GROUP A – LAB EXPERIMENT NO. 1

TITLE: SQL Queries

- Design and Develop SQL DDL statements which demonstrate the use of SQL objects such as Table, View, Index, Sequence, Synonym, different constraints etc.
- Write at least 10 SQL queries on the suitable database application using SQL DML statements. Note: Instructor will design the queries which demonstrate the use of concepts like Insert, Select, Update, Delete with operators, functions, and set operator etc.

OUTPUT:

*** DDL ***

1. CREATE TABLE

//first create database

```
mysql> CREATE DATABASE sneha;
mysql> USE sneha;
Database changed
```

//now create new table

```
mysql> CREATE TABLE ORDERS (
   -> ORDERID INT AUTO_INCREMENT PRIMARY KEY,
   -> CUSTOMER_NAME VARCHAR(200),
   -> ITEMS_ORDERED VARCHAR(300),
   -> TOTAL_AMT INT,
   -> STATUS VARCHAR(100)
   -> );
```

//insert query

```
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('SNEHA','PANEER MANCHURIAN X1', 500, 'PAID');
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('JUI','ROTI X3, ALOO MATAR X1', 800, 'PENDING');
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('ANU','BIRYANI X1, ICECREAM X2', 2000, 'PAID');
```

```
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('KIRAN','COFFEE X4', 200, 'CANCELLED');
```

//display table with input data

```
mysql> SELECT * FROM ORDERS;
+---------+---------------+------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    |
+---------+---------------+------------------------+-----------+-----------+
|       1 | SNEHA         | PANEER MANCHURIAN X1   |       500 | PAID      |
|       2 | JUI           | ROTI X3, ALOO MATAR X1 |       800 | PENDING   |
|       3 | ANU           | BIRYANI X1, ICECREAM X2|      2000 | PAID      |
|       4 | KIRAN         | COFFEE X4              |       200 | CANCELLED |
+---------+---------------+------------------------+-----------+-----------+
```

//creating new table from existing table

```
mysql> CREATE TABLE ORDERS_2 AS
   -> SELECT ORDERID, CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS
   -> FROM ORDERS;
mysql> SELECT * FROM ORDERS_2;
+---------+---------------+------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    |
+---------+---------------+------------------------+-----------+-----------+
|       1 | SNEHA         | PANEER MANCHURIAN X1   |       500 | PAID      |
|       2 | JUI           | ROTI X3, ALOO MATAR X1 |       800 | PENDING   |
|       3 | ANU           | BIRYANI X1, ICECREAM X2|      2000 | PAID      |
|       4 | KIRAN         | COFFEE X4              |       200 | CANCELLED |
+---------+---------------+------------------------+-----------+-----------+
```

//creating new table having specific fields but all records from existing table

```
mysql> CREATE TABLE NEW_TABLE AS
   -> SELECT CUSTOMER_NAME, TOTAL_AMT, STATUS
   -> FROM ORDERS;
```

```
mysql> SELECT * FROM NEW_TABLE;
+---------------+-----------+-----------+
| CUSTOMER_NAME | TOTAL_AMT | STATUS    |
+---------------+-----------+-----------+
| SNEHA         |       500 | PAID      |
| JUI           |       800 | PENDING   |
| ANU           |      2000 | PAID      |
| KIRAN         |       200 | CANCELLED |
+---------------+-----------+-----------+
```

//creating new table having specific records but all field from existing table

```
mysql> CREATE TABLE NEW_TABLE2 AS
    -> SELECT ORDERID, CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS
    -> FROM ORDERS
    -> WHERE CUSTOMER_NAME = 'SNEHA';
mysql> SELECT * FROM NEW_TABLE2;
+---------+---------------+---------------------+-----------+--------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED       | TOTAL_AMT | STATUS |
+---------+---------------+---------------------+-----------+--------+
|       1 | SNEHA         | PANEER MANCHURIAN X1 |       500 | PAID   |
+---------+---------------+---------------------+-----------+--------+
```

