

MYSQL QUERIES ON **NORMALIZATION** **PROJECT**

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MORNING

Submitted to:

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11/05/2025

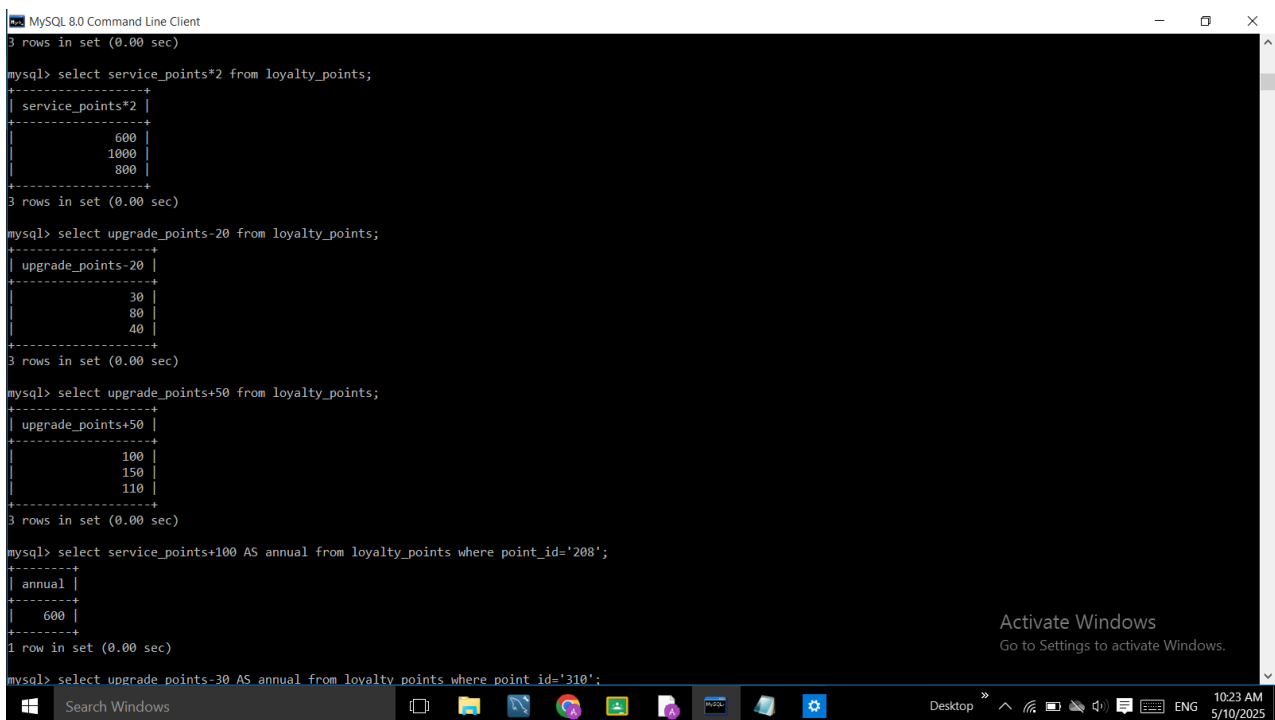
ARITHMETIC & LOGICAL OPERATIONS ON LOYALTY_POINTS TABLE

Arithmetic operations include +, -, *, /.

Syntax

`select` attribute+value `from` table;

Other operations are also performed according to the above syntax.



```
MySQL 8.0 Command Line Client
3 rows in set (0.00 sec)

mysql> select service_points*2 from loyalty_points;
+-----+
| service_points*2 |
+-----+
| 600 |
| 1000 |
| 800 |
+-----+
3 rows in set (0.00 sec)

mysql> select upgrade_points-20 from loyalty_points;
+-----+
| upgrade_points-20 |
+-----+
| 30 |
| 80 |
| 40 |
+-----+
3 rows in set (0.00 sec)

mysql> select upgrade_points+50 from loyalty_points;
+-----+
| upgrade_points+50 |
+-----+
| 100 |
| 150 |
| 110 |
+-----+
3 rows in set (0.00 sec)

mysql> select service_points+100 AS annual from loyalty_points where point_id='208';
+-----+
| annual |
+-----+
| 600 |
+-----+
1 row in set (0.00 sec)

mysql> select upgrade_points-30 AS annual from loyalty_points where point_id='310';
```

