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-- Flights Table

```
CREATE TABLE Flights (
flight_id INT PRIMARY KEY AUTO_INCREMENT,
flight_number VARCHAR(10) NOT NULL,
departure_airport VARCHAR(50) NOT NULL,
arrival_airport VARCHAR(50) NOT NULL,
departure_time DATETIME NOT NULL,
arrival_time DATETIME NOT NULL,
total_seats INT NOT NULL
);
```

Re	sult Grid	Filter R	lows:	Edit: 🕍 📆 Export/Import: 📳 🐻 Wrap Cell Content: 🏗			
	flight_id	flight_number	departure_airport	arrival_airport	departure_time	arrival_time	total_seats
•	1	AA101	JFK	LAX	2024-07-15 08:00:00	2024-07-15 11:00:00	180
	2	DL202	LAX	ORD	2024-07-16 09:00:00	2024-07-16 15:00:00	200
	3	UA303	ORD	DFW	2024-07-17 10:00:00	2024-07-17 12:30:00	150
	NULL	NULL	HULL	NULL	NULL	NULL	NULL

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-- Passengers Table

CREATE TABLE Passengers (

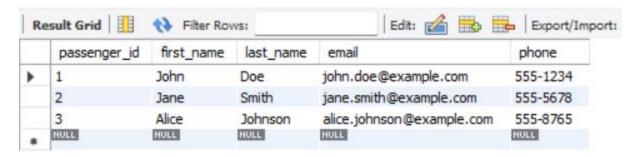
passenger_id INT PRIMARY KEY AUTO_INCREMENT,

first_name VARCHAR(50) NOT NULL,

last_name VARCHAR(50) NOT NULL,

email VARCHAR(100) NOT NULL,

phone VARCHAR(20) NOT NULL);



-- Bookings Table

CREATE TABLE Bookings (

booking_id INT PRIMARY KEY AUTO_INCREMENT,

flight_id INT,

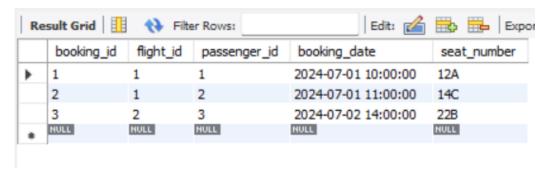
passenger_id INT,

booking_date DATETIME NOT NULL,

seat_number VARCHAR(10),

FOREIGN KEY (flight_id) REFERENCES Flights(flight_id),

FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id));



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-- Schedules Table

CREATE TABLE Schedules (

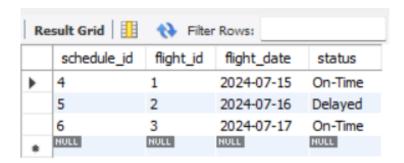
schedule_id INT PRIMARY KEY AUTO_INCREMENT,

flight_id INT,

flight_date DATE NOT NULL,

status VARCHAR(20),

FOREIGN KEY (flight_id) REFERENCES Flights(flight_id));



-- Flights Table

INSERT INTO Flights (flight_number, departure_airport, arrival_airport, departure_time, arrival_time, total_seats)

VALUES

('AA101', 'JFK', 'LAX', '2024-07-15 08:00:00', '2024-07-15 11:00:00', 180), ('DL202', 'LAX', 'ORD', '2024-07-16 09:00:00', '2024-07-16 15:00:00', 200), ('UA303', 'ORD', 'DFW', '2024-07-17 10:00:00', '2024-07-17 12:30:00', 150);

-- Passengers Table

INSERT INTO Passengers (first_name, last_name, email, phone)

VALUES

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```
('John', 'Doe', 'john.doe@example.com', '555-1234'),
('Jane', 'Smith', 'jane.smith@example.com', '555-5678'),
('Alice', 'Johnson', 'alice.johnson@example.com', '555-8765');
-- Bookings Table
INSERT INTO Bookings (flight_id, passenger_id, booking_date, seat_number)
VALUES
(1, 1, '2024-07-01 10:00:00', '12A'),
(1, 2, '2024-07-01 11:00:00', '14C'),
(2, 3, '2024-07-02 14:00:00', '22B');
```

-- Schedules Table

```
INSERT INTO Schedules (flight_id, flight_date, status)
```

VALUES

```
(1, '2024-07-15', 'On-Time'),
```

(2, '2024-07-16', 'Delayed'),

(3, '2024-07-17', 'On-Time');

