HOTEL CHAIN

MYSQL QUERIES ON NORMALIZATION PROJECT

GROUP 16

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TABLE OF CONTENTS

DESCRIPTION

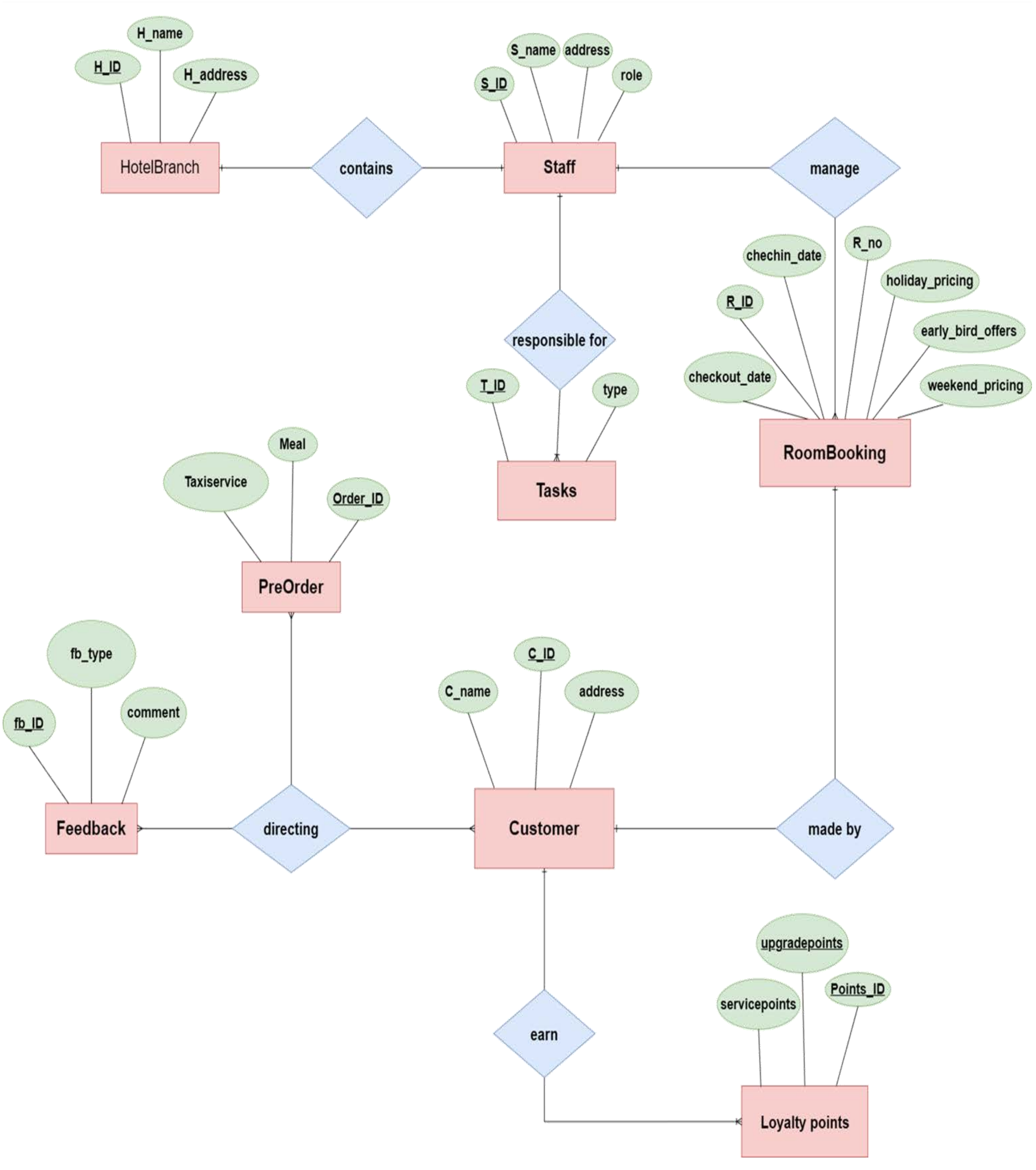
SQL stands for structure query language. It is a widely used, open source relational database management system.

A hotel chain management system provides a centralized platform for managing multiple hotel properties within a chain. This database would store information about different hotels, including room details, staff managing, reservations, guest records pricing information etc.

Pros:

- Scalability
- Reliability
- Cost effectiveness
- Flexibility

ENTITY RELATIONSHIP DIAGRAM



RELATIONAL SCHEMA

1. **hotel_branch** (h_id, h_name, h_address, staff_id)
2. **staff** (s_id, s_name, s_address, s_role)
3. **room_booking** (R_id, R_no, check_in_date, check_out_date, weekend_pricing, holiday_pricing, early_bird_offers, s_id)
4. **customer** (c_id, c_name, c_address, r_id)
5. **loyalty_points** (points_id, upgrade_points, service_points, cus_id)
6. **feedback** (f_id, f_type, comment, customer_id)
7. **pre_order** (order_id, meal, taxi_service, cust_id)
8. **task** (t_id, type, s_id)

SQL QUERIES

Show DATABASES

Show all databases and tables placed in a database MySQL use the following command:

⇒ **show databases;**
⇒ **show tables;**

CREATE DATABASE & TABLES

Create a new database or table.

⇒ **create database;**
⇒ **create table table_name (attribute datatype (size), …);**

USING DATABASE

Use a database already saved in MySQL.

⇒ **use database database_name;**

DESCRIBE TABLES

To see the constraints we have assigned to tables, DESCRIBE keyword is used.

⇒ **DESCRIBE table_name;**

SELECT

Used to retrieve rows selected from one or more tables.

⇒ **Select * from table_name;**
⇒ **Select attribute1_name from table_name where attribute2_name= '---';**

INSERT INTO

Insert values in tables.

⇒ **INSERT INTO table_name values (‘attribute’ datatype (value), ….);**

ALTER TABLES

Used for many purposes such as:

1. **To rename a column of a table**

⇒ **ALTER table table_name RENAME COLUMN column_name from existing_name to new_name;**

2. **To add a new column in a table**

⇒ **ALTER table table_name ADD column datatype (size);**

3. **To make an attribute foreign key**

⇒ **ALTER table table_name ADD column_name FOREIGN KEY REFERENCES referencetable_name (P.K);**

TABLE UPDATION

To reset the values of attributes in a table.

⇒ **Update table_name set attribute=‘value’ WHERE attribute_PK=‘target-value’;**

TABLE CONTRAINTS

There are two constraints for tables, Primary key and Foreign key.

Primary Key:

The attribute of a table on which all the other attributes of that depend.

Foreign Key:

When Primary key of a table is used in another table, it becomes Foreign key.

⇒ **ALTER table table_name ADD FOREIGN KEY (key_name) REFERENCES reference_table (P.K);**

Arithmetic Operations

Arithmetic operations include operators such as +, -, *, / etc.

select attribute operator value from table;

Logical / Relational Operations

Logical operations include operators such as >, <, <=, >=, !=, == etc. to relate any two attributes of a table.

⇒ **select attribute1 from table_name where attribute2 relational operator value;**

Aggregation Functions

Aggregate functions include avg, max, min etc. operations.

⇒ **select aggregate_function (attribute) from table;**

ORDER BY

ORDER BY keyword is used to sort the values of tables in ascending or descending order. By default ascending order is

⇒ **select * from table ORDER BY attribute DESC;**
⇒ **select * from table ORDER BY attribute ASC;**

GROUP BY

GROUP BY clause is important used to group rows from a table based on the values of one or more column Used with aggregate functions like **AVG, MAX, MIN, SUM and COUNT** to perform calculations on grouped data.

Syntax:

⇒ **select aggreagate_function (attribute) from table GROUP BY attributes;**

AS

It allows for temporary renaming with a query, which can simplify complex queries and result sets.

Where

This clause is used to filter records. It is used to extract only those records that fulfill a specified condition.

DISTINCT

The DISTINCT keyword in MySQL is used to remove duplicate records from the results of a SELECT query

Syntax:

⇒ **select DISTINCT attribute from table;**

BETWEEN

The BETWEEN clause is used to show the values/contents of the table between a given limit. It filter the result set within a specified range.

Syntax:

⇒ **select column_name from table where column_name BETWEEN value1 AND value2;**

Count & Count (*)

This function counts all rows in a table regardless of whether they contain NULL values.

Syntax:

⇒ **select count (*) attribute_name from table;**
⇒ **select count (attribute_name) from table;**

HAVING

The HAVING clause is similar to the WHERE clause but is specifically applied after grouping and aggregation.

Syntax:

⇒ **select aggreagate_function (attribute) from table GROUP BY attributes HAVING count (attribute) >1;**

AND & OR

The AND & OR operators are used to filter records based on more than one conditions:

- The AND operator displays a record if all the conditions separated by AND are true.
- The AND operator displays a record if any of the conditions separated by AND are true.

IN

The IN operator allows you to specify multiple values in a where clause. It is a shorthand for multiple OR conditions.

⇒ **SELECT attribute_name(s) FROM table_name**
WHERE attribute_name IN (value1, value2, ...);

LIKE

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;

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

IS NULL & IS NOT NULL

These keywords are used for checking that the values of attributes checked

NULL or not.

Syntax:

⇒ **select attribute_name from table where attribute IS NULL;**

⇒ **select attribute_name from table where attribute IS NOT NULL;**

JOINS

Joins allows to retrieve related data from multiple tables in a single query, avoiding the need for different separate queries.

Syntax:

⇒ **Select column_list from table1 JOIN table2 ON table1. column = table1;**

INNER JOIN:

The joins in which both the tables have matching values in them are called inner join.

Left Join:

This join return all rows from the left table and matching rows in right table.

Cross join:

A cross join is type of join that return cartesian product of rows from the tables in the join.

Equi join:

It is join operation in sql that combines two table based on a matching column between them.

Right Join:

This join return all rows from right table and matching rows from left table.

VIEWS

A MySQL view is a predefined select query that operates on existing data without duplicating it. A view acts as a virtual table.

Syntax:

⇒ **create or replace VIEW view_name AS select column1, column2 from table_name;**

DELETE

DELETE statement is used to delete rows in a table. It deletes a specific row using where clause.

Syntax:

⇒ **delete from table where column_name= ’value’;**

DROP

DROP statement is used to delete the whole table along with table structure, attribute and indexes.

Syntax:

⇒ **drop table table_name;**

TRUNCATE

The truncate statement is used to delete all data in the table not the whole table.

Syntax:

⇒ **truncate table_name;**

Sub Query

Subqueries are also known as inner queries or nested queries.

Syntax:

⇒ **Select column1, column2… from table where column operator (select column from another_table where condition); column1, column2, …: The columns you want to retrieve**.

GRANT

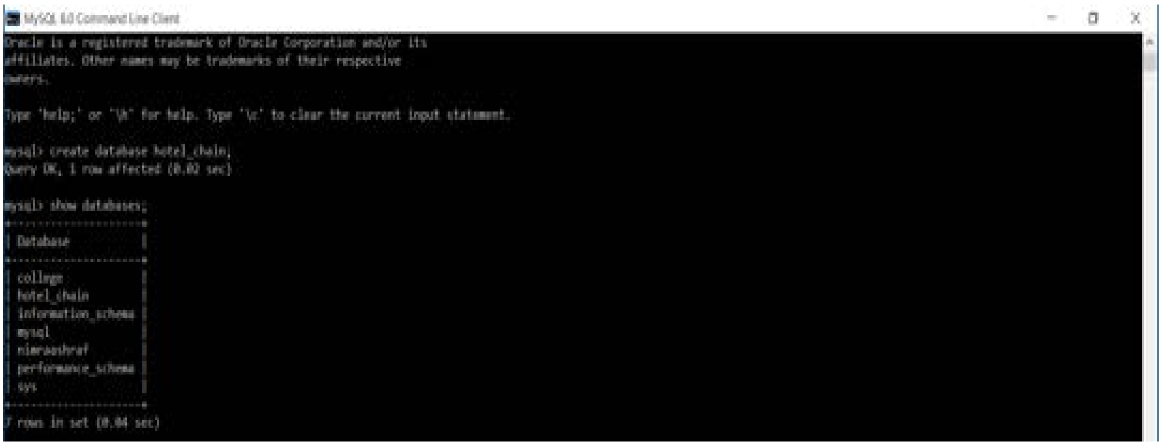
Grant is a statement used to assign privileges to user accounts, allowing them to perform specific actions on database projects.

PRIVILEGES

Privileges are the rights or permissions assigned to users that determine what actions they can perform on the database.

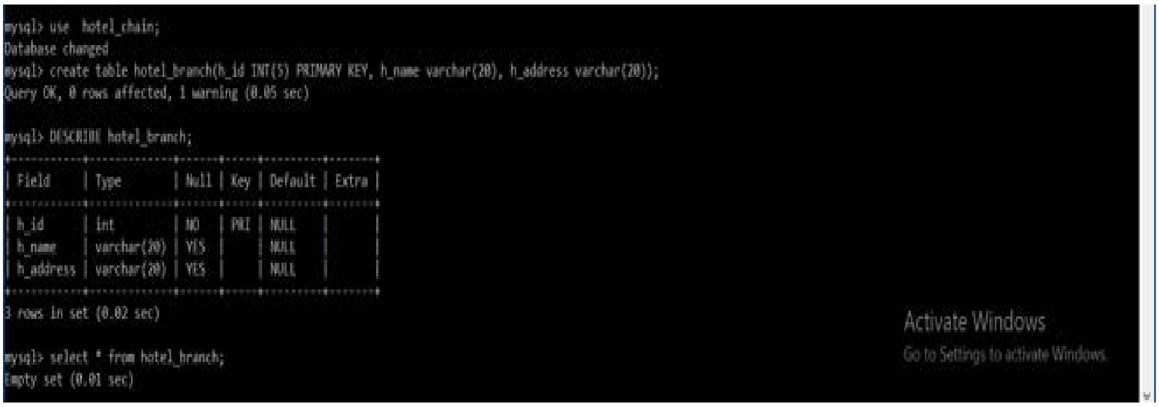
NORMALIZATION TABLES

CREATE DATABASE HOTEL_CHAIN



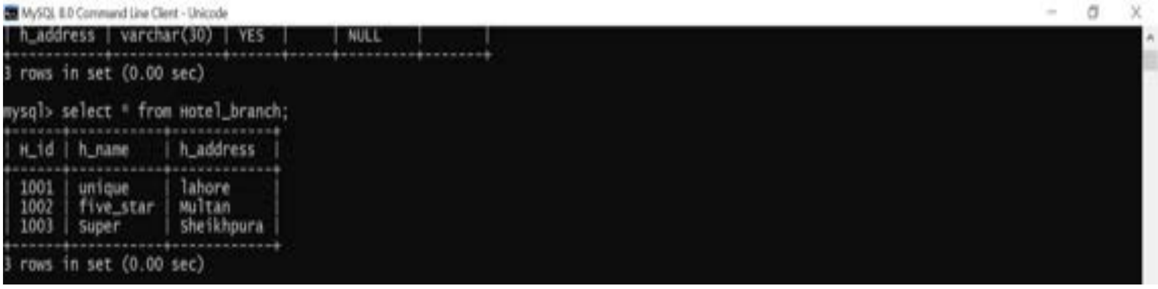
```
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.

Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.

mysql> create database hotel_chain;
Query OK, 1 row affected (0.02 sec)

mysql> show databases;
+--------------------+
| Database           |
+--------------------+
| college            |
| hotel_chain        |
| information_schema |
| mysql              |
| nimraashraf        |
| performance_schema |
| sys                |
+--------------------+
7 rows in set (0.04 sec)
```

CREATE Hotel_Branch Table



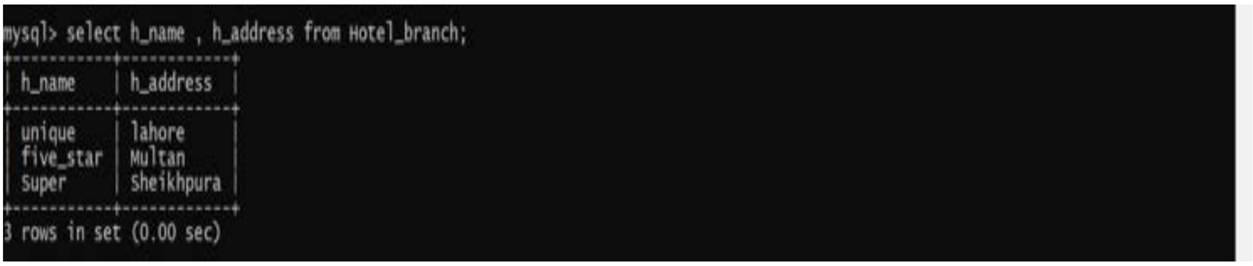
```
mysql> use  hotel_chain;
Database changed
mysql> create table hotel_branch(h_id INT(5) PRIMARY KEY, h_name varchar(20), h_address varchar(20));
Query OK, 0 rows affected, 1 warning (0.05 sec)

mysql> DESCRIBE hotel_branch;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| h_id      | int         | NO   | PRI | NULL    |       |
| h_name    | varchar(20) | YES  |     | NULL    |       |
| h_address | varchar(20) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.02 sec)

mysql> select * from hotel_branch;
Empty set (0.01 sec)
```

INSERTING VALUES IN HOTEL_BRANCH



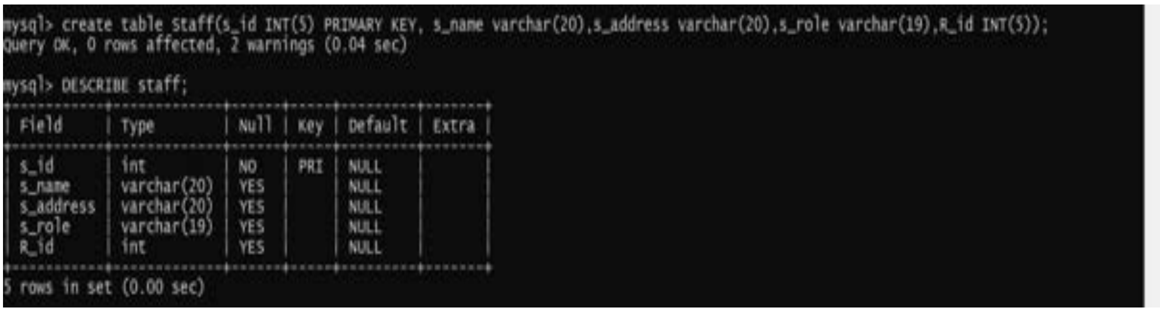
```
| h_address | varchar(30) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)

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

3 NF OF HOTEL_BRANCH



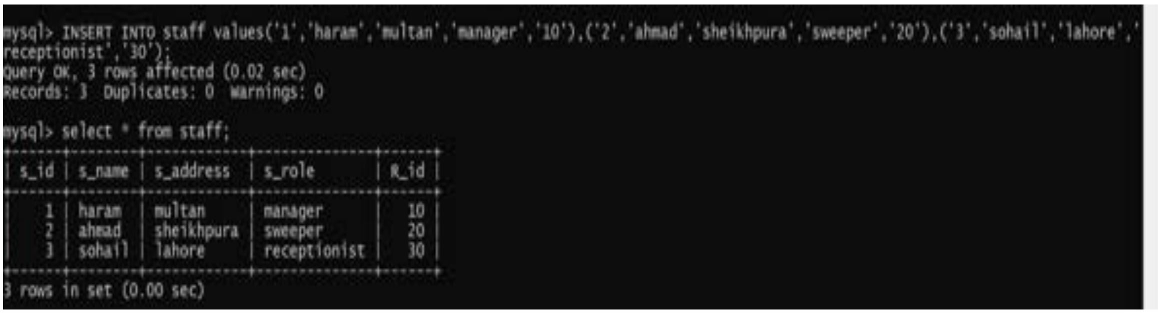
```
mysql> select h_name , h_address from Hotel_branch;
+----------+-----------+
| h_name   | h_address |
+----------+-----------+
| unique   | lahore    |
| five_star| Multan    |
| Super    | Sheikhpura|
+----------+-----------+
3 rows in set (0.00 sec)
```

CREATE STAFF TABLE



```
mysql> create table Staff(s_id INT(5) PRIMARY KEY, s_name varchar(20),s_address varchar(20),s_role varchar(19),R_id INT(5));
Query OK, 0 rows affected, 2 warnings (0.04 sec)

