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# **Assignment 2**

**Title:-** Demonstrate SQL, DDL and DML Commands.

**Problem Statement**: Design and Develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index, Sequence, Synonym, different constraints etc. Design at least 10 SQL queries for suitable database application using SQL DML statements: Insert, Select, Update, Delete with operators, functions, and set operator.

**Objective**: To learn all type Data Definition Language commands and Data Manipulation Language commands and their uses.

**Theory**:- Introduction to SQL:

- SQL stands for Structured Query Language SQL lets you access and manipulate databases.
- SQL is an ANSI (American National Standards Institute) standard
   Commands of SQL are grouped into four languages.
- 1) DDL:- DDL is abbreviation of Data Definition Language. It is used to create and modify the structure of database objects in database. Examples: CREATE, ALTER, DROP, RENAME, TRUNCATE statements.

- 2) DML:- DML is abbreviation of Data Manipulation Language. It is used to retrieve, store, modify, delete, insert and update data in database. Examples: SELECT, UPDATE, INSERT, DELETE statements.
- 3) DCL: DCL is abbreviation of Data Control Language. It is used to create roles, permissions, and referential integrity as well it is used to control access to database by securing it. Examples: GRANT, REVOKE statements.
- 4) TCL:- TCL is abbreviation of Transactional Control Language. It is used to manage different transactions occurring within a database. Examples: COMMIT, ROLLBACK statements.

### • Data Definition Language (DDL):-

- Data definition Language (DDL) is used to create, rename, alter, modify, drop, replace, and delete tables, Indexes, Views, and comment on database objects; and establish a default database.
- The DDL part of SQL permits database tables to be created or deleted. It also define indexes (keys), specify links between tables, and impose constraints between tables.
- The most important DDL statements in SQL are:
- CREATE TABLE- Creates a new table.
- ALTER TABLE- Modifies a table.
- DROP TABLE- Deletes a table.
- TRUNCATE -Use to truncate (delete all rows) a table.
- CREATE INDEX- Creates an index (search key).
- DROP INDEX- Deletes an index.

- Data Manipulation Language (DML):-
- DML command statements are used for managing data in database. DML commands are not auto-committed. It means changes made by DML command are not permanent to database, it can be rolled back.
- 1) **INSERT** command Insert command is used to insert data into a table. Following is its general syntax, INSERT into table-name values(data1,data2,...) Lets see an example, Consider a table Student with following fields. S\_id S\_Name age INSERT into Student values(101,'Adam',15);
- The above command will insert a record into Student table. S\_id S\_Name age 101 Adam 15.
- 2) **UPDATE** command Update command is used to update a row of a table. Following is its general syntax, UPDATE table-name set column-name = value where condition; Lets see an example, update Student set age=18 where s\_id=102; Example to Update multiple columns UPDATE Student set s\_name='Abhi',age=17 where s\_id=103;
- 3) **DELETE** command Delete command is used to delete data from a table. Delete command can also be used with condition to delete a particular row. Following is its general syntax, DELETE from table-name; Example to Delete all Records from a Table DELETE from Student; The above command will delete all the records from Student table. Example to Delete a particular Record from a Table Consider Student table DELETE from Student where s id=103;

