

Airport Lounge Demand Forecast Database

Goal: Store passenger and lounge usage data to forecast demand.

Tables:

- passengers (passenger_id, flight_id, travel_date, holiday_travel BOOLEAN)
- lounge_usage (passenger_id, lounge_id, checkin_time)
- flights (flight_id, destination, departure_time)

Queries:

- Find peak lounge usage times per day.
 - Identify holiday travelers most likely to use lounges.
- a. Create database

```
CREATE DATABASE lounge_forecast;
USE lounge_forecast;
```

```
mysql> CREATE DATABASE lounge_forecast;
Query OK, 1 row affected (0.03 sec)

mysql> USE lounge_forecast;
Database changed
```

- b. Create tables

```
-- Passenger information
CREATE TABLE passengers (
    passenger_id INT AUTO_INCREMENT PRIMARY KEY,
    flight_id INT,
    travel_date DATE,
    holiday_travel BOOLEAN
);

-- Lounge usage records
CREATE TABLE lounge_usage (
    usage_id INT AUTO_INCREMENT PRIMARY KEY,
    passenger_id INT,
    lounge_id INT,
    checkin_time DATETIME,
    FOREIGN KEY (passenger_id) REFERENCES passengers(passenger_id)
);

-- Flight details
CREATE TABLE flights (
    flight_id INT AUTO_INCREMENT PRIMARY KEY,
    destination VARCHAR(100),
    departure_time DATETIME
);

-- Lounge details
CREATE TABLE lounges (
    lounge_id INT AUTO_INCREMENT PRIMARY KEY,
    lounge_name VARCHAR(100),
    terminal VARCHAR(50)
);
```

```

mysql> CREATE TABLE passengers (
->     passenger_id INT AUTO_INCREMENT PRIMARY KEY,
->     flight_id INT,
->     travel_date DATE,
->     holiday_travel BOOLEAN
-> );
Query OK, 0 rows affected (0.08 sec)

mysql>
mysql> -- Lounge usage records
mysql> CREATE TABLE lounge_usage (
->     usage_id INT AUTO_INCREMENT PRIMARY KEY,
->     passenger_id INT,
->     lounge_id INT,
->     checkin_time DATETIME,
->     FOREIGN KEY (passenger_id) REFERENCES passengers(passenger_id)
-> );
Query OK, 0 rows affected (0.09 sec)

mysql>
mysql> -- Flight details
mysql> CREATE TABLE flights (
->     flight_id INT AUTO_INCREMENT PRIMARY KEY,
->     destination VARCHAR(100),
->     departure_time DATETIME
-> );
Query OK, 0 rows affected (0.05 sec)

mysql>
mysql> -- Lounge details
mysql> CREATE TABLE lounges (
->     lounge_id INT AUTO_INCREMENT PRIMARY KEY,
->     lounge_name VARCHAR(100),
->     terminal VARCHAR(50)
-> );
Query OK, 0 rows affected (0.05 sec)

```

c. Insert sample data

```

INSERT INTO flights (destination, departure_time)
VALUES
('New York', '2025-05-01 08:00:00'),
('Tokyo', '2025-05-01 12:00:00'),
('Sydney', '2025-05-02 09:30:00');

INSERT INTO passengers (flight_id, travel_date, holiday_travel)
VALUES
(1, '2025-05-01', TRUE),
(2, '2025-05-01', FALSE),
(3, '2025-05-02', TRUE);

INSERT INTO lounges (lounge_name, terminal)
VALUES
('Heathrow Lounge A', 'Terminal 3'),
('Heathrow Lounge B', 'Terminal 3');

INSERT INTO lounge_usage (passenger_id, lounge_id, checkin_time)
VALUES
(1, 1, '2025-05-01 07:00:00'),
(2, 2, '2025-05-01 11:00:00'),
(3, 1, '2025-05-02 08:30:00');

