

# Lab 7

## Simple Queries

1. List full details of all hotels

```
[mysql> SELECT * FROM Hotel;
+-----+-----+-----+
| hotelNo | hotelName | city |
+-----+-----+-----+
| H01     | Grosvenor Hotel | London |
| H02     | Ocean View   | Miami |
| H03     | Mountain Retreat | Denver |
+-----+-----+-----+
3 rows in set (0.002 sec)
```

2. List full details of all hotels in London.

```
[mysql> SELECT * FROM Hotel WHERE city = 'London';
+-----+-----+-----+
| hotelNo | hotelName | city |
+-----+-----+-----+
| H01     | Grosvenor Hotel | London |
+-----+-----+-----+
1 row in set (0.001 sec)
```

3. List the names and addresses of all guests living in London, alphabetically ordered by name.

```
[mysql> SELECT guestName, guestAddress FROM Guest WHERE guestAddress LIKE '%London%' ORDER BY guestName;
+-----+-----+
| guestName | guestAddress |
+-----+-----+
| Alice Smith | 23 London Rd, London |
| Clara Oswald | 31 Queen St, London |
+-----+-----+
2 rows in set (0.000 sec)
```

4. List all double or family rooms with a price below £40.00 per night, in ascending order of price.

```
[mysql> SELECT * FROM Room WHERE type IN ('Double', 'Family') AND price < 40;
+-----+-----+-----+-----+
| roomNo | hotelNo | type | price |
+-----+-----+-----+-----+
| 102    | H01     | Double | 35.00 |
| 103    | H01     | Family | 39.00 |
+-----+-----+-----+-----+
2 rows in set (0.001 sec)
```

5. List the bookings for which no dateTo has been specified.

```
[mysql> SELECT * FROM Booking WHERE dateTo IS NULL;
+-----+-----+-----+-----+-----+
| hotelNo | guestNo | dateFrom          | dateTo | roomNo |
+-----+-----+-----+-----+-----+
| H01     | G03     | 2024-08-02 00:00:00 | NULL   | 103    |
+-----+-----+-----+-----+-----+
1 row in set (0.001 sec)
```

## Aggregate functions

1. How many hotels are there?

```
[mysql> SELECT COUNT(*) AS noOfHotels FROM Hotel;
+-----+
| noOfHotels |
+-----+
|          3 |
+-----+
1 row in set (0.001 sec)
```

2. What is the average price of a room?

```
[mysql> SELECT AVG(price) AS 'Average Price' FROM Room;
+-----+
| Average Price |
+-----+
|      63.166667 |
+-----+
1 row in set (0.001 sec)
```

3. What is the total revenue per night from all double rooms?

```
[mysql> SELECT SUM(price) AS 'Total Revenue per Night' FROM Room WHERE type = 'Double';
+-----+
| Total Revenue per Night |
+-----+
|                220.00 |
+-----+
1 row in set (0.000 sec)
```

4. How many different guests have made bookings for August?

```
[mysql> SELECT COUNT(DISTINCT guestNo) AS 'No of Different Guests' FROM Booking WHERE MONTH(dateFrom) = 8 OR MONTH(dateTo) = 8;
+-----+
| No of Different Guests |
+-----+
|          3 |
+-----+
1 row in set (0.001 sec)
```

## Subqueries and joins

1. List the price and type of rooms at the Grosvenor Hotel.

```
mysql> SELECT price, type FROM Room WHERE hotelNo IN (SELECT hotelNo FROM Hotel WHERE hotelName = 'Grosvenor Hotel');
```

| price | type   |
|-------|--------|
| 50.00 | Single |
| 35.00 | Double |
| 39.00 | Family |

3 rows in set (0.001 sec)

2. List all guests currently staying at the Grosvenor Hotel.

```
mysql> SELECT * FROM Guest WHERE guestNo IN (SELECT guestNo FROM Booking WHERE hotelNo = (SELECT hotelNo FROM Hotel WHERE hotelName = 'Grosvenor Hotel') AND CURDATE() BETWEEN dateFrom AND IFNULL(dateTo, CURDATE()));
```

| guestNo | guestName    | guestAddress        |
|---------|--------------|---------------------|
| G03     | Clara Oswald | 31 Queen St, London |

1 row in set (0.001 sec)

3. List the details of all rooms at the Grosvenor Hotel, including the name of the guest staying in the room, if the room is occupied.

```
mysql> SELECT r.*, g.guestName FROM Room r JOIN HOTEL h ON r.hotelNo = h.hotelNo LEFT JOIN Booking b ON r.hotelNo = b.hotelNo AND r.roomNo = b.roomNo AND CURDATE() BETWEEN b.dateFrom AND IFNULL(b.dateTo, CURDATE()) LEFT JOIN Guest g ON b.guestNo = g.guestNo WHERE h.hotelName = 'Grosvenor Hotel';
```

| roomNo | hotelNo | type   | price | guestName    |
|--------|---------|--------|-------|--------------|
| 101    | H01     | Single | 50.00 | NULL         |
| 102    | H01     | Double | 35.00 | NULL         |
| 103    | H01     | Family | 39.00 | Clara Oswald |

3 rows in set (0.001 sec)

4. What is the total income from bookings for the Grosvenor Hotel today?

```
mysql> SELECT SUM(r.price) AS 'Total Income' FROM Room r JOIN Booking b ON r.roomNo = b.roomNo JOIN Hotel h ON b.hotelNo = h.hotelNo WHERE h.hotelName = 'Grosvenor Hotel' AND CURDATE() BETWEEN b.dateFrom AND IFNULL(b.dateTo, CURDATE());
```

| Total Income |
|--------------|
| 39.00        |

1 row in set (0.001 sec)

## Grouping

1. List the number of rooms in each hotel.

```
mysql> SELECT h.hotelName, COUNT(r.roomNo) AS 'Number of rooms' FROM Room r JOIN Hotel h ON r.hotelNo = h.hotelNo GROUP BY(r.hotelNo);
```

| hotelName        | Number of rooms |
|------------------|-----------------|
| Grosvenor Hotel  | 3               |
| Ocean View       | 2               |
| Mountain Retreat | 1               |

3 rows in set (0.001 sec)

## 2. List the number of rooms in each hotel in London.

```
mysql> SELECT h.hotelName, COUNT(r.roomNo) AS 'Number of rooms' FROM Room r JOIN Hotel h ON r.hotelNo = h.hotelNo WHERE h.city = 'London' GROUP BY(r.hotelNo);
```

| hotelName       | Number of rooms |
|-----------------|-----------------|
| Grosvenor Hotel | 3               |

1 row in set (0.001 sec)

## 3. What is the average number of bookings for each hotel in August?

```
mysql> SELECT h.hotelName, AVG(counts.bookings) AS 'Avg No of Bookings' FROM (SELECT b.hotelNo, DATE(b.dateFrom), COUNT(*) AS bookings FROM Booking b WHERE MONTH(b.dateFrom) = 8 OR MONTH(b.dateTo) = 8 GROUP BY b.hotelNo, DATE(b.dateFrom)) AS counts JOIN Hotel h on counts.hotelNo = h.hotelNo GROUP BY h.hotelName;
```

| hotelName       | Avg No of Bookings |
|-----------------|--------------------|
| Grosvenor Hotel | 1.0000             |
| Ocean View      | 1.0000             |

2 rows in set (0.001 sec)