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(19) | YES  |     | NULL    |       |
| R_id      | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)
```

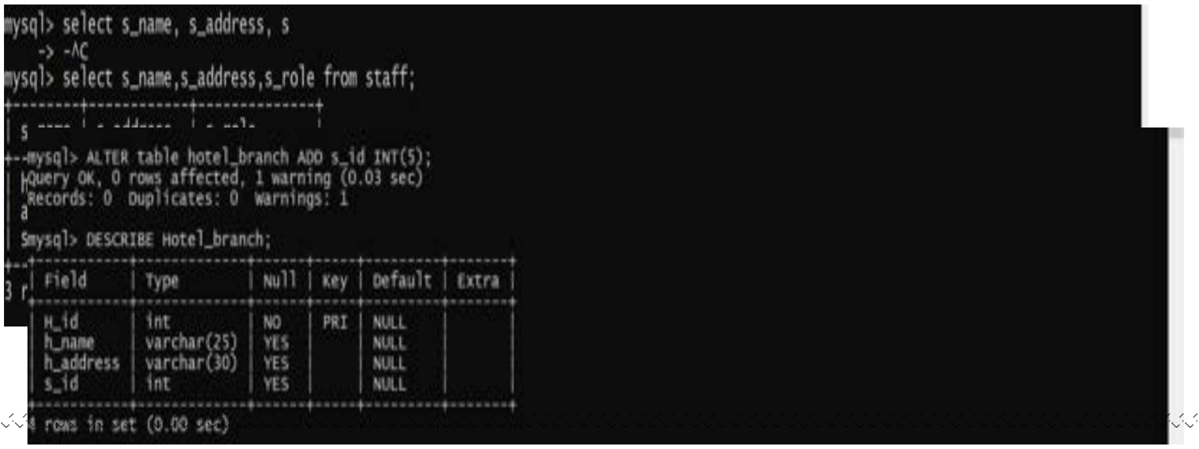
INSERTING VALUES IN STAFF



```
mysql> INSERT INTO staff values('1','haram','multan','manager','10'),('2','ahmad','sheikhpura','sweeper','20'),('3','sohail','lahore','
receptionist','30');
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

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)
```

3RD NORMAL FORM OF STAFF

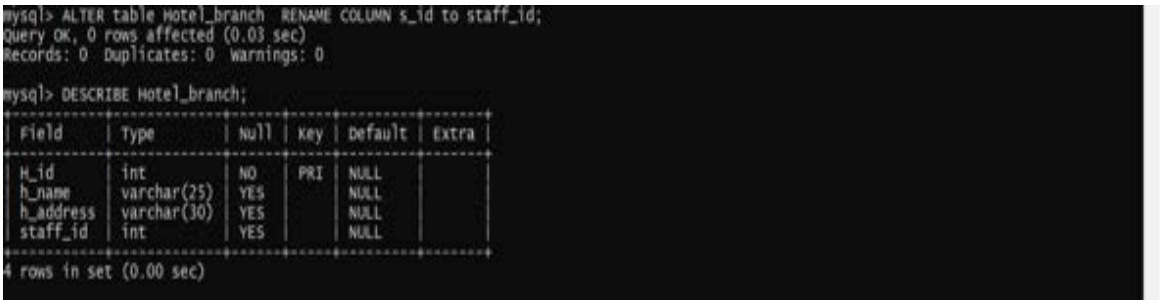
ADD s_id COLUMN IN HOTEL BRANCH



```
mysql> select s_name, s_address, s
    -> -^C
mysql> select s_name,s_address,s_role from staff;
+--------+-----------+-------------+
| s
+--mysql> ALTER table hotel_branch ADD s_id INT(5);
| HQuery OK, 0 rows affected, 1 warning (0.03 sec)
| aRecords: 0  Duplicates: 0  Warnings: 1
|
| Smysql> DESCRIBE Hotel_branch;
+--+-----------+-------------+------+-----+---------+-------+
3 r| Field     | Type        | Null | Key | Default | Extra |
   +-----------+-------------+------+-----+---------+-------+
   | H_id      | int         | NO   | PRI | NULL    |       |
   | h_name    | varchar(25) | YES  |     | NULL    |       |
   | h_address | varchar(30) | YES  |     | NULL    |       |
   | s_id      | int         | YES  |     | NULL    |       |
   +-----------+-------------+------+-----+---------+-------+
   4 rows in set (0.00 sec)
```

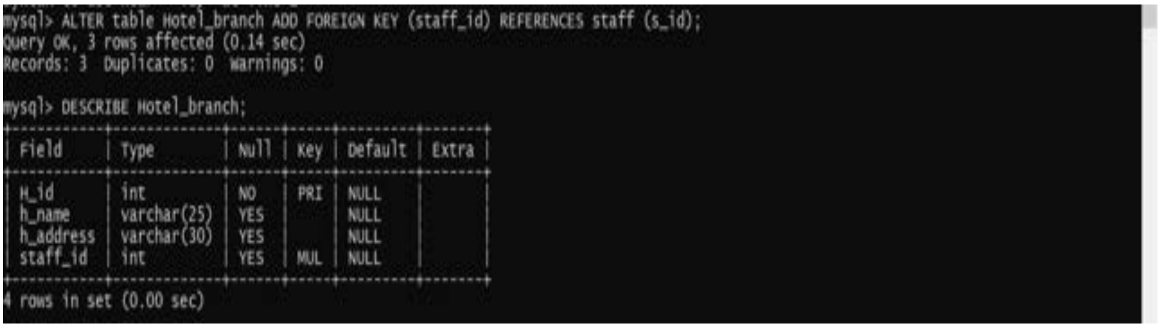
TABLE

CHANGE COLUMN NAME (FROM s_id TO staff_id)



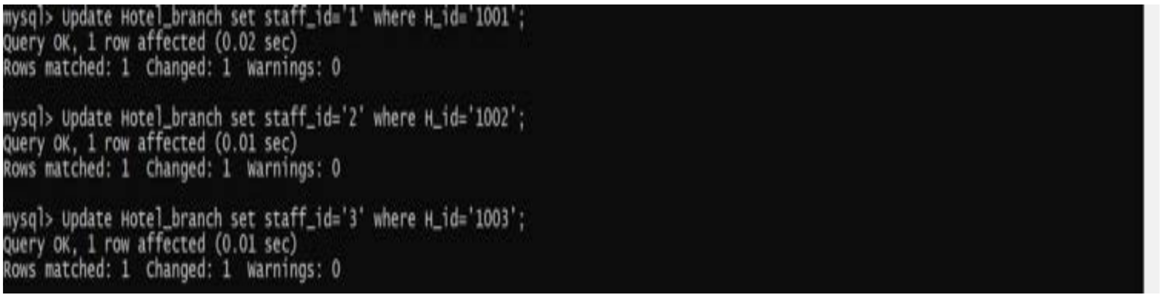
```
mysql> ALTER table Hotel_branch  RENAME COLUMN s_id to staff_id;
Query OK, 0 rows affected (0.03 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESCRIBE Hotel_branch;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| H_id      | int         | NO   | PRI | NULL    |       |
| h_name    | varchar(25) | YES  |     | NULL    |       |
| h_address | varchar(30) | YES  |     | NULL    |       |
| staff_id  | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

MAKE staff_id FOREIGN KEY



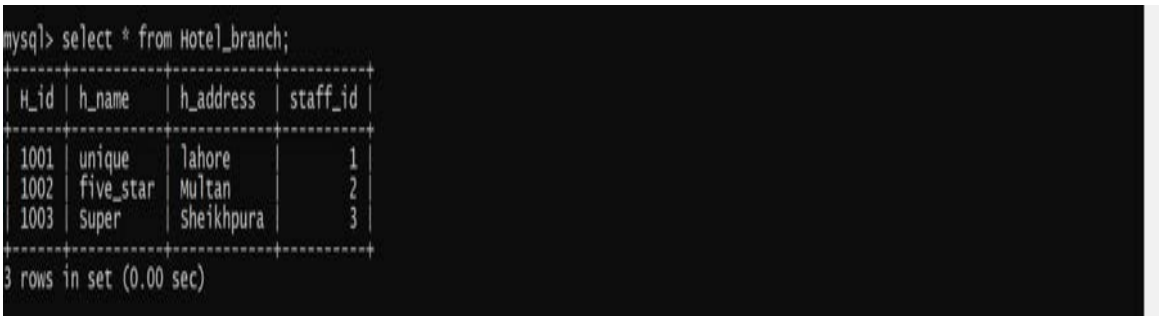
```
mysql> ALTER table Hotel_branch ADD FOREIGN KEY (staff_id) REFERENCES staff (s_id);
Query OK, 3 rows affected (0.14 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> DESCRIBE Hotel_branch;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| H_id      | int         | NO   | PRI | NULL    |       |
| h_name    | varchar(25) | YES  |     | NULL    |       |
| h_address | varchar(30) | YES  |     | NULL    |       |
| staff_id  | int         | YES  | MUL | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

INSERTING VALUES IN FOREIGN KEY



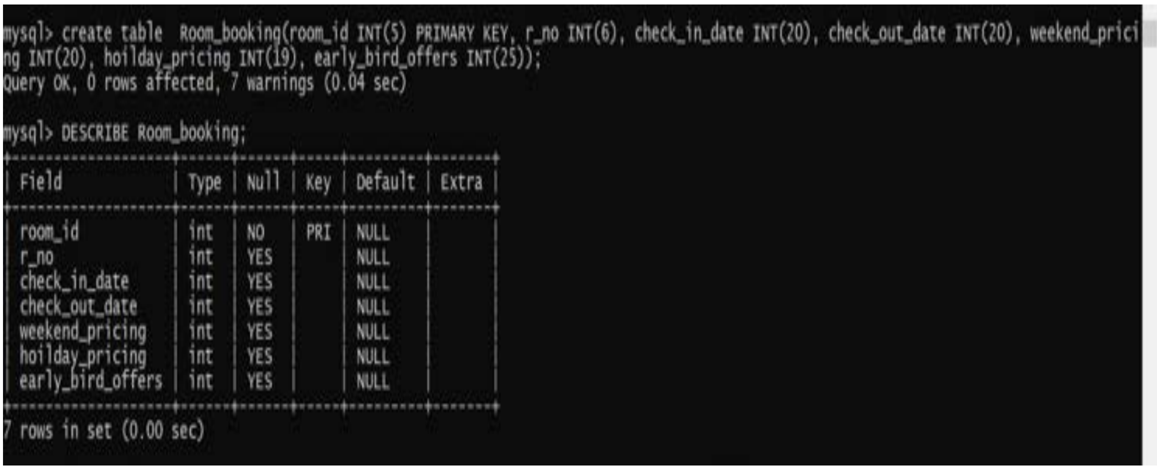
```
mysql> Update Hotel_branch set staff_id='1' where H_id='1001';
Query OK, 1 row affected (0.02 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> Update Hotel_branch set staff_id='2' where H_id='1002';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> Update Hotel_branch set staff_id='3' where H_id='1003';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

SELECT FROM HOTEL_BRANCH



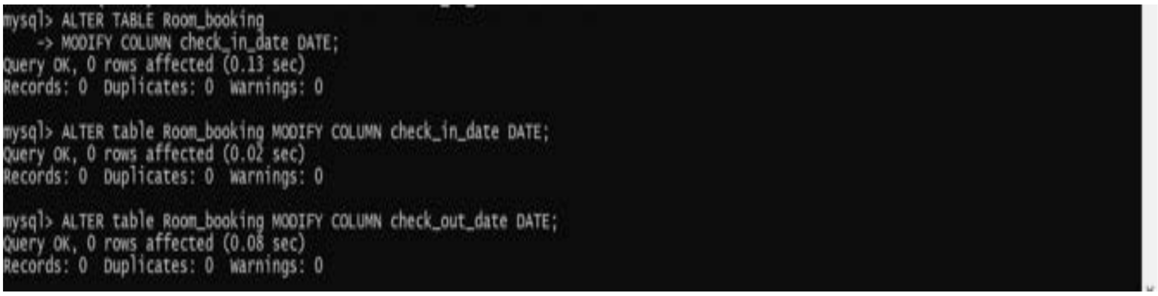
```
mysql> select * from Hotel_branch;
+------+-----------+-----------+----------+
| H_id | h_name    | h_address | staff_id |
+------+-----------+-----------+----------+
| 1001 | unique    | lahore    |        1 |
| 1002 | five_star | Multan    |        2 |
| 1003 | Super     | Sheikhpura |       3 |
+------+-----------+-----------+----------+
3 rows in set (0.00 sec)
```

CREATE ROOM_BOOKING TABLE



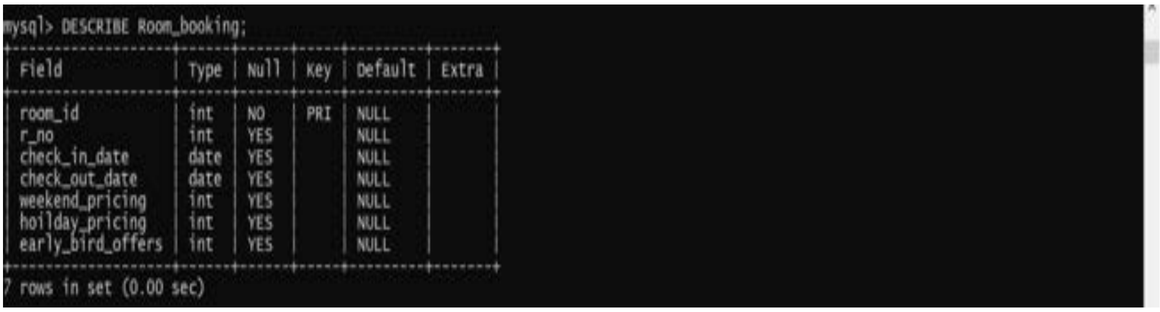
```
mysql> create table  Room_booking(room_id INT(5) PRIMARY KEY, r_no INT(6), check_in_date INT(20), check_out_date INT(20), weekend_prici
ng INT(20), hoilday_pricing INT(19), early_bird_offers INT(25));
Query OK, 0 rows affected, 7 warnings (0.04 sec)

mysql> DESCRIBE Room_booking;
+-------------------+------+------+-----+---------+-------+
| Field             | Type | Null | Key | Default | Extra |
+-------------------+------+------+-----+---------+-------+
| room_id           | int  | NO   | PRI | NULL    |       |
| r_no              | int  | YES  |     | NULL    |       |
| check_in_date     | int  | YES  |     | NULL    |       |
| check_out_date    | int  | YES  |     | NULL    |       |
| weekend_pricing   | int  | YES  |     | NULL    |       |
| hoilday_pricing   | int  | YES  |     | NULL    |       |
| early_bird_offers | int  | YES  |     | NULL    |       |
+-------------------+------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

MODIFY CHECK_IN & CHECK_OUT DATES



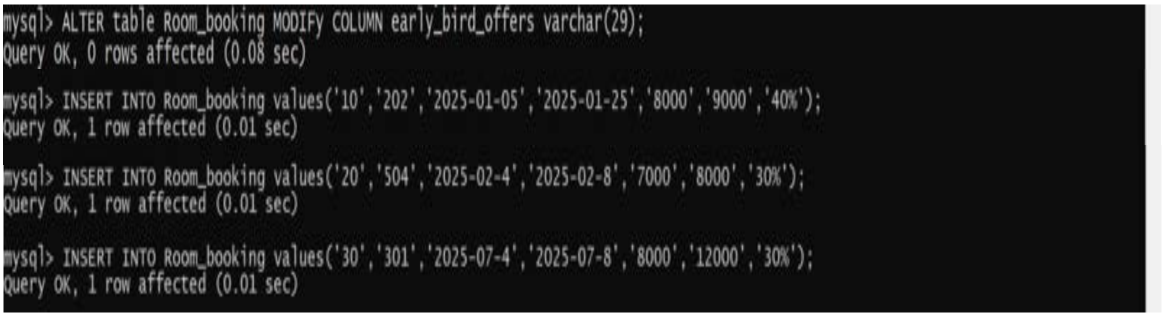
```
mysql> ALTER TABLE Room_booking
    -> MODIFY COLUMN check_in_date DATE;
Query OK, 0 rows affected (0.13 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> ALTER table Room_booking MODIFY COLUMN check_in_date DATE;
Query OK, 0 rows affected (0.02 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> ALTER table Room_booking MODIFY COLUMN check_out_date DATE;
Query OK, 0 rows affected (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0
```

DESCRIBE ROOM_BOOKING



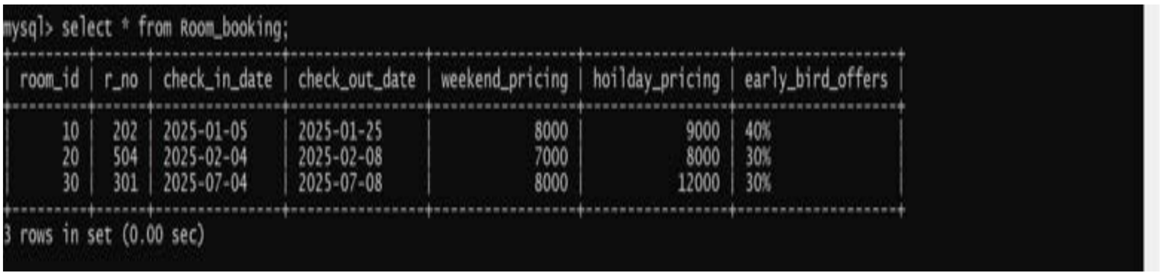
```
mysql> DESCRIBE Room_booking;
+-----------------+------+------+-----+---------+-------+
| Field           | Type | Null | Key | Default | Extra |
+-----------------+------+------+-----+---------+-------+
| room_id         | int  | NO   | PRI | NULL    |       |
| r_no            | int  | YES  |     | NULL    |       |
| check_in_date   | date | YES  |     | NULL    |       |
| check_out_date  | date | YES  |     | NULL    |       |
| weekend_pricing | int  | YES  |     | NULL    |       |
| hoilday_pricing | int  | YES  |     | NULL    |       |
| early_bird_offers | int  | YES  |     | NULL    |       |
+-----------------+------+------+-----+---------+-------+
7 rows in set (0.00 sec)
```

MODIFY EARLY_BIRD_OFFERS & INSERTING VALUES



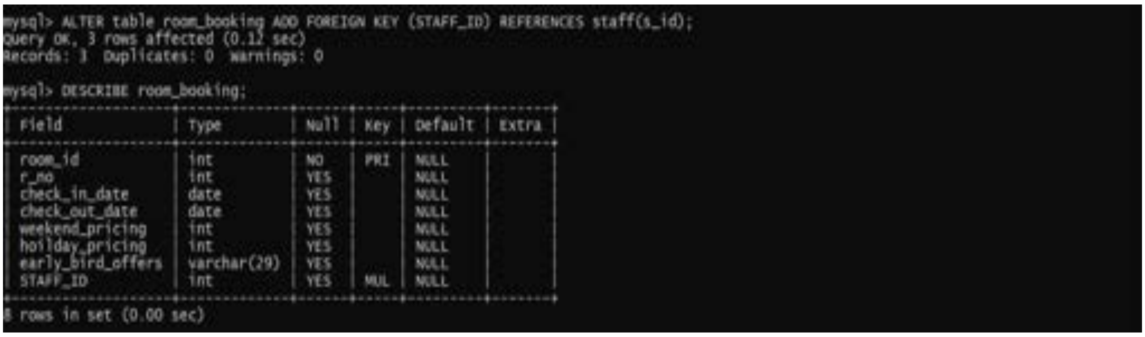
```
mysql> ALTER table Room_booking MODIFy COLUMN early_bird_offers varchar(29);
Query OK, 0 rows affected (0.08 sec)

