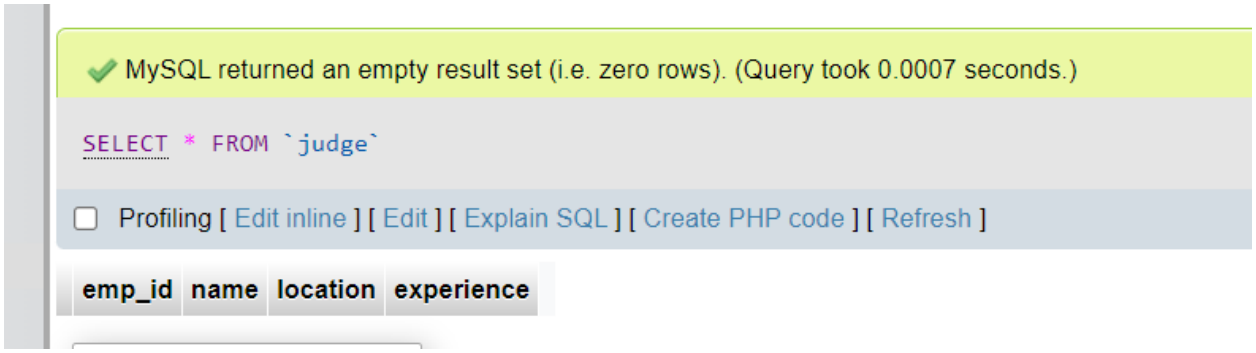
Workshop Questions

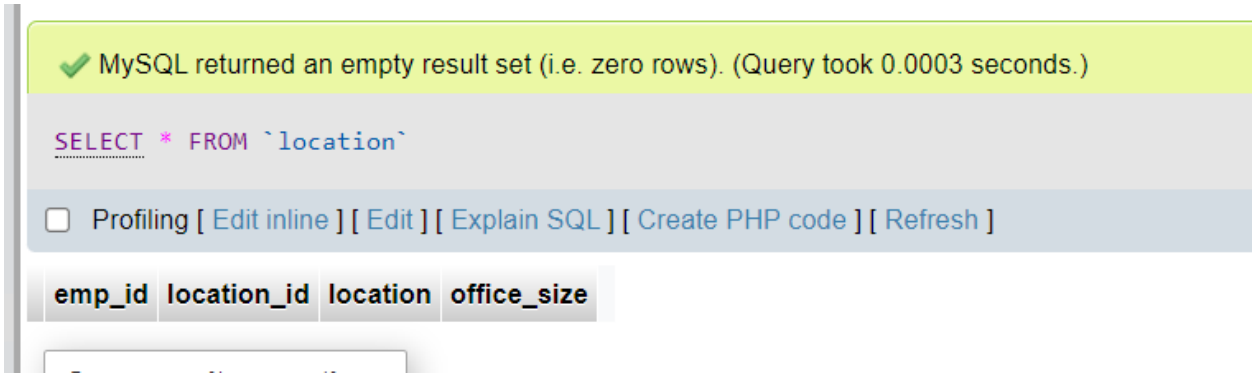
1. Creation of parent table judge

```
CREATE TABLE Judge(
emp_id varchar(5) NOT NULL,
name varchar(50),
location varchar(50),
experience int,
PRIMARY KEY(emp_id));
```



1. Creation of child table location

```
CREATE TABLE location(
emp_id varchar(5)NOT NULL,
location_id varchar(5) NOT NULL,
location varchar(50) NOT NULL,
office_size int,
PRIMARY KEY(emp_id),
FOREIGN KEY(emp_id) REFERENCES Judge(emp_id));
```



Question Answer

1. Difference Between Primary and Foreign Key.

Primary Key	Foreign Key
Table allows only one primary key.	Tables can allow more than one foreign key.
The primary key doesn't allow null values.	Foreign key accepts multiple null values.
It can identify the record uniquely in the database table.	A foreign key is a field in the table that is the primary key in another table.
A primary key generally focuses on the uniqueness of the table. It assures the value in the specific column is unique.	A foreign key is generally used to build a relationship between the two tables.

