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Azure Data Engineer with MSSQL, TSQL & AI

Thank you for contacting our **SQL School**. I am **Mr. Sai Phanindra**, trainer for this **Azure Data Engineer** Course. With 19+ Years of technical expertise exclusively on Database and Azure, BI Technologies, I assure you 100% Practical, Step by Step Classes for this in-depth Azure Data Engineer course. My Profile @ linkedin.com/in/saiphanindra/

Module 1: MSSQL & TSQL

In this module, we start with detailed step by Step Database Fundamentals, SQL Concepts, TSQL Queries with simple but very useful job-oriented scenarios. We learn RDBMS, Normal Forms, Stored Procedures, Functions, Triggers, Transactions, Merge, Group By, Window (Rank), CTEs, Query Tuning, more .. with three **Realtime Case Studies** in Health Care Domain.

These concepts will be surely sufficient to proceed for our next module: Azure Data Engineering.

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MS SQL & TSQL
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✓ Database, SQL Concepts
✓ SQL Server TSQL Queries
✓ RDBMS, Constraints, Keys
✓ Joins & Group By Queries
✓ Window Functions, Excel
✓ Stored Procedures (SPs)
✓ Views, Triggers, Functions
✓ Cursors & CTEs, Queries
✓ Server, DB Architectue
✓ Merge, Query Tuning
✓ Excel & Data Analytics

➤ Step by Step
➤ LIVE Project
➤ Resume, FAQs
➤ LIVE Class Videos

New batch every week !

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Module 2: Azure Data Engineer

In this module, we practically learn & implement ETL, ELT, DWH, ADF, Databricks, Data Lake, Python ETL, PySpark, Scala, Stream Analytics, IoT, Log Apps, Azure Functions, Azure Big Data, Azure Functions and more with Medallion Architecture. This course includes various structured and unstructured data sources to implement Upserts, SCD, CDC and more Big Data Techniques .. !

This module includes one **Realtime Project** For your resume in **Ecommerce** Domain

Azure Data Engineering   19+ Years Of TRUST   **SQL SCHOOL**
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• Azure Fundamentals
• ETL & DWH Concepts
• Azure SQL Database
• Azure Data Factory
• Azure Synapse Analytics
• Azure SQL Pools
• Azure Data Lake (ADLS)
• Azure Databricks
• Azure Stream Analytics
• Azure IoT, Medallion
• Python, PySpark, SCD
• Scala, Spark SQL, Merge
• End to End Integrations
• Resume, LIVE Project

✓ Step by Step
✓ Class Videos
✓ Scenario Based
✓ Realtime Project
✓ LIVE Class Videos

LIVE Online
Self Paced Videos
Inhourse Course

ISO

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Azure Data Engineer with MSSSQL, AI:
- ➢ **Module 1: MSSQL & TSQL**
  3 Weeks; 3 Realtime Case Studies

- ➢ **Module 2: Azure Data Engineer**
  7 Weeks; 3 Realtime Case Studies
  1 Realtime Project

- ➢ **Module 3: Azure AI, CoPilot**
  3 Weeks; 1 Realtime Case Study

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This course is very helpful for:
1. Data Engineers
2. ETL Developers
3. BI Developers
4. Cloud Engineers

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Azure Data Engineer

100% Real-Time, Job Oriented Trainings

Course Highlights

- Azure Funda
- ETL & DWH Concepts
- Azure SQL Database
- Azure Data Factory
- Azure Synapse Analytics
- Azure Data Lake (ADLS)
- Azure Databricks

- Azure Stream Analytics
- Azure IoT, Medallion
- Azure Logic Apps
- Azure Functions
- Scala, Spark, PySpark
- CI - CD Integrations
- End to End Integrations

✓ Regular / Weekend   ✓ LIVE Online / Inhouse

✓ Step by Step   ✓ Scenario Based   ✓ Realtime Project

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👉 ▦ **Pre-Requisite: None**. We shall start from the very basics.