mysql> INSERT INTO Room_booking values('10','202','2025-01-05','2025-01-25','8000','9000','40%');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Room_booking values('20','504','2025-02-4','2025-02-8','7000','8000','30%');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO Room_booking values('30','301','2025-07-4','2025-07-8','8000','12000','30%');
Query OK, 1 row affected (0.01 sec)
```

SELECT FROM ROOM_BOOKING



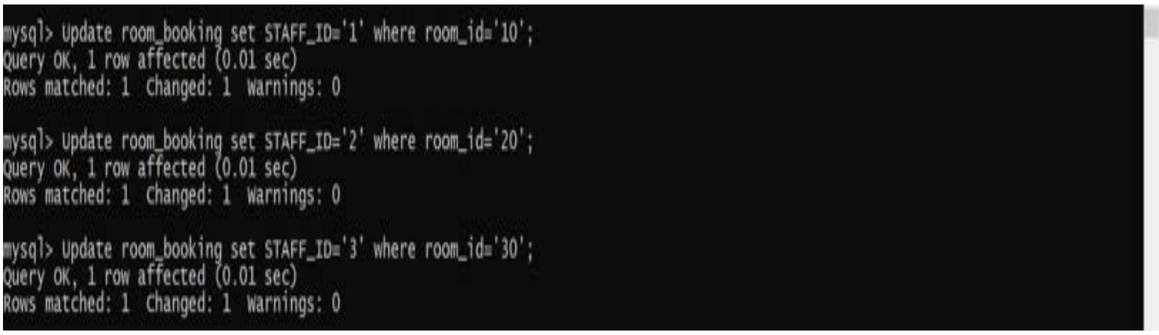
```
mysql> select * from Room_booking;
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+
| room_id | r_no | check_in_date | check_out_date | weekend_pricing | hoilday_pricing | early_bird_offers |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+
|      10 |  202 | 2025-01-05    | 2025-01-25     |            8000 |            9000 | 40%               |
|      20 |  504 | 2025-02-04    | 2025-02-08     |            7000 |            8000 | 30%               |
|      30 |  301 | 2025-07-04    | 2025-07-08     |            8000 |           12000 | 30%               |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+
3 rows in set (0.00 sec)
```

ADD STAFF_ID FOREIGN KEY



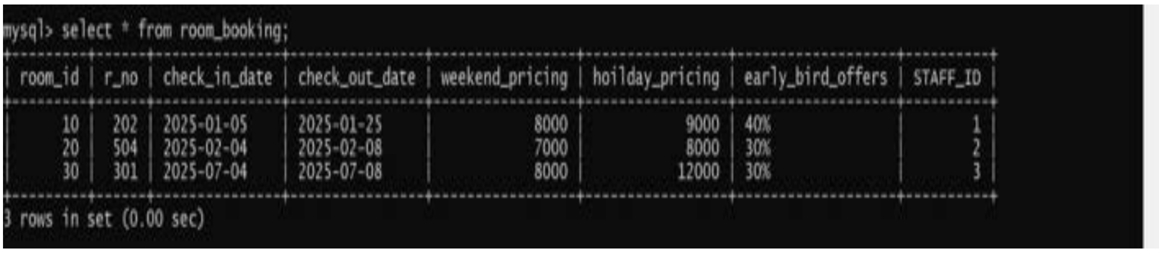
```
mysql> ALTER table room_booking ADD FOREIGN KEY (STAFF_ID) REFERENCES staff(s_id);
Query OK, 3 rows affected (0.12 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> DESCRIBE room_booking;
+-------------------+-------------+------+-----+---------+-------+
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| room_id           | int         | NO   | PRI | NULL    |       |
| r_no              | int         | YES  |     | NULL    |       |
| check_in_date     | date        | YES  |     | NULL    |       |
| check_out_date    | date        | YES  |     | NULL    |       |
| weekend_pricing   | int         | YES  |     | NULL    |       |
| hoilday_pricing   | int         | YES  |     | NULL    |       |
| early_bird_offers | varchar(29) | YES  |     | NULL    |       |
| STAFF_ID          | int         | YES  | MUL | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
8 rows in set (0.00 sec)
```

INSERT VALUES IN FOREIGN KEY



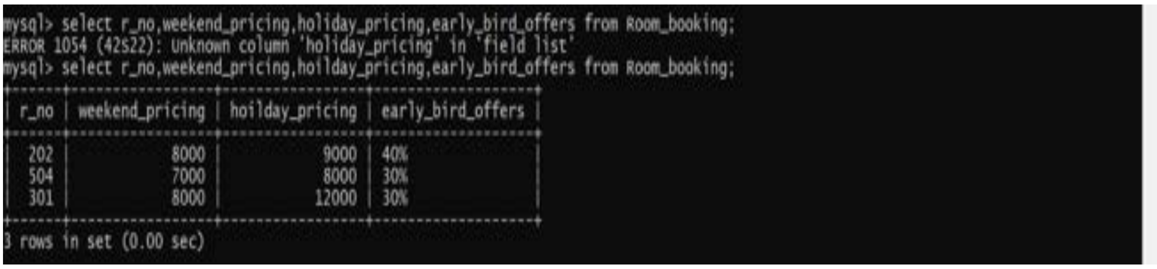
```
mysql> Update room_booking set STAFF_ID='1' where room_id='10';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> Update room_booking set STAFF_ID='2' where room_id='20';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0

mysql> Update room_booking set STAFF_ID='3' where room_id='30';
Query OK, 1 row affected (0.01 sec)
Rows matched: 1  Changed: 1  Warnings: 0
```

SELECT FROM ROOM_BOOKING



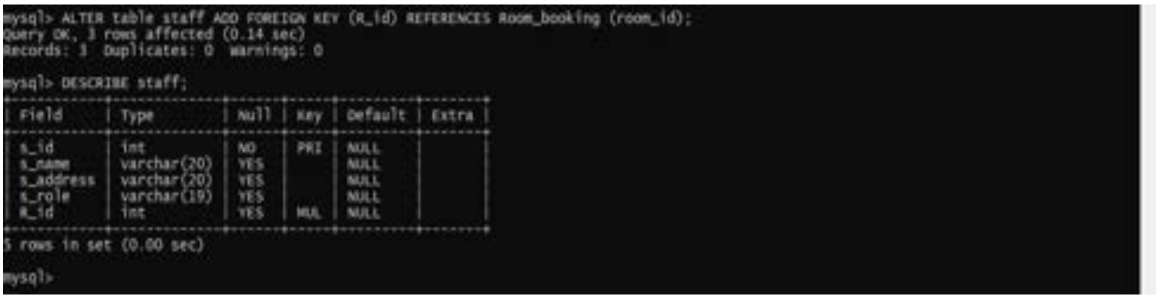
```
mysql> select * from room_booking;
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+
| room_id | r_no | check_in_date | check_out_date | weekend_pricing | hoilday_pricing | early_bird_offers | STAFF_ID |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+
|      10 |  202 | 2025-01-05    | 2025-01-25     |            8000 |            9000 | 40%               |        1 |
|      20 |  504 | 2025-02-04    | 2025-02-08     |            7000 |            8000 | 30%               |        2 |
|      30 |  301 | 2025-07-04    | 2025-07-08     |            8000 |           12000 | 30%               |        3 |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+
3 rows in set (0.00 sec)
```

3 NF OF ROOM_BOOKING



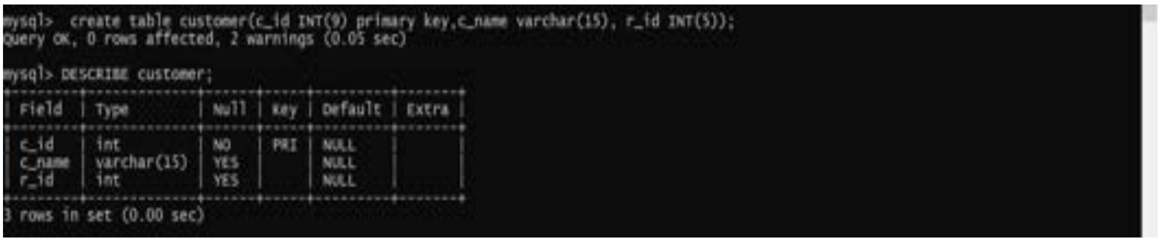
```
mysql> select r_no,weekend_pricing,holiday_pricing,early_bird_offers from Room_booking;
ERROR 1054 (42S22): Unknown column 'holiday_pricing' in 'field list'
mysql> select r_no,weekend_pricing,hoilday_pricing,early_bird_offers from Room_booking;
+------+-----------------+-----------------+-------------------+
| r_no | weekend_pricing | hoilday_pricing | early_bird_offers |
+------+-----------------+-----------------+-------------------+
|  202 |            8000 |            9000 | 40%               |
|  504 |            7000 |            8000 | 30%               |
|  301 |            8000 |           12000 | 30%               |
+------+-----------------+-----------------+-------------------+
3 rows in set (0.00 sec)
```

MAKE ROOM_ID FOREIGN KEY IN STAFF



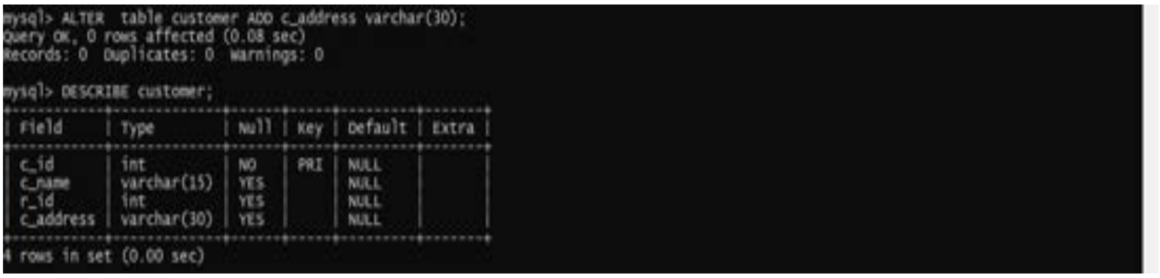
```
mysql> ALTER table staff ADD FOREIGN KEY (R_id) REFERENCES Room_booking (room_id);
Query OK, 3 rows affected (0.14 sec)
Records: 3  Duplicates: 0  Warnings: 0

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(19) | YES  |     | NULL    |       |
| R_id      | int         | YES  | MUL | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql>
```

CREATE CUSTOMER TABLE



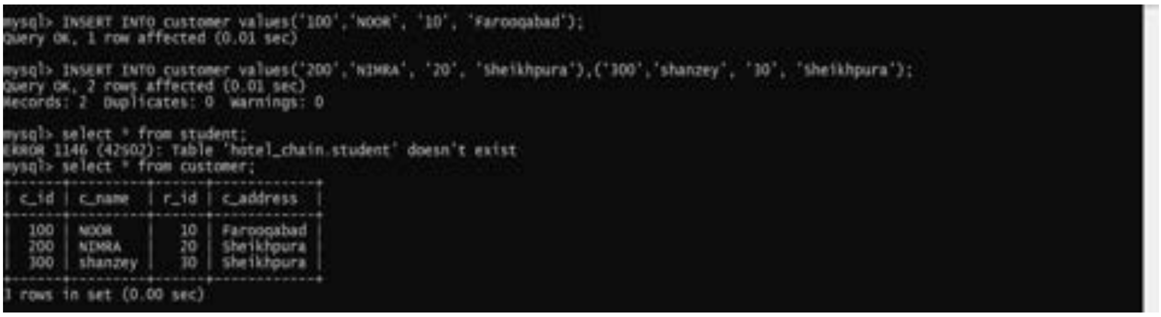
```
mysql>  create table customer(c_id INT(9) primary key,c_name varchar(15), r_id INT(5));
Query OK, 0 rows affected, 2 warnings (0.05 sec)

mysql> DESCRIBE customer;
+--------+-------------+------+-----+---------+-------+
| Field  | Type        | Null | Key | Default | Extra |
+--------+-------------+------+-----+---------+-------+
| c_id   | int         | NO   | PRI | NULL    |       |
| c_name | varchar(15) | YES  |     | NULL    |       |
| r_id   | int         | YES  |     | NULL    |       |
+--------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

ADD MISING C_ADDRESS COLUMN IN CUSTOMER TABLE



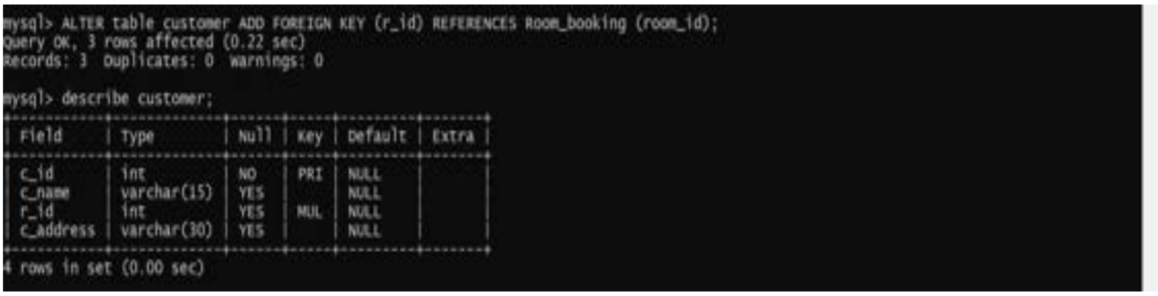
```
mysql> ALTER  table customer ADD c_address varchar(30);
Query OK, 0 rows affected (0.08 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESCRIBE customer;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| c_id      | int         | NO   | PRI | NULL    |       |
| c_name    | varchar(15) | YES  |     | NULL    |       |
| r_id      | int         | YES  |     | NULL    |       |
| c_address | varchar(30) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

INSERTING VALUES



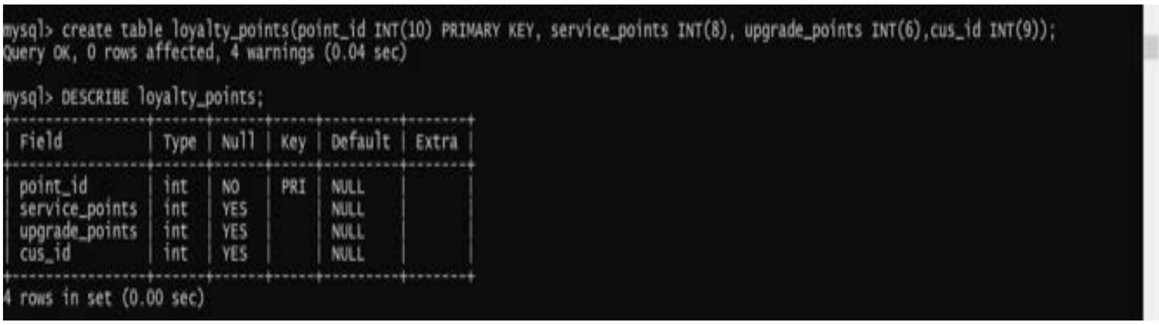
```
mysql> INSERT INTO customer values('100','NOOR', '10', 'Farooqabad');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO customer values('200','NIMRA', '20', 'Sheikhpura'),('300','shanzey', '30', 'Sheikhpura');
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from student;
ERROR 1146 (42S02): Table 'hotel_chain.student' doesn't exist
mysql> select * from customer;
+------+---------+------+------------+
| c_id | c_name  | r_id | c_address  |
+------+---------+------+------------+
|  100 | NOOR    |   10 | Farooqabad |
|  200 | NIMRA   |   20 | Sheikhpura |
|  300 | shanzey |   30 | Sheikhpura |
+------+---------+------+------------+
3 rows in set (0.00 sec)
```

MAKE r_id FOREIGN KEY IN CUSTOMER TABLE



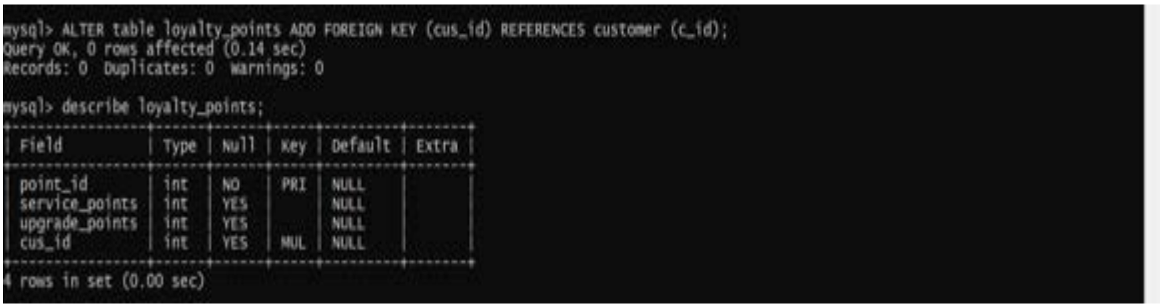
```
mysql> ALTER table customer ADD FOREIGN KEY (r_id) REFERENCES Room_booking (room_id);
Query OK, 3 rows affected (0.22 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql> describe customer;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| c_id      | int         | NO   | PRI | NULL    |       |
| c_name    | varchar(15) | YES  |     | NULL    |       |
| r_id      | int         | YES  | MUL | NULL    |       |
| c_address | varchar(30) | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

CREATE LOYALTY POINTS TABLE



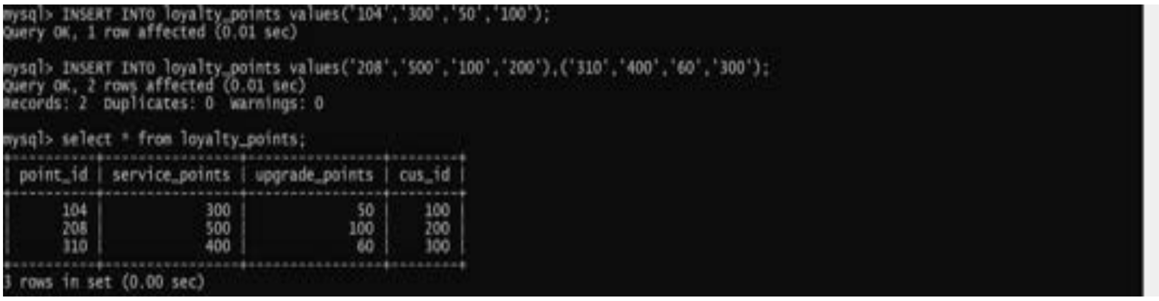
```
mysql> create table loyalty_points(point_id INT(10) PRIMARY KEY, service_points INT(8), upgrade_points INT(6),cus_id INT(9));
Query OK, 0 rows affected, 4 warnings (0.04 sec)

mysql> DESCRIBE loyalty_points;
+----------------+------+------+-----+---------+-------+
| Field          | Type | Null | Key | Default | Extra |
+----------------+------+------+-----+---------+-------+
| point_id       | int  | NO   | PRI | NULL    |       |
| service_points | int  | YES  |     | NULL    |       |
| upgrade_points | int  | YES  |     | NULL    |       |
| cus_id         | int  | YES  |     | NULL    |       |
+----------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

MAKE cus_id FOREIGN KEY



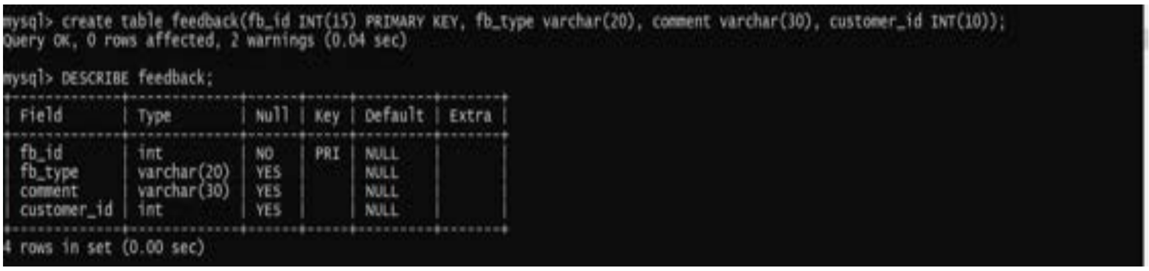
```
mysql> ALTER table loyalty_points ADD FOREIGN KEY (cus_id) REFERENCES customer (c_id);
Query OK, 0 rows affected (0.14 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe loyalty_points;
+----------------+------+------+-----+---------+-------+
| Field          | Type | Null | Key | Default | Extra |
+----------------+------+------+-----+---------+-------+
| point_id       | int  | NO   | PRI | NULL    |       |
| service_points | int  | YES  |     | NULL    |       |
| upgrade_points | int  | YES  |     | NULL    |       |
| cus_id         | int  | YES  | MUL | NULL    |       |
+----------------+------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

INSERTING VALUES & DESCRIBE



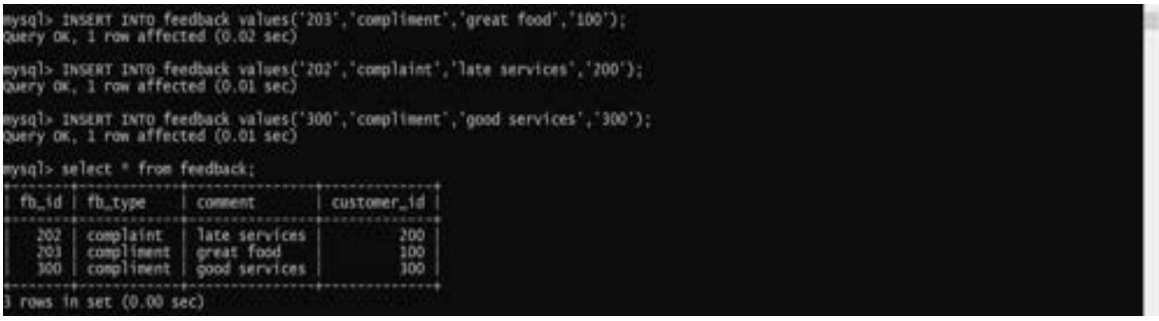
```
mysql> INSERT INTO loyalty_points values('104','300','50','100');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO loyalty_points values('208','500','100','200'),('310','400','60','300');
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql> select * from loyalty_points;
+----------+----------------+----------------+--------+
| point_id | service_points | upgrade_points | cus_id |
+----------+----------------+----------------+--------+
|      104 |            300 |             50 |    100 |
|      208 |            500 |            100 |    200 |
|      310 |            400 |             60 |    300 |
+----------+----------------+----------------+--------+
3 rows in set (0.00 sec)
```