2. MODIFYING TABLE

//ALTER TABLE query is used to modify the structure of the table

//add new field customer_id

```
mysql> ALTER TABLE ORDERS ADD CUSTOMER_ID INT(20);
mysql> UPDATE ORDERS SET CUSTOMER_ID=123 WHERE CUSTOMER_NAME='SNEHA';
mysql> UPDATE ORDERS SET CUSTOMER_ID=456 WHERE CUSTOMER_NAME='JUI';
mysql> UPDATE ORDERS SET CUSTOMER_ID=789 WHERE CUSTOMER_NAME='ANU';
mysql> UPDATE ORDERS SET CUSTOMER_ID=102 WHERE CUSTOMER_NAME='KIRAN';
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
```

```
   -> VALUES('TEJAS','SANDWICH X2', 100, 'PENDING');
mysql> UPDATE ORDERS SET CUSTOMER_ID=103 WHERE CUSTOMER_NAME='TEJAS';
mysql> SELECT * FROM ORDERS;
+---------+---------------+------------------------+-----------+-----------+-------------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    | CUSTOMER_ID
|
+---------+---------------+------------------------+-----------+-----------+-------------+
|       1 | SNEHA         | PANEER MANCHURIAN X1   |       500 | PAID      |         123 |
|       2 | JUI           | ROTI X3, ALOO MATAR X1 |       800 | PENDING   |         456 |
|       3 | ANU           | BIRYANI X1, ICECREAM X2|      2000 | PAID      |         789 |
|       4 | KIRAN         | COFFEE X4              |       200 | CANCELLED |         102 |
|       5 | TEJAS         | SANDWICH X2            |       100 | PENDING   |         103 |
+---------+---------------+------------------------+-----------+-----------+-------------+
5 rows in set (0.00 sec)
```

//fetch 2 columns

```
mysql> SELECT CUSTOMER_ID, TOTAL_AMT FROM ORDERS;
+-------------+-----------+
| CUSTOMER_ID | TOTAL_AMT |
+-------------+-----------+
|         123 |       500 |
|         456 |       800 |
|         789 |      2000 |
|         102 |       200 |
|         103 |       100 |
+-------------+-----------+
5 rows in set (0.00 sec)
```

//where clause

```
mysql> SELECT CUSTOMER_ID, TOTAL_AMT FROM ORDERS WHERE TOTAL_AMT >500;
+-------------+-----------+
```

| CUSTOMER_ID | TOTAL_AMT |

+-------------+-----------+

| 456 | 800 |

| 789 | 2000 |

+-------------+-----------+

//fetch data of 'pending' status

mysql> SELECT ORDERID, CUSTOMER_ID, TOTAL_AMT FROM ORDERS WHERE STATUS = 'PENDING';

+---------+-------------+-----------+

| ORDERID | CUSTOMER_ID | TOTAL_AMT |

+---------+-------------+-----------+

| 2 | 456 | 800 |

| 5 | 103 | 100 |

+---------+-------------+-----------+

//drop column from the table

mysql> ALTER TABLE ORDERS

  -> DROP COLUMN CUSTOMER_ID;

//modifying column from table

mysql> ALTER TABLE ORDERS MODIFY COLUMN TOTAL_AMT INT(10);

mysql> SELECT * FROM ORDERS;

