1) (2 Marks) Write a query to list all system databases in SQL Server.

```
SELECT name, database_id, create_date
FROM sys.databases;
GO
```

2) (2 Marks) Identify the physical database files (MDF, LDF) of a user-defined database named "SalesDB" using a SQL query.

```
SELECT name, physical_name FROM sys.master_files WHERE database_id = DB_ID('SalesDB');
```

3) (2 Marks) Create a user-defined database named "InventoryDB" with a primary data file of 5MB and a log file of 2MB.

```
CREATE DATABASE InventoryDB
ON PRIMARY (NAME = 'InventoryDB_Data', FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL16.MSSQLSERVER\MSSQL\DATA\InventoryDB.mdf', SIZE = 5MB)
LOG ON (NAME = 'InventoryDB_Log', FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL16.MSSQLSERVER\MSSQL\DATA\InventoryDB.ldf', SIZE = 2MB);
```

4) (2 Marks) Rename the database "InventoryDB" to "StockDB" using a SQL query.

```
EXEC sp_renamedb 'InventoryDB', 'StockDB';
```

5) (2 Marks) Drop the database "StockDB" using a SQL query.

```
DROP DATABASE StockDB;
```

6) (2 Marks) Write a query to display all available data types in SQL Server.

```
SELECT name AS DataType FROM sys.types;
```

7) (2 Marks) Create a table "Products" with the following columns:

ProductID (Integer, Primary Key)

ProductName (Variable-length string, max 50 characters, Not Null)

Price (Decimal with 2 decimal places)

StockQuantity (Integer, Default value 0)

```
CREATE TABLE Products (
```

```
    ProductID INT PRIMARY KEY,
    ProductName VARCHAR(50) NOT NULL,
    Price DECIMAL(10,2),
    StockQuantity INT DEFAULT 0
);
```

8)(2 Marks) Modify the "Products" table to add a new column Category (VARCHAR(30)).

```
ALTER TABLE Products ADD Category VARCHAR(30);
```

9)(2 Marks) Rename the table "Products" to "Inventory".

```
EXEC sp_rename 'Products', 'Inventory';
```

10)(2 Marks) Drop the "Inventory" table from the database.

```
DROP TABLE Inventory;
```

11)(5 Marks) Identify and list the system databases available in SQL Server. Provide a brief description of each.

1. master

- Stores system-level information such as login accounts, system configuration settings, and metadata for all other databases.
- It is critical for SQL Server operation.

2. model

- Serves as a template for all newly created databases.
- Any object (table, view, function) created in model is inherited by newly created databases.

3. msdb

- Used by SQL Server Agent for job scheduling, alerts, backup history, and automation tasks.
- Stores details of backup and restore operations.

4. tempdb

- A temporary workspace for processing queries, sorting, and storing temporary tables.
- Resets every time SQL Server restarts

Query :

```
SELECT name FROM sys.databases WHERE database_id <= 4;
```

12)(5 Marks) Write a query to display all database files (MDF, LDF, NDF) for a specific database.

Each database in SQL Server consists of **at least two types of files**:

- **Primary Data File (MDF)** – Stores user-defined tables, indexes, and objects.
- **Transaction Log File (LDF)** – Records all transactions to ensure data recovery.
- **Secondary Data File (NDF)** – Optional, used for large databases split across multiple files.

Query :

```
SELECT name AS FileName, physical_name AS FilePath, type_desc AS FileType
FROM sys.master_files
WHERE database_id = DB_ID('YourDatabaseName');
```

Output :

FileName	FilePath	FileType
SalesDB_Data	C:\SQLData\SalesDB.mdf	ROWS
SalesDB_Log	C:\SQLData\SalesDB.ldf	LOG

13) (5 Marks) Create a new user-defined database named SalesDB with a primary data file of 10MB and a log file of 5MB.

```
CREATE DATABASE SalesDB
ON PRIMARY (
   NAME = 'SalesDB_Data',
   FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL16.MSSQLSERVER\MSSQL\DATA\SalesDB.mdf',
   SIZE = 10MB
)
LOG ON (
   NAME = 'SalesDB_Log',
   FILENAME = 'C:\Program Files\Microsoft SQL Server\MSSQL16.MSSQLSERVER\MSSQL\DATA\SalesDB.ldf',
   SIZE = 5MB
);
```

- **ON PRIMARY** → Defines the primary data file (MDF).
- **LOG ON** → Defines the transaction log file (LDF).
- **FILENAME** → Specifies the **physical storage path** for the database files.
- **SIZE** → Sets the **initial size** of the database and log file.

14)(5 Marks) Rename the database SalesDB to RetailDB using an SQL query.

```
EXEC sp_renamedb 'SalesDB', 'RetailDB';
```

- sp_renamedb → A built-in system procedure that renames a database.
- Ensure **no active connections** exist before renaming.

15) (5 Marks) Drop the RetailDB database safely, ensuring that no active connections exist before deletion.

```
USE master;

ALTER DATABASE RetailDB SET SINGLE_USER WITH ROLLBACK IMMEDIATE;

DROP DATABASE RetailDB;
```

Explanation:

- ALTER DATABASE RetailDB SET SINGLE_USER WITH ROLLBACK IMMEDIATE;
    - Forces the database into **single-user mode**.
    - **Rolls back** any ongoing transactions.
- DROP DATABASE RetailDB;
    - Deletes the database **permanently**.