CREATE FEEDBACK TABLE



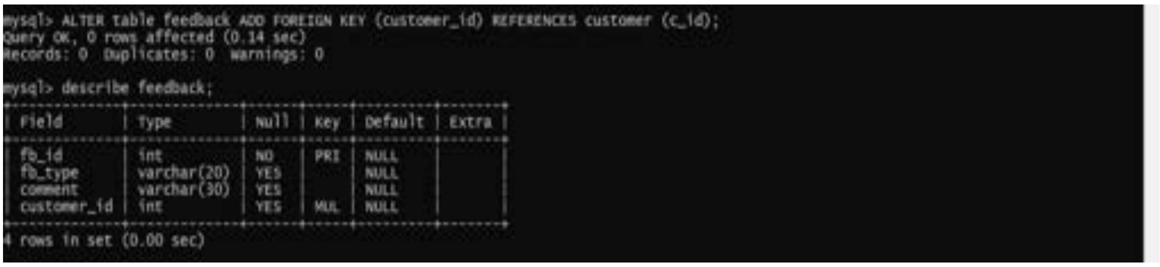
```
mysql> create table feedback(fb_id INT(15) PRIMARY KEY, fb_type varchar(20), comment varchar(30), customer_id INT(10));
Query OK, 0 rows affected, 2 warnings (0.04 sec)

mysql> DESCRIBE feedback;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| fb_id       | int         | NO   | PRI | NULL    |       |
| fb_type     | varchar(20) | YES  |     | NULL    |       |
| comment     | varchar(30) | YES  |     | NULL    |       |
| customer_id | int         | YES  |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

MAKE customer_id FOREIGN KEY IN FEEDBACK TABLE



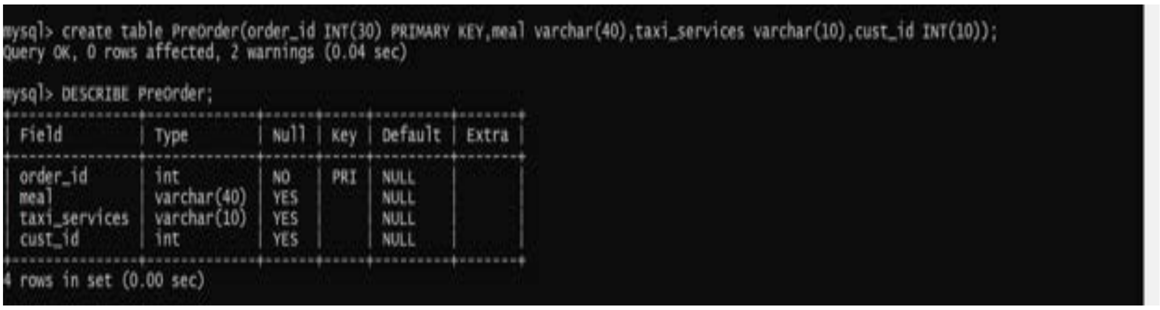
```
mysql> INSERT INTO feedback values('203','compliment','great food','100');
Query OK, 1 row affected (0.02 sec)

mysql> INSERT INTO feedback values('202','complaint','late services','200');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO feedback values('300','compliment','good services','300');
Query OK, 1 row affected (0.01 sec)

mysql> select * from feedback;
+-------+------------+---------------+-------------+
| fb_id | fb_type    | comment       | customer_id |
+-------+------------+---------------+-------------+
|   202 | complaint  | late services |         200 |
|   203 | compliment | great food    |         100 |
|   300 | compliment | good services |         300 |
+-------+------------+---------------+-------------+
3 rows in set (0.00 sec)
```

INSERTING VALUES



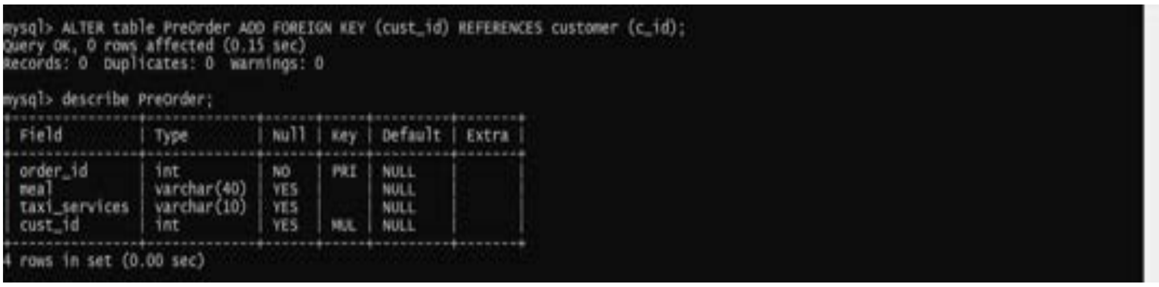
```
mysql> ALTER table feedback ADD FOREIGN KEY (customer_id) REFERENCES customer (c_id);
Query OK, 0 rows affected (0.14 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe feedback;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| fb_id       | int         | NO   | PRI | NULL    |       |
| fb_type     | varchar(20) | YES  |     | NULL    |       |
| comment     | varchar(30) | YES  |     | NULL    |       |
| customer_id | int         | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

CREATE PRE_ORDER TABLE



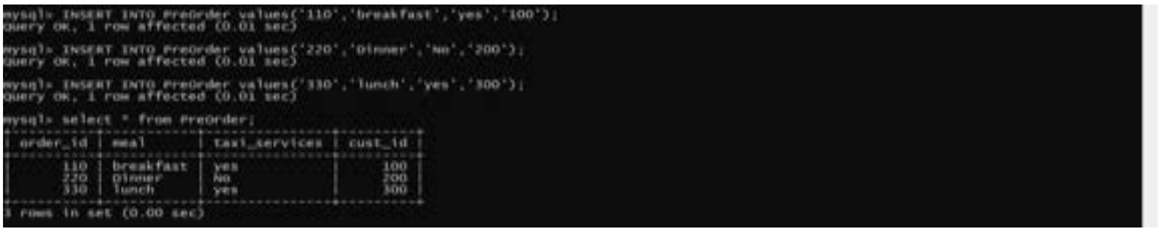
```
mysql> create table PreOrder(order_id INT(30) PRIMARY KEY,meal varchar(40),taxi_services varchar(10),cust_id INT(10));
Query OK, 0 rows affected, 2 warnings (0.04 sec)

mysql> DESCRIBE PreOrder;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| order_id      | int         | NO   | PRI | NULL    |       |
| meal          | varchar(40) | YES  |     | NULL    |       |
| taxi_services | varchar(10) | YES  |     | NULL    |       |
| cust_id       | int         | YES  |     | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

MADE cus_id FOREIGN KEY



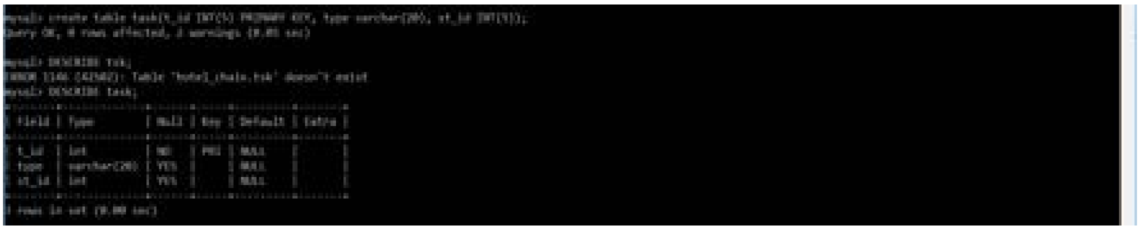
```
mysql> ALTER table PreOrder ADD FOREIGN KEY (cust_id) REFERENCES customer (c_id);
Query OK, 0 rows affected (0.15 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> describe PreOrder;
+---------------+-------------+------+-----+---------+-------+
| Field         | Type        | Null | Key | Default | Extra |
+---------------+-------------+------+-----+---------+-------+
| order_id      | int         | NO   | PRI | NULL    |       |
| meal          | varchar(40) | YES  |     | NULL    |       |
| taxi_services | varchar(10) | YES  |     | NULL    |       |
| cust_id       | int         | YES  | MUL | NULL    |       |
+---------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)
```

INSERTING VALUES IN ORDER



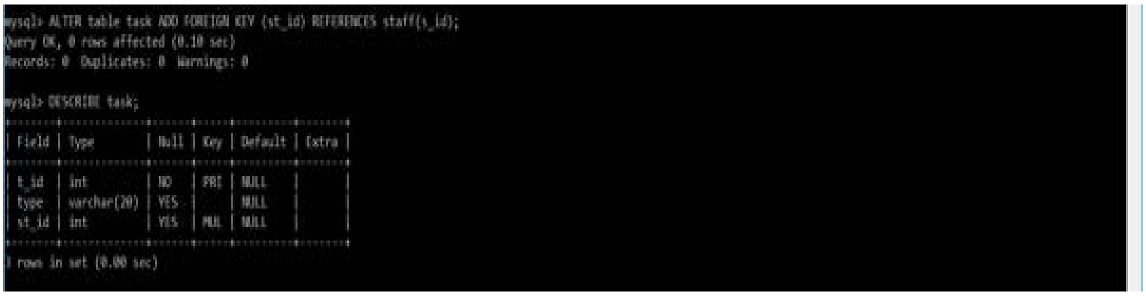
```
mysql> INSERT INTO PreOrder values('110','breakfast','yes','100');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PreOrder values('220','Dinner','No','200');
Query OK, 1 row affected (0.01 sec)

mysql> INSERT INTO PreOrder values('330','lunch','yes','300');
Query OK, 1 row affected (0.01 sec)

mysql> select * from PreOrder;
+----------+-----------+---------------+---------+
| order_id | meal      | taxi_services | cust_id |
+----------+-----------+---------------+---------+
|      110 | breakfast | yes           |     100 |
|      220 | Dinner    | No            |     200 |
|      330 | lunch     | yes           |     300 |
+----------+-----------+---------------+---------+
3 rows in set (0.00 sec)
```

CREATE TASK TABLE

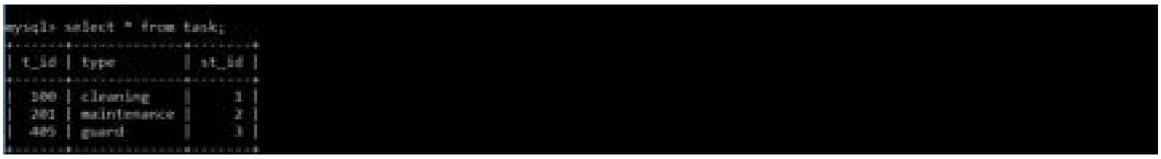


```
mysql> create table task(t_id INT(5) PRIMARY KEY, type varchar(20), st_id INT(5));
Query OK, 0 rows affected, 2 warnings (0.05 sec)

mysql> DESCRIBE tsk;
ERROR 1146 (42S02): Table 'hotel_chain.tsk' doesn't exist
mysql> DESCRIBE task;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| t_id  | int         | NO   | PRI | NULL    |       |
| type  | varchar(20) | YES  |     | NULL    |       |
| st_id | int         | YES  |     | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```

ADD st_id FOREIGN KEY AND INSERTION



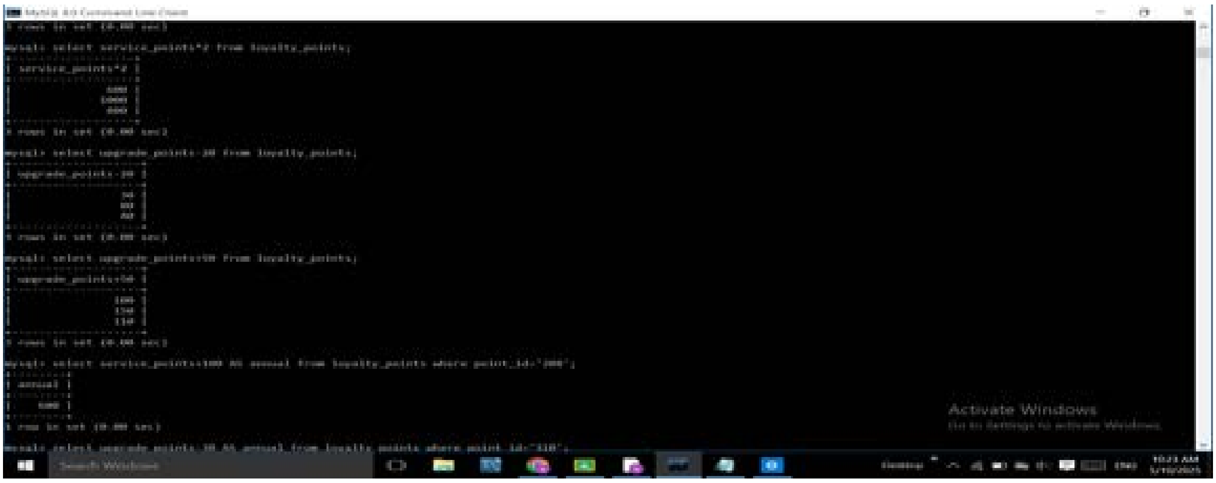
```
mysql> ALTER table task ADD FOREIGN KEY (st_id) REFERENCES staff(s_id);
Query OK, 0 rows affected (0.10 sec)
Records: 0  Duplicates: 0  Warnings: 0

mysql> DESCRIBE task;
+-------+-------------+------+-----+---------+-------+
| Field | Type        | Null | Key | Default | Extra |
+-------+-------------+------+-----+---------+-------+
| t_id  | int         | NO   | PRI | NULL    |       |
| type  | varchar(20) | YES  |     | NULL    |       |
| st_id | int         | YES  | MUL | NULL    |       |
+-------+-------------+------+-----+---------+-------+
3 rows in set (0.00 sec)
```



```
mysql> select * from task;
+------+-------------+-------+
| t_id | type        | st_id |
+------+-------------+-------+
|  100 | cleaning    |     1 |
|  201 | maintenance |     2 |
|  405 | guard       |     3 |
+------+-------------+-------+
```

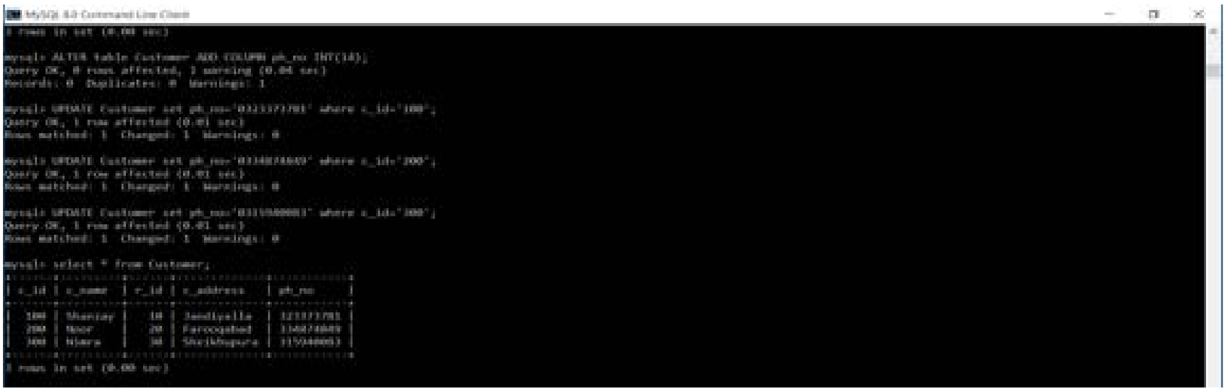
PRACTICAL IMPLEMENTATION

ARITHMETIC & LOGICAL OPERATIONS ON LOYALTY_POINTS TABLE

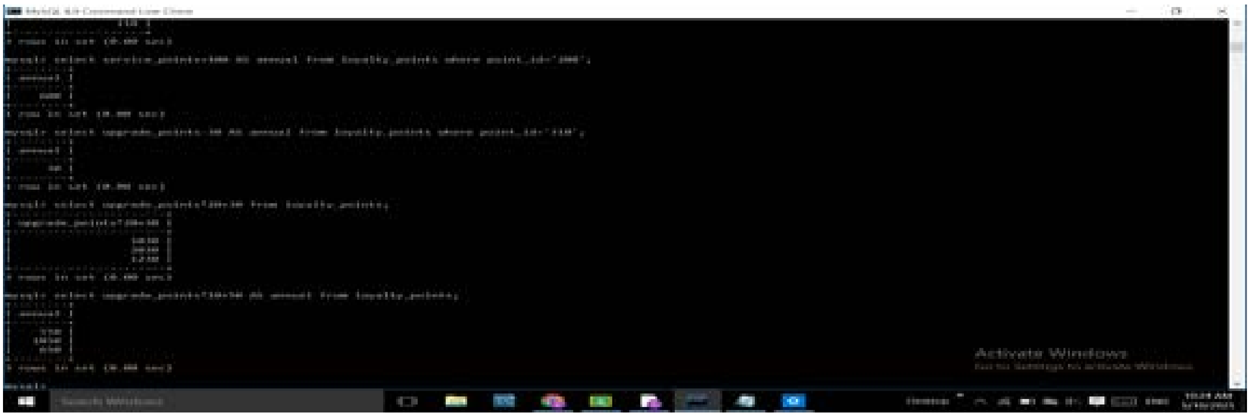


```
3 rows in set (0.00 sec)

mysql> select service_points*2 from loyalty_points;
+------------------+
| service_points*2 |
+------------------+
|              500 |
|             1000 |
|              600 |
+------------------+
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='100';
+--------+
| annual |
+--------+
|    500 |
+--------+
1 row in set (0.00 sec)

mysql> select upgrade_points-30 AS annual from loyalty_points where point_id='110';
```

LOGICAL OPERATIONS
ADDING ph_no COLUMN IN CUSTOMER

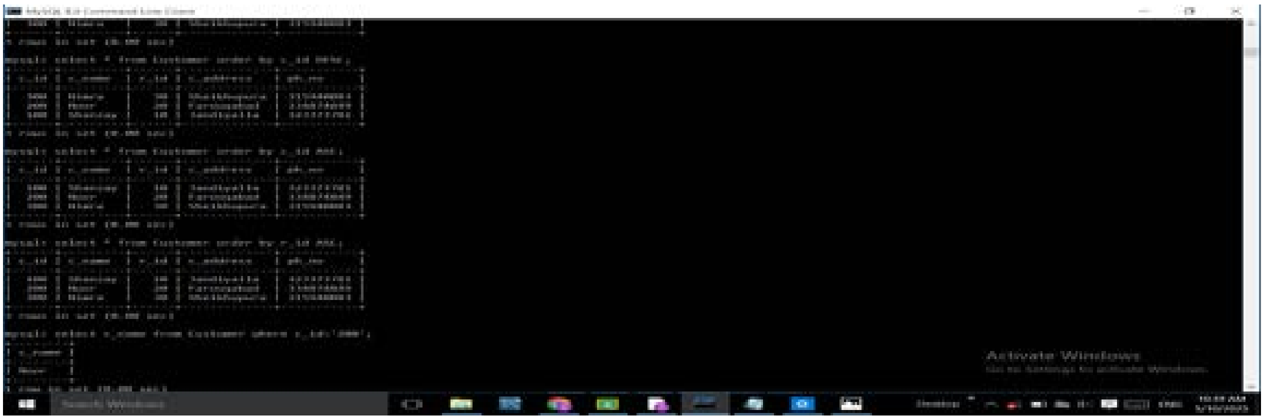


```
3 rows in set (0.00 sec)

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='03233373781' 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='03348748049' 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='03159400003' 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  | 3233373781 |
|  200 | Noor    |   20 | Farooqabad  | 3348748049 |
|  300 | Nimra   |   30 | Shaikhupura | 3159400003 |
+------+---------+------+-------------+------------+
3 rows in set (0.00 sec)
```