2. What can SQL do?

ANS: SQL executes the queries against the database. SQL can retrieve data,insert records, update records,delete records from the database, create new databases, create new tables and many more.

3. Define the categories of Data Manipulation Language.

   ANS: Data manipulation language (DML) has two main classifications which are procedural and non-procedural programming, which is also called declarative programming. The SQL dealing with the manipulation of data present in the database belongs to the DML or Data Manipulation Language, including most of the SQL statements.

4. What are the data types in SQL?

   ANS: The datatypes in SQL are:

   a. Int
   b. Varchar
   c. Float
   d. Datetime
   e. Bit

5. Mention some important SQL commands.

ANS: Some of the important SQL commands are:

a. SELECT - extracts data from a database
b. UPDATE - updates data in a database
c. DELETE - deletes data from a database
d. INSERT INTO - inserts new data into a database
e. CREATE DATABASE - creates a new database
f. ALTER DATABASE - modifies a database
g. CREATE TABLE - creates a new table
h. ALTER TABLE - modifies a table
i. DROP TABLE - deletes a table
j. CREATE INDEX - creates an index (search key)
k. DROP INDEX - deletes an index

6. Define Super key, Primary key, Candidate key and Alternate key.

ANS: Super key is a single key or a group of multiple keys that can uniquely identify tuples in a table. Super keys can contain redundant attributes that might not be important for identifying tuples.

Candidate keys are a subset of Super keys. A candidate key is a specific type of field in a relational database that can identify each unique record independently of any other data. All the super keys are candidate keys but all candidate keys are not super keys.

Alternate Key or Secondary Key is the key that has not been selected to be the primary key, but are candidate keys. However, it is considered a candidate key for the primary key. A candidate key not selected as a primary key is called an alternate or secondary key.

7. What is Data Modeling?

ANS: Data modeling is the process of diagramming data flows. When creating a new or alternate database structure, the designer starts with a diagram of how data will flow into and out of the database.

8. Differentiate between Conceptual, Logical and Physical database design.

ANS: Conceptual ERD models the business objects that should exist in a system and the relationships between them. A conceptual model is developed to present an overall picture of the system by recognizing the business objects involved. It defines what entities exist, NOT which tables. For example, ‘many to many’ tables may exist in a logical or physical data model but they are just shown as a relationship with no cardinality under the conceptual data model.

Logical ERD is a detailed version of a Conceptual ERD. A logical ER model is developed to enrich a conceptual model by defining explicitly the columns in each entity and introducing operational and transactional entities. Although a logical data model is still independent of the actual database system in which the database will be created, you can still consider that if it affects the design.

Physical ERD represents the actual design blueprint of a relational database. A physical data model elaborates on the logical data model by assigning each column with type, length, nullable, etc. Since a physical ERD represents how data should be structured and related in a specific DBMS it is important to consider the convention and restriction of the actual database system in which the database will be created. Make sure the column types are supported by the DBMS and reserved words are not used in naming entities and columns.

9. Explain the terms Data Definition Language, Data Manipulation Language and Data Control Language. As part of your explanation you should provide knowledge of the use of at least 3 commands for each language using SQL notation.

ANS: Data Definition Language(DDL) includes those SQL statements that create and drop locations, databases and database objects such as tables and indexes. DDL also includes statements to alter database objects and impose integrity constraints on tables. Commands of DDL are: Command of DDL are: create, alter, drop etc.

A data manipulation language(DML) is a family of computer languages including commands permitting users to manipulate data in a database. This manipulation involves inserting data into database tables, retrieving existing data, deleting data from existing tables and modifying existing data. Commands of DML are: SELECT, INSERT, UPDATE etc.

Data Control Language (DCL) consists of statements that control security and concurrent access to table data. Commands of DCL are : COMMIT , CONNECT, GRANT, ROLLBACK, REVOKE etc.

