

SQL

Structured Query Language



What is SQL?

SQL is structured Query Language which is a computer language for storing, manipulating and retrieving data stored in relational database.

SQL is the standard language for Relation Database System. All relational database management systems like MySQL, MS Access, Oracle, SQL Server uses SQL as standard database language



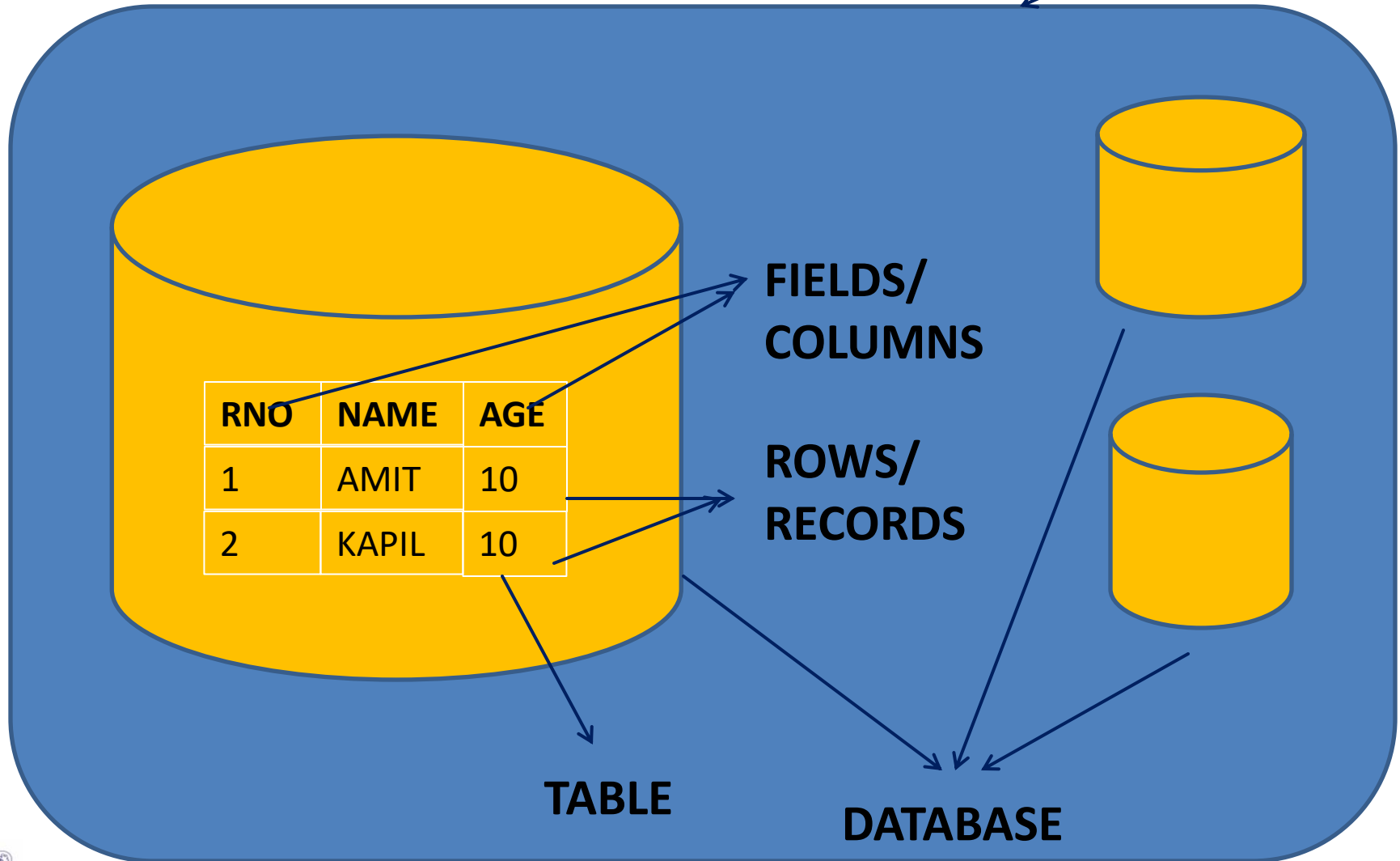
Why SQL?