```

```

mysql> INSERT INTO flights (destination, departure_time)
-> VALUES
-> ('New York', '2025-05-01 08:00:00'),
-> ('Tokyo', '2025-05-01 12:00:00'),
-> ('Sydney', '2025-05-02 09:30:00');
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql>
mysql> INSERT INTO passengers (flight_id, travel_date, holiday_travel)
-> VALUES
-> (1, '2025-05-01', TRUE),
-> (2, '2025-05-01', FALSE),
-> (3, '2025-05-02', TRUE);
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

mysql>
mysql> INSERT INTO lounges (lounge_name, terminal)
-> VALUES
-> ('Heathrow Lounge A', 'Terminal 3'),
-> ('Heathrow Lounge B', 'Terminal 3');
Query OK, 2 rows affected (0.01 sec)
Records: 2  Duplicates: 0  Warnings: 0

mysql>
mysql> INSERT INTO lounge_usage (passenger_id, lounge_id, checkin_time)
-> VALUES
-> (1, 1, '2025-05-01 07:00:00'),
-> (2, 2, '2025-05-01 11:00:00'),
-> (3, 1, '2025-05-02 08:30:00');
Query OK, 3 rows affected (0.02 sec)
Records: 3  Duplicates: 0  Warnings: 0

```

d. Example queries

```

-- Find peak lounge usage times per day
SELECT DATE(checkin_time) AS day, HOUR(checkin_time) AS hour,
COUNT(*) AS usage_count
FROM lounge_usage
GROUP BY day, hour
ORDER BY usage_count DESC;

-- Identify holiday travelers most likely to use lounges
SELECT p.passenger_id, p.holiday_travel, COUNT(lu.usage_id) AS
lounge_visits
FROM passengers p
JOIN lounge_usage lu ON p.passenger_id = lu.passenger_id
WHERE p.holiday_travel = TRUE
GROUP BY p.passenger_id;

-- Average lounge usage per flight
SELECT f.destination, COUNT(lu.usage_id) AS lounge_visits
FROM flights f
JOIN passengers p ON f.flight_id = p.flight_id
JOIN lounge_usage lu ON p.passenger_id = lu.passenger_id
GROUP BY f.destination;

```

```
mysql> -- Find peak lounge usage times per day
mysql> SELECT DATE(checkin_time) AS day, HOUR(checkin_time) AS hour, COUNT(*) AS usage_count
    -> FROM lounge_usage
    -> GROUP BY day, hour
    -> ORDER BY usage_count DESC;
+-----+-----+-----+
| day      | hour | usage_count |
+-----+-----+-----+
| 2025-05-01 |    7 |          1 |
| 2025-05-01 |   11 |          1 |
| 2025-05-02 |    8 |          1 |
+-----+-----+-----+
3 rows in set (0.04 sec)

mysql>
mysql> -- Identify holiday travelers most likely to use lounges
mysql> SELECT p.passenger_id, p.holiday_travel, COUNT(lu.usage_id) AS lounge_visits
    -> FROM passengers p
    -> JOIN lounge_usage lu ON p.passenger_id = lu.passenger_id
    -> WHERE p.holiday_travel = TRUE
    -> GROUP BY p.passenger_id;
+-----+-----+-----+
| passenger_id | holiday_travel | lounge_visits |
+-----+-----+-----+
|           1 |            1 |          1 |
|           3 |            1 |          1 |
+-----+-----+-----+
2 rows in set (0.00 sec)
```

```
mysql>
mysql> -- Average lounge usage per flight
mysql> SELECT f.destination, COUNT(lu.usage_id) AS lounge_visits
    -> FROM flights f
    -> JOIN passengers p ON f.flight_id = p.flight_id
    -> JOIN lounge_usage lu ON p.passenger_id = lu.passenger_id
    -> GROUP BY f.destination;
+-----+-----+
| destination | lounge_visits |
+-----+-----+
| New York     |          1 |
| Tokyo        |          1 |
| Sydney       |          1 |
+-----+-----+
3 rows in set (0.00 sec)
```