

Air Ticket Reservation System - Use Cases and Queries

Public Features

Search flights by city/airport, date:

```
SELECT f.*, dep.airport_city , arr.airport_city
FROM flight f
JOIN airport dep ON f.departure_airport = dep.airport_name
JOIN airport arr ON f.arrival_airport = arr.airport_name
WHERE (dep.airport_city LIKE %s OR arr.airport_city LIKE %s)
AND f.departure_time >= CURDATE()
```

Check flight status:

```
SELECT f.*, dep.airport_city , arr.airport_city
FROM flight f
JOIN airport dep ON f.departure_airport = dep.airport_name
JOIN airport arr ON f.arrival_airport = arr.airport_name
WHERE f.flight_num = %s AND DATE(f.departure_time) = %s
```

Authentication

Login:

```
— Customer login
SELECT * FROM customer
WHERE email = %s AND password = MD5(%s)
— Agent login
SELECT * FROM booking_agent
WHERE email = %s AND password = MD5(%s)
— Staff login
SELECT * FROM airline_staff
WHERE username = %s AND password = MD5(%s)
```

Register:

```
— Customer registration
INSERT INTO customer VALUES
(%s, %s, MD5(%s), %s, %s, %s, %s, %s, %s, %s, %s, %s)
— Agent registration
INSERT INTO booking_agent VALUES (%s, MD5(%s), %s)
— Staff registration
INSERT INTO airline_staff VALUES
(%s, MD5(%s), %s, %s, %s, %s)
```

Customer Features

View purchased flights:

```
SELECT f.*, t.ticket_id, p.purchase_date
FROM purchases p
JOIN ticket t ON p.ticket_id = t.ticket_id
JOIN flight f ON t.flight_num = f.flight_num
WHERE p.customer_email = %s AND f.departure_time >= CURDATE()
```

Purchase ticket:

```
INSERT INTO ticket VALUES (%s, %s, %s);
INSERT INTO purchases VALUES (%s, %s, NULL, CURDATE())
```

Track spending:

```
SELECT SUM(f.price) as total, DATEFORMAT(p.purchase_date, '%Y-%m') as month
FROM purchases p
JOIN ticket t ON p.ticket_id = t.ticket_id
JOIN flight f ON t.flight_num = f.flight_num
WHERE p.customer_email = %s
AND p.purchase_date >= DATESUB(CURDATE(), INTERVAL 6 MONTH)
GROUP BY month
```

Agent Features

View booked flights:

```
SELECT f.*, t.ticket_id, c.name as customer_name
FROM purchases p
JOIN ticket t ON p.ticket_id = t.ticket_id
JOIN flight f ON t.flight_num = f.flight_num
JOIN customer c ON p.customer_email = c.email
WHERE p.booking_agent_id = %s AND f.departure_time >= CURDATE()
```

View commission:

```
SELECT COUNT(*) as tickets, SUM(f.price * 0.1) as commission
FROM purchases p
JOIN ticket t ON p.ticket_id = t.ticket_id
JOIN flight f ON t.flight_num = f.flight_num
WHERE p.booking_agent_id = %s
AND p.purchase_date >= DATESUB(CURDATE(), INTERVAL 30 DAY)
```

Top customers:

```
SELECT c.email, c.name, COUNT(*) as ticket_count
FROM purchases p
JOIN customer c ON p.customer_email = c.email
JOIN ticket t ON p.ticket_id = t.ticket_id
WHERE p.booking_agent_id = %s
AND p.purchase_date >= DATESUB(CURDATE(), INTERVAL 6 MONTH)
GROUP BY c.email, c.name ORDER BY ticket_count DESC LIMIT 5
```

Staff Features

View flights:

```
SELECT f.*, dep.airport-city, arr.airport-city
FROM flight f
JOIN airport dep ON f.departure-airport = dep.airport-name
JOIN airport arr ON f.arrival-airport = arr.airport-name
WHERE f.airline-name = %s AND f.departure-time BETWEEN %s AND %s
```

Add flight (admin):

```
SELECT * FROM permission
WHERE username = %s AND permission-type = 'Admin';
INSERT INTO flight VALUES
(%s, %s, %s, %s, %s, %s, %s, 'Upcoming', %s)
```

Change status (operator):

```
SELECT * FROM permission
WHERE username = %s AND permission-type = 'Operator';
UPDATE flight SET status = %s
WHERE airline-name = %s AND flight-num = %s
```

View agents performance:

```
SELECT ba.email, COUNT(*) as tickets, SUM(f.price * 0.1) as commission
FROM booking-agent ba
JOIN purchases p ON ba.booking-agent-id = p.booking-agent-id
JOIN ticket t ON p.ticket-id = t.ticket-id
JOIN flight f ON t.flight-num = f.flight-num
WHERE f.airline-name = %s
AND p.purchase-date >= DATESUB(CURDATE(), INTERVAL 1 MONTH)
GROUP BY ba.email ORDER BY tickets DESC LIMIT 5
```

Frequent customers:

```
SELECT c.email, c.name, COUNT(*) as flights
FROM customer c
JOIN purchases p ON c.email = p.customer-email
JOIN ticket t ON p.ticket-id = t.ticket-id
JOIN flight f ON t.flight-num = f.flight-num
WHERE f.airline-name = %s
AND p.purchase-date >= DATESUB(CURDATE(), INTERVAL 1 YEAR)
GROUP BY c.email, c.name ORDER BY flights DESC
```

Add airplane/airport (admin):

```
INSERT INTO airplane VALUES (%s, %s, %s);
INSERT INTO airport VALUES (%s, %s)
```

Grant permissions (admin):

```
SELECT * FROM permission
WHERE username = %s AND permission-type = 'Admin';
INSERT INTO permission VALUES (%s, %s)
```