+---------+---------------+------------------------+-----------+-----------+

| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED | TOTAL_AMT | STATUS |

+---------+---------------+------------------------+-----------+-----------+

| 1 | SNEHA | PANEER MANCHURIAN X1 | 500 | PAID |

| 2 | JUI | ROTI X3, ALOO MATAR X1 | 800 | PENDING |

| 3 | ANU | BIRYANI X1, ICECREAM X2 | 2000 | PAID |

| 4 | KIRAN | COFFEE X4 | 200 | CANCELLED |

| 5 | TEJAS | SANDWICH X2 | 100 | PENDING |

+---------+---------------+------------------------+-----------+-----------+

3. RENAMING TABLE

```
mysql> RENAME TABLE ORDERS TO ORDER_DETAILS;

mysql> DESC ORDER_DETAILS;

+---------------+-------------+------+-----+---------+----------------+
| Field         | Type        | Null | Key | Default | Extra          |
+---------------+-------------+------+-----+---------+----------------+
| ORDERID       | int         | NO   | PRI | NULL    | auto_increment |
| CUSTOMER_NAME | varchar(200) | YES  |     | NULL    |                |
| ITEMS_ORDERED | varchar(300) | YES  |     | NULL    |                |
| TOTAL_AMT     | int         | YES  |     | NULL    |                |
| STATUS        | varchar(100) | YES  |     | NULL    |                |
+---------------+-------------+------+-----+---------+----------------+
```

4. DROP TABLE

```
mysql> DROP TABLE ORDERS;

mysql> DESC ORDERS;

ERROR 1146 (42S02): Table 'sneha.orders' doesn't exist
```

*** DDL COMMAND ON VIEW ***

1. CREATING VIEW

//creating view having all records and field from existing table

```
mysql> CREATE VIEW ORDERSVIEW AS SELECT ORDERID, CUSTOMER_NAME, ITEMS_ORDERED,
TOTAL_AMT, STATUS FROM ORDERS;

mysql> SELECT * FROM ORDERSVIEW;

+---------+---------------+------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    |
+---------+---------------+------------------------+-----------+-----------+
|       1 | SNEHA         | PANEER MANCHURIAN X1   |       500 | PAID      |
|       2 | JUI           | ROTI X3, ALOO MATAR X1 |       800 | PENDING   |
```

```
|      3 | ANU          | BIRYANI X1, ICECREAM X2 |      2000 | PAID      |
|      4 | KIRAN        | COFFEE X4               |       200 | CANCELLED |
|      5 | TEJAS        | SANDWICH X2             |       100 | PENDING   |
+---------+---------------+-------------------------+-----------+-----------+
```

//creating view having specific field but all records from existing table

```
mysql> CREATE VIEW ORDERSVIEW2 AS SELECT ORDERID, TOTAL_AMT, STATUS FROM ORDERS;
mysql> SELECT * FROM ORDERSVIEW2;
+---------+-----------+-----------+
| ORDERID | TOTAL_AMT | STATUS    |
+---------+-----------+-----------+
|      1 |       500 | PAID      |
|      2 |       800 | PENDING   |
|      3 |      2000 | PAID      |
|      4 |       200 | CANCELLED |
|      5 |       100 | PENDING   |
+---------+-----------+-----------+
```

//creating a view having specific record but all fields from existing table

```
mysql> CREATE VIEW PAID_ORDERS AS SELECT ORDERID, CUSTOMER_NAME, ITEMS_ORDERED,
TOTAL_AMT, STATUS FROM ORDERS WHERE STATUS = 'PAID';
mysql> SELECT * FROM PAID_ORDERS;
+---------+---------------+-------------------------+-----------+--------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED           | TOTAL_AMT | STATUS |
+---------+---------------+-------------------------+-----------+--------+
|      1 | SNEHA         | PANEER MANCHURIAN X1    |       500 | PAID   |
|      3 | ANU           | BIRYANI X1, ICECREAM X2 |      2000 | PAID   |
+---------+---------------+-------------------------+-----------+--------+
```

2. UPDATE VIEW

```
mysql> UPDATE ORDERSVIEW2 SET STATUS = 'CANCELLED' WHERE ORDERID = 2;
```

```
mysql> SELECT * FROM ORDERSVIEW2;
+---------+-----------+-----------+
| ORDERID | TOTAL_AMT | STATUS    |
+---------+-----------+-----------+
|       1 |       500 | PAID      |
|       2 |       800 | CANCELLED |
|       3 |      2000 | PAID      |
|       4 |       200 | CANCELLED |
|       5 |       100 | PAID      |
+---------+-----------+-----------+
```

