Airport Database

Table:

Relationships Diagram:

Airports → Terminals: One-to-Many
Terminals → Gates: One-to-Many
Airlines → Flights: One-to-Many
Gates → Flights: One-to-Many
Flights → Tickets: One-to-Many
Passengers → Tickets: One-to-Many
Tickets → Baggage: One-to-Many
Flights → Maintenance: One-to-Many
Employees → Maintenance: One-to-Many

Airports (1) --- (∞) Terminals
Terminals (1) --- (∞) Gates
Gates (1) --- (∞) Flights
Airlines (1) --- (∞) Flights
Flights (1) --- (∞) Tickets
Passengers (1) --- (∞) Tickets
Tickets (1) --- (∞) Baggage
Flights (1) --- (∞) Maintenance
Employees (1) --- (∞) Maintenance

FKs

- ❖ Airports → Terminals: `Terminals(airport_id)` → `Airports(airport_id)`
- ❖ Terminals → Gates: `Gates(terminal_id)` → `Terminals(terminal_id)`
- ❖ Airlines → Flights: `Flights(airline_id)` → `Airlines(airline_id)`

- ❖ Gates → Flights: Flights(gate_id) → Gates(gate_id)
- ❖ Flights → Tickets: Tickets(flight_id) → Flights(flight_id)
- ❖ Passengers → Tickets: Tickets(passenger_id) → Passengers(passenger_id)
- ❖ Tickets → Baggage: Baggage(ticket_id) → Tickets(ticket_id)
- ❖ Flights → Maintenance: Maintenance(flight_id) → Flights(flight_id)
- ❖ Employees → Maintenance: Maintenance(employee_id) → Employees(employee_id)

1. Airport:

CREATE TABLE Airports (
   airport_id INT PRIMARY KEY AUTO_INCREMENT,
   name VARCHAR(100) NOT NULL,
   location VARCHAR(100) NOT NULL,
   iata_code VARCHAR(3) UNIQUE NOT NULL,
   runways INT NOT NULL,
   terminals INT NOT NULL
);

2. Terminals

CREATE TABLE Terminals (
   terminal_id INT PRIMARY KEY AUTO_INCREMENT,
   airport_id INT NOT NULL,
   name VARCHAR(100) NOT NULL,
   FOREIGN KEY (airport_id) REFERENCES Airports(airport_id) ON DELETE CASCADE
);

3. Gates

CREATE TABLE Gates (
   gate_id INT PRIMARY KEY AUTO_INCREMENT,

```sql
    terminal_id INT NOT NULL,
    status VARCHAR(50) NOT NULL,
    FOREIGN KEY (terminal_id) REFERENCES Terminals(terminal_id) ON DELETE
CASCADE
);
```

4. Airlines

```sql
CREATE TABLE Airlines (
    airline_id INT PRIMARY KEY AUTO_INCREMENT,
    name VARCHAR(100) NOT NULL UNIQUE,
    country VARCHAR(100) NOT NULL,
    iata_code VARCHAR(3) UNIQUE NOT NULL
);
```

5. Flights

```sql
CREATE TABLE Flights (
    flight_id INT PRIMARY KEY AUTO_INCREMENT,
    gate_id INT NOT NULL,
    airline_name VARCHAR(100) NOT NULL,
    origin VARCHAR(100) NOT NULL,
    destination VARCHAR(100) NOT NULL,
    departure_time DATETIME NOT NULL,
    arrival_time DATETIME NOT NULL,
    flight_status VARCHAR(50) NOT NULL,
    FOREIGN KEY (gate_id) REFERENCES Gates(gate_id)
);
```

6. Passengers

```sql
CREATE TABLE Passengers (
    passenger_id INT PRIMARY KEY AUTO_INCREMENT,
ARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    date_of_birth DATE NOT NULL,
    passport_number VARCHAR(50) UNIQUE NOT NULL,
```

```
    nationality VARCHAR(50) NOT NULL,
    contact_number VARCHAR(20) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL
);
```

7. Tickets

```
CREATE TABLE Tickets (
    ticket_id INT PRIMARY KEY AUTO_INCREMENT,
    flight_id INT NOT NULL,
    passenger_id INT NOT NULL,
    seat_number VARCHAR(10) NOT NULL,
    class VARCHAR(20) NOT NULL,
    booking_date DATETIME NOT NULL,
    FOREIGN KEY (flight_id) REFERENCES Flights(flight_id) ON DELETE
CASCADE,
    FOREIGN KEY (passenger_id) REFERENCES Passengers(passenger_id) ON
DELETE CASCADE
);
```

8. Baggage

```
CREATE TABLE Baggage (
    baggage_id INT PRIMARY KEY AUTO_INCREMENT,
    ticket_id INT NOT NULL,
    weight DECIMAL(10,2) NOT NULL,
    status VARCHAR(50) NOT NULL,
    FOREIGN KEY (ticket_id) REFERENCES Tickets(ticket_id) ON DELETE
CASCADE
);
```

