**2. SQL BASICS** [**INTRODUCTION**]

**SQL**  : STRUCTURED QUERY LANGUAGE. A PLATFORM USED TO COMMUNICATE WITH ANY DATABASE. FOR DEVELOPMENT, TESTING AND ADMINISTRATION (MANAGEMENT).

**T-SQL** : **TRANSACT SQL**. A TYPE OF SQL EXCLUSIVELY USED FOR COMMUNICATING WITH DATABASES HOSTED (STORED) IN **MICROSOFT SQL SERVER** (MS SQL SERVER).

**BASIC TYPES OF SQL STATEMENTS**:

|  |  |
| --- | --- |
| **DATA DEFINITION LANGUAGE [DDL]** | |
| **CREATE** | To define new tables and other database entities / OBJECTS: Keys,Views,SP.. |
| **ALTER** | To modify existing tables and other database entities |
| **DROP** | To remove existing tables and other database entities |
| **DATA MANUPULATION LANGUAGE [DML]** | |
| **INSERT** | To insert / store new data into tables, other DB Entities |
| **UPDATE** | Used to modify or change data from tables, other DB Entities [OBJECTS] |
| **DELETE** | To remove existing data from the tables, other DB Entities |
| **SELECT** | Used to Report data from Table |

In later classes we have other SQL Commands to practice: TCL, DCL, etc...

**During Installation of SQL Server, a set of FIVE System Databases are auto created:**

**1. master** : Used to manage connections to SQL Server and other databases

**2. model** :Used as a template for new databases we create on the server

**3. msdb** :Used by SQL DBAs for Jobs, Alerts, Monitoring, Errors and Repairs

**4. tempdb** : Used by Developers for Temporary Data Storage and Data Access

**5. resource** : Used **internally** by master database to control SQL Server Files

**BASIC PRACTICE EXAMPLES USING GUI** [USER INTERFACE]

**ITEM #1: HOW TO CREATE NEW DATABASE IN THE SERVER?**

LAUNCH SSMS > THIS PROMPTS FOR SERVER NAME > DROPDOWN > BROWSE FOR MORE > SELECT REQUIRED SERVER > CONNECT.

RIGHT CLICK DATABASES FOLDER > NEW DATABASE > GIVE DATABASE NAME > OK.

AUTOMATICALLY, A SET OF TWO FILES ARE CREATED.

1. **DATA FILE** = ROWS DATA FILES. USED TO STORE TABLE DATA

FILE TYPE : MDF = PRIMARY DATA FILE

2. **LOG FILE** = TRANSACTION LOG FILE. TO MONITOR THE DATABASE. FILE TYPE : LDF = LOG DATA FILE = TLOG FILE

**ITEM #2: HOW TO CREATE NEW TABLE IN THE ABOVE DATABASE?**

FROM ABOVE CREATED DATABASE > EXPAND > TABLES > RIGHT CLICK > NEW TABLE

SPECIFY COLUMN NAMES, DATA TYPES [EX: INT, CHAR(40))

CHECK "ALLOW NULLS" FOR OPTIONAL COLUMNS

UNCHECK "ALLOW NULLS" FOR MANDATORY COLUMNS.

\*NULL MEANS AN UNDEFINED VALUE.

**ITEM #3: HOW TO SAVE ABOVE TABLE IN THE DATABASE?**

FROM TOP YELLOW RIBBON > RIGHT CLICK > SAVE > SPECIFY TABLE NAME > SAVE.

**ITEM #4: HOW TO VERIFY ABOVE CREATED TABLE IN THE DATABASE?**

EXPAND SERVER > DATABASE > TABLES > WE SEE ABOVE CREATED TABLE

**ITEM #5: HOW TO RENAME DATABASE OR TABLE OR COLUMN?**

RIGHT CLICK THE REQUIRED OBJECT [DATABASE / TABLE / COLUMN] > RENAME

SERVER CANNOT BE RENAMED. BUT WE CAN DEFINE ALTERNATE NAMES = "ALIASES"

**ITEM #6: HOW TO INSERT DATA INTO ABOVE TABLE ?**

RIGHT CLICK ABOVE CREATED TABLE > EDIT TOP 200 ROWS > ENTER VALUE FOR EACH COLUMN. ONCE WE GET INTO NEXT ROW THE PREVIOUS ROW IS "AUTO SAVED".

**ITEM #7: HOW TO VERIFY ABOVE INSERTED TABLE DATA?**

RIGHT CLICK TABLE > SELECT TOP 1000 ROWS

**BASIC PRACTICE EXAMPLES USING SQL**

**RIGHT CLICK SERVER > NEW QUERY. THEN WE SEE ONE WHITE SCREEN [SESSION WINDOW] >**

WRITE BELOW SQL COMMANDS. SELECT (highlight) EACH STATEMENT > CLICK **EXECUTE** OR **F5**

**-- QUERY 1: HOW TO CREATE NEW DATABASE?**

CREATE DATABASE RetailDatabase

**-- QUERY 2: HOW TO CONNECT TO ABOVE DATABASE?**

USE RetailDatabase

**-- QUERY 3: HOW TO CREATE TABLE FOR DATA STORAGE?**

CREATE TABLE tblProducts

(

ProductID INTEGER, -- this column stores DIGITS : 0, -10, 99, etc..

ProductName CHARACTER(40), -- this column stores up to 40 CHARACTERS

Price INT, -- this column stores DIGITS : 0, -10, 99, etc..

Size Char(10) -- this column stores up to 10 CHARACTERS

)

**-- QUERY 4: HOW TO STORE DATA INTO ABOVE TABLE?**

INSERT INTO tblProducts VALUES (1001, 'CAPS', 10, 'S')

**-- QUERY 5: HOW TO INSERT MULTIPLE ROWS IN ABOVE TABLE?**

INSERT tblProducts VALUES (1002, 'BALLS', 11, 'S'), (1003, 'BALLS', 12, 'M');

**-- QUERY 6: HOW TO REPORT ABOVE INSERTED TABLE DATA?**

SELECT \* FROM tblProducts

-- **TABLE SCAN** : ORDER OF INSERTION = ORDER OF STORAGE = ORDER OF RETREIVAL

-- To verify Table Scan: Right Click Query > Include **LIVE Query Statistics**. Right Click Query > Execute