

## 1. Database and Design

1.1 Real time Domain introduction and data modeling of one specific domain project

1.2

1.2.1 Azure Portal explanation

1.2.2 Server logging and Cloud log in types

1.2.2 Create Database in onpremise and Azure cloud.

Minimum Prerequisites to start working on any Database.

1.2.2 Data Types:

INT(INT, BIGINT, TINYINT SMALLINT based on the length of value)

BIT

CHAR

VARCHAR

NCHAR

NVARCHAR

DATETIME

DATE

DECIMAL

## 2. Sample Table creation in Database

2.1 Table Name

2.2 Columns and its data types

## 3. Created Table modifications

3.1 Table Creation

3.4 Drop Table

3.2 Alter Table

3.3 Alter Column

3.2 Integrity Constraints(Primary key, Composite key, Foreign key, unique key and check constraint, default )

3.6 Indexing

## 4. Insert

4.1 Insert the Data into Tables

## 5. Query on single table

5.1 Select, as, TOP, Distinct, where, (is null, is not null, IN, =, NOT IN, AND, OR, between, (!= or <>), Like, CASE, order by and etc.

6. TEMP TABLES, select \* into, insert into from select query, UNION, UNION ALL, INTERSECT, EXCEPT

## 7 Table joins ,ON

7.1 Inner join

7.2 left join

7.3 right join

7.4 cross join

7.5 full join

7.6 self join

8. Subquery and Correlated subquery

9. Functions

9.1 String Functions

left, right, upper, lower, len, ltrim, rtrim, reverse, replace, replicate, isnull  
substring, concat, format, char\_index, coalesce, stuff

9.2 Aggregate Functions

sum, count, min, max, GROUP by, Having

9.3 Date Functions

9.4 Math Functions --ABS, ROUND, RAND, NEWID, FLOOR, CEILING, SQRT, POWER

9.5 Conversion Functions --- cast

9.6 Window Functions or Ranking Functions.

10. Views, CTE's, updates

11. Delete & Truncate

12. T-SQL

12.1 Declare

12.2 Variables

12.3 Variable select

12.4 Table Variable

13. Stored Procedures. (Alter Column)

13.1 Stored Procedures

13.2 Stored Procedures with input and output parameters

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Introduction Data Analytics Azure services

Introduction to Azure Security on services.

-----\*\*\*\*\*Azure Data Factory\*\*\*\*\*-----

Prerequisites to work on Azure Data Factory: SQL Server

Azure Portal and Services.

Azure Account creation

1. Introduction on ADF

What is ADF

Difference from normal ETL tools

Uses

How Robust it is and Advantages

Overview of ADF UI

2. Resource Creations

Azure Data Factory

Azure Data lake gen2 --- service  
Azure Sql Database --- service  
Azure Storage explorer

### 3.Components of ADF

#### 3.1 Connections

##### 3.1.1 Integration Runtime

- .Azure IR
- .Selfhosted IR
- .SSIS IR

##### 3.1.2 Linked Services

- .Azure BlobStorage
- .Azure Datalake store gen2
- .Azure Sql Database
- .File System
- .Azure Key vault
- .Onpremise Sql Database

##### 3.1.3 Datasets

- .Sql Server
- .Filesystem
- .Azure Data lake store gen2
- .Azue Sql Data base
- .Azure Sql Data warehouse

##### 3.1.4 Pipelines

-----Activities---- Common (Static Flow)-----

- 3.1.1 Copy
- 3.1.2 Delete
- 3.1.3 Set Variable
- 3.1.4 Lookup
- 3.1.5 GetMetaData
- 3.1.6 Stored Procedure

### 4.Functions in ADF

- .Collection Functions
- .Conversion Functions
- .Date Functions
- .Logical Functions
- .Math Functions
- .String Functions

### 5.Parameters

- .Pipeline parameters
- .Dataset parameters
- .global parameters

### 6. Expression writing

Dynamic Content expression writing

Expression builder using Functions and parameters  
Dynamic Content expression writing using intrapolation

1. Date formats
2. SELECT Query
3. FolderPaths and File paths
4. Conditions

## 7. Data flows

- 7.1 Derived Column
- 7.2 join
- 7.3 Surrogate Key
- 7.4 aggregations
- 7.5 exists
- 7.6 Conditional Split
- 7.7 lookup
- 7.8 select
- 7.9 Rank
- 7.10 Window
- 7.11 Alter Row

## 8. Activities

Common(Dynamic Flow)

- 8.1 Copy
- 8.2 Delete
- 8.3 Set Variable
- 8.4 Lookup
- 8.5 GetMetaData
- 8.6 Stored Procedure
- 8.7 Until
- 8.8 Notebook

## 9.writing expressions using previous activities outputs.

- 10.1. Lookup and IF
- 10.2. Filter
- 10.3. Lookup and cpy in Foreach
- 10.4. using stored procedure with parameters

## 10.Filter Activities

- .Filter
- .Foreach
- .IF condition

## 11.Triggers

- .Scheduled trigger
- .Event based trigger
- .Windows trigger

## 12 Scenarios in Azure Data Factory project needs.

- 12.1 Incremental load in Pipeline on SQL source
- 12.2 Incremental load in Pipeline on File System
- 12.3 Load multiple tables in single pipeline

- 12.4 Load multiple files in single pipeline
- 12.5 Error handling in Azure Data Factory
- 12.6 call pipelines in another pipelines
- 12.7 Dataflow all transformations in single pipeline
- 12.8 Email notification for failures.
- 12.9 Log maintainans of Azure Data Factory in Azure Log Analytics .
- 12.10 Handle error data in ADF.

-----\*\*\*\*\*Azure Databricks\*\*\*\*\*-----

Introduction

RDD,DataFrames

Introduction to Cluster management and libraries

Azure Databricks Notebook

Read files

StructTypes

Spark SQL Tables

Transformations(Join,replace,struct etc..) using Pyspark.

\*\*\*\*\*Sample Project\*\*\*\*\*

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