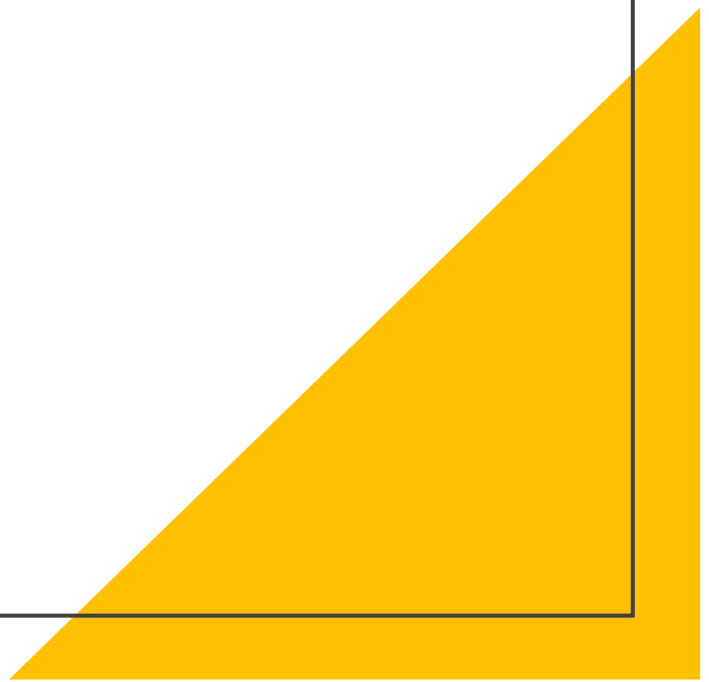
SYIT Sem III
Database Management System
Practical #1

SQL



Resources to Execute Practical's of DBMS

- Installation of Oracle 10 g Express Edition(https://vsitedumy.sharepoint.com/:u:/g/personal/rohini_desai_vsit_edu_in2/EUnbzbpfd5ZPtyUcBXjPZ7ABNHMI2liTK6ToI2Somv9new?e=SdJaoc)
- Livesql.oracle.com (https://livesql.oracle.com/apex/f?p=590:1000)

HISTORY OF SQL

1970–E. F. Codd develops relational database concept

1974-1979–System R with Sequel (later SQL) created at IBM Research Lab

1979–Oracle markets first relational DB with SQL

1981 – SQL/DS first available RDBMS system on DOS/VSE

Others followed: INGRES (1981), IDM (1982), DG/SGL (1984), Sybase (1986)