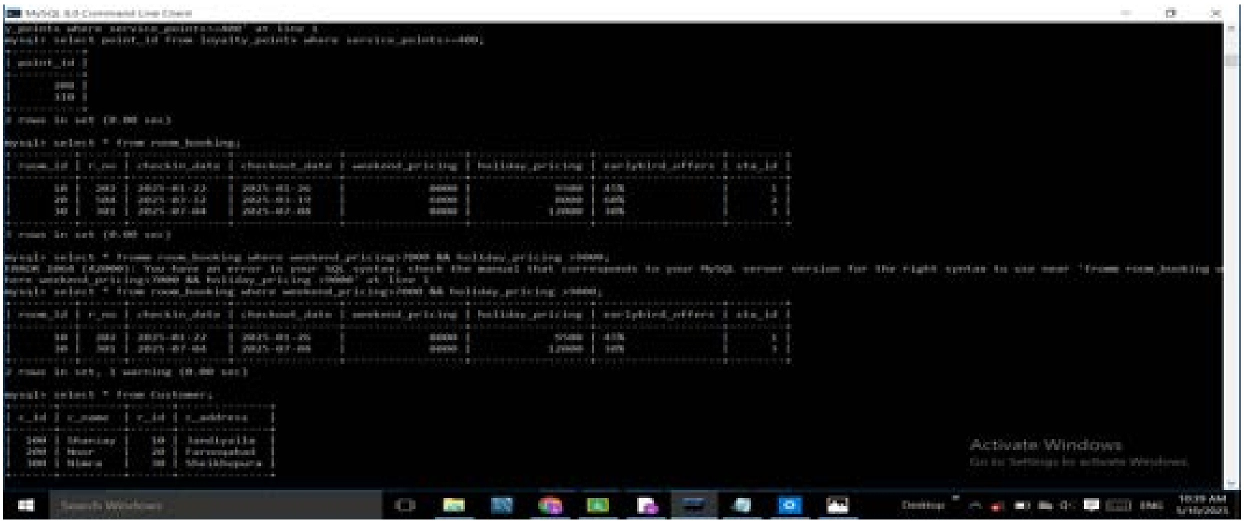


```
|               110 |
+-------------------+
3 rows in set (0.00 sec)

mysql> select service_points+100 AS annual from loyalty_points where point_id='100';
+--------+
| annual |
+--------+
|    500 |
+--------+
1 row in set (0.00 sec)

mysql> select upgrade_points-30 AS annual from loyalty_points where point_id='110';
+--------+
| 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>
```

ORDER BY CLAUSE ON CUSTOMER

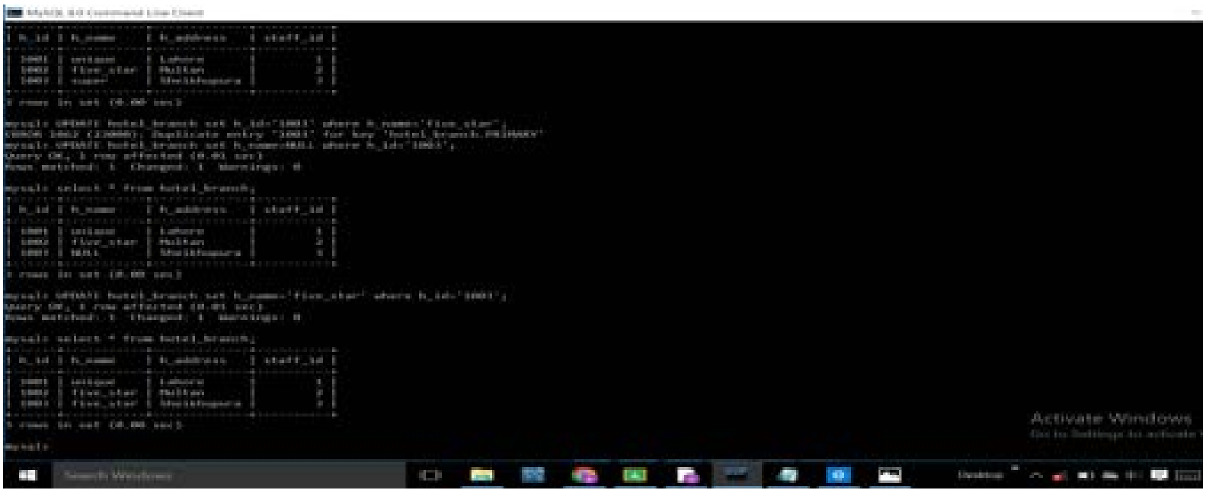

MySQL 8.0 Command Line Client
Search Windows
Activate Windows
Go to Settings to activate Windows.

```
|  300 | Nimra    |   30 | Sheikhupura | [illegible] |
+------+----------+------+-------------+-------------+
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 | Sheikhupura | [illegible] |
|  200 | Noor     |   20 | Farooqabad  | [illegible] |
|  100 | Shanzay  |   10 | Sandiyalla  | [illegible] |
+------+----------+------+-------------+-------------+
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 | Sandiyalla  | [illegible] |
|  200 | Noor     |   20 | Farooqabad  | [illegible] |
|  300 | Nimra    |   30 | Sheikhupura | [illegible] |
+------+----------+------+-------------+-------------+
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 | Sandiyalla  | [illegible] |
|  200 | Noor     |   20 | Farooqabad  | [illegible] |
|  300 | Nimra    |   30 | Sheikhupura | [illegible] |
+------+----------+------+-------------+-------------+
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)
```


MySQL 8.0 Command Line Client
Search Windows
Activate Windows
Go to Settings to activate Windows.

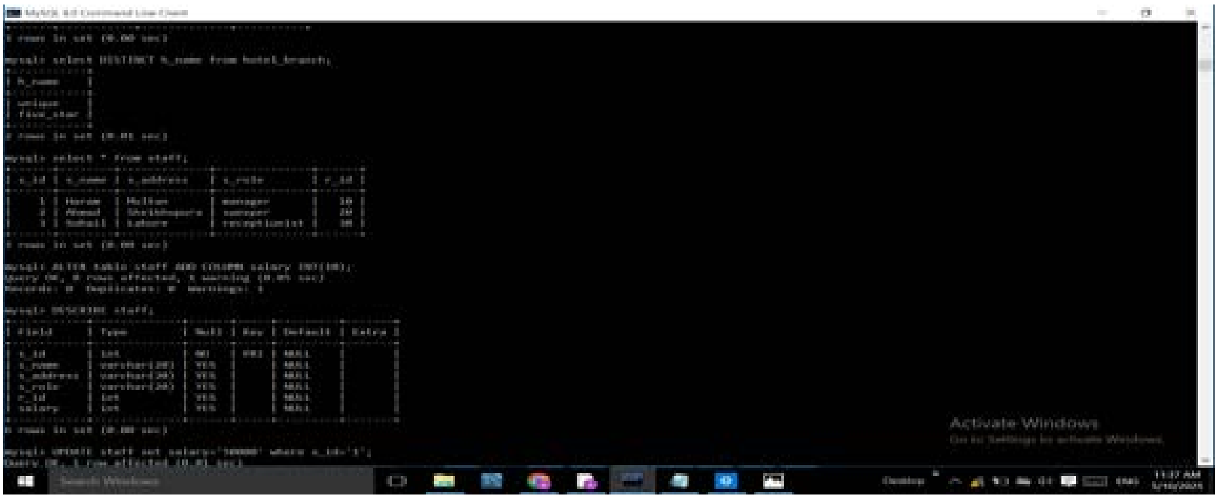
```
y_points where service_points>=400' at line 1
mysql> select point_id from loyalty_points where service_points>=400;
+----------+
| point_id |
+----------+
|      200 |
|      110 |
+----------+
2 rows in set (0.00 sec)

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%              |      1 |
+---------+------+--------------+---------------+-----------------+-----------------+------------------+--------+
3 rows in set (0.00 sec)

mysql> select * frome 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 'frome room_booking w
here 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%              |      1 |
+---------+------+--------------+---------------+-----------------+-----------------+------------------+--------+
2 rows in set, 1 warning (0.00 sec)

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

GIVING TWO h_ids SAME NAME



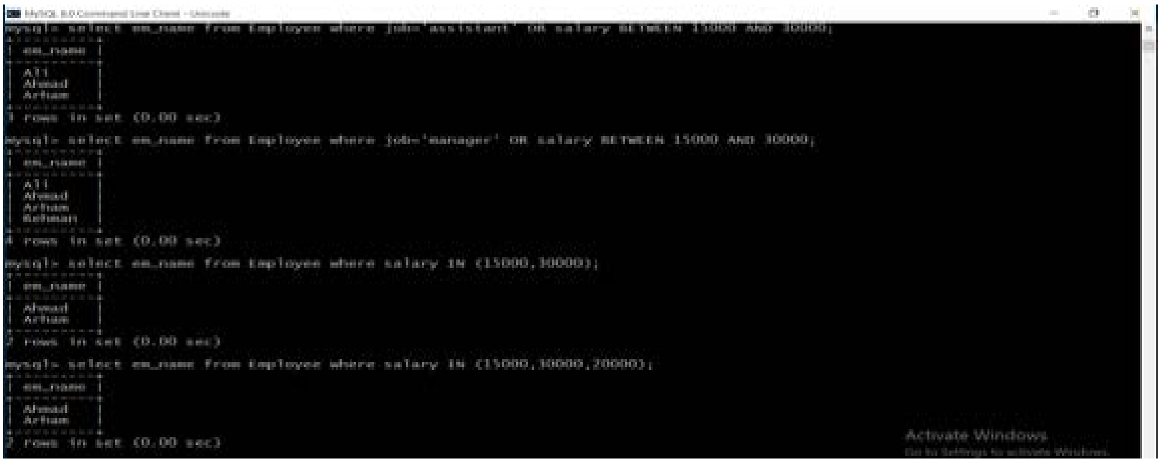
```
+------+-----------+-------------+----------+
| h_id | h_name    | h_address   | staff_id |
+------+-----------+-------------+----------+
| 1001 | unique    | Lahore      |        1 |
| 1002 | five_star | Multan      |        2 |
| 1003 | super     | Sheikhupura |        3 |
+------+-----------+-------------+----------+
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      | Sheikhupura |        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 | Sheikhupura |        3 |
+------+-----------+-------------+----------+
3 rows in set (0.00 sec)

mysql>
```

DISTINCT CLAUSE AND ADDING SALARY COLUMN IN STAFF TABLE



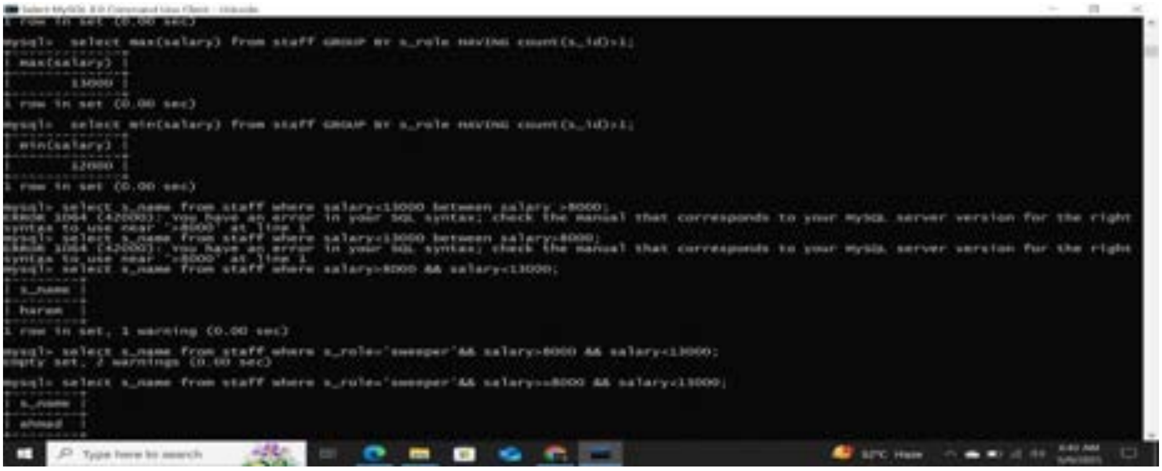
```
+------+--------+---------------+--------------+------+
3 rows in set (0.00 sec)

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  | Sheikhupura   | 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='10000' where s_id='1';
Query OK, 1 row affected (0.01 sec)
```

BETWEEN, HAVING AND IN CLAUSES



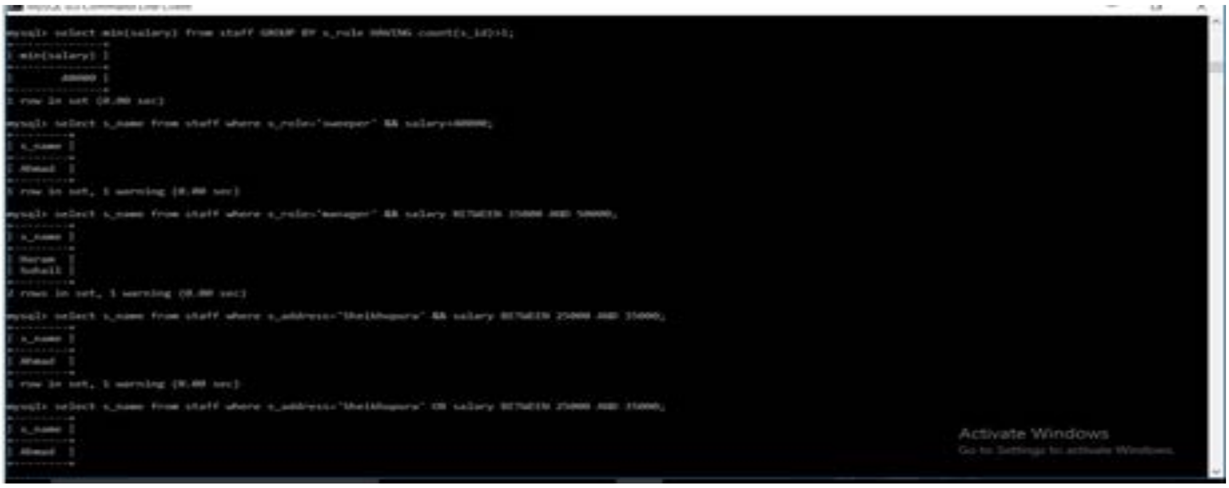
```
mysql> select em_name from Employee where job='assistant' OR salary BETWEEN 15000 AND 30000;
+---------+
| em_name |
+---------+
| Ali     |
| Ahmad   |
| Arham   |
+---------+
3 rows in set (0.00 sec)

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)
```

Activate Windows
Go to Settings to activate Windows.

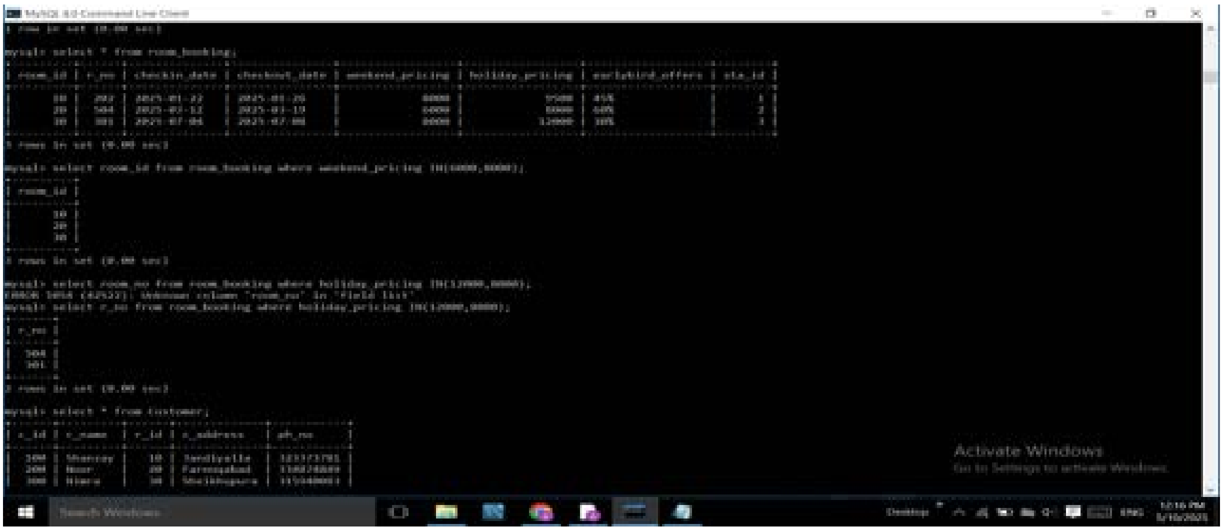


Select MySQL 8.0 Command Line Client - Unicode

```
1 row in set (0.00 sec)

mysql>  select max(salary) from staff GROUP BY s_role HAVING count(s_id)>1;
+-------------+
| max(salary) |
+-------------+
|       13000 |
+-------------+
1 row in set (0.00 sec)

mysql>  select min(salary) from staff GROUP BY s_role HAVING count(s_id)>1;
+-------------+
| min(salary) |
+-------------+
|       12000 |
+-------------+
1 row in set (0.00 sec)

mysql> select s_name from staff where salary<13000 between salary >8000;
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 '>8000' at line 1
mysql> select s_name from staff where salary<13000 between salary>8000;
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 '>8000' at line 1
mysql> select s_name from staff where salary>8000 && salary<13000;
+--------+
| s_name |
+--------+
| haram  |
+--------+
1 row in set, 1 warning (0.00 sec)

mysql> select s_name from staff where s_role='sweeper'&& salary>8000 && salary<13000;
Empty set, 2 warnings (0.00 sec)

mysql> select s_name from staff where s_role='sweeper'&& salary>=8000 && salary<13000;
+--------+
| s_name |
+--------+
| ahmad  |
+--------+
```

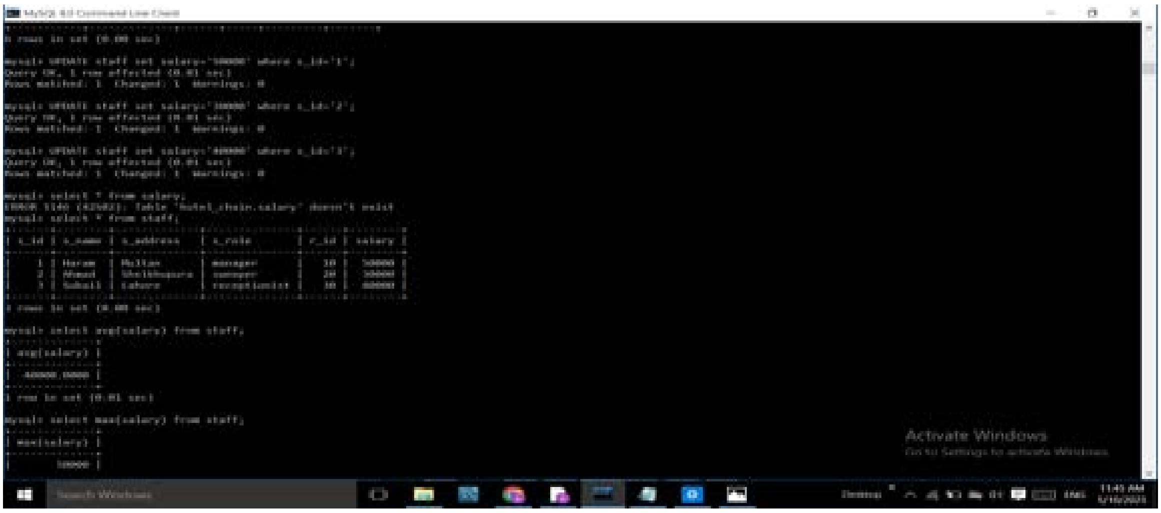

MySQL 8.0 Command Line Client
Activate Windows
Go to Settings to activate Windows.