- Allow users to access data in relational database management systems.
- Allow users to describe the data.
- Allow users to define the data in database and manipulate that data.
- Allow users to create and drop databases and tables.

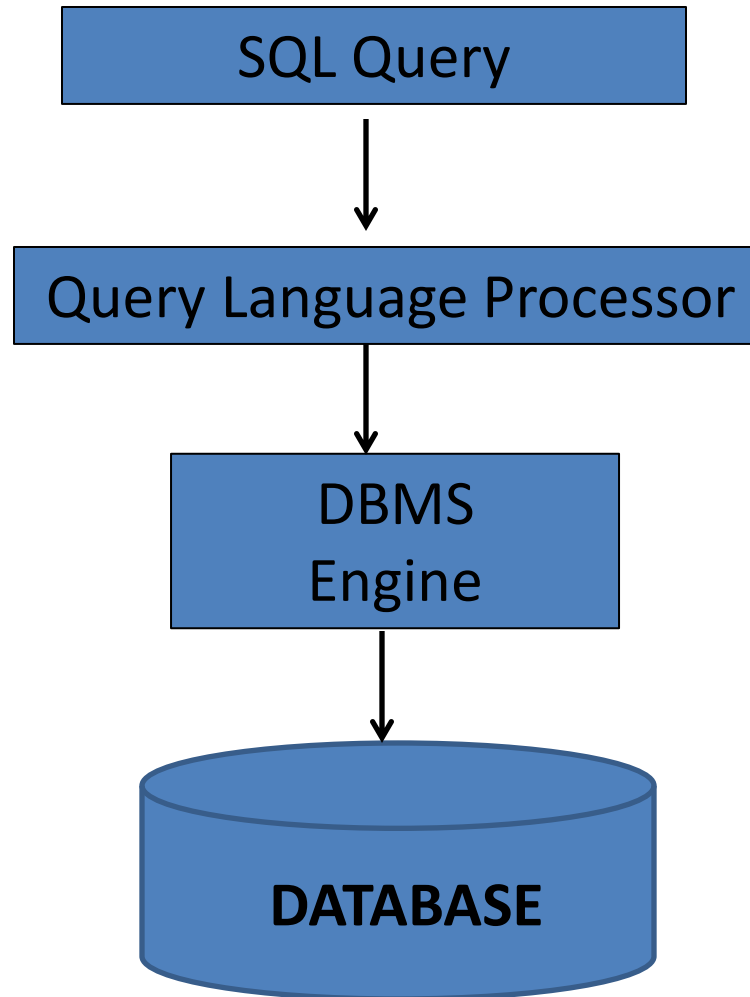


SQL Structure

RDBMS



SQL Process



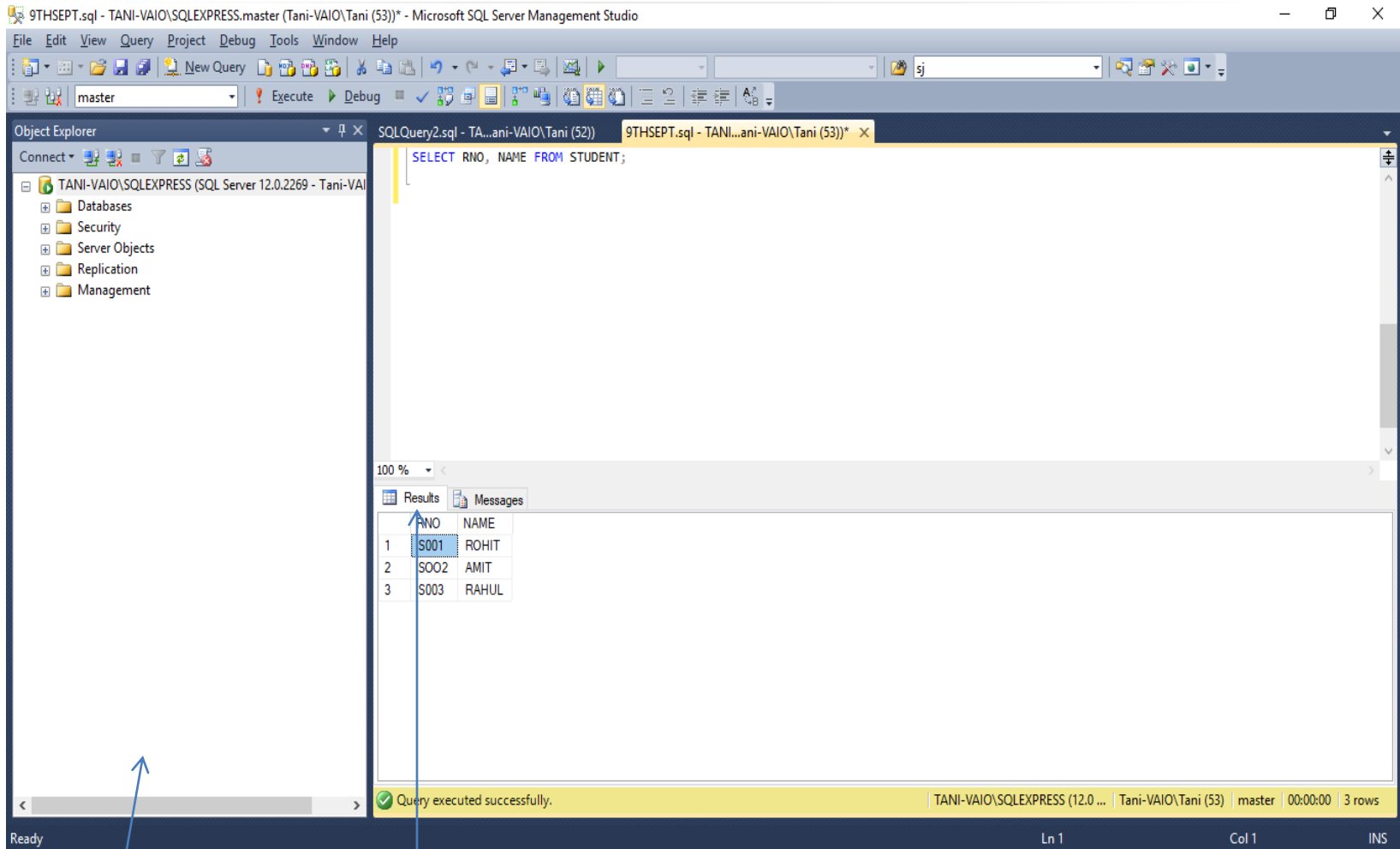
Introduction

- Data
- DataBase
- RDBMS
- SQL

SQL Environment

- Editor
- Result
- Message
- Object Explorer

SQL Environment



Object Explorer

Result Tab

Categories of SQL Statements

Data Definition Language
(DDL)

CREATE, ALTER, DROP

Data Manipulation
Language (DML*)

INSERT, UPDATE, DELETE

Data Query Language
(DQL)

SELECT

Data Control Language
(DCL)

GRANT , REVOKE

RDBMS Concepts

ID	NAME	AGE	ADDRESS	SALARY
1	Ramesh	32	Ahmedabad	2000.00
2	Khilan	25	Delhi	1500.00
3	kaushik	23	Kota	2000.00
4	Chaitali	25	Mumbai	6500.00
5	Hardik	27	Bhopal	8500.00
6	Komal	22	MP	4500.00
7	Muffy	24	Indore	10000.00

Create Statement

CREATE DATABASE Statement

CREATE DATABASE <DATABASE EID>;

create database test;

