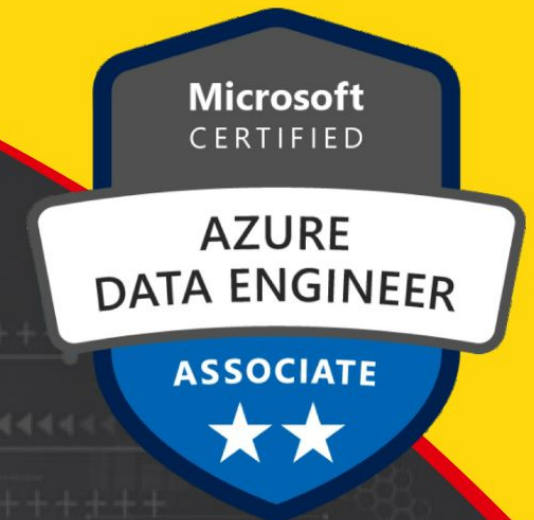




KALPRA ACADEMY
FOR SKILL DEVELOPMENT



Microsoft Certified

AZURE

DATA ENGINEERING

PROGRAM

COURSE FEE:

\$499

**JOB-ORIENTED
3-MONTHS
ONLINE COURSE**

US Job Market Focused

WEEK - 01: Introduction and Azure Data Factory (ADF)

- » Introduction to Data Engineering
- » What is On-prem ?
- » Why do we go for cloud ? What is cloud ?
- » Difference between On Prem vs Azure Cloud ?
- » Setting up Azure subscription
- » Overview of Azure services for data engineering
- » IAAS, PAAS, SAAS services
- » Resource groups, Virtual networks, Virtual Machines, Storage accounts, blob storage, Azure data lake gen2, key vault, logic apps, azure monitor.
- » Introduction to Azure Data Factory (ADF).
- » ADF architecture and components.
- » Integration runtimes
- » Linked services
- » Data sets
- » Pipelines
- » Activities (Lookup, foreach, get metadata, Copy, Stored Procedure, web switch)
- » Triggers (Schedule, Thumbling window, Event based)

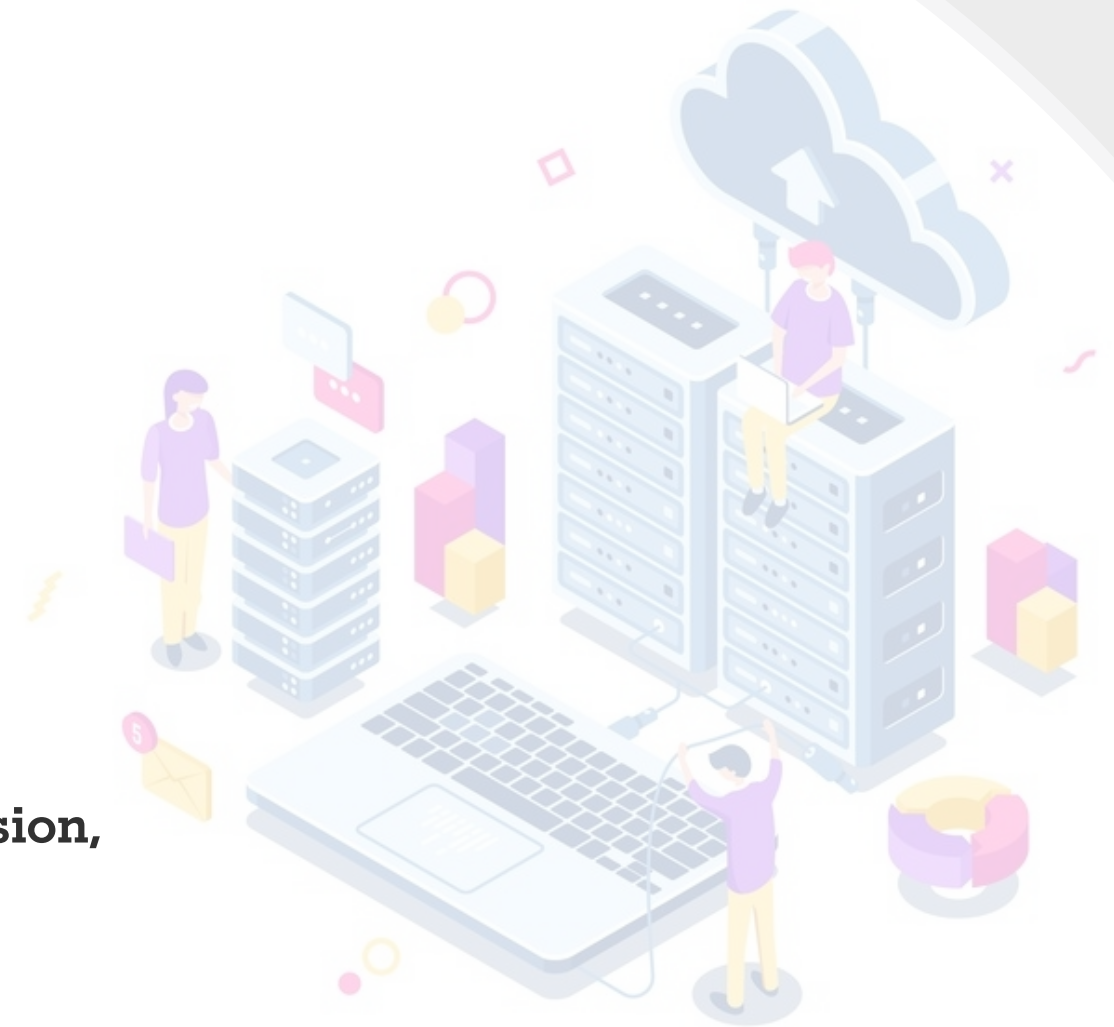
Scenario 1 : Filter activity in ADF Dynamic Copy.