♨ ♨ Detailed Course Content ♨ ♨

Module 1: SQL Server TSQL (MSSQL)

Ch 1: Introduction	Ch 2: Installations	Ch 3: SQL Basics - 1
✓ **Database Introduction**	✓ **SQL Server 2022, 2019**	✓ **Need for Databases, Tables**
✓ **Types of Databases**	✓ **SSMS Tools Installation**	✓ **Need for SQL Commands**
✓ **Need for & ETL, DWH**	✓ **Database Engine (OLTP)**	✓ **DDL, DML & DQL Statements**
✓ **BI Implementations**	✓ **SCM, Configuration Tools**	✓ **Database Creation @ GUI**
✓ **SQL Server Advantages**	✓ **Instance Types, Uses**	✓ **Data Operations @ GUI**
✓ **Version, Editions of MSSQL**	✓ **Authentication Modes**	✓ **Session ID, SQL Context**
✓ **Data Engineering Job Roles**	✓ **Collation, File Stream**	✓ **DB, Tables, Data @ SQL**
Ch 4: SQL Basics - 2	**Ch 5: Data Imports, Schemas**	**Ch 6: Constraints, Index Basics**
✓ **DDL Variants in MSSQL**	✓ **Data Imports with Excel**	✓ **Need for Constraints, Keys**
✓ **DML Variants in MSSQL**	✓ **ORDER BY & UNION**	✓ **NULL, NOT NULL, UNIQUE**
✓ **INSERT & INSERT INTO**	✓ **UNION ALL For Sorting Data**	✓ **Primary Key & Foreign Key**
✓ **SELECT & SELECT INTO**	✓ **Creating, Using Schemas**	✓ **RDBMS and ER Models**

✓ Basic Operators in SQL ✓ Special Operators in MSSQL ✓ ALTER, ADD, TRUNCATE, DROP	✓ Real-world Banking Database ✓ Table Migrations @ Schemas ✓ 2 Part, 3 Part & 4 Part Naming	✓ Identity Property, Default ✓ Clustered Index, Primary Key ✓ Non Clustered Index, Unique

Ch 7: Joins & Views Basics	**Ch 8: Functions(UDF), Data Types**	**Ch 9: Stored Procedures,Models**
✓ JOINS: Purpose. Inner Joins ✓ Left / Right / Full Outer Joins ✓ Cross Joins, Query Tuning ✓ Creating & Using Views ✓ DML, SELECT with Views ✓ RLS : WITH CHECK OPTION ✓ System Views & Metadata	✓ Using Functions in MSSQL ✓ Scalar Value Functions ✓ Inline & Multiline Functions ✓ Date & Time Functions ✓ String, Aggregate Functions ✓ Data Types : Integer, Char, Bit ✓ SQL Variant, Timestamp, Date	✓ Stored Procedures & Usage ✓ Creating, Testing Procedures ✓ Encryption, Deferred Names ✓ SPs for Validations, Analysis ✓ System SPs, Recompilation ✓ Normal Forms & Types ✓ Data Models, Self-References

Ch 10: Triggers, Temp Tables	**Ch 11: DB Architecture, Locks**	**Ch 12: Cursors & CTEs, Links**
✓ Need for Triggers ✓ DDL & DML Triggers ✓ Using Memory Tables ✓ Data Replication, Automation ✓ Local & Global Temp Tables ✓ Testing & Using Temp Tables ✓ SELECT .. INTO & Bulk Loads	✓ Planning VLDBs : Files, Sizing ✓ Filegroups, Extents & Types ✓ Log Files : VLF, Mini LSN ✓ Table Location, Performance ✓ Schemas, Transfer, Synonyms ✓ Transactions Types, Lock Hint ✓ Query Blocking Scenarios	✓ Cursors : Realtime Use ✓ Fetch & Access Cursor Rows ✓ CTEs for SELECT, DML ✓ CTEs: Scenarios & Tuning ✓ Linked Servers, Remote Joins ✓ Linked Servers: MSDTC, RPC ✓ Tuning Remote Queries

Ch 13: Merge, Upsert & Rank	**Ch 14: Grouping & Cube**	**Ch 15: Self Joins, Excel Analysis**
✓ Need for Merge in ETL ✓ Incremental Loads with SQL ✓ MERGE and RANK Functions ✓ Window Functions, Partition ✓ Identify, Remove Duplicates	✓ Group By & HAVING ✓ Cube, Rollup & Grouping ✓ Joins with Group By ✓ 3 Table, 4 Table Joins ✓ Query Execution Order	✓ Self Joins & Self References ✓ UNION, UNION ALL ✓ Sub Queries with Joins ✓ IIF, CASE, EXISTS Statements ✓ Excel Analytics, Pivot Reports

