Practical No.2

Aim: The aim of this practical exercise is to develop practical skills in querying a relational database. Through this practical we will gain hands-on experience in retrieving specific information from a database using SQL query.

Theory:

The theory behind this practical exercise is to understand and apply Structured Query Language (SQL) for data retrieval. Participants will learn how to write SQL queries to extract specific data from relational databases, focusing on SELECT statements, filtering conditions, and pattern matching using SQL.

1) List the customer numbers (customer_no) and names (name) of all customers.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+---------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS       | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+---------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON       |        6 |         1000 |
|          20 | PATEL        | GRANGE        |        1 |         8000 |
|          30 | DRAKE        | BRIXTON       |        4 |         7000 |
|          40 | BOB SMITH    | LONDON        |        2 |        10000 |
|          50 | JAMES        | GRANGE        |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE        |       16 |         8000 |
+-------------+--------------+---------------+----------+--------------+
7 rows in set (0.01 sec)

mysql> SELECT CUSTOMER_NO,NAME FROM CUSTOMER;
+-------------+--------------+
| CUSTOMER_NO | NAME         |
+-------------+--------------+
|          10 | GARRY SMITH  |
|          20 | PATEL        |
|          30 | DRAKE        |
|          40 | BOB SMITH    |
|          50 | JAMES        |
|          60 | NORTON       |
|          70 | JOHN MICHAEL |
+-------------+--------------+
7 rows in set (0.00 sec)
```

2) List all details of the product with a product number (product_no) of 121 and 136.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM PRODUCT;
+------------+----------------+-------+-------------+-----------------+----------------+
| PRODUCT_NO | DESCRIPTION    | PRICE | SUPPLIER_NO | MARKETING_REP_NO | SUPPLY_DEPT_NO |
+------------+----------------+-------+-------------+-----------------+----------------+
|        120 | REDUCER        |  1200 |        1005 |               5 |              6 |
|        121 | PLATE          |  2000 |        1004 |               3 |              1 |
|        122 | HANDLE         |   700 |        1003 |               2 |              4 |
|        124 | WIDGET REMOVER |   900 |        1005 |               4 |              2 |
|        136 | SIZE WIDGET    |  1000 |        1001 |               1 |              5 |
|        137 | SIZE WIDGET    | 15000 |        1002 |               2 |             16 |
+------------+----------------+-------+-------------+-----------------+----------------+
6 rows in set (0.00 sec)

mysql> SELECT*FROM PRODUCT WHERE PRODUCT_NO>120 AND PRODUCT_NO<137;
+------------+----------------+-------+-------------+-----------------+----------------+
| PRODUCT_NO | DESCRIPTION    | PRICE | SUPPLIER_NO | MARKETING_REP_NO | SUPPLY_DEPT_NO |
+------------+----------------+-------+-------------+-----------------+----------------+
|        121 | PLATE          |  2000 |        1004 |               3 |              1 |
|        122 | HANDLE         |   700 |        1003 |               2 |              4 |
|        124 | WIDGET REMOVER |   900 |        1005 |               4 |              2 |
|        136 | SIZE WIDGET    |  1000 |        1001 |               1 |              5 |
+------------+----------------+-------+-------------+-----------------+----------------+
4 rows in set (0.01 sec)
```

3) List all details of depots with rep 5 as their rep(rep_no).

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM DEPOT;
+----------+--------------+----------+--------+
| DEPOT_NO | LOCATION     | ADDRESS  | REP_NO |
+----------+--------------+----------+--------+
|        1 | NORTH        | UK       |      1 |
|        2 | SOUTH        | USA      |      2 |
|        3 | LONDON WEST  | USA      |      3 |
|        4 | EAST         | NZ       |      4 |
|        5 | WALES        | UK       |      5 |
|        6 | NORTH        | KENYA    |      6 |
|       16 | SOUTH        | UK       |      2 |
+----------+--------------+----------+--------+
7 rows in set (0.00 sec)