10. Describe

a. Levels of Abstraction

   In terms of retrieval of data, reduce complexity in terms of usability of users and in order to make the system efficient, developers use levels of abstraction that hide irrelevant details from the users.

b. Entity

   An entity in DBMS (Database management System) is a real-world thing or a real-world object which is distinguishable from other objects in the real world.

c. Attributes

   Attributes store values that are used to describe the entity.

Workshop questions

a. Create a Database named Hotel.

ANS: Create database hotel;

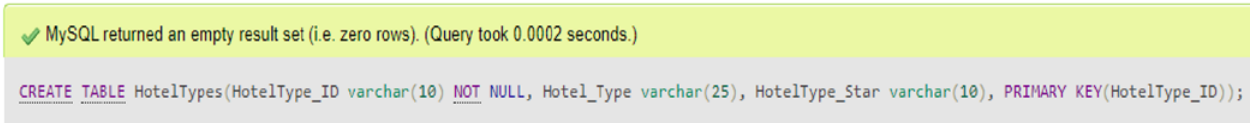
	Database	Collation	Action
☐	anirudha	utf8mb4_general_ci	Check privileges
☐	hotel	utf8mb4_general_ci	Check privileges
☐	information_schema	utf8_general_ci	Check privileges
☐	mysql	utf8mb4_general_ci	Check privileges
☐	performance_schema	utf8_general_ci	Check privileges

b. Connect to a Database.

ANS:

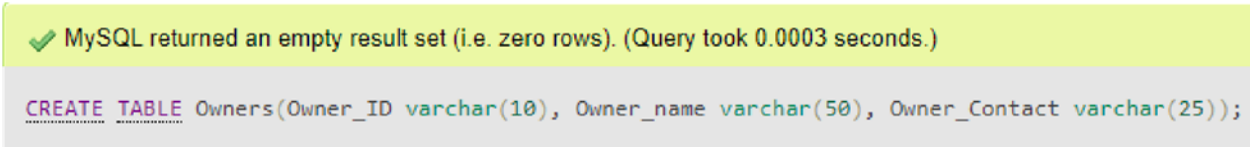
c. Create a table name HotelTypes (You need to use the primary key for id).

ANS:



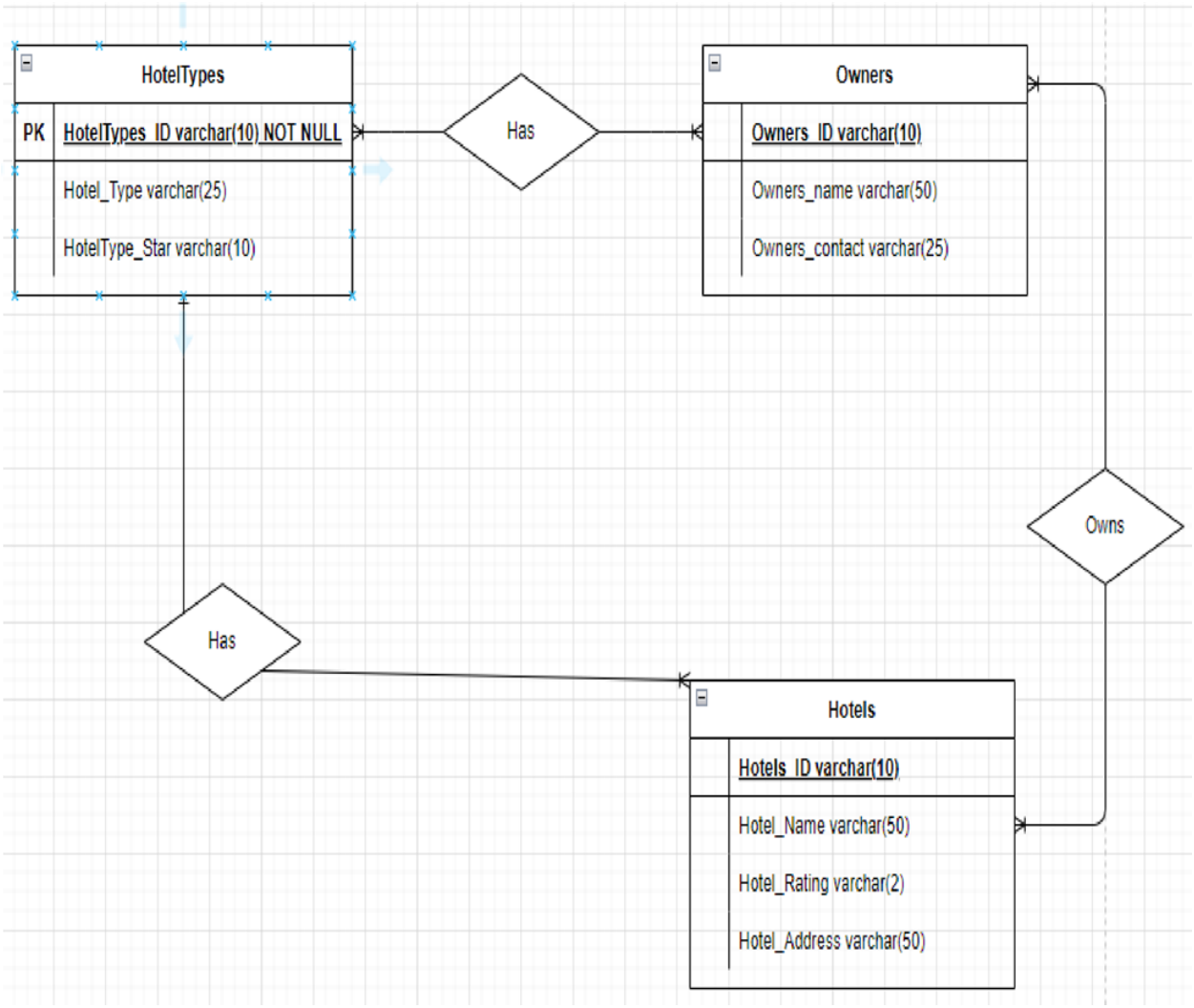
d. Create more tables like owners, and hotels.