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5/10/2025

LOGICAL OPERATIONS

Logical operations contains $>$, $<$, \leq , \geq , \neq , $=$ etc.

```
MySQL 8.0 Command Line Client
+-----+
| 110 |
+-----+
3 rows in set (0.00 sec)

mysql> select service_points+100 AS annual from loyalty_points where point_id='208';
+-----+
| annual |
+-----+
| 600 |
+-----+
1 row in set (0.00 sec)

mysql> select upgrade_points-30 AS annual from loyalty_points where point_id='310';
+-----+
| annual |
+-----+
| 30 |
+-----+
1 row in set (0.00 sec)

mysql> select upgrade_points*20+30 from loyalty_points;
+-----+
| upgrade_points*20+30 |
+-----+
| 1030 |
| 2030 |
| 1230 |
+-----+
3 rows in set (0.00 sec)

mysql> select upgrade_points*10+50 AS annual from loyalty_points;
+-----+
| annual |
+-----+
| 550 |
| 1050 |
| 650 |
+-----+
3 rows in set (0.00 sec)

mysql>
```

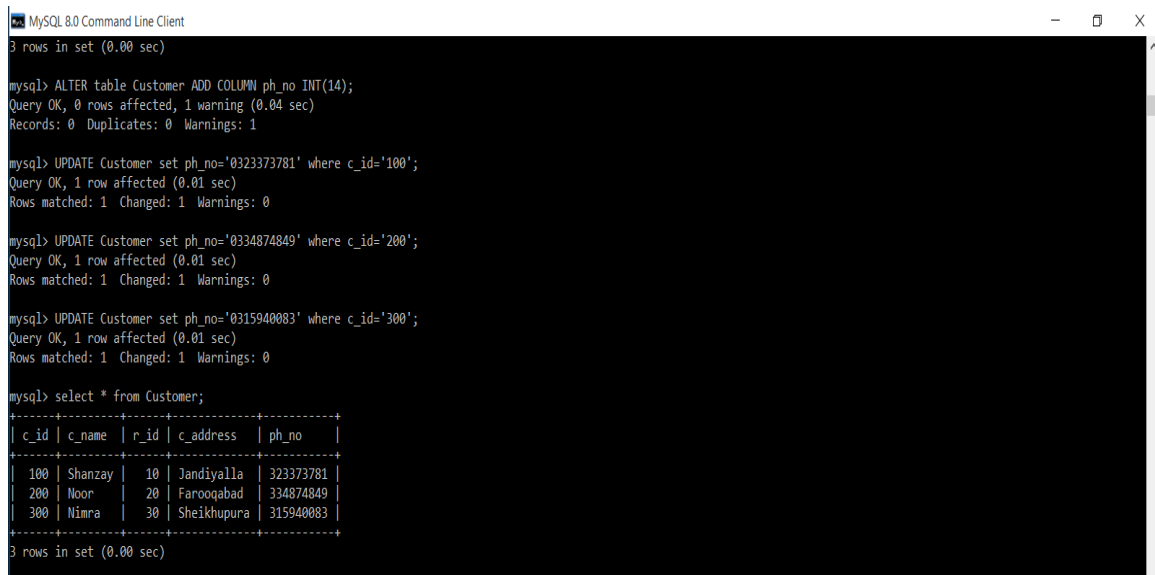
```
MySQL 8.0 Command Line Client
y_points where service_points>=400' at line 1
mysql> select point_id from loyalty_points where service_points>=400;
+-----+
| point_id |
+-----+
| 208 |
| 310 |
+-----+
2 rows in set (0.00 sec)

mysql> select * from room_booking;
+-----+
| room_id | r_no | checkin_date | checkout_date | weekend_pricing | holiday_pricing | earlybird_offers | sta_id |
+-----+
| 10 | 202 | 2025-01-22 | 2025-01-26 | 8000 | 9500 | 45% | 1 |
| 20 | 504 | 2025-03-12 | 2025-03-19 | 6000 | 8000 | 60% | 2 |
| 30 | 301 | 2025-07-04 | 2025-07-08 | 8000 | 12000 | 30% | 3 |
+-----+
3 rows in set (0.00 sec)

mysql> select * from room_booking where weekend_pricing>7000 && holiday_pricing >9000;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'from room_booking where weekend_pricing>7000 && holiday_pricing >9000' at line 1
mysql> select * from room_booking where weekend_pricing>7000 && holiday_pricing >9000;
+-----+
| room_id | r_no | checkin_date | checkout_date | weekend_pricing | holiday_pricing | earlybird_offers | sta_id |
+-----+
| 10 | 202 | 2025-01-22 | 2025-01-26 | 8000 | 9500 | 45% | 1 |
| 30 | 301 | 2025-07-04 | 2025-07-08 | 8000 | 12000 | 30% | 3 |
+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> select * from Customer;
+-----+
| c_id | c_name | r_id | c_address |
+-----+
| 100 | Shanzay | 10 | Jandiyalla |
| 200 | Noor | 20 | Farooqabad |
| 300 | Nimra | 30 | Sheikhpura |
+-----+
```