```
-- Verifying the Data
-- Find Available Flights
SELECT
  Flights.flight_id,
  Flights.flight_number,
  Flights.departure_airport,
  Flights.arrival_airport,
  Flights.departure_time,
  Flights.arrival_time,
  (Flights.total_seats - COALESCE(SUM(CASE WHEN Bookings.booking_date IS NOT NULL THEN 1
ELSE 0 END), 0)) AS available_seats
FROM
  Flights
LEFT JOIN
  Bookings ON Flights.flight_id = Bookings.flight_id
GROUP BY
  Flights.flight_id
HAVING
  available_seats > 0;
-- List Passengers on a Flight
SELECT
  Passengers.passenger_id,
  Passengers.first_name,
  Passengers.last_name,
  Passengers.email,
  Passengers.phone
FROM
  Bookings
```

```
JOIN
  Passengers ON Bookings.passenger_id = Passengers.passenger_id
WHERE
  Bookings.flight_id = 1; -- Replace with the actual flight_id as needed
-- Calculate Occupancy Rates
SELECT
  Flights.flight_id,
  Flights.flight_number,
  (COALESCE(SUM(CASE WHEN Bookings.booking_date IS NOT NULL THEN 1 ELSE 0 END), 0) /
Flights.total_seats) * 100 AS occupancy_rate
FROM
  Flights
LEFT JOIN
  Bookings ON Flights.flight_id = Bookings.flight_id
GROUP BY
  Flights.flight_id;
-- 1. Find All Flights Departing from a Specific Airport
SELECT
  flight_id,
  flight_number,
  departure_airport,
  arrival_airport,
  departure_time,
  arrival_time
FROM
  Flights
WHERE
```

```
departure_airport = 'JFK';
-- 2. Find All Flights Arriving at a Specific Airport
SELECT
  flight_id,
  flight_number,
  departure_airport,
  arrival_airport,
  departure_time,
  arrival_time
FROM
  Flights
WHERE
  arrival_airport = 'LAX';
-- 3. Find the Next Scheduled Flight for a Specific Flight Number
SELECT
  flight_id,
  flight_number,
  departure_airport,
  arrival_airport,
  departure_time,
  arrival_time
FROM
  Flights
WHERE
```

```
flight_number = 'AA101'
ORDER BY
  departure_time ASC
LIMIT 1;
-- 4. Find All Bookings for a Specific Passenger
SELECT
  Bookings.booking_id,
  Flights.flight_number,
  Bookings.booking_date,
  Bookings.seat_number
FROM
  Bookings
JOIN
  Flights ON Bookings.flight_id = Flights.flight_id
WHERE
  Bookings.passenger_id = 1; -- Replace with the actual passenger_id as needed
-- 5. Calculate Total Seats Booked for Each Flight
SELECT
  Flights.flight_id,
  Flights.flight_number,
  COUNT(Bookings.booking_id) AS total_booked_seats
FROM
  Flights
LEFT JOIN
  Bookings ON Flights.flight_id = Bookings.flight_id
```

```
GROUP BY
  Flights.flight_id;
-- 6. List All Flights and Their Current Status
SELECT
  Flights.flight_id,
  Flights.flight_number,
  Schedules.flight_date,
  Schedules.status
FROM
  Flights
JOIN
  Schedules ON Flights.flight_id = Schedules.flight_id;
-- 7. Find Passengers with Multiple Bookings
SELECT
  Passengers.passenger_id,
  Passengers.first_name,
  Passengers.last_name,
  COUNT(Bookings.booking_id) AS total_bookings
FROM
  Passengers
JOIN
  Bookings ON Passengers.passenger_id = Bookings.passenger_id
GROUP BY
  Passengers.passenger_id
HAVING
  total_bookings > 1;
```

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-- 8. Find Flights with Seats Available in a Specific Date Range **SELECT** Flights.flight_id, Flights.flight_number, Flights.departure_time, Flights.arrival_time, (Flights.total_seats - COALESCE(SUM(CASE WHEN Bookings.booking_date IS NOT NULL THEN 1 ELSE 0 END), 0)) AS available_seats **FROM Flights LEFT JOIN** Bookings ON Flights.flight_id = Bookings.flight_id WHERE Flights.departure_time BETWEEN '2024-07-15 00:00:00' AND '2024-07-16 23:59:59' **GROUP BY** Flights.flight_id **HAVING** available_seats > 0; -- 9. List Flights and Their Occupancy Rates **SELECT** Flights.flight_id, Flights.flight_number, (COALESCE(SUM(CASE WHEN Bookings.booking_date IS NOT NULL THEN 1 ELSE 0 END), 0) / Flights.total_seats) * 100 AS occupancy_rate

FROM

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```
Flights
LEFT JOIN
  Bookings ON Flights.flight_id = Bookings.flight_id
GROUP BY
  Flights.flight_id;
-- 10. List All Passengers and Their Total Number of Flights
SELECT
  Passengers.passenger_id,
  Passengers.first_name,
  Passengers.last_name,
  COUNT(Bookings.booking_id) AS total_flights
FROM
  Passengers
LEFT JOIN
  Bookings ON Passengers.passenger_id = Bookings.passenger_id
GROUP BY
```

Passengers.passenger_id;