ANS:



e. Draw an entity-relationship diagram between the three tables.

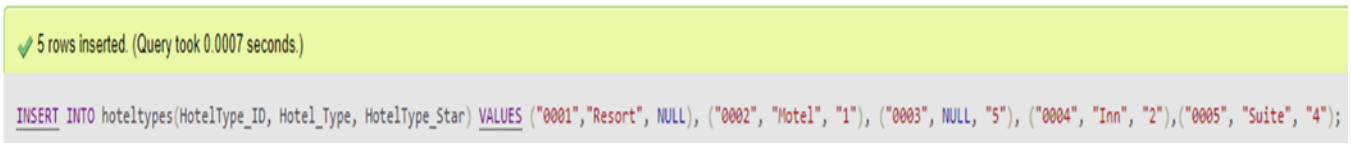
ANS:



f. Insert any five values in hotelTypes, owners but insert 10 values in hotels table, each table there must be 2 null values.

ANS:

Hoteltypes:



	HotelType_ID	Hotel_Type	HotelType_Star
Edit Copy Delete	0001	Resort	*NULL*
Edit Copy Delete	0002	Motel	1
Edit Copy Delete	0003	*NULL*	5
Edit Copy Delete	0004	Inn	2
Edit Copy Delete	0005	Suite	4

Owners:

Owner_ID	Owner_name	Owner_Contact
0001	Hoosier Daddy	*NULL*
0002	Real Name Hidden	9884276593
0003	Babushka	*NULL*
0004	Bread Pitt	9886754321
0005	Bond James	98007007007