ADDING ph_no COLUMN IN CUSTOMER



```
MySQL 8.0 Command Line Client
3 rows in set (0.00 sec)

mysql> ALTER table Customer ADD COLUMN ph_no INT(14);
Query OK, 0 rows affected, 1 warning (0.04 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> UPDATE Customer set ph_no='0323373781' where c_id='100';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Customer set ph_no='0334874849' where c_id='200';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE Customer set ph_no='0315940083' where c_id='300';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from Customer;
+-----+-----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+-----+-----+-----+-----+-----+
| 100 | Shanzay | 10 | Jandiyalla | 323373781 |
| 200 | Noor | 20 | Farooqabad | 334874849 |
| 300 | Nimra | 30 | Sheikhpura | 315940083 |
+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)
```

ORDER BY CLAUSE ON CUSTOMER

The **ORDER BY** keyword is used to sort the result-set in ascending or descending order.

The **ORDER BY** keyword sorts the records in ascending order by default. To sort the records in descending order, use the **DESC** keyword.

Syntax

```
SELECT * FROM attribute_name ORDER BY table;
```

```
MySQL 8.0 Command Line Client
+----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+----+-----+-----+-----+
| 300 | Nimra | 30 | Sheikhpura | 315940083 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from Customer order by c_id DESC;
+----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+----+-----+-----+-----+
| 300 | Nimra | 30 | Sheikhpura | 315940083 |
| 200 | Noor | 20 | Farooqabad | 334874849 |
| 100 | Shanzay | 10 | Jandiyalla | 323373781 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from Customer order by c_id ASC;
+----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+----+-----+-----+-----+
| 100 | Shanzay | 10 | Jandiyalla | 323373781 |
| 200 | Noor | 20 | Farooqabad | 334874849 |
| 300 | Nimra | 30 | Sheikhpura | 315940083 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select * from Customer order by r_id ASC;
+----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+----+-----+-----+-----+
| 100 | Shanzay | 10 | Jandiyalla | 323373781 |
| 200 | Noor | 20 | Farooqabad | 334874849 |
| 300 | Nimra | 30 | Sheikhpura | 315940083 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select c_name from Customer where c_id='200';
+-----+
| c_name |
+-----+
| Noor |
+-----+
1 row in set (0.00 sec)
```

