SQL PROJECT ON HOTEL MANAGEMENT SYSTEM

ABSTRACT.

Hotel management is an essential component of tourism and hospitality industry, which is one of the largest and fastest-growing industries in the world. The major purpose of a successful hotel management system is to come up with a simple yet effective and organized system for both customers and the management for an enhanced relationship between the two. The aim of an effective hotel management is to attain operational excellence and boost productivity.
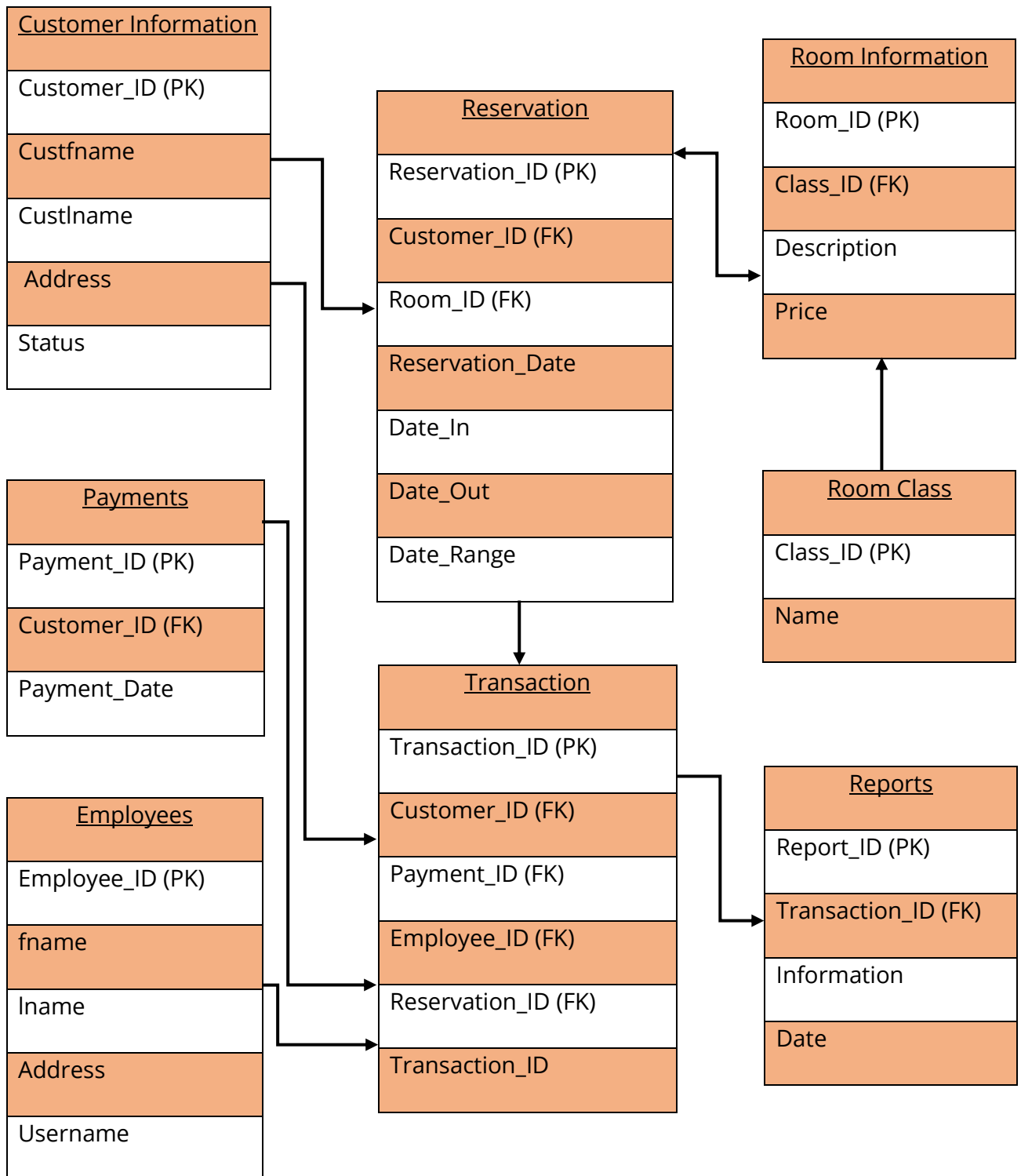
There are various aspects to consider when it comes to hotel management. Some of the most important aspects involve establishing a positive customer experience, ensuring efficient operations, and maintaining high standards of quality.

The hotel industry is a dynamic, fast-moving and ever-changing field and it is absolutely necessary for businesses in this industry to have a well-structured management system in place in order to be successful and flourishing. An efficient hotel management system should have a robust set of attributes that can improve hotel operations and enrich the guest experience.

OBJECTIVES.

- ❖ The main objective of this project is to develop a clear understanding of the hotel management system and it's functionality.
- ❖ Hotel management system project provides reservation-details, room and accommodation management, customer information, customer transaction monitoring and other essential hotel management features.
- ❖ The system is helpful as it calculates ana exact cost of rooms for requested number of days.
- ❖ The details of the customers as well as the employees can be easily accessed and can be utilized for the betterment or in need of during a situation.
- ❖ The purpose of this project is to create a well-organized system that will be able to simplify the task of managing hotel operations and functions.

ENTITY-RELATIONSHIP (ER) DIAGRAM FOR HOTEL MANAGEMENT SYSTEM

Customer Information

- Customer_ID (PK)
- Custfname
- Custlname
- Address
- Status

Reservation

- Reservation_ID (PK)
- Customer_ID (FK)
- Room_ID (FK)
- Reservation_Date
- Date_In
- Date_Out
- Date_Range

Room Information

- Room_ID (PK)
- Class_ID (FK)
- Description
- Price

Room Class

- Class_ID (PK)
- Name

Payments

- Payment_ID (PK)
- Customer_ID (FK)
- Payment_Date

Transaction

- Transaction_ID (PK)
- Customer_ID (FK)
- Payment_ID (FK)
- Employee_ID (FK)
- Reservation_ID (FK)
- Transaction_ID

Reports

- Report_ID (PK)
- Transaction_ID (FK)
- Information
- Date

Employees

- Employee_ID (PK)
- fname
- lname
- Address
- Username

STRUCTURES OF TABLES.