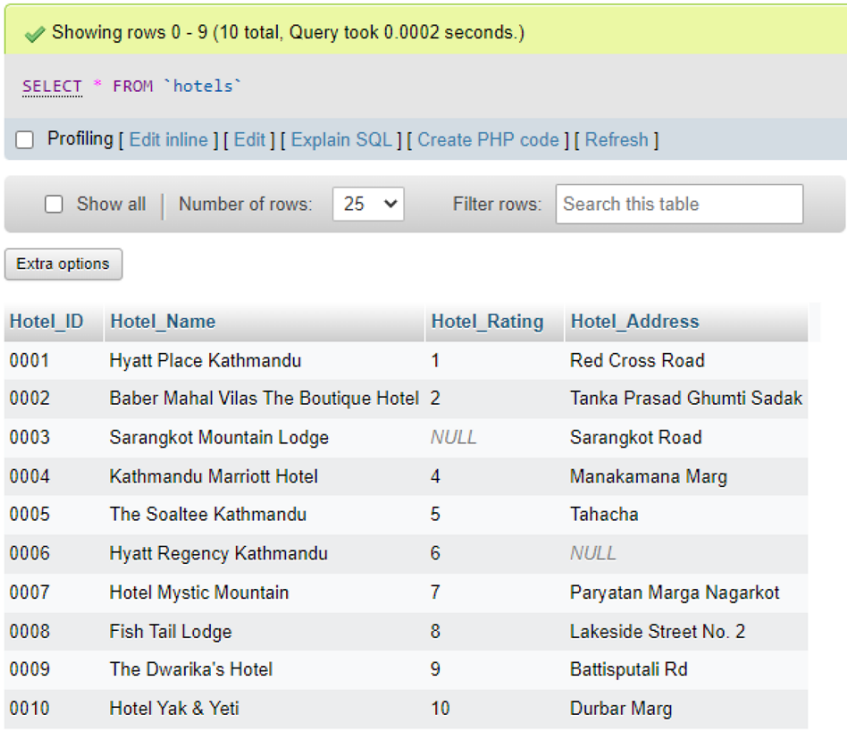
Hotel:

10 rows inserted. (Query took 0.0006 seconds.)

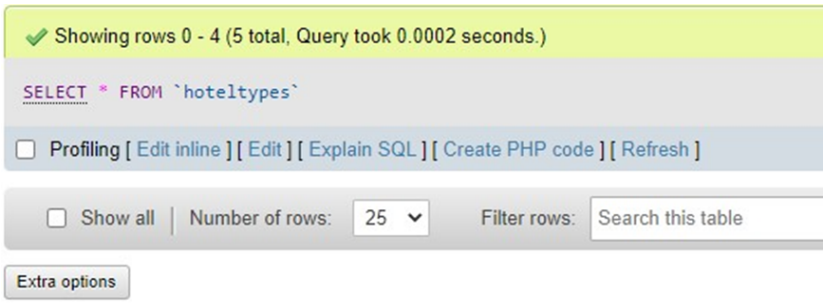
```
INSERT INTO hotel(Hotel_ID,Hotel_Name,Hotel_Rating,Hotel_Address)VALUES("0001","Hyatt Place Kathmandu","1","Red Cross Road"),("0002","Baber Mahal Vilas The Boutique Hotel","2","Tanka Prasad Ghumti Sadak"),("0003","Sarangkot Mountain Lodge",NULL,"Sarangkot Road"),("0004","Kathmandu Marriott Hotel","4","Manakamana Marg"),("0005","The Soaltee Kathmandu","5","Tahacha"),("0006","Hyatt Regency Kathmandu","6",NULL),("0007","Hotel Mystic Mountain","7","Paryatan Marga Nagarkot"),("0008","Fish Tail Lodge","8","Lakeside Street No. 2 "),("0009","The Dwarika's Hotel","9","Battisputali Rd"),("0010","Hotel Yak & Yeti","10","Durbar Marg");
```

Hotel_ID	Hotel_Name	Hotel_Rating	Hotel_Address
0001	Hyatt Place Kathmandu	1	Red Cross Road
0002	Baber Mahal Vilas The Boutique Hotel	2	Tanka Prasad Ghumti Sadak
0003	Sarangkot Mountain Lodge	*NULL*	Sarangkot Road
0004	Kathmandu Marriott Hotel	4	Manakamana Marg
0005	The Soaltee Kathmandu	5	Tahacha
0006	Hyatt Regency Kathmandu	6	*NULL*
0007	Hotel Mystic Mountain	7	Paryatan Marga Nagarkot
0008	Fish Tail Lodge	8	Lakeside Street No. 2
0009	The Dwarika's Hotel	9	Battisputali Rd
0010	Hotel Yak & Yeti	10	Durbar Marg

g. Check your data in all your tables.
ANS:



Hotel_ID	Hotel_Name	Hotel_Rating	Hotel_Address
0001	Hyatt Place Kathmandu	1	Red Cross Road
0002	Baber Mahal Vilas The Boutique Hotel	2	Tanka Prasad Ghumti Sadak
0003	Sarangkot Mountain Lodge	*NULL*	Sarangkot Road
0004	Kathmandu Marriott Hotel	4	Manakamana Marg
0005	The Soaltee Kathmandu	5	Tahacha
0006	Hyatt Regency Kathmandu	6	*NULL*
0007	Hotel Mystic Mountain	7	Paryatan Marga Nagarkot
0008	Fish Tail Lodge	8	Lakeside Street No. 2
0009	The Dwarika's Hotel	9	Battisputali Rd
0010	Hotel Yak & Yeti	10	Durbar Marg



	HotelType_ID	Hotel_Type	HotelType_Star
Edit Copy Delete	0001	Resort	*NULL*
Edit Copy Delete	0002	Motel	1
Edit Copy Delete	0003	*NULL*	5
Edit Copy Delete	0004	Inn	2
Edit Copy Delete	0005	Suite	4

Showing rows 0 - 4 (5 total, Query took 0.0002 seconds.)

```
SELECT * FROM `owners`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

Owner_ID	Owner_name	Owner_Contact
0001	Hoosier Daddy	*NULL*
0002	Real Name Hidden	9884276593
0003	Babushka	*NULL*
0004	Bread Pitt	9886754321
0005	Bond James	98007007007

h. Select only from the hotels table.

ANS:

Showing rows 0 - 9 (10 total, Query took 0.0002 seconds.)

```
SELECT * FROM `hotels`
```

Profiling [Edit inline] [Edit] [Explain SQL] [Create PHP code] [Refresh]

Show all | Number of rows: 25 Filter rows: Search this table

Extra options

Hotel_ID	Hotel_Name	Hotel_Rating	Hotel_Address
0001	Hyatt Place Kathmandu	1	Red Cross Road
0002	Baber Mahal Vilas The Boutique Hotel	2	Tanka Prasad Ghumti Sadak
0003	Sarangkot Mountain Lodge	*NULL*	Sarangkot Road
0004	Kathmandu Marriott Hotel	4	Manakamana Marg
0005	The Soaltee Kathmandu	5	Tahacha
0006	Hyatt Regency Kathmandu	6	*NULL*
0007	Hotel Mystic Mountain	7	Paryatan Marga Nagarkot
0008	Fish Tail Lodge	8	Lakeside Street No. 2
0009	The Dwarika's Hotel	9	Battisputali Rd
0010	Hotel Yak & Yeti	10	Durbar Marg

i. Perform a basic select command from the hotels table.

ANS:

Showing rows 0 - 0 (1 total, Query took 0.0002 seconds.)

```
SELECT * FROM `hotels` WHERE Hotel_ID="0001";
```

Hotel_ID	Hotel_Name	Hotel_Rating	Hotel_Address
0001	Hyatt Place Kathmandu	1	Red Cross Road

j. Sort hotels table in ASC and DESC order.

ANS:

Showing rows 0 - 9 (10 total, Query took 0.0003 seconds.) [Hotel_Address: ... - **TANKA PRASAD GHUMTI SADAK...**]

```
SELECT * FROM hotels ORDER BY Hotel_Address ASC;
```

Hotel_ID	Hotel_Name	Hotel_Rating	Hotel_Address ▲ 1
0006	Hyatt Regency Kathmandu	6	*NULL*
0009	The Dwarika's Hotel	9	Battisputali Rd
0010	Hotel Yak & Yeti	10	Durbar Marg
0008	Fish Tail Lodge	8	Lakeside Street No. 2
0004	Kathmandu Marriott Hotel	4	Manakamana Marg
0007	Hotel Mystic Mountain	7	Paryatan Marga Nagarkot
0001	Hyatt Place Kathmandu	1	Red Cross Road
0003	Sarangkot Mountain Lodge	*NULL*	Sarangkot Road
0005	The Soaltee Kathmandu	5	Tahacha
0002	Baber Mahal Vilas The Boutique Hotel	2	Tanka Prasad Ghumti Sadak

k. Count the rows from the hotel's table.

ANS:

Your SQL query has been executed successfully.