```
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 15000 AND 50000;
+--------+
| s_name |
+--------+
| Haram  |
| Suhail |
+--------+
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  |
+--------+
```


MySQL 8.0 Command Line Client
Activate Windows
Go to Settings to activate Windows.
Search Windows
Desktop
ENG
12:16 PM
1/10/2025

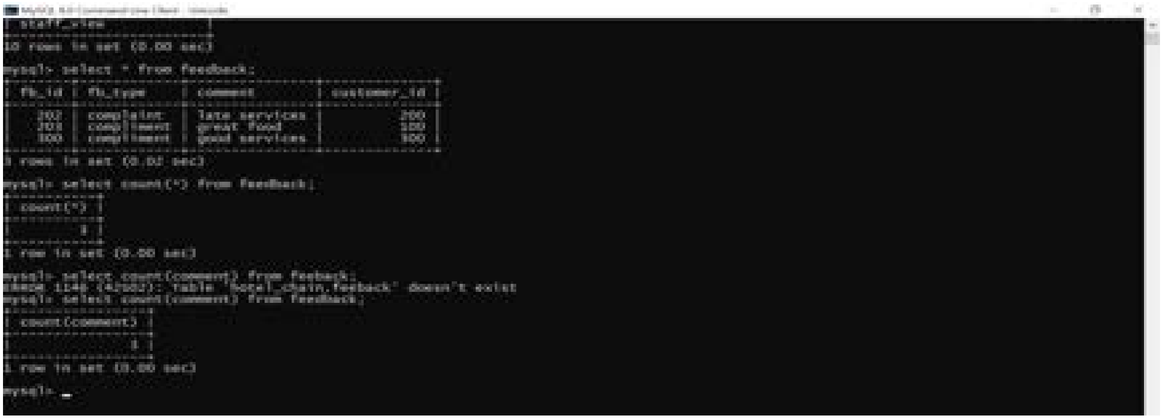
```
1 row in set (0.00 sec)

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 | 2025-07-06   | 2025-07-08    |            8000 |           12000 | 10%              |      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 | Shanray |   10 | Sandiyalla  | 123373781   |
|  200 | Noor    |   20 | Farooqabad  | 116824889   |
|  300 | Nimra   |   30 | Sheikhupura | 115540083   |
```

ARITHMETIC OPERATIONS ON STAFF


MySQL 8.0 Command Line Client
Activate Windows
Go to Settings to activate Windows.
Search Windows
Desktop
ENG
11:45 AM
1/10/2025

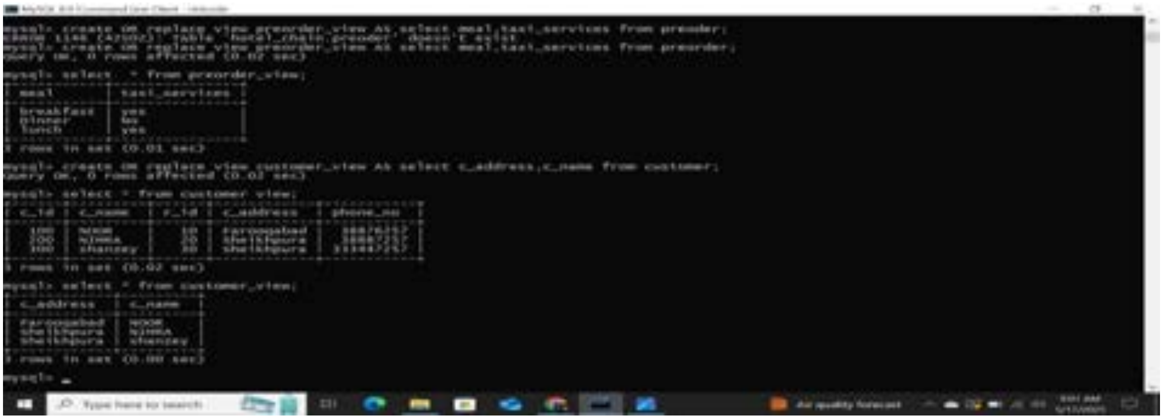
```
+------+--------+-------------+-------------+------+--------+
3 rows in set (0.00 sec)

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  | Sheikhupura | sweeper      |   20 |  30000 |
|    3 | Suhail | 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 |
```

COUNT & COUNT (*)



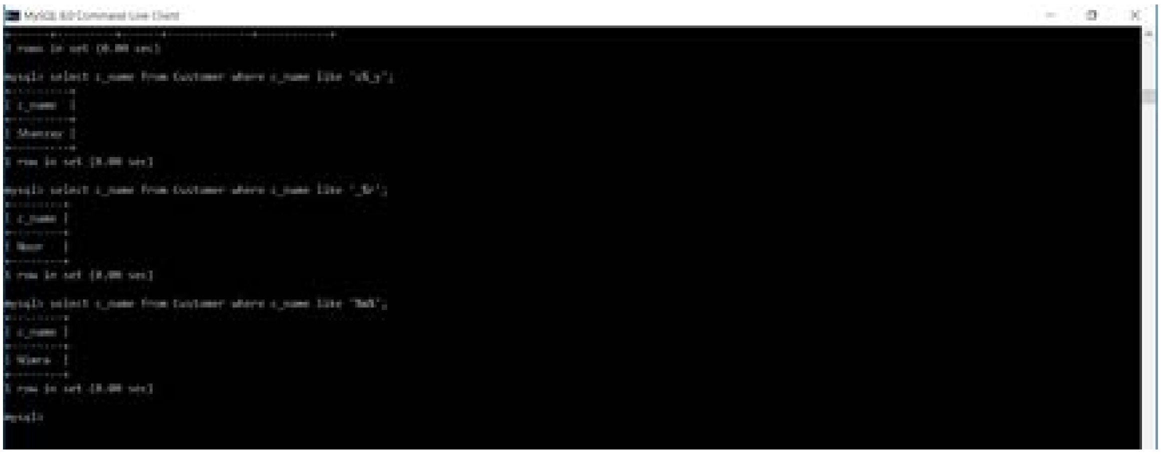
```
| staff_view          |
+---------------------+
10 rows in set (0.00 sec)

mysql> select * from feedback;
+-------+------------+----------------+-------------+
| fb_id | fb_type    | comment        | customer_id |
+-------+------------+----------------+-------------+
|   202 | complaint  | late services  |         200 |
|   203 | compliment | great food     |         100 |
|   300 | compliment | good services  |         300 |
+-------+------------+----------------+-------------+
3 rows in set (0.02 sec)

mysql> select count(*) from feedback;
+----------+
| count(*) |
+----------+
|        3 |
+----------+
1 row in set (0.00 sec)

mysql> select count(comment) from feeback;
ERROR 1146 (42S02): Table 'hotel_chain.feeback' doesn't exist
mysql> select count(comment) from feedback;
+----------------+
| count(comment) |
+----------------+
|              3 |
+----------------+
1 row in set (0.00 sec)

mysql> _
```

VIEW



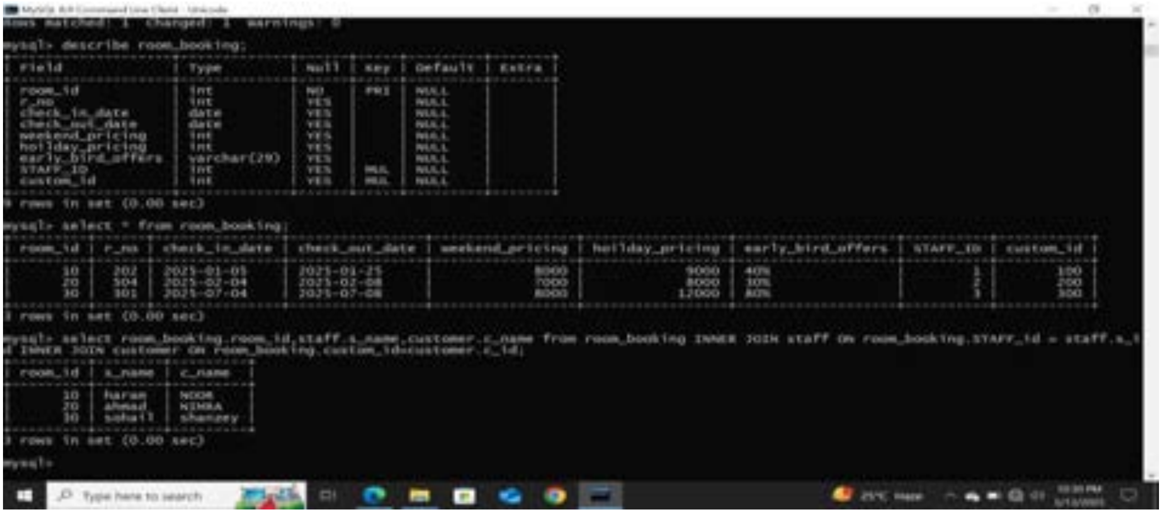
```
mysql> create OR replace view preorder_view AS select meal,taxi_services from preoder;
ERROR 1146 (42S02): Table 'hotel_chain.preoder' doesn't exist
mysql> create OR replace view preorder_view AS select meal,taxi_services from preorder;
Query OK, 0 rows affected (0.02 sec)

mysql> select  * from preorder_view;
+-----------+---------------+
| meal      | taxi_services |
+-----------+---------------+
| breakfast | yes           |
| dinner    | No            |
| lunch     | yes           |
+-----------+---------------+
3 rows in set (0.01 sec)

mysql> create OR replace view customer_view AS select c_address,c_name from customer;
Query OK, 0 rows affected (0.02 sec)

mysql> select * from customer view;
+------+---------+------+-------------+-----------+
| c_id | c_name  | r_id | c_address   | phone_no  |
+------+---------+------+-------------+-----------+
|  100 | NOOR    |   10 | farooqabad  |  38876257 |
|  200 | NIMRA   |   20 | Sheikhpura  |  38887257 |
|  300 | shanzay |   30 | Sheikhpura  | 333887257 |
+------+---------+------+-------------+-----------+
3 rows in set (0.02 sec)

mysql> select * from customer_view;
+------------+---------+
| c_address  | c_name  |
+------------+---------+
| farooqabad | NOOR    |
| Sheikhpura | NIMRA   |
| Sheikhpura | shanzay |
+------------+---------+
3 rows in set (0.00 sec)

mysql> _
```

LIKE CLAUSE ON CUSTOMER



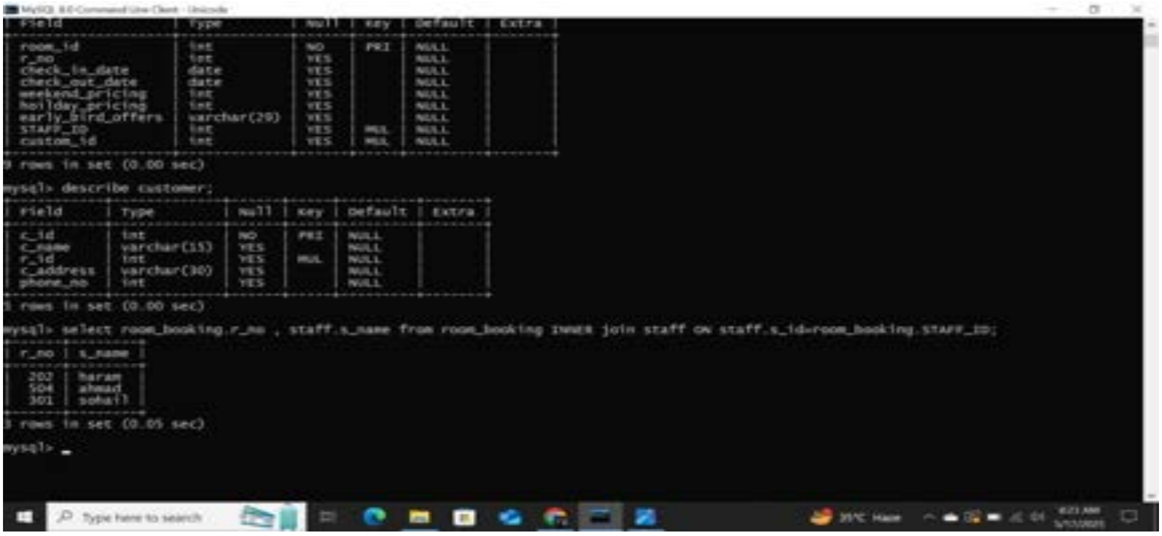
```
+------+---------+------+-------------+-----------+
3 rows in set (0.00 sec)

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 '%a%';
+--------+
| c_name |
+--------+
| Nimra  |
+--------+
1 row in set (0.00 sec)

mysql>
```

JOINS

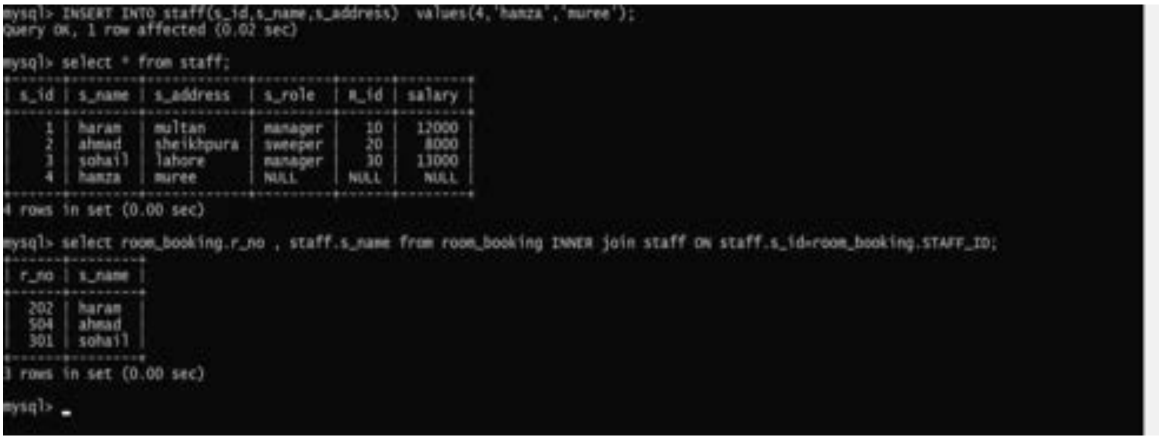


```
Rows matched: 1  Changed: 1  Warnings: 0

mysql> describe room_booking;
+-------------------+-------------+------+-----+---------+-------+
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| room_id           | int         | NO   | PRI | NULL    |       |
| r_no              | int         | YES  |     | NULL    |       |
| check_in_date     | date        | YES  |     | NULL    |       |
| check_out_date    | date        | YES  |     | NULL    |       |
| weekend_pricing   | int         | YES  |     | NULL    |       |
| hoilday_pricing   | int         | YES  |     | NULL    |       |
| early_bird_offers | varchar(29) | YES  |     | NULL    |       |
| STAFF_ID          | int         | YES  | MUL | NULL    |       |
| custom_id         | int         | YES  | MUL | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
9 rows in set (0.00 sec)

mysql> select * from room_booking;
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+-----------+
| room_id | r_no | check_in_date | check_out_date | weekend_pricing | hoilday_pricing | early_bird_offers | STAFF_ID | custom_id |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+-----------+
|      10 |  202 | 2025-01-05    | 2025-01-25     |            8000 |            9000 | 40%               |        1 |       100 |
|      20 |  504 | 2025-02-04    | 2025-02-08     |            7000 |            8000 | 30%               |        2 |       200 |
|      30 |  301 | 2025-07-04    | 2025-07-08     |            8000 |           12000 | 80%               |        3 |       300 |
+---------+------+---------------+----------------+-----------------+-----------------+-------------------+----------+-----------+
3 rows in set (0.00 sec)

mysql> select room_booking.room_id,staff.s_name,customer.c_name from room_booking INNER JOIN staff ON room_booking.STAFF_id = staff.s_i
d INNER JOIN customer ON room_booking.custom_id=customer.c_id;
+---------+--------+----------+
| room_id | s_name | c_name   |
+---------+--------+----------+
|      10 | haram  | NOOR     |
|      20 | ahmad  | NIMRA    |
|      30 | sohail | shanzey  |
+---------+--------+----------+
3 rows in set (0.00 sec)

mysql>
```

INNER JOIN

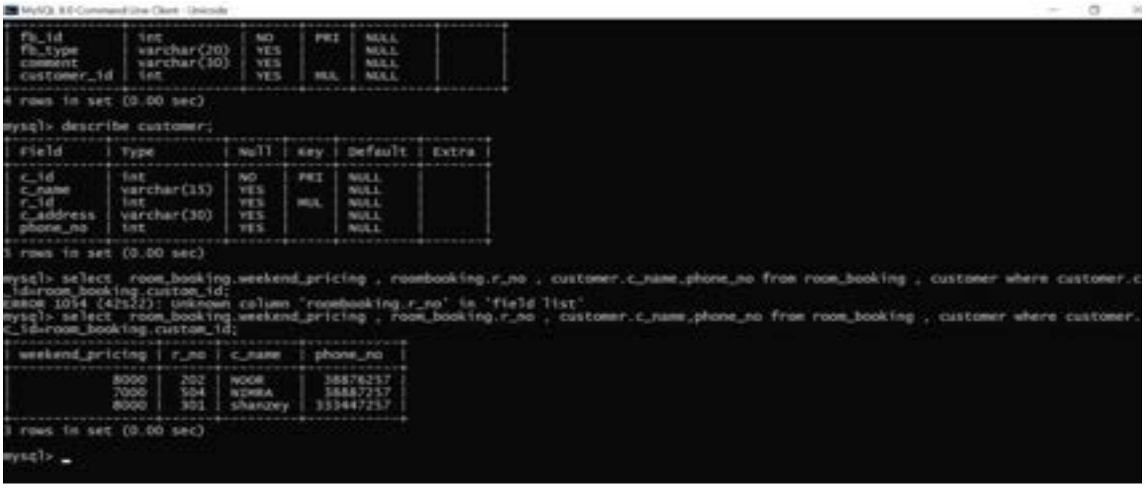


```
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| room_id           | int         | NO   | PRI | NULL    |       |
| r_no              | int         | YES  |     | NULL    |       |
| check_in_date     | date        | YES  |     | NULL    |       |
| check_out_date    | date        | YES  |     | NULL    |       |
| weekend_pricing   | int         | YES  |     | NULL    |       |
| hoilday_pricing   | int         | YES  |     | NULL    |       |
| early_bird_offers | varchar(29) | YES  |     | NULL    |       |
| STAFF_ID          | int         | YES  | MUL | NULL    |       |
| custom_id         | int         | YES  | MUL | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
9 rows in set (0.00 sec)

mysql> describe customer;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| c_id      | int         | NO   | PRI | NULL    |       |
| c_name    | varchar(15) | YES  |     | NULL    |       |
| r_id      | int         | YES  | MUL | NULL    |       |
| c_address | varchar(30) | YES  |     | NULL    |       |
| phone_no  | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> select room_booking.r_no , staff.s_name from room_booking INNER join staff ON staff.s_id=room_booking.STAFF_ID;
+------+--------+
| r_no | s_name |
+------+--------+
|  202 | haram  |
|  504 | ahmad  |
|  301 | sohail |
+------+--------+
3 rows in set (0.05 sec)

mysql> _
```



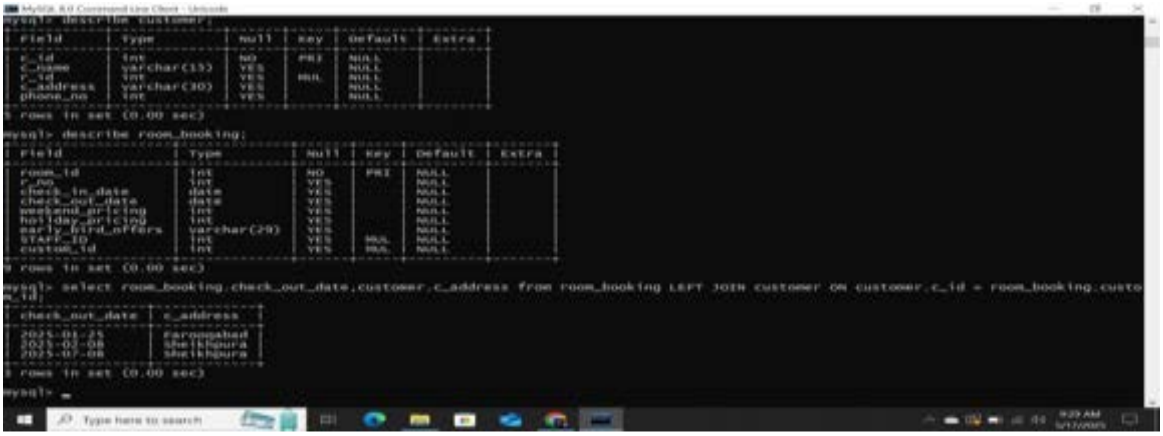
```
mysql> INSERT INTO staff(s_id,s_name,s_address)  values(4,'hamza','muree');
Query OK, 1 row affected (0.02 sec)

mysql> select * from staff;
+------+--------+-----------+---------+------+--------+
| s_id | s_name | s_address | s_role  | R_id | salary |
+------+--------+-----------+---------+------+--------+
|    1 | haram  | multan    | manager |   10 |  12000 |
|    2 | ahmad  | sheikhpura| sweeper |   20 |   8000 |
|    3 | sohail | lahore    | manager |   30 |  13000 |
|    4 | hamza  | muree     | NULL    | NULL |   NULL |
+------+--------+-----------+---------+------+--------+
4 rows in set (0.00 sec)

mysql> select room_booking.r_no , staff.s_name from room_booking INNER join staff ON staff.s_id=room_booking.STAFF_ID;
+------+--------+
| r_no | s_name |
+------+--------+
|  202 | haram  |
|  504 | ahmad  |
|  301 | sohail |
+------+--------+
3 rows in set (0.00 sec)

mysql> _
```

EQUI JOIN



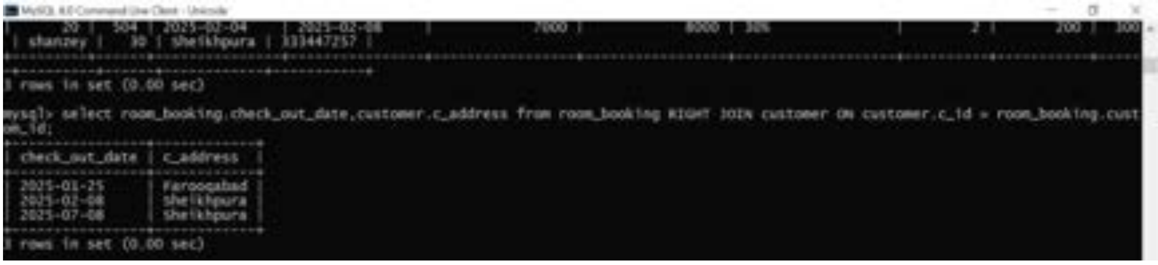
```
+-------------+-------------+------+-----+---------+-------+
| fb_id       | int         | NO   | PRI | NULL    |       |
| fb_type     | varchar(20) | YES  |     | NULL    |       |
| comment     | varchar(30) | YES  |     | NULL    |       |
| customer_id | int         | YES  | MUL | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.00 sec)