Customer Information: This table contains information like Customer_ID (Primary Key), Customer first name as Custfname, Customer last name as Custlname, address and status.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Customer_Information(Customer_ID int primary key,
    -> Custfname varchar(20) Not Null,Custlname varchar(20) Not Null,Address varchar(20) Not Null,
    -> Status varchar(20) Not Null);
Query OK, 0 rows affected (0.017 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Customer_Information;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Customer_ID | int(11)     | NO   | PRI | NULL    |       |
| Custfname   | varchar(20) | NO   |     | NULL    |       |
| Custlname   | varchar(20) | NO   |     | NULL    |       |
| Address     | varchar(20) | NO   |     | NULL    |       |
| Status      | varchar(20) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.010 sec)
```

Room Class: This table contains information like Class_ID (Primary Key) and name.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Room_Class(Class_ID int primary key,Name varchar(20) Not Null);
Query OK, 0 rows affected (0.021 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Room_Class;
+----------+-------------+------+-----+---------+-------+
| Field    | Type        | Null | Key | Default | Extra |
+----------+-------------+------+-----+---------+-------+
| Class_ID | int(11)     | NO   | PRI | NULL    |       |
| Name     | varchar(20) | NO   |     | NULL    |       |
+----------+-------------+------+-----+---------+-------+
2 rows in set (0.010 sec)
```

Room Information: This table contains information like Room_ID (Primary Key), Class_ID (Foreign Key), Description and Price.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Room_Information(Room_ID int primary key,
    -> Class_ID int,Description varchar(40) Not Null,Price bigint Not Null,FOREIGN KEY(Class_ID) REFERENCES
    -> Room_Class(Class_ID) ON UPDATE CASCADE);
Query OK, 0 rows affected (0.017 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Room_Information;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Room_ID     | int(11)     | NO   | PRI | NULL    |       |
| Class_ID    | int(11)     | YES  | MUL | NULL    |       |
| Description | varchar(40) | NO   |     | NULL    |       |
| Price       | bigint(20)  | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
4 rows in set (0.011 sec)
```

Reservation: This table contains information like Reservation_ID (Primary Key), Customer_ID (Foreign Key), Room_ID (Foreign Key), Reservation_Date, Date_In, Date_Out, Date_Range.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Reservation(Reservation_ID int primary key,
    -> Customer_ID int Not Null,Room_ID int Not Null,Reservation_Date date Not Null,
    -> Date_In date Not Null,Date_Out date Not Null,Date_Range int Not Null,
    -> FOREIGN KEY(Customer_ID) REFERENCES Customer_Information(Customer_ID) ON UPDATE CASCADE,
    -> FOREIGN KEY(Room_ID) REFERENCES Room_Information(Room_ID) ON UPDATE CASCADE);
Query OK, 0 rows affected (0.020 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Reservation;
+------------------+----------+------+-----+---------+-------+
| Field            | Type     | Null | Key | Default | Extra |
+------------------+----------+------+-----+---------+-------+
| Reservation_ID   | int(11)  | NO   | PRI | NULL    |       |
| Customer_ID      | int(11)  | NO   | MUL | NULL    |       |
| Room_ID          | int(11)  | NO   | MUL | NULL    |       |
| Reservation_Date | date     | NO   |     | NULL    |       |
| Date_In          | date     | NO   |     | NULL    |       |
| Date_Out         | date     | NO   |     | NULL    |       |
| Date_Range       | int(11)  | NO   |     | NULL    |       |
+------------------+----------+------+-----+---------+-------+
7 rows in set (0.007 sec)
```

Payments: This table contains information like Payment_ID (Primary Key), Customer_ID (Foreign Key), Payment_Date.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Payments(Payment_ID int primary key,
    -> Customer_ID int Not Null,Payment_date date Not Null,FOREIGN KEY(Customer_ID)
    -> REFERENCES Customer_Information(Customer_ID) ON UPDATE CASCADE);
Query OK, 0 rows affected (0.038 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Payments;
+--------------+---------+------+-----+---------+-------+
| Field        | Type    | Null | Key | Default | Extra |
+--------------+---------+------+-----+---------+-------+
| Payment_ID   | int(11) | NO   | PRI | NULL    |       |
| Customer_ID  | int(11) | NO   | MUL | NULL    |       |
| Payment_date | date    | NO   |     | NULL    |       |
+--------------+---------+------+-----+---------+-------+
3 rows in set (0.012 sec)
```

Employees: This table contains information like Employee_ID (Primary Key), first name as fname, last name as lname, address and username.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Employees(Employee_ID int primary key,
    -> fname varchar(20) Not Null,lname varchar(20) Not Null,address varchar(20) Not Null,
    -> Username varchar(20) Not Null);
Query OK, 0 rows affected (0.017 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Employees;
+-------------+-------------+------+-----+---------+-------+
| Field       | Type        | Null | Key | Default | Extra |
+-------------+-------------+------+-----+---------+-------+
| Employee_ID | int(11)     | NO   | PRI | NULL    |       |
| fname       | varchar(20) | NO   |     | NULL    |       |
| lname       | varchar(20) | NO   |     | NULL    |       |
| address     | varchar(20) | NO   |     | NULL    |       |
| Username    | varchar(20) | NO   |     | NULL    |       |
+-------------+-------------+------+-----+---------+-------+
5 rows in set (0.005 sec)
```