**Outcome**:- We have performed the various queries of DDL and DML commands.

## Code and output :-

### 1) **DDL**:-

```
mysql> use db1;
Database changed
mysql> show tables;
Empty set (0.02 sec)
mysql> create table client master(client no int,client name
varchar(20),address
varchar(50),city varchar(10),pincode int,state varchar(20), bal_due
float, primary
key(client no));
Query OK, 0 rows affected (0.51 sec)
mysql> select * from client master;
Empty set (0.02 sec)
mysql> insert into client master
values('001','abhi','nasik','nasik','422004','MH','5000');
Query OK, 1 row affected (0.14 sec)
mysql> insert into client master
values('002','piyu','nasik','nasik','422004','MH','10000');
Query OK, 1 row affected (0.09 sec)
mysql> insert into client master
values('003','abd','nasik','nasik','422003','MH','5000');
Query OK, 1 row affected (0.06 sec)
mysql> insert into client_master
values('004','abd','nasik','nasik','422003','MH','5000');
```

```
Query OK, 1 row affected (0.05 sec)
mysql> insert into client master
values('005','abc','nasik','nasik','422003','MH','5000');
Query OK, 1 row affected (0.06 sec)
mysql> select * from client master;
+----+
| client no | client name | address | city
| bal_due |
| pincode | state
+----+
| 1 | abhi
5000 | | nasik | nasik | 422004 | MH
| 2 | piyu
10000 | | nasik | nasik | 422004 | MH
| 3 | abd
5000 | | nasik | nasik | 422003 | MH
| 4 | abd
5000 | | nasik | nasik | 422003 | MH
```

```
| 5 | abc
5000 | | nasik | nasik | 422003 | MH
+-----
+----+
5 rows in set (0.00 sec)
mysql> select client name,client no from client master;
-----+
| client name | client no |
+----+
| abhi | 1 |
| piyu | 2 |
| abd | 3 |
| abd | 4 |
| abc | 5 |+----+
5 rows in set (0.00 sec)
mysql> insert into client_master
values('006','xyz','nasik','nasik','422004','MH','6000');
Query OK, 1 row affected (0.15 sec)
mysql> select client name, client no from client master;
+-----+
| client_name | client_no |
+-----+
| abhi | 1 |
```

```
| piyu | 2 |
| abd | 3 |
| abd | 4 |
| abc | 5 |
| xyz | 6 |
6 rows in set (0.08 sec)
mysql> create table product_master(product_no int,description
varchar(20),profit per
float,unit_measure varchar(10),quantity int,reorder int,sell_price
float,cost price
float,primary key(product no));
Query OK, 0 rows affected (0.77 sec)
mysql> insert into product master
values('001','shampoo','1','one','4','2','10','15');
Query OK, 1 row affected (0.17 sec)
mysql> insert into product master
values('002','oil','13','one','4','2','11','16');
Query OK, 1 row affected (0.06 sec)
mysql> alter table client_master add telephone_no int;
Query OK, 0 rows affected (1.04 sec)
Records: 0
Duplicates: 0
Warnings: 0
mysql> select * from client master;
```

```
+-----
| client_no | client_name | address | city
| bal_due | telephone_no |
| pincode | state
| 1 | abhi
5000 |
| 2 | piyu
10000 |
| 3 | abd
5000 |
| 4 | abd
5000 |
| 5 | abc
5000 |
| 6 | xyz
```

```
6000 I
| nasik
| nasik | 422004 | MH
| nasik | 422004 | MH
| nasik | 422003 | MH
| nasik | 422003 | MH
| nasik | 422003 | MH
| nasik | 422004 | MH
NULL |
| nasik
NULL |
    -----+-----+-----
+----+
6 rows in set (0.00 sec)
mysql> select * from product_master;
```

```
| product_no | description | profit_per | unit_measure |
quantity | reorder | sell_price | cost_price |
4 |
1 | shampoo
2 |
10 |
1 | one
15 |
П
4 |
2 | oil
2 |
11 |
13 | one
16 |
```

```
-----+
2 rows in set (0.00 sec)
mysql> create index client_search on client_master(client_no);
Query OK, 0 rows affected (0.42 sec)
Records: 0
Duplicates: 0
Warnings: 0