mysql> describe customer;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| c_id      | int         | NO   | PRI | NULL    |       |
| c_name    | varchar(15) | YES  |     | NULL    |       |
| r_id      | int         | YES  | MUL | NULL    |       |
| c_address | varchar(30) | YES  |     | NULL    |       |
| phone_no  | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> select  room_booking.weekend_pricing , roombooking.r_no , customer.c_name,phone_no from room_booking , customer where customer.c
_id=room_booking.custom_id;
ERROR 1054 (42S22): Unknown column 'roombooking.r_no' in 'field list'
mysql> select  room_booking.weekend_pricing , room_booking.r_no , customer.c_name,phone_no from room_booking , customer where customer.
c_id=room_booking.custom_id;
+-----------------+------+---------+-----------+
| weekend_pricing | r_no | c_name  | phone_no  |
+-----------------+------+---------+-----------+
|            8000 |  202 | NOOR    |  38876257 |
|            7000 |  504 | NIMRA   |  38887257 |
|            8000 |  301 | shanzey | 333447257 |
+-----------------+------+---------+-----------+
3 rows in set (0.00 sec)

mysql> _
```

LEFT JOIN



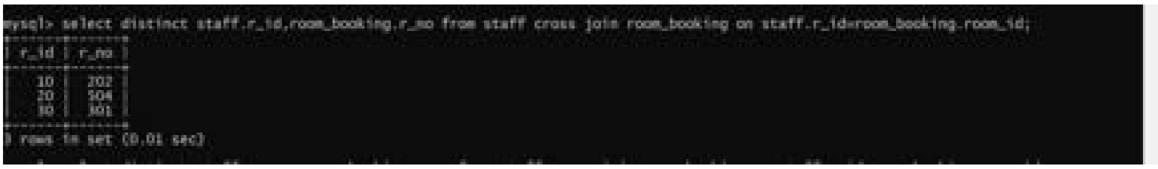
```
mysql> describe customer;
+-----------+-------------+------+-----+---------+-------+
| Field     | Type        | Null | Key | Default | Extra |
+-----------+-------------+------+-----+---------+-------+
| c_id      | int         | NO   | PRI | NULL    |       |
| c_name    | varchar(15) | YES  |     | NULL    |       |
| r_id      | int         | YES  | MUL | NULL    |       |
| c_address | varchar(30) | YES  |     | NULL    |       |
| phone_no  | int         | YES  |     | NULL    |       |
+-----------+-------------+------+-----+---------+-------+
5 rows in set (0.00 sec)

mysql> describe room_booking;
+-------------------+-------------+------+-----+---------+-------+
| Field             | Type        | Null | Key | Default | Extra |
+-------------------+-------------+------+-----+---------+-------+
| room_id           | int         | NO   | PRI | NULL    |       |
| r_no              | int         | YES  |     | NULL    |       |
| check_in_date     | date        | YES  |     | NULL    |       |
| check_out_date    | date        | YES  |     | NULL    |       |
| weekend_pricing   | int         | YES  |     | NULL    |       |
| holiday_pricing   | int         | YES  |     | NULL    |       |
| early_bird_offers | varchar(20) | YES  |     | NULL    |       |
| STAFF_ID          | int         | YES  | MUL | NULL    |       |
| custom_id         | int         | YES  | MUL | NULL    |       |
+-------------------+-------------+------+-----+---------+-------+
9 rows in set (0.00 sec)

mysql> select room_booking.check_out_date,customer.c_address from room_booking LEFT JOIN customer ON customer.c_id = room_booking.custo
m_id;
+----------------+-------------+
| check_out_date | c_address   |
+----------------+-------------+
| 2025-01-25     | Farooqabad  |
| 2025-02-08     | Sheikhpura  |
| 2025-07-08     | Sheikhpura  |
+----------------+-------------+
3 rows in set (0.00 sec)

mysql> _
```

RIGHT JOIN

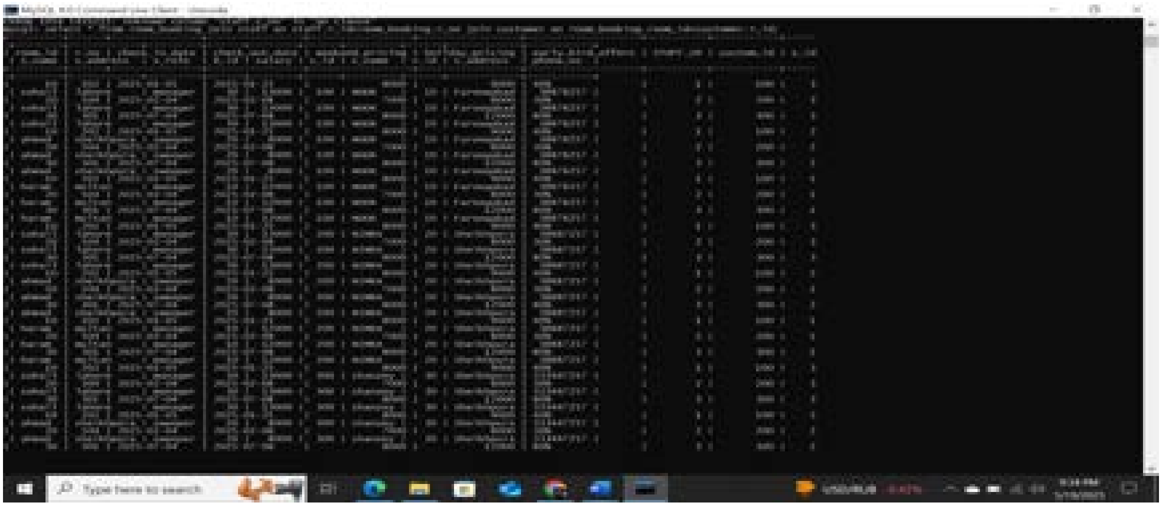


```
|      20 |  504 | 2025-02-04     | 2025-02-08     |              7000 |            8000 | 30%       |          2 |     200 |  300
| shanzey |   30 | Sheikhpura | 333447257 |
+---------+------+----------------+----------------+-------------------+-----------------+-----------+------------+---------+------
+---------+------+------------+-----------+
3 rows in set (0.00 sec)

mysql> select room_booking.check_out_date,customer.c_address from room_booking RIGHT JOIN customer ON customer.c_id = room_booking.cust
om_id;
+----------------+-------------+
| check_out_date | c_address   |
+----------------+-------------+
| 2025-01-25     | Farooqabad  |
| 2025-02-08     | Sheikhpura  |
| 2025-07-08     | Sheikhpura  |
+----------------+-------------+
3 rows in set (0.00 sec)
```

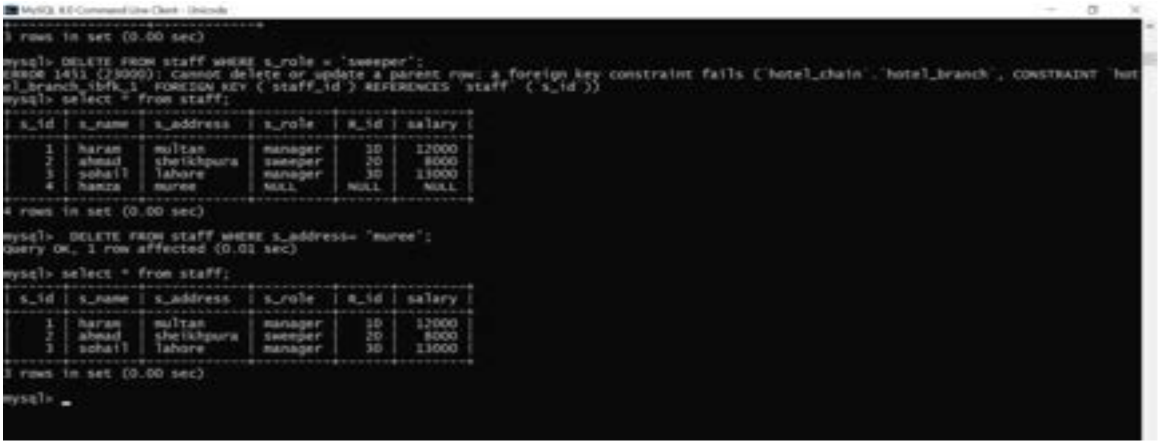
CROSS JOIN



```
mysql> select distinct staff.r_id,room_booking.r_no from staff cross join room_booking on staff.r_id=room_booking.room_id;
+------+------+
| r_id | r_no |
+------+------+
|   10 |  202 |
|   20 |  504 |
|   30 |  301 |
+------+------+
3 rows in set (0.01 sec)
```

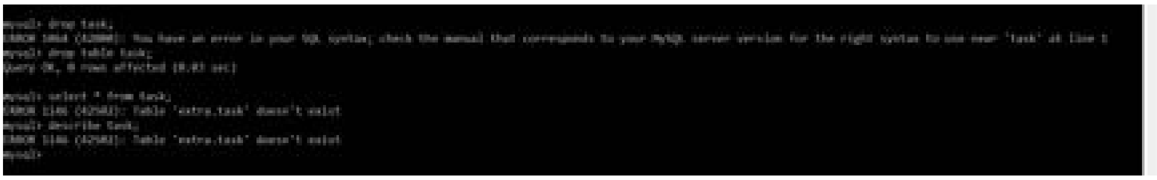


DELETE ROW4 FROM STAFF



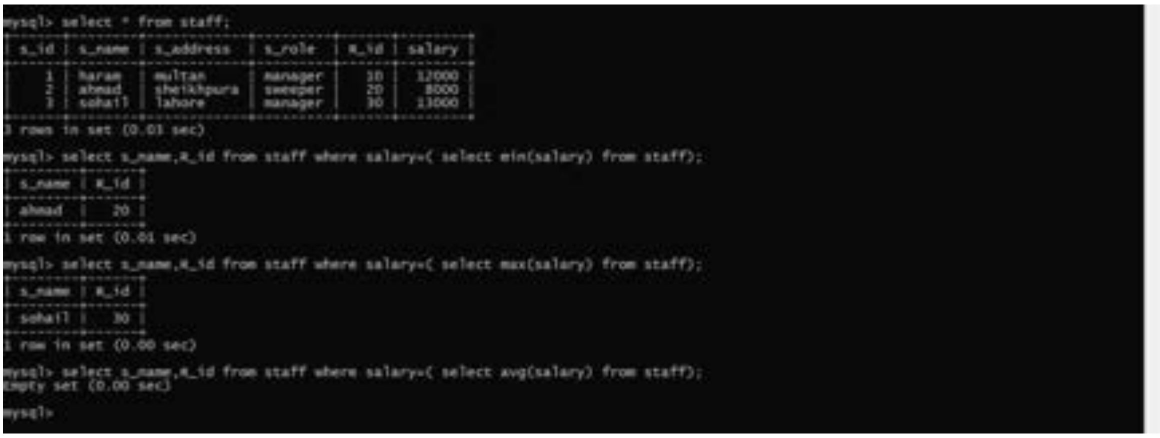
```
+------+--------+-------------+---------+------+--------+
3 rows in set (0.00 sec)

mysql> DELETE FROM staff WHERE s_role = 'sweeper';
ERROR 1451 (23000): Cannot delete or update a parent row: a foreign key constraint fails (`hotel_chain`.`hotel_branch`, CONSTRAINT `hot
el_branch_ibfk_1` FOREIGN KEY (`staff_id`) REFERENCES `staff` (`s_id`))
mysql> select * from staff;
+------+--------+-------------+---------+------+--------+
| s_id | s_name | s_address   | s_role  | R_id | salary |
+------+--------+-------------+---------+------+--------+
|    1 | haram  | multan      | manager |   10 |  12000 |
|    2 | ahmad  | sheikhpura  | sweeper |   20 |   8000 |
|    3 | sohail | lahore      | manager |   30 |  13000 |
|    4 | hamza  | muree       | NULL    | NULL |   NULL |
+------+--------+-------------+---------+------+--------+
4 rows in set (0.00 sec)

mysql>  DELETE FROM staff WHERE s_address= 'muree';
Query OK, 1 row affected (0.01 sec)

mysql> select * from staff;
+------+--------+-------------+---------+------+--------+
| s_id | s_name | s_address   | s_role  | R_id | salary |
+------+--------+-------------+---------+------+--------+
|    1 | haram  | multan      | manager |   10 |  12000 |
|    2 | ahmad  | sheikhpura  | sweeper |   20 |   8000 |
|    3 | sohail | lahore      | manager |   30 |  13000 |
+------+--------+-------------+---------+------+--------+
3 rows in set (0.00 sec)

mysql> _
```

DROP



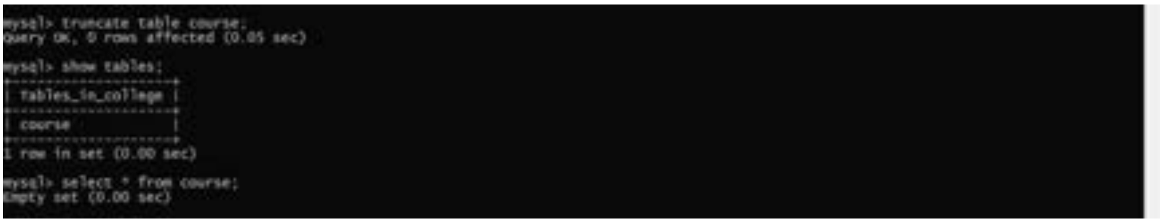
```
mysql> drop task;
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right syntax to use near 'task' at line 1
mysql> drop table task;
Query OK, 0 rows affected (0.03 sec)

mysql> select * from task;
ERROR 1146 (42S02): Table 'extra.task' doesn't exist
mysql> describe task;
ERROR 1146 (42S02): Table 'extra.task' doesn't exist
mysql>
```

SUBQUERY



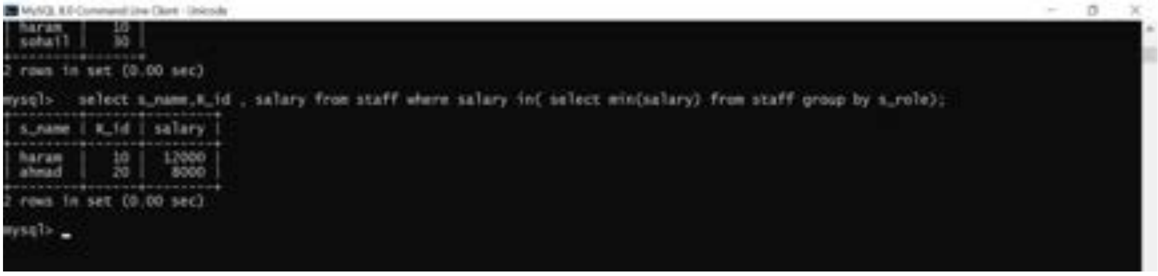
```
mysql> select * from staff;
+------+--------+------------+---------+------+--------+
| s_id | s_name | s_address  | s_role  | R_id | salary |
+------+--------+------------+---------+------+--------+
|    1 | haram  | multan     | manager |   10 |  12000 |
|    2 | ahmad  | sheikhpura | sweeper |   20 |   8000 |
|    3 | sohail | lahore     | manager |   30 |  13000 |
+------+--------+------------+---------+------+--------+
3 rows in set (0.03 sec)

mysql> select s_name,R_id from staff where salary=( select min(salary) from staff);
+--------+------+
| s_name | R_id |
+--------+------+
| ahmad  |   20 |
+--------+------+
1 row in set (0.01 sec)

mysql> select s_name,R_id from staff where salary=( select max(salary) from staff);
+--------+------+
| s_name | R_id |
+--------+------+
| sohail |   30 |
+--------+------+
1 row in set (0.00 sec)

mysql> select s_name,R_id from staff where salary=( select avg(salary) from staff);
Empty set (0.00 sec)

mysql>
```

TRUNCATE



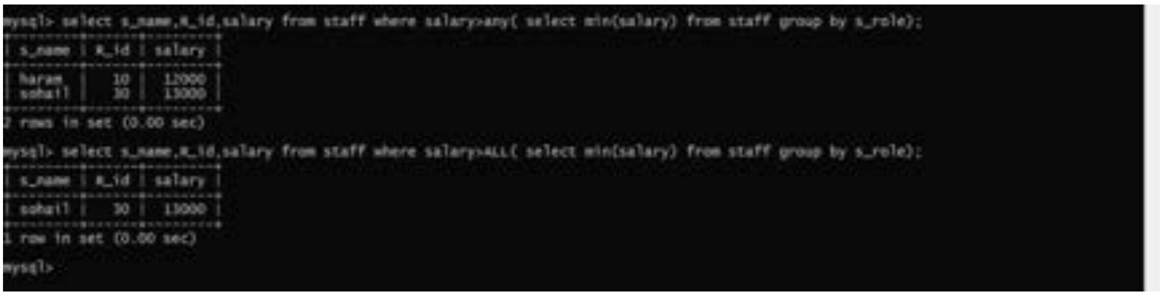
```
mysql> truncate table course;
Query OK, 0 rows affected (0.05 sec)

mysql> show tables;
+-------------------+
| Tables_in_college |
+-------------------+
| course            |
+-------------------+
1 row in set (0.00 sec)

mysql> select * from course;
Empty set (0.00 sec)
```

LOWEST SALARY PRINTED



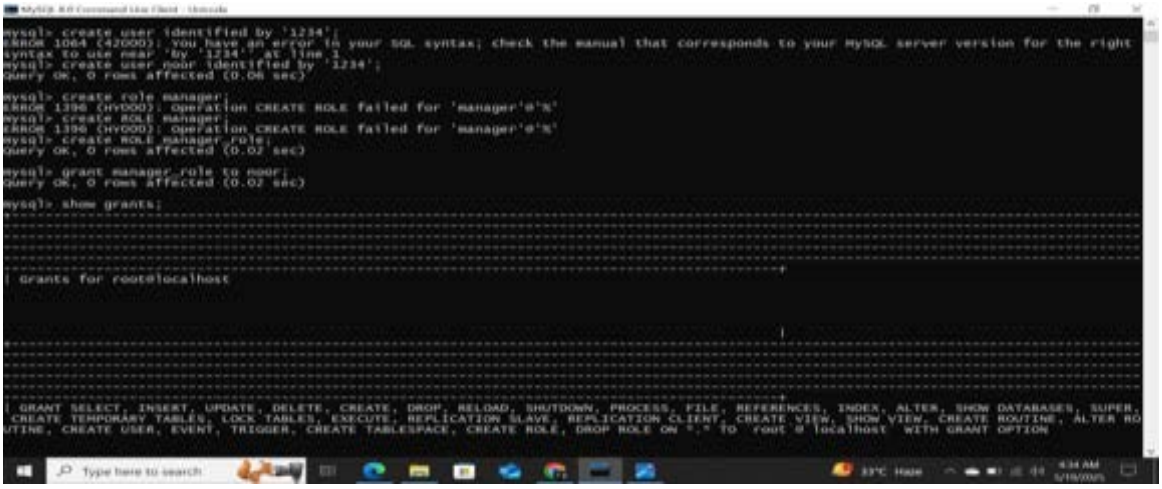
```
| haram  |   10 |
| sohail |   30 |
+--------+------+
2 rows in set (0.00 sec)

mysql>   select s_name,R_id , salary from staff where salary in( select min(salary) from staff group by s_role);
+--------+------+--------+
| s_name | R_id | salary |
+--------+------+--------+
| haram  |   10 |  12000 |
| ahmad  |   20 |   8000 |
+--------+------+--------+
2 rows in set (0.00 sec)

mysql> _
```

MIN SALARY USING GROUP BY FROM S-ID PRINTED

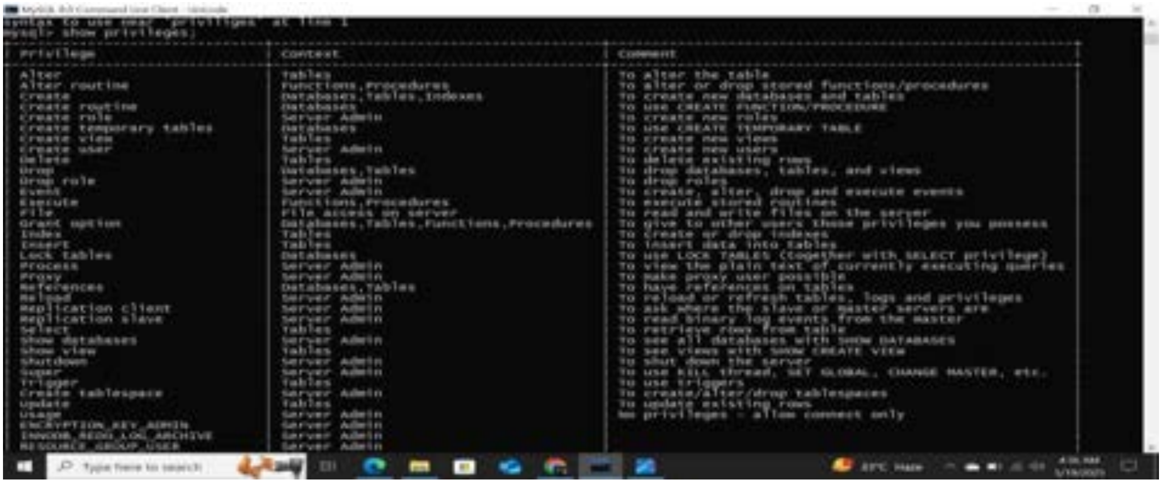