Transaction: This table contains information like Transaction_ID (Primary Key), Customer_ID (Foreign Key), Payment_ID (Foreign key), Employee_ID (Foreign Key), Reservation_ID (Foreign Key) and Transaction_Date.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Transaction(Transaction_ID int primary key,
    -> Customer_ID int Not Null,Payment_ID int Not Null,Employee_ID int Not Null,
    -> Reservation_ID int Not Null,Transaction_date date,FOREIGN KEY(Customer_ID) REFERENCES
    -> Customer_Information(Customer_ID) ON UPDATE CASCADE,FOREIGN KEY(Payment_ID) REFERENCES
    -> Payments(Payment_ID) ON UPDATE CASCADE,FOREIGN KEY(Employee_ID) REFERENCES Employees(Employee_ID)
    -> ON UPDATE CASCADE,FOREIGN KEY(Reservation_ID) REFERENCES Reservation(Reservation_ID) ON UPDATE CASCADE);
Query OK, 0 rows affected (0.026 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Transaction;
+------------------+----------+------+-----+---------+-------+
| Field            | Type     | Null | Key | Default | Extra |
+------------------+----------+------+-----+---------+-------+
| Transaction_ID   | int(11)  | NO   | PRI | NULL    |       |
| Customer_ID      | int(11)  | NO   | MUL | NULL    |       |
| Payment_ID       | int(11)  | NO   | MUL | NULL    |       |
| Employee_ID      | int(11)  | NO   | MUL | NULL    |       |
| Reservation_ID   | int(11)  | NO   | MUL | NULL    |       |
| Transaction_date | date     | YES  |     | NULL    |       |
+------------------+----------+------+-----+---------+-------+
6 rows in set (0.011 sec)
```

Reports: This table contains information like Report_ID (Primary Key), Transaction_ID (Foreign Key), Information and Date.

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE TABLE Reports(Report_ID int primary key,
    -> Transaction_ID int Not Null,Information varchar(20) Not Null,Date date Not Null,
    -> FOREIGN KEY(Transaction_ID) REFERENCES Transaction(Transaction_ID) ON UPDATE CASCADE);
Query OK, 0 rows affected (0.015 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> DESC Reports;
+----------------+-------------+------+-----+---------+-------+
| Field          | Type        | Null | Key | Default | Extra |
+----------------+-------------+------+-----+---------+-------+
| Report_ID      | int(11)     | NO   | PRI | NULL    |       |
| Transaction_ID | int(11)     | NO   | MUL | NULL    |       |
| Information    | varchar(20) | NO   |     | NULL    |       |
| Date           | date        | NO   |     | NULL    |       |
+----------------+-------------+------+-----+---------+-------+
4 rows in set (0.011 sec)
```

CONTENTS OF TABLES.

Customer Information:

```
+-------------+-----------+-----------+---------------+-------------------+
| Customer_ID | Custfname | Custlname | Address       | Status            |
+-------------+-----------+-----------+---------------+-------------------+
|        3101 | James     | Allen     | Geneva        | Booking Confirmed |
|        3102 | Charlie   | Smith     | London        | Booking Confirmed |
|        3103 | Jacob     | Scott     | Bristol       | Booking Confirmed |
|        3104 | William   | Baker     | New Jersey    | Booking in process|
|        3105 | Ethan     | Lee       | Newcastle     | Booking in process|
|        3106 | Oliver    | Perry     | Glasgow       | Booking Confirmed |
|        3107 | Liam      | Francis   | San Francisco | Booking in process|
|        3108 | David     | Cooper    | Liverpool     | Booking Confirmed |
|        3109 | Richard   | Murphy    | Atlanta       | Booking Confirmed |
|        3110 | Thomas    | Jenkins   | Manchester    | Booking Confirmed |
|        3111 | John      | Gordon    | Brighton      | Booking in process|
|        3112 | Daniel    | Lopez     | Chicago       | Booking Confirmed |
|        3113 | Joe       | Miller    | San Diego     | Booking Confirmed |
|        3114 | Ivan      | Perez     | California    | Booking Confirmed |
|        3115 | Nick      | Anderson  | Durham        | Booking Confirmed |
|        3116 | Neil      | Scott     | New York      | Booking Confirmed |
|        3117 | Russell   | Stanley   | Berlin        | Booking in process|
|        3118 | Patrick   | Gibson    | Texas         | Booking Confirmed |
|        3119 | Edwin     | Phillips  | Nottingham    | Booking Confirmed |
|        3120 | Brian     | Griffin   | Frankfurt     | Booking Confirmed |
|        3121 | Morris    | Cooper    | Sydney        | Booking in process|
|        3122 | Noel      | Martin    | Gold Coast    | Booking Confirmed |
|        3123 | Robin     | Peterson  | Wakefield     | Booking Confirmed |
|        3124 | Mark      | Jenkins   | Madrid        | Booking Confirmed |
|        3125 | Victor    | Gibson    | Arizona       | Booking Confirmed |
+-------------+-----------+-----------+---------------+-------------------+
25 rows in set (0.005 sec)
```

Room Class:

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Room_Class;
+----------+----------------------+
| Class_ID | Name                 |
+----------+----------------------+
|     1701 | Single Room          |
|     1702 | Double Room          |
|     1703 | Triple Room          |
|     1704 | Quad Room            |
|     1705 | Queen room           |
|     1706 | King room            |
|     1707 | Twin Room            |
|     1708 | Double-double Room   |
|     1709 | Studio Room          |
|     1710 | Executive Suite room |
|     1711 | Mini Suite Room      |
|     1712 | Presidential Suite   |
|     1713 | Connecting Room      |
|     1714 | Murphy Room          |
|     1715 | Cabana Room          |
|     1716 | Adjoining Rooms      |
|     1717 | Adjacent Rooms       |
|     1718 | Duplex Rooms         |
|     1719 | Hospitality Rooms    |
|     1720 | Penthouse Room       |
|     1721 | Efficiency Room      |
|     1722 | Villa                |
|     1723 | Accessible Room      |
|     1724 | Apartments           |
|     1725 | Parlour Room         |
+----------+----------------------+
25 rows in set (0.000 sec)
```

Room Information Content 1:

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Room_Information;
+---------+----------+----------------------+--------+
| Room_ID | Class_ID | Description          | Price  |
+---------+----------+----------------------+--------+
|    3501 |     1701 | Single Room          |   2199 |
|    3502 |     1702 | Double Room          |   8230 |
|    3503 |     1703 | Triple Room          |  10920 |
|    3504 |     1704 | Quad Room            |  13000 |
|    3505 |     1705 | Queen Room           |  15000 |
|    3506 |     1706 | King Room            |  17000 |
|    3507 |     1707 | Twin Room            |   7460 |
|    3508 |     1708 | Double-double Room   |   8000 |
|    3509 |     1709 | Studio Room          |   4469 |
|    3510 |     1701 | Single Room          |   2199 |
|    3511 |     1701 | Single Room          |   2199 |
|    3512 |     1702 | Double Room          |   8230 |
|    3513 |     1702 | Double Room          |   8230 |
|    3514 |     1710 | Executive Suite Room |  43000 |
|    3515 |     1710 | Executive Suite Room |  43000 |
|    3516 |     1711 | Mini Suite Room      |  24000 |
|    3517 |     1711 | Mini Suite Room      |  24000 |
|    3518 |     1712 | Presidential Suite   |  50000 |
|    3519 |     1713 | Connecting Rooms     |  20000 |
|    3520 |     1714 | Murphy Room          |   8812 |
|    3521 |     1715 | Cabana Room          |  40000 |
|    3522 |     1701 | Single Room          |   2199 |
|    3523 |     1701 | Single Room          |   2199 |
|    3524 |     1702 | Double Room          |   8230 |
|    3525 |     1702 | Double Room          |   8230 |
|    3526 |     1702 | Double Room          |   8230 |
|    3527 |     1701 | Single Room          |   2199 |
|    3528 |     1701 | Single Room          |   2199 |
|    3529 |     1702 | Double Room          |   8230 |
|    3530 |     1702 | Double Room          |   8230 |
|    3531 |     1701 | Single Room          |   2199 |
|    3532 |     1701 | Single Room          |   2199 |
|    3533 |     1701 | Single Room          |   2199 |
|    3534 |     1702 | Double Room          |   8230 |
|    3535 |     1702 | Double Room          |   8230 |
|    3536 |     1703 | Triple Room          |  10920 |
|    3537 |     1703 | Triple Room          |  10920 |
```