Scenario 2 : Get file names from folder dynamically.



WEEK - 02: AZURE SQL

- » What is RDBMS ?
- » Types of DBMS
- » Introduction to Azure SQL & Creation
- » SSMS download and setup into local
- » Overview of servers, databases, Tables, Constraints, normalization, operators, data types, Queries, joins, stored procedures, windows functions, other important functions, temp tables, common table expression, performance tuning.
- » Advanced SQL Concepts.
- » Azure SQL Database and migration strategies.



WEEK - 03: Azure Data Factory (ADF)

- Scenario 03 : Copy Activity Behavior
- Scenario 04 : Validate copied data between source and sink in ADF
- Scenario 05 : Load data from on premise SQL server to Azure SQL DB in Azure Data Factory
- Scenario 06 : Full load and
- Scenario 07 : Incremental load
- Scenario 08 : How to load REST API data into Azure Cloud by using ADF
- Scenario 09: Copy Data from on premise to Azure SQL DW with polybase_with Bulk insert
- Scenario 10 : Copy Data from on premise to Azure SQL DW with polybase_with Bulk insert

- Data Flows Overview
- Types of Transformations



WEEK - 04: Azure Databricks

- What are Azure data bricks & purpose & advantages
- What is Pyspark
- Diff types of formats
- Types of data
- Real time streaming data handling vs batch processing data handling
- Difference between Hadoop MapReduce and bricks spark
- Clusters & types, DBFS, Unity catalog
- Data frames vs RDD
- Pyspark syntax
- Db utilities & widgets



WEEK - 05: Azure Databricks

- How to read the data from Azure blob
- How to read the data from ADLS gen2
- Mount point purpose
- Create secret scope
- How to call one notebook to another notebook
- How to Integrate notebook into Azure data factory pipelines
- Repo setups in Azure databricks
- How to run the jobs



WEEK - 06: Python for Data Engineers

- Python Introduction, Installation and setup
- Python Data Types & Deep dive into String Data
- Deep dive into python collection list and tuple and dict
- Python Functions and Arguments, Lambda Functions
- Python Modules & Packages
- Python Flow Control and Python Logging Module
- Python File Handling and Exception Handling



WEEK - 07: Snowflake

- ❖ Why snowflake
- ❖ Snowflake trial account creation
- ❖ Snowflake architecture
- ❖ Snowflake virtual warehouses
- ❖ Snowflake micro partitioning & data clustering
- ❖ Snowflake data loading and transformation while loading
- ❖ Snowflake external stages - working sessions
- ❖ Snowflake how to login to snow sql
- ❖ Internal stages & snow sql
- ❖ Copy command options
- ❖ Loading semi structured data
- ❖ Snowflake loading data from azure
- ❖ Caching
- ❖ Zero copy cloning
- ❖ Table types
- ❖ External tables
- ❖ RBAC
- ❖ Roles & users
- ❖ Dynamic data masking
- ❖ Data sharing
- ❖ User defined functions & stored procedures



WEEK - 08: Advanced Azure Data Engineering Concepts

- Spark SQL Introduction & Different ways to create DF
- Spark SQL Basics
- 3.Joins in Spark SQL & Joins scenarios
- Spark SQL Functions
- Implement SCD Type1 & Apache Spark Databricks Delta
- Delta Lake in Azure Databricks
- Azure Data Factory Integration with Azure Databricks



WEEK - 09: Advanced Azure Data Engineering Concepts

- Best practices and optimization.
- Monitoring and troubleshooting.
- Azure devops Introduction.
- Boards Agile and Scrum,kanban process
- Repos
- Branching strategies,pull requests,approvals
- CI and CD process in Azure devops
- ADF and ADE code setup into classic pipelines under azure devops



Introduction to Data Engineering and Azure Cloud

WEEK - 10: Real-World Projects

- Mid-term project incorporating ADF,ADB,SQL,and Python.
- Advanced project incorporating Snowflake,Synapse Analytics,and optimization.

WEEK - 11: Capstone Project

- Work on a comprehensive end-to-end data engineering project.
- Project completion,presentation,and feedback.

AZURE DATA ENGINEERING COURSE

(Data Factory + Databricks with PySpark + Synapse Analytics)



WEEK - 12: Additional Offerings :

Certification preparation:

- ❖ Preparation for relevant Azure certification (e.g., DP-203: Data Engineering on Microsoft Azure).

Industry Best Practices:

- ❖ Implementation of industry best practices for data engineering.
- ❖ Real-World case studies.

Guest Lectures and Workshops:

- ❖ Inviting industry experts for guest lecture.
- ❖ Conducting workshops for specific technologies and tools.

Continuous Learning and Updates:

- ❖ Encourage continuous learning by staying updated on new features and services in Azure.





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