mysql> SELECT*FROM DEPOT WHERE REP_NO=5;
+----------+----------+----------+--------+
| DEPOT_NO | LOCATION | ADDRESS  | REP_NO |
+----------+----------+----------+--------+
|        5 | WALES    | UK       |      5 |
+----------+----------+----------+--------+
1 row in set (0.00 sec)
```

4) List the product number (product_no) and description only of all products from supplier number 1005 (supplier_no).

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM PRODUCT;
+------------+----------------+-------+------------+-----------------+----------------+
| PRODUCT_NO | DESCRIPTION    | PRICE | SUPPLIER_NO | MARKETING_REP_NO | SUPPLY_DEPT_NO |
+------------+----------------+-------+------------+-----------------+----------------+
|        120 | REDUCER        |  1200 |        1005 |               5 |              6 |
|        121 | PLATE          |  2000 |        1004 |               3 |              1 |
|        122 | HANDLE         |   700 |        1003 |               2 |              4 |
|        124 | WIDGET REMOVER |   900 |        1005 |               4 |              2 |
|        136 | SIZE WIDGET    |  1000 |        1001 |               1 |              5 |
|        137 | SIZE WIDGET    | 15000 |        1002 |               2 |             16 |
+------------+----------------+-------+------------+-----------------+----------------+
6 rows in set (0.00 sec)

mysql> SELECT PRODUCT_NO,DESCRIPTION FROM PRODUCT WHERE SUPPLIER_NO=1005;
+------------+----------------+
| PRODUCT_NO | DESCRIPTION    |
+------------+----------------+
|        120 | REDUCER        |
|        124 | WIDGET REMOVER |
+------------+----------------+
2 rows in set (0.00 sec)
```

5) List all details for all customers with names (name) starting from ga followed by 2 character followed by y followed by anything.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+----------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS        | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+----------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON        |        6 |         1000 |
|          20 | PATEL        | GRANGE         |        1 |         8000 |
|          30 | DRAKE        | BRIXTON        |        4 |         7000 |
|          40 | BOB SMITH    | LONDON         |        2 |        10000 |
|          50 | JAMES        | GRANGE         |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO  |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE         |       16 |         8000 |
+-------------+--------------+----------------+----------+--------------+
7 rows in set (0.00 sec)

mysql> SELECT*FROM CUSTOMER WHERE NAME LIKE 'GA__Y%';
+-------------+-------------+---------+----------+--------------+
| CUSTOMER_NO | NAME        | ADDRESS | DEPOT_NO | CREDIT_LIMIT |
+-------------+-------------+---------+----------+--------------+
|          10 | GARRY SMITH | BRIXTON |        6 |         1000 |
+-------------+-------------+---------+----------+--------------+
1 row in set (0.00 sec)
```

6) List all details for all orders with date_placed from 01-jan-1993 to 31-mar-1996.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CORDER;
+-----------+-------------+-------------+-----------------+
| CORDER_NO | CUSTOMER_NO | DATE_PLACED | DATE_DELIVERED |
+-----------+-------------+-------------+-----------------+
|       200 |          20 | 01-JAN-1993 | 04-JAN-1993    |
|       201 |          40 | 17-JAN-1993 | 20-JAN-1993    |
|       202 |          20 | 01-JAN-1993 | 04-JAN-1993    |
|       203 |          30 | 02-FEB-1995 | 05-FEB-1995    |
|       204 |          10 | 13-MAR-1996 | 16-MAR-1996    |
|       205 |          70 | 31-JAN-1993 | 03-FEB-1993    |
|       206 |          40 | 01-JAN-1994 | 04-JAN-1994    |
|       207 |          20 | 02-AUG-1994 | 05-AUG-1994    |
+-----------+-------------+-------------+-----------------+
8 rows in set (0.00 sec)

mysql> SELECT*FROM CORDER WHERE DATE_PLACED BETWEEN  '01-JAN-1993' AND '13-MAR-1996';
+-----------+-------------+-------------+-----------------+
| CORDER_NO | CUSTOMER_NO | DATE_PLACED | DATE_DELIVERED |
+-----------+-------------+-------------+-----------------+
|       200 |          20 | 01-JAN-1993 | 04-JAN-1993    |
|       202 |          20 | 01-JAN-1993 | 04-JAN-1993    |
|       203 |          30 | 02-FEB-1995 | 05-FEB-1995    |
|       204 |          10 | 13-MAR-1996 | 16-MAR-1996    |
|       206 |          40 | 01-JAN-1994 | 04-JAN-1994    |
|       207 |          20 | 02-AUG-1994 | 05-AUG-1994    |
+-----------+-------------+-------------+-----------------+
6 rows in set (0.00 sec)
```