Room Information Content 2:

```
| 3538 | 1703 | Triple Room           | 10920 |
| 3539 | 1703 | Triple Room           | 10920 |
| 3540 | 1703 | Triple Room           | 10920 |
| 3541 | 1705 | Queen Room            | 15000 |
| 3542 | 1705 | Queen Room            | 15000 |
| 3543 | 1706 | King Room             | 17000 |
| 3544 | 1706 | King Room             | 17000 |
| 3545 | 1710 | Executive Suite Room  | 43000 |
| 3546 | 1710 | Executive Suite Room  | 43000 |
| 3547 | 1711 | Mini Suite Room       | 24000 |
| 3548 | 1711 | Mini Suite Room       | 24000 |
| 3549 | 1712 | Presidential Suite    | 50000 |
| 3550 | 1716 | Adjoining Rooms       | 10000 |
| 3551 | 1716 | Adjoining Rooms       | 10000 |
| 3552 | 1716 | Adjoining Rooms       | 10000 |
| 3553 | 1717 | Adjacent Rooms        | 13000 |
| 3554 | 1717 | Adjacent Rooms        | 13000 |
| 3555 | 1718 | Duplex Rooms          |  6140 |
| 3556 | 1718 | Duplex Rooms          |  6140 |
| 3557 | 1719 | Hospitality Rooms     |  5000 |
| 3558 | 1719 | Hospitality Rooms     |  5000 |
| 3559 | 1720 | Penthouse Room        | 60000 |
| 3560 | 1721 | Efficiency Room       |  6000 |
| 3561 | 1721 | Efficiency Room       |  6000 |
| 3562 | 1722 | Villa                 | 50000 |
| 3563 | 1723 | Accessible Room       |  4000 |
| 3564 | 1723 | Accessible Room       |  4000 |
| 3565 | 1724 | Apartments            |  8000 |
| 3566 | 1725 | Parlour Room          |  9000 |
+------+------+-----------------------+-------+
```

Reservation:

Reservation_ID	Customer_ID	Room_ID	Reservation_Date	Date_In	Date_Out	Date_Range
13440001	3101	3501	2023-01-16	2023-01-18	2023-01-24	6
13440002	3102	3510	2023-01-08	2023-01-12	2023-01-16	4
13440003	3103	3511	2023-01-25	2023-01-27	2023-02-01	5
13440004	3104	3522	2023-02-06	2023-02-10	2023-02-15	5
13440005	3105	3523	2023-02-16	2023-02-17	2023-02-25	8
13440006	3106	3502	2023-02-14	2023-02-17	2023-02-21	4
13440007	3107	3524	2023-03-12	2023-03-15	2023-03-19	4
13440008	3108	3525	2023-03-06	2023-03-10	2023-03-14	4
13440009	3109	3507	2023-03-05	2023-03-09	2023-03-14	5
13440010	3110	3531	2023-04-08	2023-04-10	2023-04-13	3
13440011	3111	3532	2023-04-07	2023-04-11	2023-04-15	4
13440012	3112	3533	2023-04-16	2023-04-21	2023-04-25	4
13440013	3113	3519	2023-04-19	2023-04-20	2023-04-23	3
13440014	3114	3536	2023-05-01	2023-05-03	2023-05-07	4
13440015	3115	3537	2023-05-04	2023-05-06	2023-05-11	5
13440016	3116	3555	2023-05-11	2023-05-12	2023-05-16	4
13440017	3117	3556	2023-05-15	2023-05-17	2023-05-20	3
13440018	3118	3550	2023-06-07	2023-06-10	2023-06-14	4
13440019	3119	3551	2023-06-08	2023-06-09	2023-06-14	5
13440020	3120	3552	2023-06-12	2023-06-16	2023-06-20	4
13440021	3121	3518	2023-07-05	2023-07-07	2023-07-09	2
13440022	3122	3553	2023-07-08	2023-07-10	2023-07-13	3
13440023	3123	3554	2023-07-16	2023-07-18	2023-07-20	2
13440024	3124	3508	2023-08-05	2023-08-07	2023-08-11	4
13440025	3125	3506	2023-08-10	2023-08-12	2023-08-15	3

Payments:

Payment_ID	Customer_ID	Payment_date
17720001	3101	2023-01-16
17720002	3102	2023-01-09
17720003	3103	2023-01-25
17720004	3104	2023-02-07
17720005	3105	2023-02-16
17720006	3106	2023-02-14
17720007	3107	2023-03-13
17720008	3108	2023-03-06
17720009	3109	2023-03-05
17720010	3110	2023-04-09
17720011	3111	2023-04-07
17720012	3112	2023-04-17
17720013	3113	2023-04-19
17720014	3114	2023-05-01
17720015	3115	2023-05-16
17720016	3116	2023-05-11
17720017	3117	2023-05-17
17720018	3118	2023-06-08
17720019	3119	2023-06-08
17720020	3120	2023-06-13
17720021	3121	2023-07-05
17720022	3122	2023-07-08
17720023	3123	2023-07-17
17720024	3124	2023-08-05
17720025	3125	2023-08-11

Employees:

Employee_ID	fname	lname	address	Username
4701	Lewis	Smith	Derby	lewis@4701
4702	Julian	Martinez	Miami	julian@4702
4703	Milton	Jones	Geneva	milton@4703
4704	Benjamin	Taylor	Birmingham	benjamin@4704
4705	Arthur	Brown	Austin	arthur@4705
4706	Harold	Wilson	Portland	harold@4706
4707	Peter	Arnold	Houston	peter@4707
4708	Carlos	Nelson	Bristol	carlos@4708
4709	Luka	Miller	Florida	luka@4709
4710	Keith	Stewart	Hastings	keith@4710
4711	Marion	Stanley	San Jose	marion@4711
4712	Wiley	Morgan	Brisbane	wiley@4712
4713	Oscar	Campbell	Belfast	oscar@4713
4714	Justin	Nelson	Boston	justin@4714
4715	Walter	Brown	Dover	walter@4715
4716	Paul	Erickson	Melbourne	paul@4716
4717	George	Shelton	Kent	george@4717
4718	Martin	Hicks	Canberra	martin@4718
4719	Erik	Daniel	Denver	erik@4719
4720	Leo	Graham	Melton	leo@4720
4721	Shane	Murphy	Preston	shane@4721
4722	Sam	Francis	Wellington	sam@4722
4723	Andy	Harris	Wales	andy@4723
4724	Mario	Lucas	Sheffield	mario@4724
4725	Antonio	Griffin	Texas	antonio@4725

Transaction:

Transaction_ID	Customer_ID	Payment_ID	Employee_ID	Reservation_ID	Transaction_date
75830001	3101	17720001	4701	13440001	2023-01-16
75830002	3102	17720002	4701	13440002	2023-01-09
75830003	3103	17720003	4702	13440003	2023-01-25
75830004	3104	17720004	4702	13440004	2023-02-07
75830005	3105	17720005	4701	13440005	2023-02-16
75830006	3106	17720006	4703	13440006	2023-02-14
75830007	3107	17720007	4704	13440007	2023-03-13
75830008	3108	17720008	4705	13440008	2023-03-06
75830009	3109	17720009	4705	13440009	2023-03-05
75830010	3110	17720010	4706	13440010	2023-04-09
75830011	3111	17720011	4707	13440011	2023-04-07
75830012	3112	17720012	4708	13440012	2023-04-17
75830013	3113	17720013	4709	13440013	2023-04-19
75830014	3114	17720014	4709	13440014	2023-05-01
75830015	3115	17720015	4710	13440015	2023-05-16
75830016	3116	17720016	4711	13440016	2023-05-11
75830017	3117	17720017	4712	13440017	2023-05-17
75830018	3118	17720018	4713	13440018	2023-06-08
75830019	3119	17720019	4714	13440019	2023-06-08
75830020	3120	17720020	4715	13440020	2023-06-13
75830021	3121	17720021	4716	13440021	2023-07-05
75830022	3122	17720022	4717	13440022	2023-07-08
75830023	3123	17720023	4718	13440023	2023-07-17
75830024	3124	17720024	4719	13440024	2023-08-05
75830025	3125	17720025	4720	13440025	2023-08-11

Reports:

Report_ID	Transaction_ID	Information	Date
86940001	75830001	Booking Confirmed	2023-01-17
86940002	75830002	Booking Confirmed	2023-01-10
86940003	75830003	Booking Confirmed	2023-01-26
86940004	75830004	Booking in process	2023-02-08
86940005	75830005	Booking in process	2023-02-17
86940006	75830006	Booking Confirmed	2023-02-15
86940007	75830007	Booking in process	2023-03-14
86940008	75830008	Booking Confirmed	2023-03-07
86940009	75830009	Booking Confirmed	2023-03-06
86940010	75830010	Booking Confirmed	2023-04-10
86940011	75830011	Booking in process	2023-04-08
86940012	75830012	Booking Confirmed	2023-04-18
86940013	75830013	Booking Confirmed	2023-04-20
86940014	75830014	Booking Confirmed	2023-05-02
86940015	75830015	Booking Confirmed	2023-05-17
86940016	75830016	Booking Confirmed	2023-05-12
86940017	75830017	Booking in process	2023-05-18
86940018	75830018	Booking Confirmed	2023-06-09
86940019	75830019	Booking Confirmed	2023-06-09
86940020	75830020	Booking Conformed	2023-06-14
86940021	75830021	Booking in process	2023-07-06
86940022	75830022	Booking Confirmed	2023-07-09
86940023	75830023	Booking Confirmed	2023-07-19
86940024	75830024	Booking Confirmed	2023-08-06
86940025	75830025	Booking Confirmed	2023-08-12

QUESTIONS ON JOINS:

Q1) Display Customer Details (Customer_ID, Custfname, Custlname), Room_ID and the Type_Of_Room they have booked using Joins.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID, c1.Custfname, c1.Custlname,r1.Room_ID, r2.Description AS Type_of_Room FROM Customer_Information c1 INNER JOIN Reservation r1 ON c1.Customer_ID=r1.Customer_ID INNER JOIN Room_Information r2 ON r1.Room_ID=r2.Room_ID;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID,c1.Custfname,c1.Custlname,
    -> r1.Room_ID,r2.Description AS Type_of_Room FROM Customer_Information c1
    -> INNER JOIN Reservation r1 ON c1.Customer_ID=r1.Customer_ID INNER JOIN Room_Information r2
    -> ON r1.Room_ID=r2.Room_ID;
+-------------+-----------+-----------+---------+--------------------+
| Customer_ID | Custfname | Custlname | Room_ID | Type_of_Room       |
+-------------+-----------+-----------+---------+--------------------+
|        3101 | James     | Allen     |    3501 | Single Room        |
|        3102 | Charlie   | Smith     |    3510 | Single Room        |
|        3103 | Jacob     | Scott     |    3511 | Single Room        |
|        3104 | William   | Baker     |    3522 | Single Room        |
|        3105 | Ethan     | Lee       |    3523 | Single Room        |
|        3106 | Oliver    | Perry     |    3502 | Double Room        |
|        3107 | Liam      | Francis   |    3524 | Double Room        |
|        3108 | David     | Cooper    |    3525 | Double Room        |
|        3109 | Richard   | Murphy    |    3507 | Twin Room          |
|        3110 | Thomas    | Jenkins   |    3531 | Single Room        |
|        3111 | John      | Gordon    |    3532 | Single Room        |
|        3112 | Daniel    | Lopez     |    3533 | Single Room        |
|        3113 | Joe       | Miller    |    3519 | Connecting Rooms   |
|        3114 | Ivan      | Perez     |    3536 | Triple Room        |
|        3115 | Nick      | Anderson  |    3537 | Triple Room        |
|        3116 | Neil      | Scott     |    3555 | Duplex Rooms       |
|        3117 | Russell   | Stanley   |    3556 | Duplex Rooms       |
|        3118 | Patrick   | Gibson    |    3550 | Adjoining Rooms    |
|        3119 | Edwin     | Phillips  |    3551 | Adjoining Rooms    |
|        3120 | Brian     | Griffin   |    3552 | Adjoining Rooms    |
|        3121 | Morris    | Cooper    |    3518 | Presidential Suite |
|        3122 | Noel      | Martin    |    3553 | Adjacent Rooms     |
|        3123 | Robin     | Peterson  |    3554 | Adjacent Rooms     |
|        3124 | Mark      | Jenkins   |    3508 | Double-double Room |
|        3125 | Victor    | Gibson    |    3506 | King Room          |
+-------------+-----------+-----------+---------+--------------------+
```

Q2) Display Customer details (Customer_ID, Custfname, Custlname), their date of reservation, date of check-in, date of check-out and number of days they will be living in the hotel using Joins.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID, c1.Custfname,c1.Custlname,r1.Reservation_Date,r1.Date_IN,r1.Date_Out, r1.Date_Range FROM Customer_Information c1 INNER JOIN Reservation r1 ON c1.Customer_ID=r1.Customer_ID;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID,c1.Custfname,c1.Custlname,
    -> r1.Reservation_Date,r1.Date_IN,r1.Date_Out,r1.Date_Range
    -> FROM Customer_Information c1 INNER JOIN Reservation r1 ON c1.Customer_ID=r1.Customer_ID;
+-------------+-----------+-----------+------------------+------------+------------+-------------+
| Customer_ID | Custfname | Custlname | Reservation_Date | Date_IN    | Date_Out   | Date_Range  |
+-------------+-----------+-----------+------------------+------------+------------+-------------+
|        3101 | James     | Allen     | 2023-01-16       | 2023-01-18 | 2023-01-24 |           6 |
|        3102 | Charlie   | Smith     | 2023-01-08       | 2023-01-12 | 2023-01-16 |           4 |
|        3103 | Jacob     | Scott     | 2023-01-25       | 2023-01-27 | 2023-02-01 |           5 |
|        3104 | William   | Baker     | 2023-02-06       | 2023-02-10 | 2023-02-15 |           5 |
|        3105 | Ethan     | Lee       | 2023-02-16       | 2023-02-17 | 2023-02-25 |           8 |
|        3106 | Oliver    | Perry     | 2023-02-14       | 2023-02-17 | 2023-02-21 |           4 |
|        3107 | Liam      | Francis   | 2023-03-12       | 2023-03-15 | 2023-03-19 |           4 |
|        3108 | David     | Cooper    | 2023-03-06       | 2023-03-10 | 2023-03-14 |           4 |
|        3109 | Richard   | Murphy    | 2023-03-05       | 2023-03-09 | 2023-03-14 |           5 |
|        3110 | Thomas    | Jenkins   | 2023-04-08       | 2023-04-10 | 2023-04-13 |           3 |
|        3111 | John      | Gordon    | 2023-04-07       | 2023-04-11 | 2023-04-15 |           4 |
|        3112 | Daniel    | Lopez     | 2023-04-16       | 2023-04-21 | 2023-04-25 |           4 |
|        3113 | Joe       | Miller    | 2023-04-19       | 2023-04-20 | 2023-04-23 |           3 |
|        3114 | Ivan      | Perez     | 2023-05-01       | 2023-05-03 | 2023-05-07 |           4 |
|        3115 | Nick      | Anderson  | 2023-05-04       | 2023-05-06 | 2023-05-11 |           5 |
|        3116 | Neil      | Scott     | 2023-05-11       | 2023-05-12 | 2023-05-16 |           4 |
|        3117 | Russell   | Stanley   | 2023-05-15       | 2023-05-17 | 2023-05-20 |           3 |
|        3118 | Patrick   | Gibson    | 2023-06-07       | 2023-06-10 | 2023-06-14 |           4 |
|        3119 | Edwin     | Phillips  | 2023-06-08       | 2023-06-09 | 2023-06-14 |           5 |
|        3120 | Brian     | Griffin   | 2023-06-12       | 2023-06-16 | 2023-06-20 |           4 |
|        3121 | Morris    | Cooper    | 2023-07-05       | 2023-07-07 | 2023-07-09 |           2 |
|        3122 | Noel      | Martin    | 2023-07-08       | 2023-07-10 | 2023-07-13 |           3 |
|        3123 | Robin     | Peterson  | 2023-07-16       | 2023-07-18 | 2023-07-20 |           2 |
|        3124 | Mark      | Jenkins   | 2023-08-05       | 2023-08-07 | 2023-08-11 |           4 |
|        3125 | Victor    | Gibson    | 2023-08-10       | 2023-08-12 | 2023-08-15 |           3 |
+-------------+-----------+-----------+------------------+------------+------------+-------------+
```

Q3) Display Customer Details (Customer_ID, Custfname, Custlname) and details of employee (Employee_ID, fname, lname) to whom the customers have contacted for reservation using joins.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID,