GIVING TWO h_ids SAME NAME

```
MySQL 8.0 Command Line Client
+----+-----+-----+-----+
| h_id | h_name | h_address | staff_id |
+----+-----+-----+-----+
| 1001 | unique | Lahore | 1 |
| 1002 | five_star | Multan | 2 |
| 1003 | super | Sheikhpura | 3 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> UPDATE hotel_branch set h_id='1003' where h_name='five_star';
ERROR 1062 (23000): Duplicate entry '1003' for key 'hotel_branch.PRIMARY'
mysql> UPDATE hotel_branch set h_name=NULL where h_id='1003';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from hotel_branch;
+----+-----+-----+-----+
| h_id | h_name | h_address | staff_id |
+----+-----+-----+-----+
| 1001 | unique | Lahore | 1 |
| 1002 | five_star | Multan | 2 |
| 1003 | NULL | Sheikhpura | 3 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> UPDATE hotel_branch set h_name='five_star' where h_id='1003';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from hotel_branch;
+----+-----+-----+-----+
| h_id | h_name | h_address | staff_id |
+----+-----+-----+-----+
| 1001 | unique | Lahore | 1 |
| 1002 | five_star | Multan | 2 |
| 1003 | five_star | Sheikhpura | 3 |
+----+-----+-----+-----+
3 rows in set (0.00 sec)

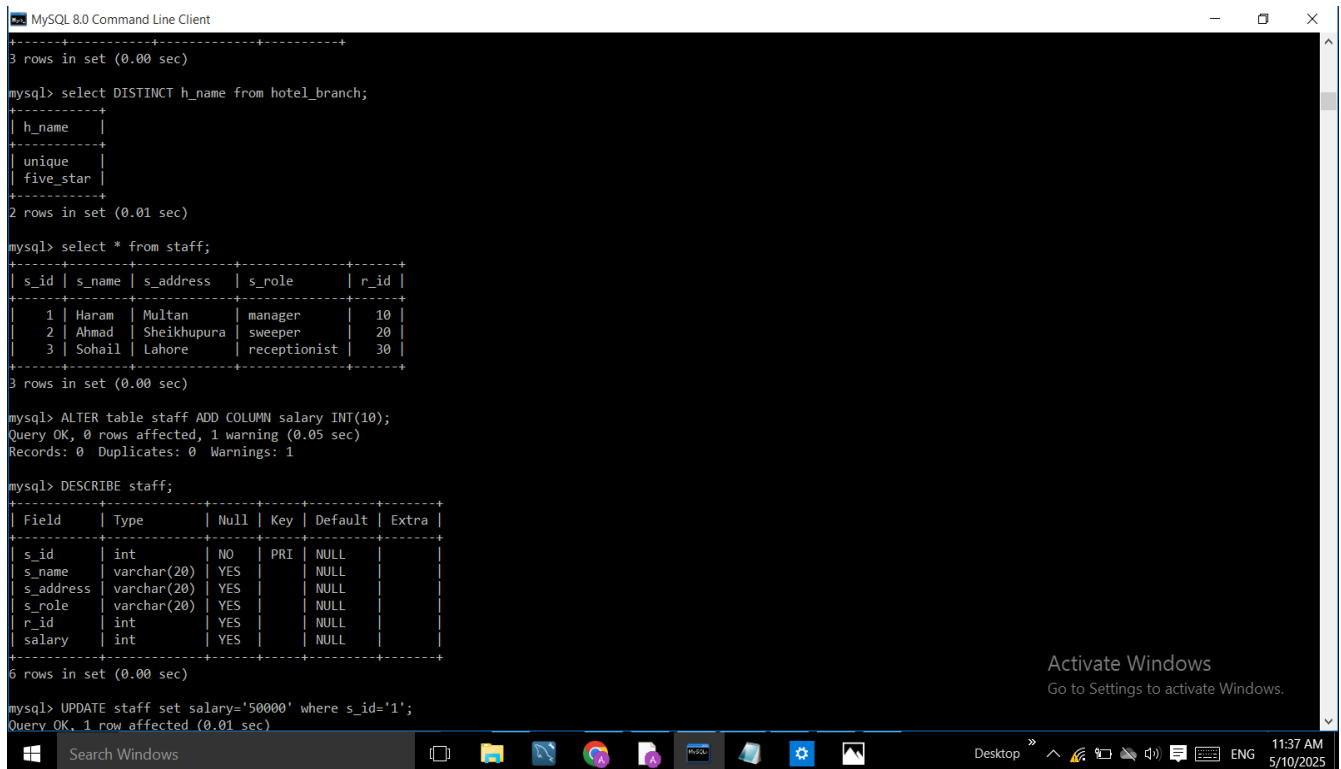
mysql>
```