7) List the sales rep number (rep_no), depot number and address for depots located at NORTH and address is UK.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM DEPOT;
+----------+-------------+---------+--------+
| DEPOT_NO | LOCATION    | ADDRESS | REP_NO |
+----------+-------------+---------+--------+
|        1 | NORTH       | UK      |      1 |
|        2 | SOUTH       | USA     |      2 |
|        3 | LONDON WEST | USA     |      3 |
|        4 | EAST        | NZ      |      4 |
|        5 | WALES       | UK      |      5 |
|        6 | NORTH       | KENYA   |      6 |
|       16 | SOUTH       | UK      |      2 |
+----------+-------------+---------+--------+
7 rows in set (0.00 sec)

mysql> SELECT REP_NO,DEPOT_NO,ADDRESS FROM DEPOT WHERE LOCATION='NORTH' AND ADDRESS='UK';
+--------+----------+---------+
| REP_NO | DEPOT_NO | ADDRESS |
+--------+----------+---------+
|      1 |        1 | UK      |
+--------+----------+---------+
1 row in set (0.00 sec)
```

8) Give the total number of items (quantity) in stock in all depots.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM STOCK;
+----------+-------------+----------+------+--------+
| DEPOT_NO | PRODUCT_NO | QUANTITY | RACK | BIN_NO |
+----------+-------------+----------+------+--------+
|        1 |         120 |       50 |    1 |      1 |
|        2 |         137 |      100 |   10 |      2 |
|        3 |         136 |       40 |    2 |      3 |
|        4 |         120 |       60 |    7 |      1 |
|        5 |         121 |       90 |    5 |      4 |
|        6 |         124 |      120 |    4 |      7 |
|       16 |         122 |       80 |   10 |      8 |
+----------+-------------+----------+------+--------+
7 rows in set (0.00 sec)

mysql> SELECT SUM(QUANTITY) FROM STOCK;
+-----------------+
| SUM(QUANTITY) |
+-----------------+
|             540 |
+-----------------+
1 row in set (0.00 sec)
```

9) Give the total number of items (order line quantity) which have been ordered with corder_no 200.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM OLINE;
+----------+------------+----------+
| CORDER_NO | PRODUCT_NO | QUANTITY |
+----------+------------+----------+
|      200 |        120 |        5 |
|      201 |        121 |       10 |
|      202 |        120 |        5 |
|      203 |        122 |       20 |
|      204 |        136 |       30 |
|      205 |        124 |       15 |
|      206 |        136 |       30 |
+----------+------------+----------+
7 rows in set (0.00 sec)

mysql> SELECT SUM(QUANTITY) AS TOTAL_ITEMS_ORDERED FROM OLINE WHERE CORDER_NO = 200;
+--------------------+
| TOTAL_ITEMS_ORDERED |
+--------------------+
|                  5 |
+--------------------+
1 row in set (0.00 sec)
```

10) List product descriptions in reverse alphabetical order.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM PRODUCT;
+------------+----------------+-------+-------------+------------------+----------------+
| PRODUCT_NO | DESCRIPTION    | PRICE | SUPPLIER_NO | MARKETING_REP_NO | SUPPLY_DEPT_NO |
+------------+----------------+-------+-------------+------------------+----------------+
|        120 | REDUCER        |  1200 |        1005 |                5 |              6 |
|        121 | PLATE          |  2000 |        1004 |                3 |              1 |
|        122 | HANDLE         |   700 |        1003 |                2 |              4 |
|        124 | WIDGET REMOVER |   900 |        1005 |                4 |              2 |
|        136 | SIZE WIDGET    |  1000 |        1001 |                1 |              5 |
|        137 | SIZE WIDGET    | 15000 |        1002 |                2 |             16 |
+------------+----------------+-------+-------------+------------------+----------------+
6 rows in set (0.00 sec)

mysql> SELECT DESCRIPTION FROM PRODUCT ORDER BY DESCRIPTION DESC;
+----------------+
| DESCRIPTION    |
+----------------+
| WIDGET REMOVER |
| SIZE WIDGET    |
| SIZE WIDGET    |
| REDUCER        |
| PLATE          |
| HANDLE         |
+----------------+
6 rows in set (0.00 sec)
```

11) List the customer details with the name ending with N.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+----------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS        | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+----------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON        |        6 |         1000 |
|          20 | PATEL        | GRANGE         |        1 |         8000 |
|          30 | DRAKE        | BRIXTON        |        4 |         7000 |
|          40 | BOB SMITH    | LONDON         |        2 |        10000 |
|          50 | JAMES        | GRANGE         |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO  |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE         |       16 |         8000 |
+-------------+--------------+----------------+----------+--------------+
7 rows in set (0.00 sec)