mysql> create table auto(roll no int NOT NULL AUTO INCREMENT, name
varchar(20),primary key(roll no));
Query OK, 0 rows affected (0.36 sec)
mysql> select * from auto;
Empty set (0.01 sec)
mysql> insert into auto values('1','abc');
Query OK, 1 row affected (0.07 sec)
mysql> insert into auto values('2','adc');
Query OK, 1 row affected (0.08 sec)
mysql> alter table auto auto increment=100;
Query OK, 0 rows affected (0.07 sec)
Records: 0
Duplicates: 0
mysql> select * from auto;
```

```
| roll no | name |
+----+
| 1 | abc |
| 2 | adc |
Warnings: 0+----+
2 rows in set (0.00 sec)
mysql> insert into auto values(null, 'abd');
Query OK, 1 row affected (0.05 sec)
mysql> select * from auto;
+----+
| roll_no | name |
+------+
| 1 | abc |
| 2 | adc |
| 100 | abd |
+----+
3 rows in set (0.00 sec)
mysql> insert into auto values(null, 'reh');
Query OK, 1 row affected (0.06 sec)
mysql> select * from auto;
+----+
| roll no | name |
+----+
```

```
| 1 | abc |
| 2 | adc |
| 100 | abd |
| 101 | reh |
+----+
4 rows in set (0.00 sec)
mysql> update client master set client name="nut" where
client no='4';
Query OK, 1 row affected (0.09 sec)
Rows matched: 1
Changed: 1
Warnings: 0
mysql> select * from client master;
+-----+
| client_no | client_name | address | city
| bal_due | telephone_no |
| pincode | state
+----+
| 1 | abhi
5000 | NULL |
| nasik
```

```
| 2 | piyu
10000 | NULL |
| 3 | abd
5000 | NULL |
| 4 | nut
5000 | NULL |
| 5 | abc
5000 | NULL |
| 6 | xyz
6000 | NULL |
| nasik
| nasik
| nasik
| nasik
| nasik
| nasik | 422004 | MH
| nasik | 422004 | MH
| nasik | 422003 | MH
```

```
| nasik | 422003 | MH
| nasik | 422003 | MH
| nasik | 422004 | MH
+----+
6 rows in set (0.00 sec)
mysql> create index client find on client master(client name,city);
affected (0.41 sec)
Records: 0
Duplicates: 0
mysql> show tables;
+----+
| Tables in Abhi |
+----+
| auto
Warnings: 0
Query OK, 0 rows| client master
| product master |
+----+
3 rows in set (0.08 sec)
mysql> select * from product_master;
```

```
-----+
| product_no | description | profit_per | unit_measure |
quantity | reorder | sell_price | cost_price |
4 | 1 | shampoo
2 |
10 | 1 | one
15 | |
4 | 2 | oil
2 | 13 | one
16 | |
11 |
+-----
2 rows in set (0.00 sec)
mysql> desc product_master;
```

```
| Field
| Type
| Null | Key | Default | Extra |
  -----
| product no | int(11)
| description | profit per
I NO
| PRI | NULL | |
| float | YES | | NULL | |
| unit measure | varchar(10) | YES |  | NULL | |
| sell price | float | YES | | NULL | |
| cost price | float | YES | | NULL | |
  8 rows in set (0.05 sec)
mysql> alter table client master rename to c master;
Query OK, 0 rows affected (0.25 sec)
mysql> insert into product master
values('003','nutela','15','three','40','5','110','123');
Query OK, 1 row affected (0.05 sec)
mysql> alter table product master modify sell price float(10,2);
Query OK, 0 rows affected (0.06 sec)
```

```
Records: 0
Duplicates: 0
Warnings: 0
mysql> desc product master;
+----+
| Field
| Type
| Null | Key | Default | Extra |
+----+
| product no | int(11)
| description | profit_per
I NO
| PRI | NULL | |
| float | YES | | NULL | |
| unit_measure | varchar(10) | YES |  | NULL | |
| reorder | int(11) | YES |  | NULL | |
| cost price | float | | NULL | |
| YES
-----
8 rows in set (0.00 sec)
```

```
mysql> create view client as select client no, client name from
c master;
Query OK, 0 rows affected (0.05 sec)
mysql> select * from client;
+-----+ client no | client name |
+-----+
| 5 | abc |
| 3 | abd |
| 1 | abhi |
| 4 | nut |
| 2 | piyu |
| 6 | xyz |
+-----+
6 rows in set (0.23 sec)
mysql>
```

