

AIR LINE RESERVATION SYSTEM

- **Manjunath G I**



-- 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  
);
```

[illegible]

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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);
```

Result Grid

Filter Rows:

Edit:

Export/Import:

	passenger_id	first_name	last_name	email	phone
▶	1	John	Doe	john.doe@example.com	555-1234
	2	Jane	Smith	jane.smith@example.com	555-5678
	3	Alice	Johnson	alice.johnson@example.com	555-8765
★	NULL	NULL	NULL	NULL	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));
```

Result Grid

Filter Rows:

Edit:

Export


	booking_id	flight_id	passenger_id	booking_date	seat_number
▶	1	1	1	2024-07-01 10:00:00	12A
	2	1	2	2024-07-01 11:00:00	14C
	3	2	3	2024-07-02 14:00:00	22B
*	NULL	NULL	NULL	NULL	NULL

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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));
```

Result Grid  Filter Rows: <input type="text"/>				
	schedule_id	flight_id	flight_date	status
▶	4	1	2024-07-15	On-Time
	5	2	2024-07-16	Delayed
	6	3	2024-07-17	On-Time
✱	NULL	NULL	NULL	NULL

-- 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');
```

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-- 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

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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

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```
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
```

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```
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
```


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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;