use test;

Create Statement

CREATE TABLE Statement

```
CREATE TABLE table_EID(  
column1 datatype (Size),  
column2 datatype (Size),  
column3 datatype,  
.....  
columnN datatype);
```

Create Statement

CREATE TABLE Statement

```
CREATE TABLE EMP (  
    RNO char (5),  
    EID CHAR (20),  
    AGE INT ,  
    CLASS CHAR(10),  
);
```



INSERT Statement

- INSERT INTO table_EID (column1, column2....columnN) VALUES (value1, value2....valueN);
- INSERT INTO TABLE_EID VALUES (value1,value2,value3,...valueN);

SQL SELECT Statement

- `SELECT column1, column2....columnN FROM table_EID`
- `SELECT * FROM table_EID;`

SQL Data Types

Numeric Data Types:

DATA TYPE	FROM	TO
Int	-2,147,483,648	2,147,483,647
Small Int	-32,768	32,767
Decimal	$-10^{38} + 1$	$10^{38} + 1$
Money	-922,337,203,685,477.5808	+922,337,203,685,477.5807
Float	$-1.79E + 308$	$1.79E + 308$

Character Data Types:

DATA TYPE	FROM	TO
Char	Char	Maximum length of 8,000 characters.
Varchar	Varchar	Maximum length of 8,000 characters.
Text	text	maximum length of 2,147,483,647 characters.