3. DROP VIEW

```
mysql> DROP VIEW ORDERSVIEW2;
mysql> SELECT * FROM ORDERSVIEW2;
ERROR 1146 (42S02): Table 'sneha.ordersview2' doesn't exist
```

*** DDL COMMAND ON INDEXES ***

1. CREATING INDEXES

```
mysql> CREATE INDEX ORDER_LIST
    -> ON ORDERS (ORDERID);
```

2. DISPLAYING INDEX

```
mysql> SHOW INDEX FROM ORDERS;
+--------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+------------
---+---------+---------------+---------+------------+
| Table  | Non_unique | Key_name   | Seq_in_index | Column_name | Collation | Cardinality |
Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |
+--------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+------------
---+---------+---------------+---------+------------+
| orders |          0 | PRIMARY    |            1 | ORDERID     | A         |           5 |     NULL |   NULL |      |
BTREE      |         |               | YES     | NULL       |
```

```
| orders |         1 | ORDER_LIST |           1 | ORDERID     | A         |         5 |    NULL |   NULL |      |
BTREE     |         |            | YES     | NULL       |

+--------+------------+------------+--------------+-------------+-----------+-------------+----------+--------+------+----------
---+---------+---------------+---------+------------+
```

3. DROP INDEX

```
mysql> DROP INDEX ORDER_LIST ON ORDERS;

mysql> SHOW INDEX FROM ORDERS;

+--------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+----------
-+---------+---------------+---------+------------+

| Table  | Non_unique | Key_name | Seq_in_index | Column_name | Collation | Cardinality |
Sub_part | Packed | Null | Index_type | Comment | Index_comment | Visible | Expression |

+--------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+----------
-+---------+---------------+---------+------------+

| orders |         0 | PRIMARY  |           1 | ORDERID     | A         |         5 |    NULL |   NULL |      | BTREE
|         |            | YES     | NULL       |

+--------+------------+----------+--------------+-------------+-----------+-------------+----------+--------+------+----------
-+---------+---------------+---------+------------+
```

*** DML ***

1. INSERT

//insert records into table

```
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('SNEHA','PANEER MANCHURIAN X1', 500, 'PAID');
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('JUI','ROTI X3, ALOO MATAR X1', 800, 'PENDING');
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('ANU','BIRYANI X1, ICECREAM X2', 2000, 'PAID');
mysql> INSERT INTO ORDERS (CUSTOMER_NAME, ITEMS_ORDERED, TOTAL_AMT, STATUS)
   -> VALUES('KIRAN','COFFEE X4', 200, 'CANCELLED');
mysql> SELECT * FROM ORDERS;

+---------+---------------+------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    |
```

```
+---------+---------------+------------------------+-----------+-----------+
|       1 | SNEHA         | PANEER MANCHURIAN X1   |       500 | PAID      |
|       2 | JUI           | ROTI X3, ALOO MATAR X1 |       800 | PENDING   |
|       3 | ANU           | BIRYANI X1, ICECREAM X2|      2000 | PAID      |
|       4 | KIRAN         | COFFEE X4              |       200 | CANCELLED |
+---------+---------------+------------------------+-----------+-----------+
```

//insert data into a table from another table

```
mysql> CREATE TABLE CUSTOMERS (
    -> CUSTOMER_ID INT,
    -> CUSTOMER_NAME VARCHAR(200) NOT NULL,
    -> PHONE_NO INT
    -> );
mysql> INSERT INTO CUSTOMERS (CUSTOMER_ID, CUSTOMER_NAME)
    -> SELECT ORDERID, CUSTOMER_NAME FROM ORDERS WHERE STATUS='PAID';
mysql> SELECT * FROM CUSTOMERS;
+-------------+---------------+----------+
| CUSTOMER_ID | CUSTOMER_NAME | PHONE_NO |
+-------------+---------------+----------+
|           1 | SNEHA         |     NULL |
|           3 | ANU           |     NULL |
|           5 | TEJAS         |     NULL |
+-------------+---------------+----------+
```

