# AZURE BI

## Azure Cloud Computing

### Introduction

❖ Create Azure Free Subscription

❖ Azure Portal Overview

❖ Azure Services Overview

❖ Managed and Unmanaged Services

❖ Resource Management Group

❖ Subscription

❖ Resource Groups

❖ Resource Provider

❖ Creating Tagging

❖ Identity Access Control (IAM)

❖ Creating Azure SQL Database Service

❖ Delete Resources and Set Budget

### Azure SQL Database

❖ Introduction

❖ Why Choosing SQL Server in Azure

❖ Azure IaaS vs PaaS Database Offerings

❖ SQL server PaaS Deployment options

### Azure SQL Server in Virtual Machine (IaaS)

• Introduction

• SQL Server in Azure Virtual Machine

• Creating Virtual Machine with Windows

• Installing/Configuring SQL Server and Database

**Azure Singleton Database**

• Introduction

• Creating Azure Singleton Database

• Purchasing Models

• Service Tier

• Azure Database vs VM SQL Server Database vs Azure Data Warehouse

**Elastic Database Pool**

❖ Introduction

❖ Azure Elastic Pool Database

❖ Creating Azure Elastic Pool Database Managed Instance Database

Introduction

**Managed Instance Database**

❖ Introduction

❖ Azure Managed Instance Database

❖ Differences between On-premises and Managed Instance

❖ Migration Options for Managed Instance

❖ Services Tiers

❖ Management Operations

❖ Creating Managed Instance Database

**Azure Database Security**

❖ Introduction

❖ Azure Database Security Options

❖ Azure Managed Instance Security

**Azure Synapse Internal Architecture**

❖ Introduction

❖ Azure Synapse MPP Architecture

❖ Storage and Shading Patterns

❖ Data Distribution and Distribution Keys

❖ Data Types and Table Types

❖ Partitioning

❖ Fact Tables and Dimension Tables

❖ Creating Synapse Data Distribution Before migration to Azure

**Data Migration to Azure Synapse Data Warehouse**

❖ Introduction

❖ Best Practices for Data Load

❖ Different Loading Methods

❖ Loading with SSIS vs Polybase

❖ Task - Loading with SSIS

❖ Task - Loading with Polybase

❖ Task - Loading with Data Factory

**Security Layers in Azure Synapse Service**

❖ Advance Data Security

❖ Auditing

❖ Network Security

❖ Transparent Data Encryption

❖ Dynamic Data Masking

**Configuring and Optimizing Azure Synapse Service**

❖ Configure Options

❖ Performing Other Tasks

❖ Backup and Restore.

**Azure Data Lake**

❖ Introduction

❖Data Sources of Data Lakes

❖ Data Warehouse vs Data Lake

❖ Differences between Data Lake & Hadoop

❖ Azure Data Lake Gen2 Evolved

❖ Blob Storage vs Data Lake

❖ Azure Data Lake Gen 2 Account Creation

❖ ADLS Gen 2 Account - Overview

❖ Explore different tools to Ingest Data in Azure Data Lake Gen2

**Microsoft Azure Data warehouse**

❖ What is Warehouse?

❖ What is Azure Data Warehouse

❖ Differences between Traditional Warehouse and Azure Data Warehouse

❖ Differences between SQL Server Database & Azure Data Warehouse

❖ Creating Azure Data Warehouse

❖ Querying Data from Azure Data Warehouse

   o Creating Master Key

   o Creating Scoped Credential

   o Creating External Data Source

   o Creating External File Format

   o Creating External Table

❖Types of Storage Accounts

   O Storage V2 (General Purposev2)

   O Storage (General Purposev1)

   O Blob Storage

❖ What is Container?