mysql> SELECT*FROM CUSTOMER WHERE NAME LIKE '%N';
+-------------+--------+----------------+----------+--------------+
| CUSTOMER_NO | NAME   | ADDRESS        | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------+----------------+----------+--------------+
|          60 | NORTON | SAN FRANSISCO  |        5 |        17000 |
+-------------+--------+----------------+----------+--------------+
1 row in set (0.00 sec)
```

12) List the customers details with a CustomerName that have “r” in the second position:

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+---------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS       | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+---------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON       |        6 |         1000 |
|          20 | PATEL        | GRANGE        |        1 |         8000 |
|          30 | DRAKE        | BRIXTON       |        4 |         7000 |
|          40 | BOB SMITH    | LONDON        |        2 |        10000 |
|          50 | JAMES        | GRANGE        |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE        |       16 |         8000 |
+-------------+--------------+---------------+----------+--------------+
7 rows in set (0.00 sec)

mysql> SELECT*FROM CUSTOMER WHERE SUBSTRING(NAME,2,1)='R';
+-------------+-------+---------+----------+--------------+
| CUSTOMER_NO | NAME  | ADDRESS | DEPOT_NO | CREDIT_LIMIT |
+-------------+-------+---------+----------+--------------+
|          30 | DRAKE | BRIXTON |        4 |         7000 |
+-------------+-------+---------+----------+--------------+
1 row in set (0.00 sec)
```

13) List the customers with a CustomerName that starts with “N” and is at least 4 characters in length.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+---------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS       | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+---------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON       |        6 |         1000 |
|          20 | PATEL        | GRANGE        |        1 |         8000 |
|          30 | DRAKE        | BRIXTON       |        4 |         7000 |
|          40 | BOB SMITH    | LONDON        |        2 |        10000 |
|          50 | JAMES        | GRANGE        |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE        |       16 |         8000 |
+-------------+--------------+---------------+----------+--------------+
7 rows in set (0.00 sec)

mysql> SELECT*FROM CUSTOMER WHERE NAME LIKE 'N%' AND LENGTH(NAME) >= 4;
+-------------+--------+---------------+----------+--------------+
| CUSTOMER_NO | NAME   | ADDRESS       | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------+---------------+----------+--------------+
|          60 | NORTON | SAN FRANSISCO |        5 |        17000 |
+-------------+--------+---------------+----------+--------------+
1 row in set (0.00 sec)
```

14) Find all suppliers with a City containing the pattern “ny”.

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM SUPPLIER;
+-------------+-----------+----------+
| SUPPLIER_NO | NAME      | ADDRESS  |
+-------------+-----------+----------+
|        1001 | MICHAEL   | BASILDON |
|        1002 | RINGWORLD | GERMANY  |
|        1003 | BABYLON   | LONDON   |
|        1004 | JOHN      | BASILDON |
|        1005 | SMITH     | GERMANY  |
+-------------+-----------+----------+
5 rows in set (0.00 sec)

mysql> SELECT*FROM SUPPLIER WHERE UPPER(ADDRESS) LIKE '%NY';
+-------------+-----------+---------+
| SUPPLIER_NO | NAME      | ADDRESS |
+-------------+-----------+---------+
|        1002 | RINGWORLD | GERMANY |
|        1005 | SMITH     | GERMANY |
+-------------+-----------+---------+
2 rows in set (0.00 sec)
```

15) selects all customers with a City starting with “L”, followed by any character, followed by “n”, followed by 2 character, followed by “n”:

```
mysql> /* EN_NO :- 202203103510238 */
mysql> SELECT*FROM CUSTOMER;
+-------------+--------------+---------------+----------+--------------+
| CUSTOMER_NO | NAME         | ADDRESS       | DEPOT_NO | CREDIT_LIMIT |
+-------------+--------------+---------------+----------+--------------+
|          10 | GARRY SMITH  | BRIXTON       |        6 |         1000 |
|          20 | PATEL        | GRANGE        |        1 |         8000 |
|          30 | DRAKE        | BRIXTON       |        4 |         7000 |
|          40 | BOB SMITH    | LONDON        |        2 |        10000 |
|          50 | JAMES        | GRANGE        |        3 |         8000 |
|          60 | NORTON       | SAN FRANSISCO |        5 |        17000 |
|          70 | JOHN MICHAEL | EUROPE        |       16 |         8000 |
+-------------+--------------+---------------+----------+--------------+
7 rows in set (0.01 sec)

mysql> SELECT*FROM CUSTOMER WHERE ADDRESS LIKE 'L_N__N';
+-------------+-----------+---------+----------+--------------+
| CUSTOMER_NO | NAME      | ADDRESS | DEPOT_NO | CREDIT_LIMIT |
+-------------+-----------+---------+----------+--------------+
|          40 | BOB SMITH | LONDON  |        2 |        10000 |
+-------------+-----------+---------+----------+--------------+
1 row in set (0.00 sec)
```

Conclusion:

In conclusion, this practical exercise provides valuable experience in using SQL for data retrieval. Through this practical we have successfully practiced writing SQL queries to retrieve data from the given database, demonstrating their ability to select and filter data based on specific criteria.