security
- ✓ **RLS: Row Level Security**
- ✓ **Data Modelling & Roles**
- ✓ **Verify Roles (Testing)**
- ✓ **Add Cloud Users to Roles**
- ✓ **Dynamic Row Level Security**
- ✓ **Testing RLS in Power BI**

Ch 29: Analytical Reports
- ✓ **Analytical Report Concepts**
- ✓ **Excel Data Analytics**
- ✓ **Excel with Power BI Cloud**
- ✓ **SQL, AVRO, JSON Sources**
- ✓ **Analyse in Excel (Cloud)**
- ✓ **Excel Reports to Cloud**

Ch 30: Power BI AI, CoPilot
- ✓ **AI Components in Power BI**
- ✓ **CoPilot Practical Uses**
- ✓ **CoPilot with Desktop**
- ✓ **CoPilot with Cloud**
- ✓ **Need for AI Analytics (Fabric)**
- ✓ **PL 300 Exam (Microsoft Certified Data Analyst) Guidance**
- ✓ **PL 300 Exam Mocks**

Module 5: ERWIN
Ch 1: Introduction
- ✓ **Data Modeling Concepts**
- ✓ **Data Modeling Methods**
- ✓ **Typographical Conventions**
- ✓ **ERWIN Tool Installations**

Ch 2: Information Systems, Data Modeling
- ✓ **Data Modeling Concepts**
- ✓ **Data Modeling Sessions**
- ✓ **Session Roles**
- ✓ **IDEFX1 Modelling Methodology**

Ch 3: Modeling Architecture
- ✓ **Modeling Architecture**

- ✓ **Logical Modeling**
- ✓ **Physical Modeling**
- ✓ **Entity Relationship Diagrams**
- ✓ **Key Based Models**
- ✓ **Transformation Models**

Ch 4: Logical Modeling
- ✓ **Local Models Construction**
- ✓ **ER Diagrams**
- ✓ **Entities & Attributes**
- ✓ **Many to Many Relationships**
- ✓ **Design Validations**
- ✓ **Data Models in Realtime**

Ch 5: Key Based Data Models
- ✓ **Key Types**
- ✓ **Entity, Non Key Areas**
- ✓ **Primary Key Selection**
- ✓ **Alternate Key Attributes**
- ✓ **Inversion Entry Attributes**

Ch 6: Relationships in ER Models
- ✓ **Relationship, Foreign Key Attributes**
- ✓ **Dependant, Independent Attributes**
- ✓ **Identifying Relations**
- ✓ **Non Identifying Relations**
- ✓ **Role Names**

Ch 7: Naming Conventions
- ✓ **Entity Names**
- ✓ **Attribute Names**
- ✓ **Synonyms**
- ✓ **Hamonyms**
- ✓ **Aliases**
- ✓ **Entity Definitions**
- ✓ **Definition References**
- ✓ **Circularity**
- ✓ **Business Glossary Construction**
- ✓ **Attribute Definitions**
- ✓ **Validation Rules**
- ✓ **Role Names**
- ✓ **Definition and Business Rules**

Ch 8: Relationships

- ✓ **Relationship Cardinality**
- ✓ **Referential Integrity (RI)**
- ✓ **Additional Relationship Types**
- ✓ **Many to Many Relationships**
- ✓ **N-ary Relationships**
- ✓ **Recursive Relationships**
- ✓ **Subtype Relationships**
- ✓ **Inclusive Relationships**
- ✓ **Exclusive Relationships**
- ✓ **IDEF1X, IE SubType Notation**

Ch 9: Normalization Issues, Solutions
- ✓ **Normal Forms Concepts**
- ✓ **Common Design Problems (CDP)**
- ✓ **Repeating Data Groups**
- ✓ **Repeating Attributes**
- ✓ **Repeating Facts**
- ✓ **Conflicting Facts**
- ✓ **Derived Attributes**
- ✓ **Missing Information**
- ✓ **Unification**
- ✓ **Normal Forms Support Levels**

Ch 10: Physical Data Models
- ✓ **Physical Data Models Concepts**
- ✓ **Physical Data Models Components**
- ✓ **Logical versus Physical Data Models**
- ✓ **Dependant Entities Classifications**
- ✓ **DBMS Models**
- ✓ **DWH Models**
- ✓ **SQL DB Configurations**

Module 6: End to End Project
- ☞▨ Project Requirement (Ecommerce / Banking)
- ☞▨ Project Solution (Detailed)
- ☞▨ Project FAQs, Resume Guidance