❖ Types Storages

❖ Types Storages

   O Blobs

   O Data Lake Gen2

   O Files

   O Disks

   O Queues

   O Tables

# Azure Data Factory Data Factory

Data Factory Introduction

Querying Data from Azure Data Warehouse

Introduction

Azure Data Factory vs SQL Server Integration Services

Components Of Azure Data Factory

Linked Services

o Data Sets

o Transformations

o Pipelines

Activities

Copy Data

Creating Linked Services

Creating Datasets

Creating Pipeline with Copy Activity

Running Pipeline

Monitoring Pipeline

Moving data from Blob to Azure SQL Server

Moving data from SQL Server to Blob

Configure different Types of Integration Runtimes

Azure Integration runtime

Azure Self Hosted Integration Runtime

SSIS Integration runtime

Moving Data from Blob to On Premise SQL Server

Moving Data from Blob to On Premise SQL Server

Debugging and Monitoring Pipelines Web Activity

Dataflow Activity transformations

o Source

o Sink

o Filter

- o Select
- o Conditional Split
- o Derived Column
- o Join
- o Lookup
- o Union
- o Aggregate

❖ General Activities

- o Stored procedure
- o Moving data from Blob to Azure SQL Server
- o Maintaining Metadata (Logging) o Error handling and Logging error records o Lookup
- o Incremental Loading
- o To get Configuration
- o Get Meta data
- o Set Variable
- o Execute Pipeline
- o Execute SSIS Package
- o Delete
- o Wait

❖ Iteration & Conditionals

- o For Each
- o If Condition
- o Until
- o Filter

❖ Version Control and Code Repository in Git Hub

❖ Deployment

❖ Azure Data Lake

❖ What is Data Lake

❖ Storing Data into Azure Data Lake Store

❖ Querying Data from Azure Data Lake Store to SQL Server

- ❖ Introduction to Azure Data Lake U-SQL

- ❖ Batch Job

- ❖ Data Lake Analytics

- ❖ Azure HD-insight

- ❖ U-SQL

- ❖ Basics of Data bricks

- ❖ Basics of Power BI with Azure

- ❖ Azure HD-insight

- ❖ U-SQL

- ❖ Basics of Data bricks

- ❖ Basics of Power BI with Azure


# DATA BRICKS

**Data Frame – Basics**

- ❖ Create a Data Frame with a CSV file

- ❖ Configure Options to read CSV file.

- ❖ Taking required columns from Data Frame

- ❖ Referencing columns of Data frame

- ❖ Understand/Getting Data frame Schema

- ❖ Declaring a Data frame Schema Using DDL

- ❖ Spark Architecture

**Data Frame - Transforming Data**

- ❖ Adding Columns to Data Frame

- ❖ Renaming Columns of Data Frame

- ❖ Deleting Columns from a Data Frame

- ❖ Filtering Data from a Data Frame

- ❖ Data Combining with Data Frame

- ❖ Aggregation: Count

- ❖ Aggregation: Count Distinct

❖ Aggregation: Min

❖ Aggregation: Max

❖ Aggregation: Sum and Sum Distinct

❖ Aggregation: Average and Mean

❖ Aggregation: Grouping

**Spark SQL & SQL Fundamentals**

❖ Run SQL on a Data Frame – Temp View

❖ Run SQL on a Data Frame – Global View

❖ Databases - List, Create, Delete, Select

❖ Tables - Unmanaged

❖ Tables - Managed

❖ SQL Basics - Select & Select Expression

❖ SQL Basics - Where, Equality Checks

❖ SQL Basics - Handling Nulls in Where Clause

❖ SQL Basics - Aggregations (Sum, Count, Avg & Mean)

❖ SQL Basics - Group by Clause

❖ SQL Basics - Having Clause

❖ SQL Basics - Order by Clause

❖ SQL Basics - Joins (Inner, Left, Right)

❖ SQL Basics - Predicates & Operators

❖ SQL Basics - Case Statement

**Working with different types of Data**

❖ Specify the Schema of a Data Frame with Struct Type

❖ Working with Booleans

❖ Working with Numbers

❖ Working with Strings

❖ Working with Date and Time

❖ Complex Types: Structs

❖ Complex Types: Arrays

❖ Complex Types: Maps

❖ Handling NULL Values: Remove NULL Values

❖ Handling NULL Values: Replace NULL Values

**Data Sources**

❖ Data Frame Reader: Read CSV Files

❖ Data Frame Reader: Read JSON Files

❖ Data Frame Writer: Write Data

❖ Create Data Frame manually