```
mysql> select s_name,R_id,salary from staff where salary>any( select min(salary) from staff group by s_role);
+--------+------+--------+
| s_name | R_id | salary |
+--------+------+--------+
| haram  |   10 |  12000 |
| sohail |   30 |  13000 |
+--------+------+--------+
2 rows in set (0.00 sec)

mysql> select s_name,R_id,salary from staff where salary>ALL( select min(salary) from staff group by s_role);
+--------+------+--------+
| s_name | R_id | salary |
+--------+------+--------+
| sohail |   30 |  13000 |
+--------+------+--------+
1 row in set (0.00 sec)

mysql>
```

GRANT

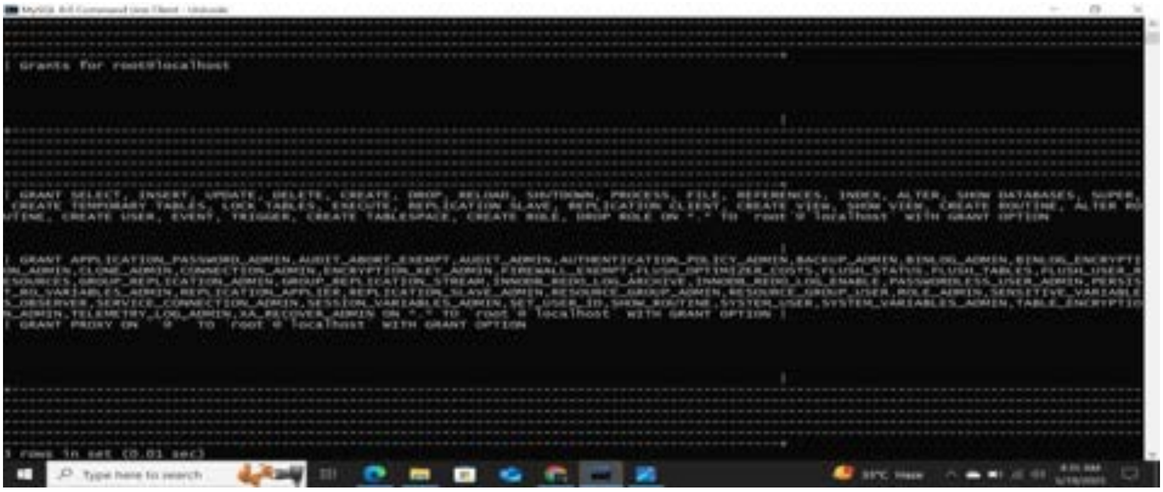


```
mysql> create user identified by '1234';
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to your MySQL server version for the right
syntax to use near 'by '1234'' at line 1
mysql> create user noor identified by '1234';
Query OK, 0 rows affected (0.06 sec)

mysql> create role manager;
ERROR 1396 (HY000): Operation CREATE ROLE failed for 'manager'@'%'
mysql> create ROLE manager;
ERROR 1396 (HY000): Operation CREATE ROLE failed for 'manager'@'%'
mysql> create ROLE manager_role;
Query OK, 0 rows affected (0.02 sec)

mysql> grant manager_role to noor;
Query OK, 0 rows affected (0.02 sec)

mysql> show grants;
+----------------------------------------------------------------------------------------------------------------------
+-------------------------------------------------------------------------------------+
| Grants for root@localhost

                                                                                      |
+----------------------------------------------------------------------------------------------------------------------
+-------------------------------------------------------------------------------------+
| GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DATABASES, SUPER,
 CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE, REPLICATION CLIENT, CREATE VIEW, SHOW VIEW, CREATE ROUTINE, ALTER RO
UTINE, CREATE USER, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `root`@`localhost` WITH GRANT OPTION
```

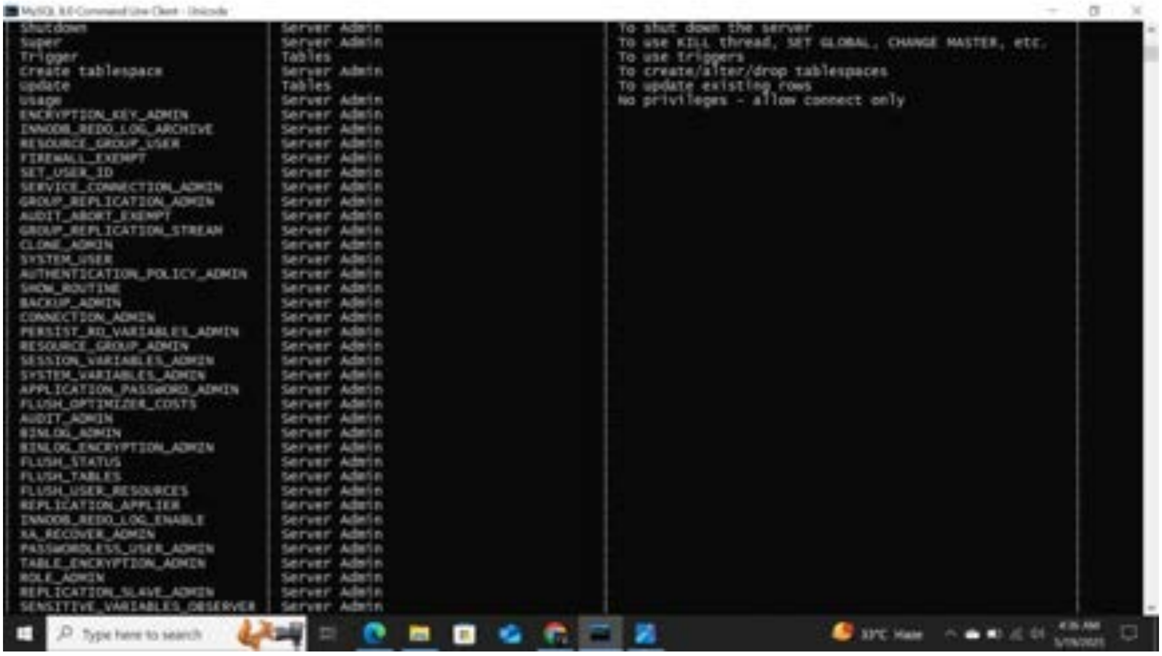


```
syntax to use near 'privilliges' at line 1
mysql> show privileges;
+----------------------------+---------------------------------------+-------------------------------------------------------+
| Privilege                  | Context                               | Comment                                               |
+----------------------------+---------------------------------------+-------------------------------------------------------+
| Alter                      | Tables                                | To alter the table                                    |
| Alter routine              | Functions,Procedures                  | To alter or drop stored functions/procedures          |
| Create                     | Databases,Tables,Indexes              | To create new databases and tables                    |
| Create routine             | Databases                             | To use CREATE FUNCTION/PROCEDURE                      |
| Create role                | Server Admin                          | To create new roles                                   |
| Create temporary tables    | Databases                             | To use CREATE TEMPORARY TABLE                         |
| Create view                | Tables                                | To create new views                                   |
| Create user                | Server Admin                          | To create new users                                   |
| Delete                     | Tables                                | To delete existing rows                               |
| Drop                       | Databases,Tables                      | To drop databases, tables, and views                  |
| Drop role                  | Server Admin                          | To drop roles                                         |
| Event                      | Server Admin                          | To create, alter, drop and execute events             |
| Execute                    | Functions,Procedures                  | To execute stored routines                            |
| File                       | File access on server                 | To read and write files on the server                 |
| Grant option               | Databases,Tables,Functions,Procedures | To give to other users those privileges you possess   |
| Index                      | Tables                                | To create or drop indexes                             |
| Insert                     | Tables                                | To insert data into tables                            |
| Lock tables                | Databases                             | To use LOCK TABLES (together with SELECT privilege)   |
| Process                    | Server Admin                          | To view the plain text of currently executing queries |
| Proxy                      | Server Admin                          | To make proxy user possible                           |
| References                 | Databases,Tables                      | To have references on tables                          |
| Reload                     | Server Admin                          | To reload or refresh tables, logs and privileges      |
| Replication client         | Server Admin                          | To ask where the slave or master servers are          |
| Replication slave          | Server Admin                          | To read binary log events from the master             |
| Select                     | Tables                                | To retrieve rows from table                           |
| Show databases             | Server Admin                          | To see all databases with SHOW DATABASES              |
| Show view                  | Tables                                | To see views with SHOW CREATE VIEW                    |
| Shutdown                   | Server Admin                          | To shut down the server                               |
| Super                      | Server Admin                          | To use KILL thread, SET GLOBAL, CHANGE MASTER, etc.   |
| Trigger                    | Tables                                | To use triggers                                       |
| Create tablespace          | Server Admin                          | To create/alter/drop tablespaces                      |
| Update                     | Tables                                | To update existing rows                               |
| Usage                      | Server Admin                          | No privileges - allow connect only                    |
| ENCRYPTION_KEY_ADMIN       | Server Admin                          |                                                       |
| INNODB_REDO_LOG_ARCHIVE    | Server Admin                          |                                                       |
| RESOURCE_GROUP_USER        | Server Admin                          |                                                       |
```

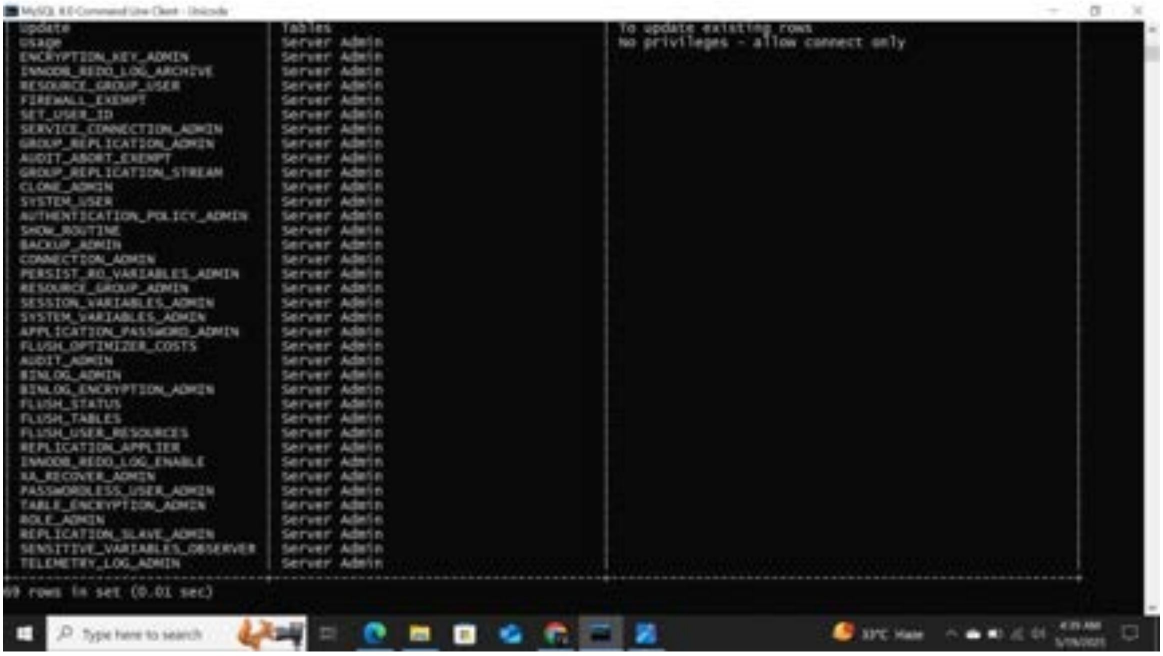
PRIVILEGES



```
+-------------------------------------------------------------------------------------+
| Grants for root@localhost

                                                                                      |
+----------------------------------------------------------------------------------------------------------------------
+-------------------------------------------------------------------------------------+
| GRANT SELECT, INSERT, UPDATE, DELETE, CREATE, DROP, RELOAD, SHUTDOWN, PROCESS, FILE, REFERENCES, INDEX, ALTER, SHOW DATABASES, SUPER,
 CREATE TEMPORARY TABLES, LOCK TABLES, EXECUTE, REPLICATION SLAVE, REPLICATION CLIENT, CREATE VIEW, SHOW VIEW, CREATE ROUTINE, ALTER RO
UTINE, CREATE USER, EVENT, TRIGGER, CREATE TABLESPACE, CREATE ROLE, DROP ROLE ON *.* TO `root`@`localhost` WITH GRANT OPTION
                                                                                      |
| GRANT APPLICATION_PASSWORD_ADMIN,AUDIT_ABORT_EXEMPT,AUDIT_ADMIN,AUTHENTICATION_POLICY_ADMIN,BACKUP_ADMIN,BINLOG_ADMIN,BINLOG_ENCRYPTI
ON_ADMIN,CLONE_ADMIN,CONNECTION_ADMIN,ENCRYPTION_KEY_ADMIN,FIREWALL_EXEMPT,FLUSH_OPTIMIZER_COSTS,FLUSH_STATUS,FLUSH_TABLES,FLUSH_USER_R
ESOURCES,GROUP_REPLICATION_ADMIN,GROUP_REPLICATION_STREAM,INNODB_REDO_LOG_ARCHIVE,INNODB_REDO_LOG_ENABLE,PASSWORDLESS_USER_ADMIN,PERSIS
T_RO_VARIABLES_ADMIN,REPLICATION_APPLIER,REPLICATION_SLAVE_ADMIN,RESOURCE_GROUP_ADMIN,RESOURCE_GROUP_USER,ROLE_ADMIN,SENSITIVE_VARIABLE
S_OBSERVER,SERVICE_CONNECTION_ADMIN,SESSION_VARIABLES_ADMIN,SET_USER_ID,SHOW_ROUTINE,SYSTEM_USER,SYSTEM_VARIABLES_ADMIN,TABLE_ENCRYPTIO
N_ADMIN,TELEMETRY_LOG_ADMIN,XA_RECOVER_ADMIN ON *.* TO `root`@`localhost` WITH GRANT OPTION |
| GRANT PROXY ON ``@`` TO `root`@`localhost` WITH GRANT OPTION

                                                                                      |
+----------------------------------------------------------------------------------------------------------------------
+-------------------------------------------------------------------------------------+
3 rows in set (0.01 sec)
```



```
| Shutdown                     | Server Admin                          | To shut down the server                         |
| Super                        | Server Admin                          | To use KILL thread, SET GLOBAL, CHANGE MASTER, etc. |
| Trigger                      | Tables                                | To use triggers                                 |
| Create tablespace            | Server Admin                          | To create/alter/drop tablespaces                |
| Update                       | Tables                                | To update existing rows                         |
| Usage                        | Server Admin                          | No privileges - allow connect only              |
| ENCRYPTION_KEY_ADMIN         | Server Admin                          |                                                 |
| INNODB_REDO_LOG_ARCHIVE      | Server Admin                          |                                                 |
| RESOURCE_GROUP_USER          | Server Admin                          |                                                 |
| FIREWALL_EXEMPT              | Server Admin                          |                                                 |
| SET_USER_ID                  | Server Admin                          |                                                 |
| SERVICE_CONNECTION_ADMIN     | Server Admin                          |                                                 |
| GROUP_REPLICATION_ADMIN      | Server Admin                          |                                                 |
| AUDIT_ABORT_EXEMPT           | Server Admin                          |                                                 |
| GROUP_REPLICATION_STREAM     | Server Admin                          |                                                 |
| CLONE_ADMIN                  | Server Admin                          |                                                 |
| SYSTEM_USER                  | Server Admin                          |                                                 |
| AUTHENTICATION_POLICY_ADMIN  | Server Admin                          |                                                 |
| SHOW_ROUTINE                 | Server Admin                          |                                                 |
| BACKUP_ADMIN                 | Server Admin                          |                                                 |
| CONNECTION_ADMIN             | Server Admin                          |                                                 |
| PERSIST_RO_VARIABLES_ADMIN   | Server Admin                          |                                                 |
| RESOURCE_GROUP_ADMIN         | Server Admin                          |                                                 |
| SESSION_VARIABLES_ADMIN      | Server Admin                          |                                                 |
| SYSTEM_VARIABLES_ADMIN       | Server Admin                          |                                                 |
| APPLICATION_PASSWORD_ADMIN   | Server Admin                          |                                                 |
| FLUSH_OPTIMIZER_COSTS        | Server Admin                          |                                                 |
| AUDIT_ADMIN                  | Server Admin                          |                                                 |
| BINLOG_ADMIN                 | Server Admin                          |                                                 |
| BINLOG_ENCRYPTION_ADMIN      | Server Admin                          |                                                 |
| FLUSH_STATUS                 | Server Admin                          |                                                 |
| FLUSH_TABLES                 | Server Admin                          |                                                 |
| FLUSH_USER_RESOURCES         | Server Admin                          |                                                 |
| REPLICATION_APPLIER          | Server Admin                          |                                                 |
| INNODB_REDO_LOG_ENABLE       | Server Admin                          |                                                 |
| XA_RECOVER_ADMIN             | Server Admin                          |                                                 |
| PASSWORDLESS_USER_ADMIN      | Server Admin                          |                                                 |
| TABLE_ENCRYPTION_ADMIN       | Server Admin                          |                                                 |
| ROLE_ADMIN                   | Server Admin                          |                                                 |
| REPLICATION_SLAVE_ADMIN      | Server Admin                          |                                                 |
| SENSITIVE_VARIABLES_OBSERVER | Server Admin                          |                                                 |
```



```
| Update                             | Tables         | To update existing rows                                |
| Usage                              | Server Admin   | No privileges - allow connect only                     |
| ENCRYPTION_KEY_ADMIN               | Server Admin   |                                                        |
| INNODB_REDO_LOG_ARCHIVE            | Server Admin   |                                                        |
| RESOURCE_GROUP_USER                | Server Admin   |                                                        |
| FIREWALL_EXEMPT                    | Server Admin   |                                                        |
| SET_USER_ID                        | Server Admin   |                                                        |
| SERVICE_CONNECTION_ADMIN           | Server Admin   |                                                        |
| GROUP_REPLICATION_ADMIN            | Server Admin   |                                                        |
| AUDIT_ABORT_EXEMPT                 | Server Admin   |                                                        |
| GROUP_REPLICATION_STREAM           | Server Admin   |                                                        |
| CLONE_ADMIN                        | Server Admin   |                                                        |
| SYSTEM_USER                        | Server Admin   |                                                        |
| AUTHENTICATION_POLICY_ADMIN        | Server Admin   |                                                        |
| SHOW_ROUTINE                       | Server Admin   |                                                        |
| BACKUP_ADMIN                       | Server Admin   |                                                        |
| CONNECTION_ADMIN                   | Server Admin   |                                                        |
| PERSIST_RO_VARIABLES_ADMIN         | Server Admin   |                                                        |
| RESOURCE_GROUP_ADMIN               | Server Admin   |                                                        |
| SESSION_VARIABLES_ADMIN            | Server Admin   |                                                        |
| SYSTEM_VARIABLES_ADMIN             | Server Admin   |                                                        |
| APPLICATION_PASSWORD_ADMIN         | Server Admin   |                                                        |
| FLUSH_OPTIMIZER_COSTS              | Server Admin   |                                                        |
| AUDIT_ADMIN                        | Server Admin   |                                                        |
| BINLOG_ADMIN                       | Server Admin   |                                                        |
| BINLOG_ENCRYPTION_ADMIN            | Server Admin   |                                                        |
| FLUSH_STATUS                       | Server Admin   |                                                        |
| FLUSH_TABLES                       | Server Admin   |                                                        |
| FLUSH_USER_RESOURCES               | Server Admin   |                                                        |
| REPLICATION_APPLIER                | Server Admin   |                                                        |
| INNODB_REDO_LOG_ENABLE             | Server Admin   |                                                        |
| XA_RECOVER_ADMIN                   | Server Admin   |                                                        |
| PASSWORDLESS_USER_ADMIN            | Server Admin   |                                                        |
| TABLE_ENCRYPTION_ADMIN             | Server Admin   |                                                        |
| ROLE_ADMIN                         | Server Admin   |                                                        |
| REPLICATION_SLAVE_ADMIN            | Server Admin   |                                                        |
| SENSITIVE_VARIABLES_OBSERVER       | Server Admin   |                                                        |
| TELEMETRY_LOG_ADMIN                | Server Admin   |                                                        |
+------------------------------------+----------------+--------------------------------------------------------+
69 rows in set (0.01 sec)
```