SQL Data Types

Date & Time Data Types:

DATA TYPE	FROM	TO
Datetime	Jan 1, 1753	Dec 31, 9999
smalldatetime	Jan 1, 1900	Jun 6, 2079
Date	Stores a date like June 30, 1991	
Time	Stores a time of day like 12:30 P.M.	

Misc Data Types:

DATA TYPE	FROM	TO
Image	Maximum length of 2,147,483,647 bytes. (Variable length Binary Data)	



ASSIGNMENT



- Table creation
- Inserting data
- Verifying the data

ASSIGNMENT - 1

Create a database DEMO

Create table EMP with the following fields:

EID NAME ADDR CITY DOB PHONE EMAIL id should be like 'E0001'

Insert 10 appropriate records in the Emp table

Use SELECT command to view the contents of emp table

Installing SQL Server

Click [SQL Server 2014](#) to download SQL Server 2014

Check the below two files from the list:

SERVER File: **Express 64BIT\SQLEXPRESS_x64_ENU.exe**

MANAGEMENT STUDIO File: **MgmtStudio 64BIT\SQLManagementStudio_x64_ENU.exe**

Click on NEXT the download will start automatically.

Once downloaded first install the Server file and then Management Studio file.

The installation wizard is simple you just need to follow on screen instructions.

Download link : <https://www.microsoft.com/en-in/download/details.aspx?id=42299>

SQL CLAUSES

SQL WHERE Clause:

```
SELECT column1, column2....columnN FROM  
table_EID WHERE CONDITION;
```

SQL LIKEClause:

```
SELECT column1, column2....columnN FROM  
table_EID WHERE column LIKE 'XXXX%'
```

```
SELECT FROM table_EID WHERE column LIKE 'XXXX_'
```

There are two wildcards used in conjunction with the LIKE operator:

1. The percent sign (%)
2. The underscore (_)

SQL TOP Clause:

```
SELECT TOP number | percent column_EID(s) FROM  
table_EID WHERE [condition]
```

SQL UPDATE Statement:

UPDATE table_EID

SET column1 = value1, column2 = value2
....columnN=valueN

[WHERE CONDITION];

SQL DELETE Statement:

- DELETE FROM table_EID WHERE {CONDITION};
- DELETE FROM table_EID
- DELETE table_EID

SQL ALTER TABLE Statement:

- ALTER TABLE table_EID
ADD
column_EID {data_type};
- ALTER TABLE table_EID
DROP Column
column_EID ;
- ALTER TABLE table_EID
ALTER Column
column_EID {data_type};

SQL DROP TABLE Statement:

- `DROP TABLE table_EID;`
- `DROP DATABASE database_EID;`

SQL TRUNCATE TABLE Statement :

```
TRUNCATE TABLE table_EID;
```

SQL COMMIT Statement:

COMMIT;

SQL ROLLBACK Statement :

ROLLBACK;

SQL OPERATORS

SQL Operators

- An operator is a reserved word or a character used primarily in an SQL statement's WHERE clause to perform operation(s), such as comparisons and arithmetic operations.
- Operators are used to specify conditions in an SQL statement

Type of Operators

- Arithmetic Operators (+, -, /, *, %)
- Comparison Operators (=, <>, !=, >, <, >=, <=, !>, !<)
- Logical Operators (AND, OR, NOT)
- Other Operators (BETWEEN, IN, LIKE, IS NULL, DISTINCT, EXISTS)

ASSIGNMENT



- Table creation
- Inserting data
- Verifying the data

ASSIGNMENT – 2

In the DEMO database create table EMP _SAL with the following fields:

- EID DEPT DESI DOJ SALARY
- Insert 7 appropriate records in the EMP _SAL table
- Use SELECT command to view the contents of EMP _SAL table

From the EMP table list all the employees with last name as Sharma.

Increase the salary of all Managers by 10%