DISTINCT CLAUSE AND ADDING SALARY COLUMN IN STAFF TABLE

The DISTINCT keyword in MySQL is used to remove duplicate records from the results of a SELECT query. It ensures that the query returns only unique values in the specified columns.

Syntax

SELECT DISTINCT Country **FROM** Customers;



```
mysql> select DISTINCT h_name from hotel_branch;
+-----+
| h_name |
+-----+
| unique |
| five_star |
+-----+
2 rows in set (0.01 sec)

mysql> select * from staff;
+----+-----+-----+-----+-----+
| s_id | s_name | s_address | s_role | r_id |
+----+-----+-----+-----+-----+
| 1 | Haram | Multan | manager | 10 |
| 2 | Ahmad | Sheikhpura | sweeper | 20 |
| 3 | Sohail | Lahore | receptionist | 30 |
+----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> ALTER table staff ADD COLUMN salary INT(10);
Query OK, 0 rows affected, 1 warning (0.05 sec)
Records: 0 Duplicates: 0 Warnings: 1

mysql> DESCRIBE staff;
+----+-----+-----+-----+-----+-----+
| Field | Type | Null | Key | Default | Extra |
+----+-----+-----+-----+-----+-----+
| s_id | int | NO | PRI | NULL |  |
| s_name | varchar(20) | YES |  | NULL |  |
| s_address | varchar(20) | YES |  | NULL |  |
| s_role | varchar(20) | YES |  | NULL |  |
| r_id | int | YES |  | NULL |  |
| salary | int | YES |  | NULL |  |
+----+-----+-----+-----+-----+-----+
6 rows in set (0.00 sec)

mysql> UPDATE staff set salary='50000' where s_id='1';
Query OK, 1 row affected (0.01 sec)
```

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BETWEEN, HAVING AND IN CLAUSES

The **BETWEEN** clause is used to show the values/contents of the table between a given limit.

Syntax:

```
select    attribute_name    from    table_name    where  
attribute='value' OR attribute_value BETWEEN ... AND  
...;
```

The **HAVING** clause is similar to the WHERE clause but is specifically applied after grouping and aggregation, allowing you to filter on the results of aggregate functions like COUNT, SUM, AVG, and others.

Syntax

```
select aggregate_function (attribute) from table GROUP  
BY attributes HAVING count (attribute) >1;
```

IN keyword is used to show the contents that contain given values.

```
SELECT column_name(s) FROM table_name  
WHERE column_name IN (value1, value2, ...);
```

```
MySQL 8.0 Command Line Client

mysql> select min(salary) from staff GROUP BY s_role HAVING count(s_id)>1;
+-----+
| min(salary) |
+-----+
|          40000 |
+-----+
1 row in set (0.00 sec)

mysql> select s_name from staff where s_role='sweeper' && salary<40000;
+-----+
| s_name |
+-----+
| Ahmad |
+-----+
1 row in set, 1 warning (0.00 sec)

mysql> select s_name from staff where s_role='manager' && salary BETWEEN 35000 AND 50000;
+-----+
| s_name |
+-----+
| Haram |
| Sohaib |
+-----+
2 rows in set, 1 warning (0.00 sec)

mysql> select s_name from staff where s_address='Sheikhupura' && salary BETWEEN 25000 AND 35000;
+-----+
| s_name |
+-----+
| Ahmad |
+-----+
1 row in set, 1 warning (0.00 sec)

mysql> select s_name from staff where s_address='Sheikhupura' OR salary BETWEEN 25000 AND 35000;
+-----+
| s_name |
+-----+
| Ahmad |
+-----+
1 row in set (0.00 sec)
```