Realtime Case Study : Health Care Domain

Module 2: Azure Data Engineer

Ch 1: ETL, DWH Introduction	**Ch 2: Azure Intro, Azure SQL**	**Ch 3: Azure Synapse (DWH)**
✓ Database Introduction ✓ Data Warehouse (DWH) ✓ Data Engineering Work Flow ✓ Cloud Concepts: IaaS, PaaS ✓ SaaS & Azure Cloud Concepts ✓ Azure Resources & Groups ✓ Storage, ETL, IoT Resources	✓ 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	✓ 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)	**Ch 5: ADF Incremental Loads - 1**	**Ch 6: ADF Incremental Loads - 2**

✓ Need for ADF & Pipelines	✓ File Incremental Loads	✓ Implement SCD with ADF
✓ Linked Services & IRs	✓ Storage Account, Data Lake	✓ Self Hosted IR: Realtime Use
✓ Datasets, Pipelines, Triggers	✓ Binary Copy, Schema Drift	✓ On-premise Data: Incr Loads
✓ Copy Data Activity & CDT	✓ Staging Concept in ADF	✓ Copy Method : Upsert, Keys
✓ Data Loads Pipelines, DTUs	✓ DOCP, Logging & Consistency	✓ Staging & ADF Optimizations
✓ Pipeline Monitoring, Edits	✓ Polybase Concept & Tuning	✓ Pipeline Runs, Activity IDs

Ch 7: ADF Data Flow - 1	**Ch 8: ADF Data Flow - 2**	**Ch 9: ADF Data Flow - 3**
✓ Data Flow Transformations	✓ Working with Multiple Tables	✓ Pivot Transformation
✓ Spark Clusters for Debugging	✓ Join Transform, Broadcast	✓ Group By & Pivot Keys
✓ Optimized Clusters, Preview	✓ Row Filters, Column Filters	✓ Column Pattern, Deduplicate
✓ Conditional Split, SELECT	✓ Surrogate Keys, Derived Cols	✓ Lookup, Cached Lookup
✓ Sort, Union Transformations	✓ ETL Loads Dates, Sink Options	✓ Tuning Transformations
✓ Pipelines with Data Flow	✓ Aggregated Data Loads	✓ Tuning Data Flow, Spark

Ch 10: Synapse Analytics - 1	**Ch 11: Synapse Analytics - 2**	**Ch 12: Synapse Analytics - 3**
✓ Azure Synapse Analytics	✓ Serverless Pools in Synapse	✓ Apache Spark Pool & Usage
✓ Dedicated SQL Pools	✓ TSQL Scripts with Serverless	✓ Synapse Analytics with Pools
✓ TSQL: Stored Procedures	✓ ADLS Data Imports & ELT	✓ PySpark Staging,Aggregations
✓ Synapse Pipelines, Tuning	✓ Synapse Aggregation, Analytics	✓ Spark Queries & Python ETL
✓ SP Activity in Pipelines, Jobs	✓ Synapse Optimizations	✓ Python Notebooks, Pipelines
✓ Comparing ADF & Synapse	✓ Synapse Security & Logins	✓ Integrating Python with DWH

Ch 13: Parameters, SCD & ETL	**Ch 14: CDC @ ETL, ELT & Tuning**	
✓ ADF Templates in Realtime	✓ Using CDC in ADF	
✓ Table Incremental Loads	✓ Control Tables (CT): Upserts	
✓ Control Tables, Watermarks	✓ Handling Inserts, Updates	
✓ Pipeline Parameters, SPs	✓ SCD Type 1 & Type 2	
✓ Dynamic Data Sets, SCD	✓ ADF, Synapse : Limitations	

Ch 15: Azure Storage Explorer	**Ch 16: Azure Storage Operations**	**Ch 17: Azure Storage Security**
✓ Storage, ETL, IoT Resources	✓ BLOB Storage: Containers	✓ Realtime use of Keys
✓ Azure Storage Components	✓ Storage Browser, Explorer	✓ Access Keys & Admin Access
✓ Azure Storage Account, HNS	✓ File & Folder Uploads, Edits	✓ SAS Keys Generation, Ips
✓ Azure Data Lake Storage	✓ Azure Tables: Row Key	✓ Creating, Using Entra Users
✓ Azure Storage Explorer Tool	✓ Partition Key, Timestamp	✓ Azure AD Users, Groups
✓ Storage Explorer Config	✓ Use Cases of BLOB Storage	✓ IAM & RBAC with Entra Users
✓ Storage Account Properties	✓ Use Cases of Azure Tables	✓ ACLs and ADLS Security