1986–ANSI SQL standard released

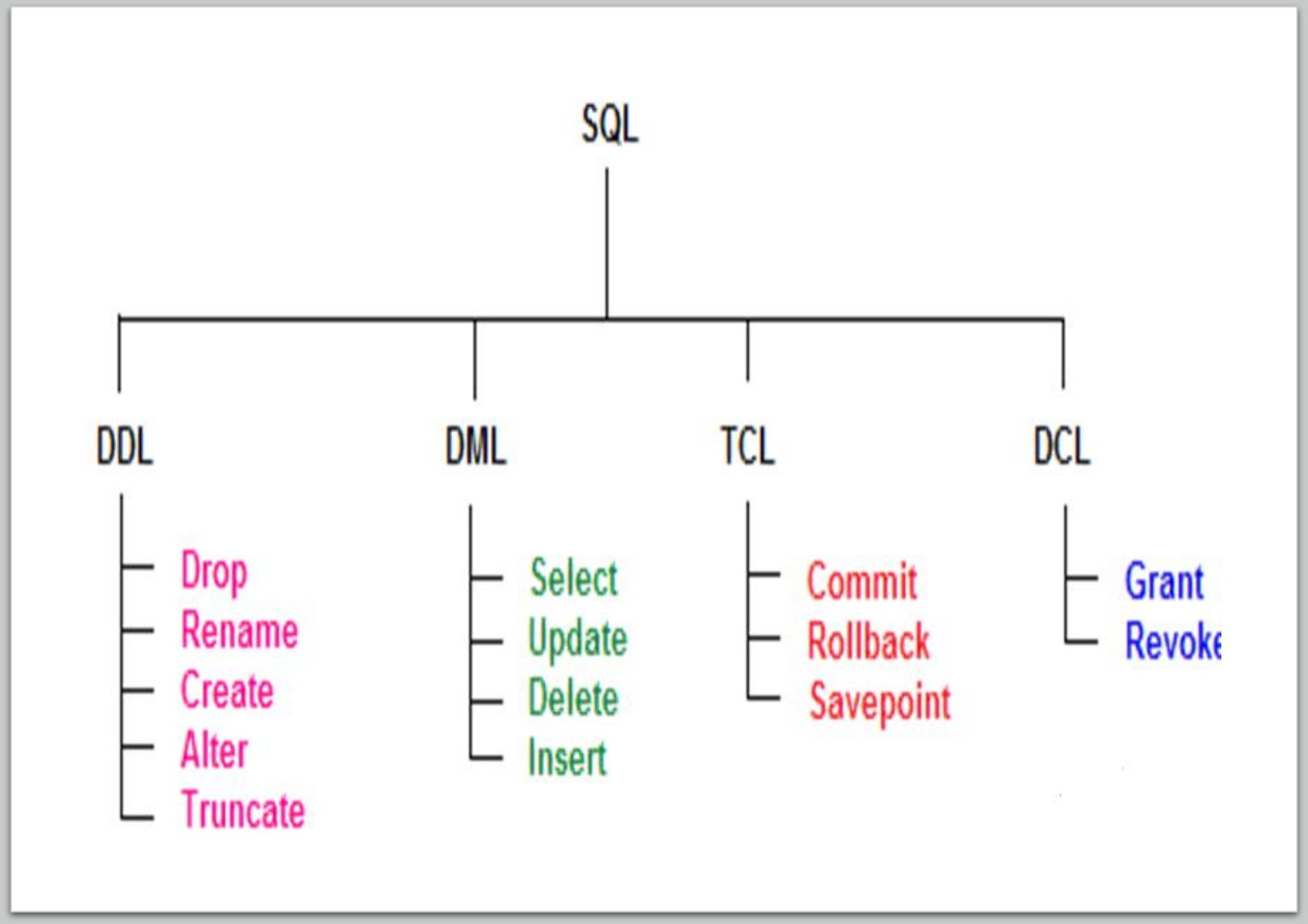
1989, 1992, 1999, 2003, 2006, 2008– Major ANSI standard updates

Current–SQL is supported by most major database vendors

INTRODUCTION TO SQL

- SQL stands for structured query language.
- SQL is used to communicate with a database.
- It is the standard language for relational database management systems.
- SQL statements are used to perform different operations on database like retrieval, insertion, updation and deletion of data.
- SQL was developed by IBM as a part of system R project in 1970.
- Initially it was called as Sequel.
- SQL is used in various Relational Database Management Systems(RDBMS). Some common RDBMS that use SQL are: MySQL, Oracle, Microsoft Access, Microsoft SQL server etc.

PARTS OF SQL


SQL
DDL
DML
TCL
DCL
Drop
Rename
Create
Alter
Truncate
Select
Update
Delete
Insert
Commit
Rollback
Savepoint
Grant
Revoke

DDL (Data Definition Language) :

Data Definition Language is used to define database structure or schema. DDL is also used to specify additional properties of the data. The storage structure and access methods used by the database system by a set of statements in a special type of DDL called a data storage and definition language.

CREATE : to create objects in database.

DESC : to describe the structure of database.

RENAME : rename an objects.

ALTER : alters the structure of database.

TRUNCATE: Delete all objects from the database.

DROP : delete structure and objects from database.

Tables creating, modifying, deleting

- Create table

Syntax: create table table_name(column 1 datatype(size), column 2 datatype(size), column 3 datatype(size), ……)

- Create New table from Existing table.

Syntax: create table table_name as select * from existing_table_name;

- Create new table having specific records but all fields from existing table.

Syntax: create table table_name as select * from existing_table_name where condition;

- Describe the structure of table.