## 2) DML:-

```
mysql> show databases;
+-----+
| Database
|
+-----+
```

```
| information schema |
| A |
| db1 |
| PVG |
| RENUKA |
| mysql |
| nishant |
| performance_schema |
| renuka |
| sys |
| time |
 -----+
11 rows in set (0.11 sec)
mysql> use db2;
Database changed
mysql> create table Employee(emp_no int,emp_name varchar(20),date
date, position
varchar(20));
Query OK, 0 rows affected (0.75 sec)
mysql> alter table Employee add salary int;
Query OK, 0 rows affected (0.68 sec)
Records: 0
Duplicates: 0
Warnings: 0
```

```
mysql> insert into Employee
values('01','abc','2018-07-11','clerk','50000');
Query OK, 1 row affected (0.08 sec)
mysql> insert into Employee
values('02','abhi','2018-05-11','ceo','150000');
Query OK, 1 row affected (0.08 sec)
mysql> insert into Employee
values('03','xyz','2018-05-21','hr','100000');
Query OK, 1 row affected (0.04 sec)
mysql> insert into Employee
values('04','aqwgy','2018-06-21','te','10000');
Query OK, 1 row affected (0.03 sec)
mysql> insert into Employee
values('05','sfhjfh','2018-07-21','gt','12000');
Query OK, 1 row affected (0.03 sec)
mysql> create table TE(emp no int,emp namevarchar(20),join date
date, position
varchar(20),salary int);
Query OK, 0 rows affected (0.36 sec)
mysql> insert into TE
values('01','abc','2018-07-11','clerk','50000');
Query OK, 1 row affected (0.03 sec)
mysql> insert into TE
values('02','abhi','2018-05-11','ceo','150000');
Query OK, 1 row affected (0.04 sec)
mysql> insert into TE values('03','xyz','2018-05-21','hr','100000');
Query OK, 1 row affected (0.04 sec)
```

```
mysql> insert into TE
values('04','aqwgy','2018-06-21','te','10000');
Query OK, 1 row affected (0.05 sec)
mysql> insert into TE
values('05','sfhjfh','2018-07-21','gt','12000');
Query OK, 1 row affected (0.04 sec)
mysql> select * from TE;
+----+---+----+
| emp_no | emp_name | join_date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 I
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | sfhjfh | 2018-07-21 | gt |
12000 I
   ----+----+
5 rows in set (0.04 sec)
mysql> select * from Employee;
+----+
| emp no | emp name | date
```

```
| position | salary |
<del>|-----</del>
| 1 | abc | 2018-07-11 | clerk |
50000 I
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | sfhjfh | 2018-07-21 | gt |
12000 |
+----
5 rows in set (0.00 sec)
mysql> update TE set emp_name='gjgj' where emp_no='5';
Query OK, 1 row affected (0.13 sec)
Rows matched: 1
Changed: 1
Warnings: 0
mysql> select * from TE;
+----+
| emp no | emp name | join date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
```

```
50000 |
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 I
| 5 | gjgj | 2018-07-21 | gt |
12000 |
-----
5 rows in set (0.00 sec)
mysql> select * from Employee union select * from TE;
+----+
| emp no | emp name | date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 I
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 I
| 5 | sfhjfh | 2018-07-21 | gt |
12000 I
| 5 | gjgj | 2018-07-21 | gt |
```

```
12000 |
+----+---+----+----+
6 rows in set (0.01 sec)
mysql> select * from Employee union all select * from TE;
emp_name | date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 |
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 I
| 5 | sfhjfh | 2018-07-21 | gt |
12000 |
| 1 | abc | 2018-07-11 | clerk |
50000 I
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | gjgj | 2018-07-21 | gt |
12000 |
```

```
-----
10 rows in set (0.00 sec)
mysql> select distinct emp no from Employee where emp no in(select
emp no from TE);
+----+
| emp_no |
+----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