Ch 18: Azure SQL DB Migrations	Ch 19: Azure Stream Analytics	Ch 20: Azure Stream Analytics
✓ On-Premise SQL DB bacpac	✓ Azure IoT Hubs & Devices	✓ Azure IoT Hubs & Devices
✓ Azure SQL Deployment	✓ APIs with Connection Strings	✓ APIs with Connection Strings
✓ Azure Storage from SSMS	✓ Azure Steam Analytic Jobs	✓ Azure Steam Analytic Jobs
✓ Azure SQL DB Migration	✓ Inputs, Outputs, SAQL Query	✓ Inputs, Outputs, SAQL Query
✓ Migration Verifications	✓ LIVE Feed: JSON, AVRO Files	✓ LIVE Feed: JSON, AVRO Files
✓ Testing Migrations in SQL	✓ Watermark & LIVE Stats	✓ Watermark & LIVE Stats

Ch 21: Azure Key Vaults, Alerts	Ch 22: Azure Storage Optimization	Ch 23: Azure Pricing, Functions
✓ Azure Encryptions @ REST	✓ BLOB Types & Content Types	✓ Azure Logic Apps : Usage
✓ Azure Key Vaults & Keys	✓ Hot, Cool, Cold, Archive Types	✓ Log Apps Usage in ETL
✓ SMK & CMK Encryptions	✓ Creating, Using Access Policies	✓ Snapshots, Azure Functions
✓ Azure Metrics: Ingress	✓ Immutable Storage, Rotation	✓ Azure Functions Realtime Use
✓ Egress, E2E Latency Issues	✓ Containerization, Indexing	✓ ETL & DWH with Functions
✓ Performance Tuning Options	✓ Replication: LRS, ZRS, RA-GRS	✓ Azure Resource Pricing

Ch 24: Azure Big Data & Spark	Ch 25: Spark Cluster Operations	Ch 26: Python & PySpark, ETL
✓ Azure Big Data & Spark	✓ DBFS : Flat File Imports	✓ Python Fundamentals
✓ Azure ETL & DWH Databases	✓ Table Conversions using GUI	✓ Python Dataframes: ETL
✓ Azure Spark, HIVE MetaStore	✓ Spark Clusters: Table Creations	✓ Python For Big Data, Pandas
✓ Azure Databricks Service	✓ Basic Transformations in Spark	✓ Python Notebooks, Views
✓ Spark Cluster (Personal)	✓ SQL Notebooks: Creation	✓ Aggregated Loads to Spark
✓ Unity Catalog & Azure VM	✓ Default DB Queries, Cloning	✓ Spark DB Creations, Tables

Ch 27: PySpark & ADLS, Widgets	Ch 28: ADB Jobs, Delta Tables	Ch 29: Scala Notebooks & ETL
✓ Creating Spark Databases	✓ Azure Databrick Jobs	✓ Scala Notebooks : Purpose
✓ Spark Tables, Catalog Info	✓ Azure Workflows & Tasks	✓ Aggregated Data Loads
✓ PySpark with ADLS Storage	✓ Notebook Schedule Options	✓ Incremental Data Loads
✓ Using Widgets for ADLS Keys	✓ Continuous Jobs, Notifications	✓ Widgets & Jobs with Scala
✓ PySpark Variables & Widgets	✓ Delta Tables & Data Cleansing	✓ Python Versus Scala
✓ Using Variables in Functions	✓ SCD (Merge Into), Contact, etc	✓ Converting Python to Scala
✓ Spark SQL with Control Text	✓ Creating, Using Dataframes	✓ JVM Benefits, SQL DB Conn"
✓ Using Variables in Spark SQL	✓ Multi Dataframe Joins	✓ SQL DB Loads with Scala

Ch 30: Databricks Architecture	Ch 31: Medallion Architecture	Ch 32: Delta LIVE Tables (DLT)
✓ Azure Databricks Services	✓ Medallion Architecture in ETL	✓ Creating Delta LIVE Tables
✓ Cluster Components & DBFS	✓ DWH Data Loads & Incr Loads	✓ DLT Pipelines in ETL, DWH
✓ RDD, DAG, Photon, SpotLight	✓ Bronze, Silver & Gold Data	✓ Automated Incr Loads
✓ Spark Partitioned Tables	✓ Processing Raw Data Files	✓ Control Tables, Timestamp
✓ Cluster Manager: Spark Jobs	✓ Data Cleansing, Formatting	✓ SCD Type 1 with DLT
✓ Databricks Runtime (DBR)	✓ Aggregation Advantages	✓ SCD Type 2 with DLT
✓ Databricks Security	✓ DBES & Node Architecture	✓ Automated Merge Into Stmt
✓ Workspace Security	✓ Unity Catalog Concept	✓ Delta Tables Vs DLT
✓ Notebook & Job Security	✓ LUNs and Unity Catalog	✓ Merge Into Vs DLT Pipeline