//retrieving data from table

```
mysql> SELECT ORDERID, CUSTOMER_NAME, TOTAL_AMT FROM ORDERS;
+---------+---------------+-----------+
| ORDERID | CUSTOMER_NAME | TOTAL_AMT |
+---------+---------------+-----------+
|       1 | SNEHA         |       500 |
|       2 | JUI           |       800 |
```

```
|      3 | ANU          |      2000 |
|      4 | KIRAN        |       200 |
|      5 | TEJAS        |       100 |
+---------+---------------+-----------+
```

2. CLAUSES

//WHERE clause

```
mysql> SELECT ORDERID,TOTAL_AMT, STATUS FROM ORDERS WHERE TOTAL_AMT > 1000;
+---------+-----------+--------+
| ORDERID | TOTAL_AMT | STATUS |
+---------+-----------+--------+
|      3 |      2000 | PAID   |
+---------+-----------+--------+
```

//GROUP BY clause

```
mysql> SELECT STATUS, SUM(TOTAL_AMT) FROM ORDERS GROUP BY STATUS;
+-----------+----------------+
| STATUS    | SUM(TOTAL_AMT) |
+-----------+----------------+
| PAID      |          2600 |
| PENDING   |           800 |
| CANCELLED |           200 |
+-----------+----------------+
```

//ORDER BY clause

```
mysql> SELECT * FROM ORDERS
    -> ORDER BY TOTAL_AMT;
+---------+---------------+------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED          | TOTAL_AMT | STATUS    |
+---------+---------------+------------------------+-----------+-----------+
|      5 | TEJAS         | SANDWICH X2            |       100 | PAID      |
```

```
|      4 | KIRAN        | COFFEE X4              |      200 | CANCELLED |
|      1 | SNEHA        | PANEER MANCHURIAN X1   |      500 | PAID      |
|      2 | JUI          | ROTI X3, ALOO MATAR X1 |      800 | PENDING   |
|      3 | ANU          | BIRYANI X1, ICECREAM X2 |     2000 | PAID      |
+---------+---------------+-------------------------+-----------+-----------+
```

3. UPDATING/MODIFYING DATA IN TABLE

```
mysql> UPDATE ORDERS SET STATUS='CANCELLED' WHERE TOTAL_AMT=800;
mysql> SELECT * FROM ORDERS;
+---------+---------------+-------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED           | TOTAL_AMT | STATUS    |
+---------+---------------+-------------------------+-----------+-----------+
|      1 | SNEHA        | PANEER MANCHURIAN X1   |      500 | PAID      |
|      2 | JUI          | ROTI X3, ALOO MATAR X1 |      800 | CANCELLED |
|      3 | ANU          | BIRYANI X1, ICECREAM X2 |     2000 | PAID      |
|      4 | KIRAN        | COFFEE X4              |      200 | CANCELLED |
|      5 | TEJAS        | SANDWICH X2            |      100 | PAID      |
+---------+---------------+-------------------------+-----------+-----------+
```

4. DELETE/REMOVE RECORD FROM TABLE

```
mysql> DELETE FROM ORDERS WHERE TOTAL_AMT = 200;
mysql> SELECT * FROM ORDERS;
+---------+---------------+-------------------------+-----------+-----------+
| ORDERID | CUSTOMER_NAME | ITEMS_ORDERED           | TOTAL_AMT | STATUS    |
+---------+---------------+-------------------------+-----------+-----------+
|      1 | SNEHA        | PANEER MANCHURIAN X1   |      500 | PAID      |
|      2 | JUI          | ROTI X3, ALOO MATAR X1 |      800 | CANCELLED |
|      3 | ANU          | BIRYANI X1, ICECREAM X2 |     2000 | PAID      |
|      5 | TEJAS        | SANDWICH X2            |      100 | PAID      |
+---------+---------------+-------------------------+-----------+-----------+
```