c1.Custfname,c1.Custlname,t1.Employee_ID,e1.fname,e1.lname FROM

Customer_Information c1 INNER JOIN Transaction t1 ON

c1.Customer_ID=t1.Customer_ID INNER JOIN Employees e1

ON t1.Employee_ID=e1.Employee_ID;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT c1.Customer_ID,c1.Custfname,c1.Custlname,
    -> t1.Employee_ID,e1.fname,e1.lname FROM Customer_Information c1 INNER JOIN
    -> Transaction t1 ON c1.Customer_ID=t1.Customer_ID INNER JOIN Employees e1
    -> ON t1.Employee_ID=e1.Employee_ID;
+-------------+-----------+-----------+-------------+-----------+-----------+
| Customer_ID | Custfname | Custlname | Employee_ID | fname     | lname     |
+-------------+-----------+-----------+-------------+-----------+-----------+
|        3101 | James     | Allen     |        4701 | Lewis     | Smith     |
|        3102 | Charlie   | Smith     |        4701 | Lewis     | Smith     |
|        3103 | Jacob     | Scott     |        4702 | Julian    | Martinez  |
|        3104 | William   | Baker     |        4702 | Julian    | Martinez  |
|        3105 | Ethan     | Lee       |        4701 | Lewis     | Smith     |
|        3106 | Oliver    | Perry     |        4703 | Milton    | Jones     |
|        3107 | Liam      | Francis   |        4704 | Benjamin  | Taylor    |
|        3108 | David     | Cooper    |        4705 | Arthur    | Brown     |
|        3109 | Richard   | Murphy    |        4705 | Arthur    | Brown     |
|        3110 | Thomas    | Jenkins   |        4706 | Harold    | Wilson    |
|        3111 | John      | Gordon    |        4707 | Peter     | Arnold    |
|        3112 | Daniel    | Lopez     |        4708 | Carlos    | Nelson    |
|        3113 | Joe       | Miller    |        4709 | Luka      | Miller    |
|        3114 | Ivan      | Perez     |        4709 | Luka      | Miller    |
|        3115 | Nick      | Anderson  |        4710 | Keith     | Stewart   |
|        3116 | Neil      | Scott     |        4711 | Marion    | Stanley   |
|        3117 | Russell   | Stanley   |        4712 | Wiley     | Morgan    |
|        3118 | Patrick   | Gibson    |        4713 | Oscar     | Campbell  |
|        3119 | Edwin     | Phillips  |        4714 | Justin    | Nelson    |
|        3120 | Brian     | Griffin   |        4715 | Walter    | Brown     |
|        3121 | Morris    | Cooper    |        4716 | Paul      | Erickson  |
|        3122 | Noel      | Martin    |        4717 | George    | Shelton   |
|        3123 | Robin     | Peterson  |        4718 | Martin    | Hicks     |
|        3124 | Mark      | Jenkins   |        4719 | Erik      | Daniel    |
|        3125 | Victor    | Gibson    |        4720 | Leo       | Graham    |
+-------------+-----------+-----------+-------------+-----------+-----------+
```

QUESTIONS ON SUBQUERY.

Q1) Display details of Customer (Customer_ID, Custfname, Custlname) who are living in the hotel for five days.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Custfname,Custlname FROM Customer_Information WHERE Customer_ID IN(SELECT Customer_ID FROM Reservation WHERE Date_Range=5);

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Custfname,Custlname FROM Customer_Information WHERE
    -> Customer_ID IN(SELECT Customer_ID FROM Reservation WHERE Date_Range=5);
+-------------+-----------+-----------+
| Customer_ID | Custfname | Custlname |
+-------------+-----------+-----------+
|        3103 | Jacob     | Scott     |
|        3104 | William   | Baker     |
|        3109 | Richard   | Murphy    |
|        3115 | Nick      | Anderson  |
|        3119 | Edwin     | Phillips  |
+-------------+-----------+-----------+
```

Q2) Display Customer_ID, Transaction_ID and Payment_ID of customers who have information as "Booking Confirmed".

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Transaction_ID,Payment_ID FROM Transaction HAVING Transaction_ID IN(SELECT Transaction_ID FROM Reports WHERE Information="Booking Confirmed");

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Transaction_ID,Payment_ID FROM Transaction
    -> HAVING Transaction_ID IN(SELECT Transaction_ID FROM Reports WHERE Information="Booking Confirmed");
+-------------+----------------+------------+
| Customer_ID | Transaction_ID | Payment_ID |
+-------------+----------------+------------+
|        3101 |       75830001 |   17720001 |
|        3102 |       75830002 |   17720002 |
|        3103 |       75830003 |   17720003 |
|        3106 |       75830006 |   17720006 |
|        3108 |       75830008 |   17720008 |
|        3109 |       75830009 |   17720009 |
|        3110 |       75830010 |   17720010 |
|        3112 |       75830012 |   17720012 |
|        3113 |       75830013 |   17720013 |
|        3114 |       75830014 |   17720014 |
|        3115 |       75830015 |   17720015 |
|        3116 |       75830016 |   17720016 |
|        3118 |       75830018 |   17720018 |
|        3119 |       75830019 |   17720019 |
|        3122 |       75830022 |   17720022 |
|        3123 |       75830023 |   17720023 |
|        3124 |       75830024 |   17720024 |
|        3125 |       75830025 |   17720025 |
+-------------+----------------+------------+
```

Q3) Display Customer_ID, Room_ID, Reservation_ID, Reservation_Date of customers who have booked Single Room in the hotel.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Room_ID,Reservation_ID,Reservation_Date FROM Reservation HAVING Room_ID IN (SELECT Room_ID FROM Room_Information WHERE Description="Single Room");

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Customer_ID,Room_ID,Reservation_ID,Reservation_Date FROM Reservation HAVING Room_ID IN
    -> (SELECT Room_ID FROM Room_Information WHERE Description="Single Room");
+-------------+---------+----------------+------------------+
| Customer_ID | Room_ID | Reservation_ID | Reservation_Date |
+-------------+---------+----------------+------------------+
|        3101 |    3501 |       13440001 | 2023-01-16       |
|        3102 |    3510 |       13440002 | 2023-01-08       |
|        3103 |    3511 |       13440003 | 2023-01-25       |
|        3104 |    3522 |       13440004 | 2023-02-06       |
|        3105 |    3523 |       13440005 | 2023-02-16       |
|        3110 |    3531 |       13440010 | 2023-04-08       |
|        3111 |    3532 |       13440011 | 2023-04-07       |
|        3112 |    3533 |       13440012 | 2023-04-16       |
+-------------+---------+----------------+------------------+
```

QUESTION ON VIEWS.