```
SELECT COUNT(*) FROM hotels;
```

COUNT(*)
10

l. Update the data from the owners table.

ANS:

1 row affected. (Query took 0.0002 seconds.)

```
UPDATE owners SET Owner_Contact = '9007007007' WHERE Owner_ID = "0005";
```

Owner_ID	Owner_name	Owner_Contact
0001	Hoosier Daddy	*NULL*
0002	Real Name Hidden	9884276593
0003	Babushka	*NULL*
0004	Bread Pitt	9886754321
0005	Bond James	9007007007

m. Delete data from the owners table.

ANS:

5 rows affected. (Query took 0.0011 seconds.)

```
DELETE FROM owners;
```

Owner_ID	Owner_name	Owner_Contact

n. Create a table customer and insert one value then drop table customers.

ANS:

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0003 seconds.)

```
CREATE TABLE Customers(Customer_Name varchar(50));
```

Customer_Name

1 row inserted. (Query took 0.0003 seconds.)

```
INSERT INTO customers(Customer_Name) VALUES("Siuuuuuuu");
```

Customer_Name
Siuuuuuuu

MySQL returned an empty result set (i.e. zero rows). (Query took 0.0008 seconds.)

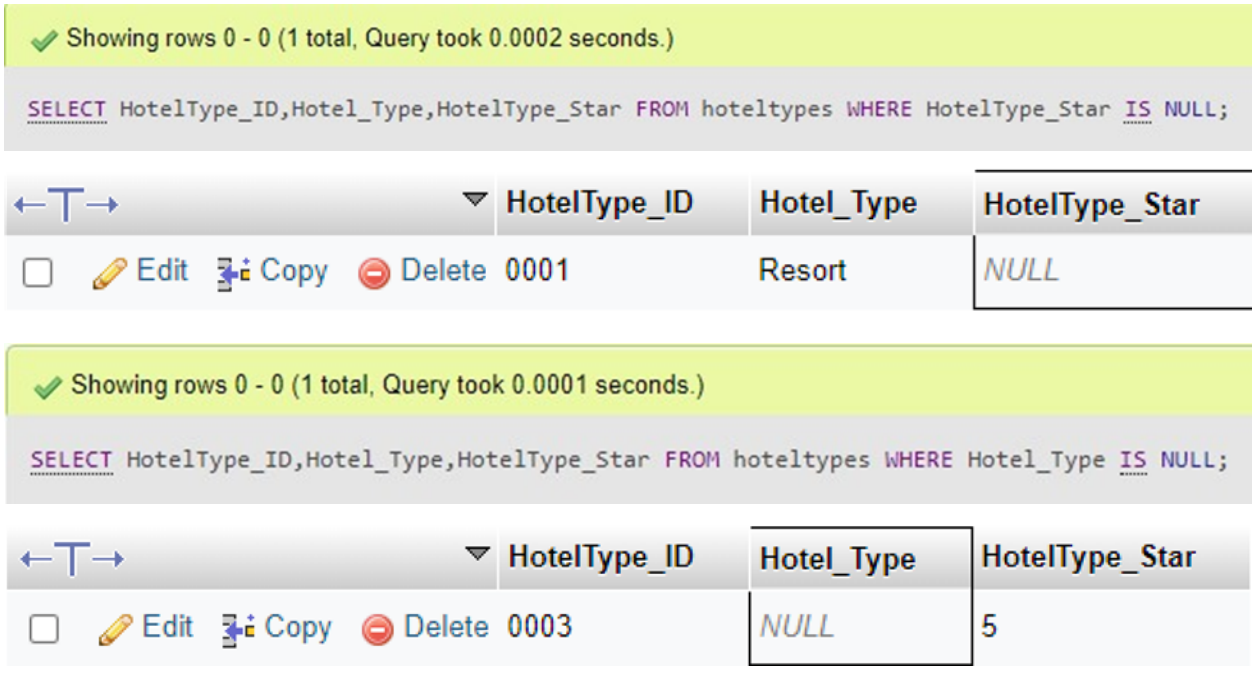
```
DROP TABLE customers;
```

#1146 - Table 'hotel.customers' doesn't exist

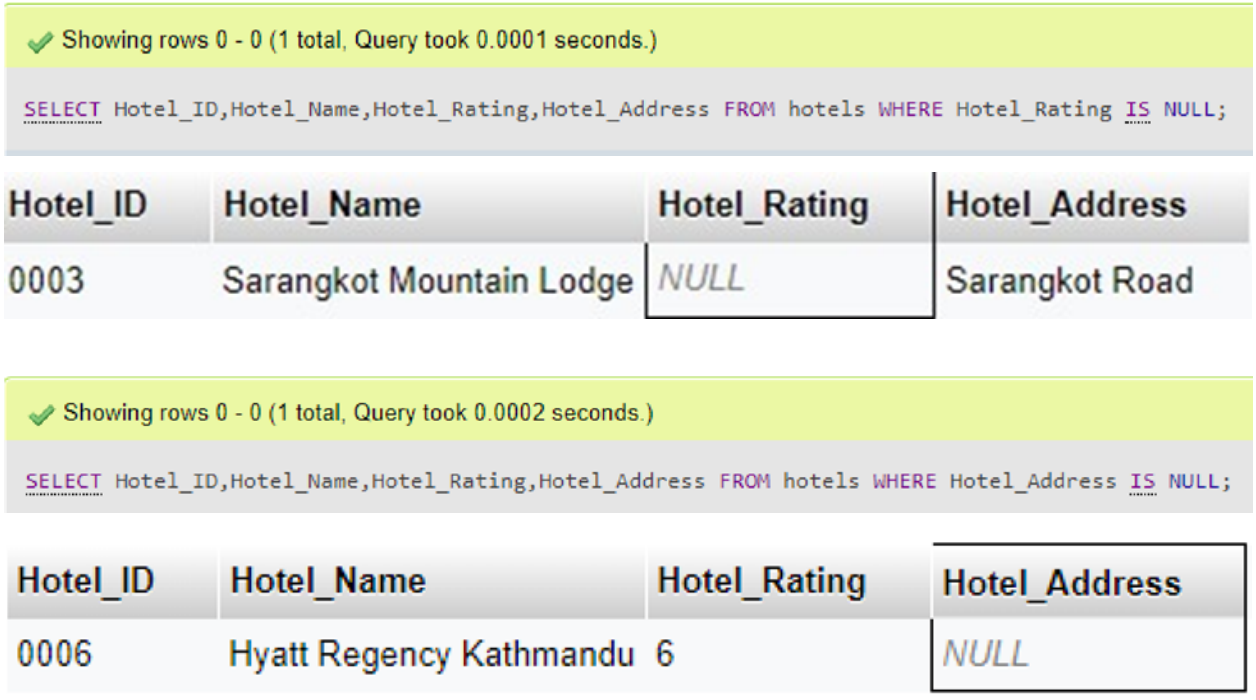
o. Show the null data from the table.

ANS:

Hoteltypes:



Hotels:



p. Perform your own queries(any three).

ANS:

Showing rows 0 - 0 (1 total, Query took 0.0002 seconds.)

```
SELECT MIN(HotelType_ID) AS Hotel_ID FROM hoteltypes;
```

Hotel_ID
0001

Showing rows 0 - 0 (1 total, Query took 0.0002 seconds.)

```
SELECT MAX(Hotel_Rating) AS Stars FROM hotels;
```

Stars
9

Run SQL query/queries on table hotel.owners:

```
1 RENAME TABLE owners to emptytable;
```