Real-time Project (Azure Data Engineer) + Resume Guidance

🔥Module 3: Azure AI with Data Engineer content 🔥

Chapter 1: Fundamental AI Concepts
- ➢ AI: Artificial Intelligence
- ➢ Real-time Implementation
- ➢ Understand Computer Vision
- ➢ Understand Natural Language Processing
- ➢ Document Intelligence and Knowledge Mining
- ➢ Understand Generative AI
- ➢ Challenges and Risks with AI
- ➢ Understand Responsible AI

Chapter 2: Fundamentals of Machine Learning
- ➢ Machine Learning Introduction
- ➢ Machine Learning Components
- ➢ Types of Machine Learning
- ➢ Regression, Binary Classification; Multiclass Classification
- ➢ Clustering, Deep Learning
- ➢ Azure Machine Learning

Chapter 3: Fundamentals of Azure AI services
- ➢ AI Services on Azure platform
- ➢ Create Azure AI Service Resources
- ➢ Use Azure AI services
- ➢ Understand Authentication for Azure AI services
- ➢ Exercise - Explore Azure AI Services

Chapter 4: Computer Vision
- ➢ Images and image processing
- ➢ Machine learning for computer vision
- ➢ Azure AI Vision
- ➢ Exercise - Analyze images in Vision Studio

Chapter 5: Natural Language Processing
- ➢ Understand Text Analytics
- ➢ Text Analysis in Azure
- ➢ Exercise - Analyze text with Language Studio

Chapter 6: Document Intelligence and Knowledge Mining
- ➢ Introduction to Document Intelligence
- ➢ Knowledge Mining
- ➢ Explore capabilities of document intelligence
- ➢ Receipt Analysis on Azure
- ➢ Exercise - Extract from data in Document Intelligence Studio

Chapter 7: Generative AI
- ➢ What is generative AI?
- ➢ What are language models?
- ➢ Using language models
- ➢ What are copilots?
- ➢ Considerations for Copilot prompts
- ➢ Extending and developing copilots
- ➢ Exercise - Explore Microsoft Copilot

Chapter 8: Generative AI in Azure
- ➢ Generative AI - Capabilities within AI in Azure
- ➢ Azure Implementation of Gen AI
- ➢ Processing Images, Codes and more

Chapter 9: AI 900 Exam Guidance
- ➢ Describe Artificial Intelligence workloads and considerations
- ➢ Describe fundamental principles of machine learning on Azure
- ➢ Describe features of computer vision workloads on Azure
- ➢ Describe features of Natural Language Processing (NLP) workloads on Azure
- ➢ Describe features of generative AI workloads on Azure

Chapter 10: Azure AI with Azure Data Engineering - 1
- ➢ Implementing AI in Cloud
- ➢ Co-Pilot Concepts in Big Data
- ➢ AI with Azure
- ➢ AI with Azure SQL Database

➢ Automated Query Tuning Concepts (OLTP)

Chapter 11: Azure AI with Azure Data Engineering - 2
➢ AI with Azure SQL Pool (DWH)
➢ Automated Query Tuning Concepts (DWH)
➢ AI Search Service
➢ Real-world Considerations

Chapter 12: Azure AI with Azure Data Engineering - 3
➢ AI with Azure Storage Account
➢ ADLS Concepts and AI Implementations
➢ AI Search Service with ADLS
➢ Text Data Handling with AI

Chapter 13: Azure AI with Azure Data Engineering - 4
➢ AI with Azure Databricks
➢ Notebook Implementations with AI
➢ Automated Caching & AI
➢ AI based Debug Options
➢ AI based Optimizations with ETL
➢ AI based Optimizations with DWH
➢ AI based Troubleshooting with ETL, ELT

Chapter 14: Azure AI with Azure Data Engineering – 5
➢ AI based Optimizations with Medallion Architecture
➢ End to End Implementations with AI

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