Syntax: desc tablename;

- Adding new column in a table

Syntax: ALTER TABLE table_name ADD column_name datatype(size);

- Dropping column from table

Syntax: ALTER TABLE table_name DROP COLUMN coulmn_name;

- Modifying column of a table

Syntax: ALTER TABLE table_name MODIFY COLUMN column_name datatype(size);

- Deleting all records from table

Syntax: TRUNCATE TABLE tablename;

- Deleting Table

Syntax: drop table tablename;

Basic Data Types

The SQL standard supports a variety of built-in types, including:

- **char**(*n*): A fixed-length character string with user-specified length *n*. The full form, **character**, can be used instead.
- **varchar**(*n*): A variable-length character string with user-specified maximum length *n*. The full form, **character varying**, is equivalent.
- **int**: An integer (a finite subset of the integers that is machine dependent). The full form, **integer**, is equivalent.
- **smallint**: A small integer (a machine-dependent subset of the integer type).

Basic Data Types Contd..

- **numeric**(*p, d*): A fixed-point number with user-specified precision. The number consists of *p* digits (plus a sign), and *d* of the *p* digits are to the right of the decimal point. Thus, **numeric**(3,1) allows 44.5 to be stored exactly, but neither 444.5 or 0.32 can be stored exactly in a field of this type.
- **real, double precision**: Floating-point and double-precision floating-point numbers with machine-dependent precision.
- **float**(*n*): A floating-point number, with precision of at least *n* digits.

SQL Data Types

TABLE 6-2 Sample SQL Data Types

String	CHARACTER (CHAR)	Stores string values containing any characters in a character set. CHAR is defined to be a fixed length.
	CHARACTER VARYING (VARCHAR or VARCHAR2)	Stores string values containing any characters in a character set but of definable variable length.
	BINARY LARGE OBJECT (BLOB)	Stores binary string values in hexadecimal format. BLOB is defined to be a variable length. (Oracle also has CLOB and NCLOB, as well as BFILE for storing unstructured data outside the database.)
Number	NUMERIC	Stores exact numbers with a defined precision and scale.
	INTEGER (INT)	Stores exact numbers with a predefined precision and scale of zero.
Temporal	TIMESTAMP TIMESTAMP WITH LOCAL TIME ZONE	Stores a moment an event occurs, using a definable fraction-of-a-second precision.Value adjusted to the user's session time zone (available in Oracle and MySQL)
Boolean	BOOLEAN	Stores truth values: TRUE, FALSE, or UNKNOWN.

i)a. Create a table Student to enter personal details.

Syntax:

```
Create table Student(
StudentID int,
LastName varchar(255),
FirstName varchar(255),
Address varchar(255),
Contact_no int);
```

i)b. Create an EMPLOYEE table to store the details.

Syntax:

```
Create table EMPLOYEE(
ID   INT,
NAME VARCHAR (20),
AGE  INT,
ADDRESS  CHAR (25) ,
SALARY   DECIMAL (18, 2));
```

ii) Desc Command

a. Describe the structure of Student table.

Syntax: desc Student;

b. Give the details of Employee table with its attributes with its datatypes.

Syntax: desc Employee;

iii) ALTER Command

a. Alter table STUDENT add a new column middle name into it .

Syntax: Alter table Student add middle_name varchar(30);

b. Change the size of address field from 255 to 30.

Syntax: Alter table Student modify address varchar(30);

c. Remove the column middle name from the student table

Syntax: Alter table student drop column middle_name;

iv) RENAME Command

a. Change the table name Student to Student_Details.

Syntax: rename Student to Student_Details;

b. Change the table name Employee to Emp.

Syntax: rename Employee to Emp;

v) Truncate Command

a. Delete all the rows from Student table.

Syntax: truncate table Student;

b. Delete the all objects of Employee table.

Syntax: truncate table Employee;

vi) Drop Command

a. Delete the entire table Student from the database.

Syntax: drop table Student;

b. Remove the Employee entity set from the database.

Syntax: drop table Employee;

Exercise Questions

1. Create a following table called “Client_Master”. Perform all DDL Commands on it.

Column Name	Data Type	Size
CLIENTNO	Char	6
NAME	Char	20
ADDRESS	Char	20
CITY	Char	15
PINCODE	Number	6
STATE	Char	15
BALDUE	Number	10,2

2. Create a following table called “Product_Master”. Perform all DDL commands on it.

Column Name	Data Type	Size
PRODUCTNO	Char	6
DESCRIPTION	Char	15
QTYONHAND	Number	8
REORDERLVL	Number	8
SELLPRICE	Number	8,2
COSTPRICE	Number	8,2


Thank
you