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```
MySQL 8.0 Command Line Client - Unicode

mysql> select em_name from Employee where job='assistant' OR salary BETWEEN 15000 AND 30000;
+-----+
| em_name |
+-----+
| Ali |
| Ahmad |
| Arham |
+-----+
3 rows in set (0.00 sec)

mysql> select em_name from Employee where job='manager' OR salary BETWEEN 15000 AND 30000;
+-----+
| em_name |
+-----+
| Ali |
| Ahmad |
| Arham |
| Rehman |
+-----+
4 rows in set (0.00 sec)

mysql> select em_name from Employee where salary IN (15000,30000);
+-----+
| em_name |
+-----+
| Ahmad |
| Arham |
+-----+
2 rows in set (0.00 sec)

mysql> select em_name from Employee where salary IN (15000,30000,20000);
+-----+
| em_name |
+-----+
| Ahmad |
| Arham |
+-----+
2 rows in set (0.00 sec)
```

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```
MySQL 8.0 Command Line Client
1 row in set (0.00 sec)

mysql> select * from room_booking;
+-----+-----+-----+-----+-----+-----+-----+-----+
| room_id | r_no | checkin_date | checkout_date | weekend_pricing | holiday_pricing | earlybird_offers | sta_id |
+-----+-----+-----+-----+-----+-----+-----+-----+
| 10      | 202  | 2025-01-22    | 2025-01-26    | 8000           | 9500            | 45%              | 1      |
| 20      | 504  | 2025-03-12    | 2025-03-19    | 6000           | 8000            | 60%              | 2      |
| 30      | 301  | 2025-07-04    | 2025-07-08    | 8000           | 12000           | 30%              | 3      |
+-----+-----+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select room_id from room_booking where weekend_pricing IN(6000,8000);
+-----+
| room_id |
+-----+
| 10      |
| 20      |
| 30      |
+-----+
3 rows in set (0.00 sec)

mysql> select room_no from room_booking where holiday_pricing IN(12000,8000);
ERROR 1054 (42S22): Unknown column 'room_no' in 'field list'
mysql> select r_no from room_booking where holiday_pricing IN(12000,8000);
+-----+
| r_no |
+-----+
| 504  |
| 301  |
+-----+
2 rows in set (0.00 sec)

mysql> select * from Customer;
+-----+-----+-----+-----+-----+
| c_id | c_name | r_id | c_address | ph_no |
+-----+-----+-----+-----+-----+
| 100  | Shanzay | 10   | Jandiyalla | 323373781 |
| 200  | Ilmor   | 20   | Farooqabad | 334874849 |
| 300  | Nimra  | 30   | Sheikhpura | 315940083 |
+-----+-----+-----+-----+-----+

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```

ARITHMETIC OPERATIONS ON STAFF

```
MySQL 8.0 Command Line Client
6 rows in set (0.00 sec)

mysql> UPDATE staff set salary='50000' where s_id='1';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE staff set salary='30000' where s_id='2';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> UPDATE staff set salary='40000' where s_id='3';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1 Changed: 1 Warnings: 0

mysql> select * from salary;
ERROR 1146 (42S02): Table 'hotel_chain.salary' doesn't exist
mysql> select * from staff;
+-----+-----+-----+-----+-----+-----+
| s_id | s_name | s_address | s_role | r_id | salary |
+-----+-----+-----+-----+-----+-----+
| 1    | Haram  | Multan    | manager | 10   | 50000  |
| 2    | Ahmad  | Sheikhpura | sweeper | 20   | 30000  |
| 3    | Sohail | Lahore     | receptionist | 30   | 40000  |
+-----+-----+-----+-----+-----+-----+
3 rows in set (0.00 sec)

mysql> select avg(salary) from staff;
+-----+
| avg(salary) |
+-----+
| 40000.0000  |
+-----+
1 row in set (0.01 sec)

mysql> select max(salary) from staff;
+-----+
| max(salary) |
+-----+
| 50000       |
+-----+