Q) Create a view of Customer Information table.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE VIEW
Customer_Info AS SELECT * FROM Customer_Information;
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Customer_Info;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> CREATE VIEW Customer_Info AS SELECT * FROM Customer_Information;
Query OK, 0 rows affected (0.011 sec)

MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Customer_Info;
+-------------+-----------+-----------+---------------+--------------------+
| Customer_ID | Custfname | Custlname | Address       | Status             |
+-------------+-----------+-----------+---------------+--------------------+
|        3101 | James     | Allen     | Geneva        | Booking Confirmed  |
|        3102 | Charlie   | Smith     | London        | Booking Confirmed  |
|        3103 | Jacob     | Scott     | Bristol       | Booking Confirmed  |
|        3104 | William   | Baker     | New Jersey    | Booking in process |
|        3105 | Ethan     | Lee       | Newcastle     | Booking in process |
|        3106 | Oliver    | Perry     | Glasgow       | Booking Confirmed  |
|        3107 | Liam      | Francis   | San Francisco | Booking in process |
|        3108 | David     | Cooper    | Liverpool     | Booking Confirmed  |
|        3109 | Richard   | Murphy    | Atlanta       | Booking Confirmed  |
|        3110 | Thomas    | Jenkins   | Manchester    | Booking Confirmed  |
|        3111 | John      | Gordon    | Brighton      | Booking in process |
|        3112 | Daniel    | Lopez     | Chicago       | Booking Confirmed  |
|        3113 | Joe       | Miller    | San Diego     | Booking Confirmed  |
|        3114 | Ivan      | Perez     | California    | Booking Confirmed  |
|        3115 | Nick      | Anderson  | Durham        | Booking Confirmed  |
|        3116 | Neil      | Scott     | New York      | Booking Confirmed  |
|        3117 | Russell   | Stanley   | Berlin        | Booking in process |
|        3118 | Patrick   | Gibson    | Texas         | Booking Confirmed  |
|        3119 | Edwin     | Phillips  | Nottingham    | Booking Confirmed  |
|        3120 | Brian     | Griffin   | Frankfurt     | Booking Confirmed  |
|        3121 | Morris    | Cooper    | Sydney        | Booking in process |
|        3122 | Noel      | Martin    | Gold Coast    | Booking Confirmed  |
|        3123 | Robin     | Peterson  | Wakefield     | Booking Confirmed  |
|        3124 | Mark      | Jenkins   | Madrid        | Booking Confirmed  |
|        3125 | Victor    | Gibson    | Arizona       | Booking Confirmed  |
+-------------+-----------+-----------+---------------+--------------------+
```

OTHER QUERY QUESTIONS.

Q1) Display Employee_ID and the number of customers they have attended from the Transaction table.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT

Employee_ID,COUNT(Customer_ID) AS NO_OF_CUSTOMERS FROM

Transaction GROUP BY Employee_ID;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT Employee_ID,COUNT(Customer_ID) AS NO_OF_CUSTOMERS FROM Transaction
    -> GROUP BY Employee_ID;
+-------------+-----------------+
| Employee_ID | NO_OF_CUSTOMERS |
+-------------+-----------------+
|        4701 |               3 |
|        4702 |               2 |
|        4703 |               1 |
|        4704 |               1 |
|        4705 |               2 |
|        4706 |               1 |
|        4707 |               1 |
|        4708 |               1 |
|        4709 |               2 |
|        4710 |               1 |
|        4711 |               1 |
|        4712 |               1 |
|        4713 |               1 |
|        4714 |               1 |
|        4715 |               1 |
|        4716 |               1 |
|        4717 |               1 |
|        4718 |               1 |
|        4719 |               1 |
|        4720 |               1 |
+-------------+-----------------+
```

Q2) Display Customer details whose Custfname has "a" as second character.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Customer_Information WHERE Custfname LIKE "_a%";

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Customer_Information WHERE Custfname LIKE "_a%";
+-------------+-----------+-----------+-----------+-------------------+
| Customer_ID | Custfname | Custlname | Address   | Status            |
+-------------+-----------+-----------+-----------+-------------------+
|        3101 | James     | Allen     | Geneva    | Booking Confirmed |
|        3103 | Jacob     | Scott     | Bristol   | Booking Confirmed |
|        3108 | David     | Cooper    | Liverpool | Booking Confirmed |
|        3112 | Daniel    | Lopez     | Chicago   | Booking Confirmed |
|        3118 | Patrick   | Gibson    | Texas     | Booking Confirmed |
|        3124 | Mark      | Jenkins   | Madrid    | Booking Confirmed |
+-------------+-----------+-----------+-----------+-------------------+
```

Q3) Display details of rooms whose prices are greater than 10000.

Ans. MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Room_Information WHERE Price > 10000;

```
MariaDB [HOTEL_MANAGEMENT_SYSTEM]> SELECT * FROM Room_Information WHERE Price > 10000;
+---------+----------+----------------------+-------+
| Room_ID | Class_ID | Description          | Price |
+---------+----------+----------------------+-------+
|    3503 |     1703 | Triple Room          | 10920 |
|    3504 |     1704 | Quad Room            | 13000 |
|    3505 |     1705 | Queen Room           | 15000 |
|    3506 |     1706 | King Room            | 17000 |
|    3514 |     1710 | Executive Suite Room | 43000 |
|    3515 |     1710 | Executive Suite Room | 43000 |
|    3516 |     1711 | Mini Suite Room      | 24000 |
|    3517 |     1711 | Mini Suite Room      | 24000 |
|    3518 |     1712 | Presidential Suite   | 50000 |
|    3519 |     1713 | Connecting Rooms     | 20000 |
|    3521 |     1715 | Cabana Room          | 40000 |
|    3536 |     1703 | Triple Room          | 10920 |
|    3537 |     1703 | Triple Room          | 10920 |
|    3538 |     1703 | Triple Room          | 10920 |
|    3539 |     1703 | Triple Room          | 10920 |
|    3540 |     1703 | Triple Room          | 10920 |
|    3541 |     1705 | Queen Room           | 15000 |
|    3542 |     1705 | Queen Room           | 15000 |
|    3543 |     1706 | King Room            | 17000 |
|    3544 |     1706 | King Room            | 17000 |
|    3545 |     1710 | Executive Suite Room | 43000 |
|    3546 |     1710 | Executive Suite Room | 43000 |
|    3547 |     1711 | Mini Suite Room      | 24000 |
|    3548 |     1711 | Mini Suite Room      | 24000 |
|    3549 |     1712 | Presidential Suite   | 50000 |
|    3553 |     1717 | Adjacent Rooms       | 13000 |
|    3554 |     1717 | Adjacent Rooms       | 13000 |
|    3559 |     1720 | Penthouse Room       | 60000 |
|    3562 |     1722 | Villa                | 50000 |
+---------+----------+----------------------+-------+
```