+----+
5 rows in set (0.03 sec)
mysql> select * from Employee;
+----+
| emp_no | emp_name | date
| position | salary |
2018-07-11 | clerk |
50000 |
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
```

```
10000 |
| 5 | sfhjfh | 2018-07-21 | gt |
12000 |
+----+
5 rows in set (0.00 sec)
mysql> select * from TE;
+----+
| emp_no | emp_name | join_date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 |
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | gjgj | 2018-07-21 | gt |
12000 |
+----+
5 rows in set (0.00 sec)
mysql> select distinct emp_name from Employee where emp_name
in(select emp name from
TE);
+----+
```

```
| emp_name |
+----+
| abc |
| abhi |
| xyz |
| aqwgy |
+----+
4 rows in set (0.00 sec)
mysql> select * from Employee;
+----+
| emp_no | emp_name | date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 |
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | sfhjfh | 2018-07-21 | gt |
12000 |
+----+
5 rows in set (0.00 sec)
```

```
mysql> select * from TE;
+----+
| emp_no | emp_name | join_date
| position | salary |
+----+
| 1 | abc | 2018-07-11 | clerk |
50000 I
| 2 | abhi | 2018-05-11 | ceo | 150000 |
| 3 | xyz | 2018-05-21 | hr | 100000 |
| 4 | aqwgy | 2018-06-21 | te |
10000 |
| 5 | gjgj | 2018-07-21 | gt |
12000 |
+----+
5 rows in set (0.00 sec)
mysql> select distinct emp_name from Employee where emp_name
in(select emp_name from
TE);
+----+
| emp_name |
+----+
| abc |
| abhi |
| xyz || aqwgy
```

```
+----+
4 rows in set (0.00 sec)
mysql> select min(salary) from Employee;
+----+
| min(salary) |
+----+
10000 |
+----+
1 row in set (0.04 sec)
mysql> select max(salary) from Employee;
+----+
| max(salary) |
+----+
150000 |
+----+
1 row in set (0.00 sec)
mysql> select sum(salary) from Employee;
+----+
| sum(salary) |
```

```
+----+
322000 |
+----+
1 row in set (0.00 sec)
mysql> select avg(salary) from Employee;
+----+
| avg(salary) |
+----+|
64400.0000 |
+----+
1 row in set (0.00 sec)
mysql> select count(salary) from Employee;
+----+
| count(salary) |
+----+
5 I
+----+
1 row in set (0.00 sec)
mysql> select lcase(emp_no) from Employee;
+----+
| lcase(emp_no) |
```

```
+----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
+----+
5 rows in set (0.00 sec)
mysql> select ucase(emp_no) from Employee;
+----+
| ucase(emp_no) |
+----+
| 1 |
| 2 |
| 3 |
| 4 || 5
+----+
5 rows in set (0.00 sec)
mysql> select lcase(salary) from Employee;
+----+
| lcase(salary) |
```

```
| 50000 |
| 150000 |
| 100000 |
| 10000 |
| 12000 |
+----+
5 rows in set (0.00 sec)
mysql> select mid(emp_no,1,3) from Employee;
+----+
| mid(emp no,1,3) |
+----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
+----+
5 rows in set (0.01 sec)
mysql> select mid(emp_no,1,3) from Employee;
+----+
| mid(emp_no,1,3) |
+----+| 1 |
| 2 |
```

```
| 3 |
| 4 |
| 5 |
+----+
5 rows in set (0.00 sec)
mysql> select mid(emp_no,1,5) from Employee;
+----+
| mid(emp_no,1,5) |
+----+
| 1 |
| 2 |
| 3 |
| 4 |
| 5 |
+----+
5 rows in set (0.00 sec)
mysql> select mid(salary,1,3) from Employee;
+----+
| mid(salary,1,3) |
+----+
| 500 |
| 150 |
| 100 |
```

```
| 100 |
| 120 |
+----+
5 rows in set (0.00 sec)
mysql> select mid(salary,1,5) from Employee;
+----+
| mid(salary,1,5) |
+----+
| 50000 |
| 15000 |
| 10000 |
| 10000 |
| 12000 |
+----+
5 rows in set (0.00 sec)
mysql> select mid(emp_no,1,2) from Employee;
+----+
| mid(emp no,1,2) |
+----+
| 1 |
| 2 |
| 3 |
| 4 |
```

```
| 5 |
+-----+
5 rows in set (0.00 sec)
```

**Conclusion**:- Thus we have studied to use & implement various DDL and DML queries in SQL.