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```

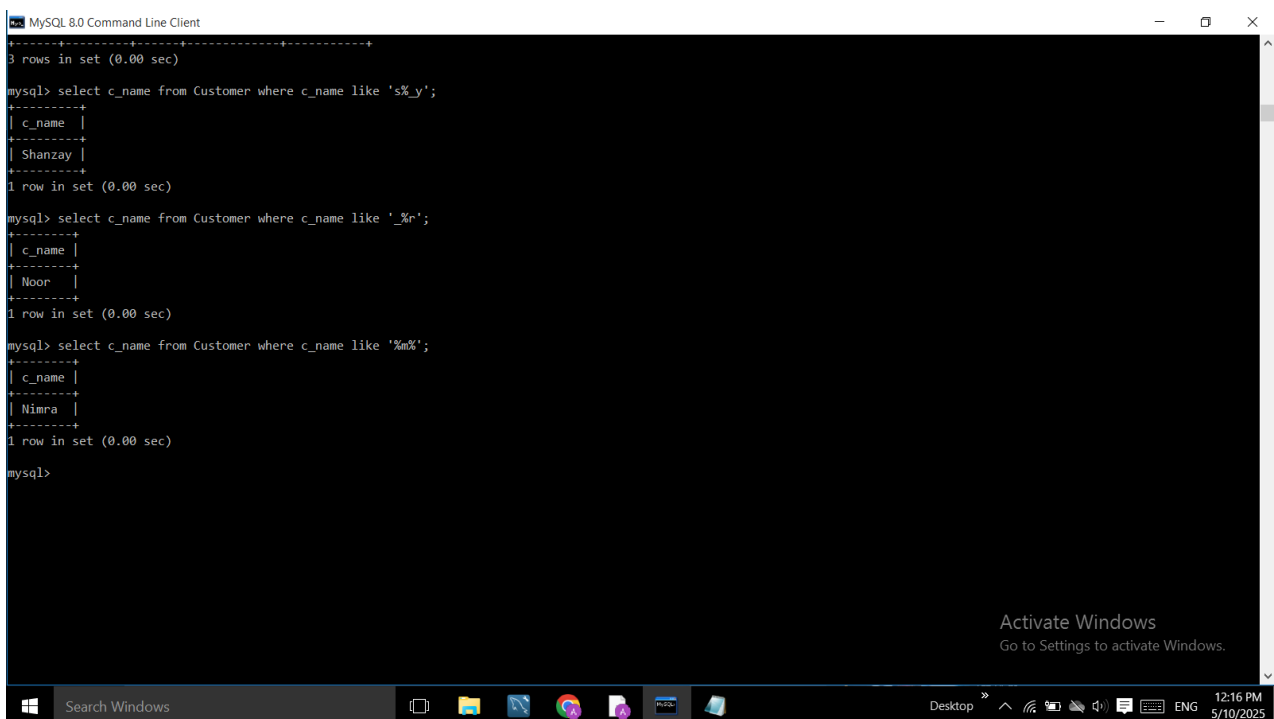
LIKE CLAUSE ON CUSTOMER

The **LIKE** operator is used in a **WHERE** clause to search for a specified pattern in a column.

Syntax

SELECT column1.. **FROM** table_name
WHERE columnN **LIKE** pattern;

- The percent sign (%) represents zero, one, or multiple characters
- The underscore sign (_) represents one, single character



```
MySQL 8.0 Command Line Client
-----+-----+
3 rows in set (0.00 sec)

mysql> select c_name from Customer where c_name like 's%y';
+-----+
| c_name |
+-----+
| Shanzay |
+-----+
1 row in set (0.00 sec)

mysql> select c_name from Customer where c_name like '%_r';
+-----+
| c_name |
+-----+
| Noor |
+-----+
1 row in set (0.00 sec)

mysql> select c_name from Customer where c_name like '%m%';
+-----+
| c_name |
+-----+
| Nimra |
+-----+
1 row in set (0.00 sec)

mysql>
```

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