9. Employees

```
CREATE TABLE Employees (
    employee_id INT PRIMARY KEY AUTO_INCREMENT,
    first_name VARCHAR(50) NOT NULL,
    last_name VARCHAR(50) NOT NULL,
    position VARCHAR(50) NOT NULL,
    hire_date DATE NOT NULL,
    department VARCHAR(50) NOT NULL,
    contact_number VARCHAR(20) NOT NULL,
    email VARCHAR(100) UNIQUE NOT NULL
);
```

10. Maintenance

```
CREATE TABLE Maintenance (
    maintenance_id INT PRIMARY KEY AUTO_INCREMENT,
    flight_id INT NOT NULL,
    employee_id INT NOT NULL,
    description TEXT NOT NULL,
    maintenance_date DATETIME NOT NULL,
    status VARCHAR(50) NOT NULL,
    FOREIGN KEY (flight_id) REFERENCES Flights(flight_id) ON DELETE
CASCADE,
    FOREIGN KEY (employee_id) REFERENCES Employees(employee_id) ON
DELETE CASCADE
);
```

DATA

INSERT INTO Airports (name, location, iata_code, runways, terminals)
VALUES
('Hazrat Shahjalal International Airport', 'Dhaka, Bangladesh', 'DAC', 2, 3),
('Shah Amanat International Airport', 'Chattogram, Bangladesh', 'CGP', 1, 2),
('Osmani International Airport', 'Sylhet, Bangladesh', 'ZYL', 1, 1),
('Cox\'s Bazar Airport', 'Cox\'s Bazar, Bangladesh', 'CXB', 1, 1),
('Jessore Airport', 'Jessore, Bangladesh', 'JSR', 1, 1),
('Saidpur Airport', 'Saidpur, Bangladesh', 'SPD', 1, 1);

INSERT INTO Terminals (airport_id, name)
VALUES
(1, 'Terminal 1'),
(1, 'Terminal 2'),
(2, 'Terminal 3'),
(3, 'Terminal A');

INSERT INTO Gates (terminal_id, status)
VALUES
(1, 'Available'),
(1, 'Occupied'),
(2, 'Available'),
(3, 'Under Maintenance');

INSERT INTO Airlines (name, country, iata_code)
VALUES
('Biman Bangladesh Airlines', 'Bangladesh', 'BG'),
('US-Bangla Airlines', 'Bangladesh', 'BS'),
('Novoair', 'Bangladesh', 'VQ');

INSERT INTO Flights (gate_id, airline_id, origin, destination, departure_time, arrival_time, flight_status)
VALUES
(1, 1, 'Dhaka', 'Chattogram', '2024-12-01 08:00:00', '2024-12-01 09:00:00', 'On Time'),
(2, 1, 'Sylhet', 'Dhaka', '2024-12-02 14:00:00', '2024-12-02 15:00:00', 'Delayed'),
(3, 2, 'Dhaka', 'Cox\'s Bazar', '2024-12-03 10:00:00', '2024-12-03 12:00:00', 'On Time');

```sql
INSERT INTO Passengers (first_name, last_name, date_of_birth, passport_number, nationality, contact_number, email)
VALUES
('Abdullah', 'mohammad', '2000-10-5', 'BDP123456', 'Bangladesh', '+8801712345678', 'abdullah.mohammad@example.com'),
('Minara', 'jahan', '2001-12-31', 'BDP654321', 'Bangladesh', '+8801911122233', 'minara.jahan@example.com'),
('Ratre', 'Akter', '2001-12-16', 'BDP789012', 'Bangladesh', '+8801512345678', 'ratre.akter@example.com');


INSERT INTO Tickets (flight_id, passenger_id, seat_number, class, booking_date)
VALUES
(1, 1, '12A', 'Economy', '2024-11-20 10:30:00'), -- Abdullah
(2, 2, '8C', 'Economy', '2024-11-21 11:00:00'), -- Minara
(3, 3, '5B', 'Business', '2024-11-22 12:15:00'); -- Ratre


INSERT INTO Baggage (ticket_id, weight, status)
VALUES
(1, 23.5, 'Checked In'),
(2, 15.0, 'Checked In'),
(3, 30.0, 'In Transit');

INSERT INTO Employees (first_name, last_name, position, hire_date, department, contact_number, email)
VALUES
('Mohammad', 'Rahim', 'Aircraft Technician', '2015-05-10', 'Maintenance', '+8801712345670', 'rahim.mohammad@example.com'),
('Abdul', 'Karim', 'Ground Staff', '2018-11-20', 'Ground Services', '+8801911123344', 'karim.abdul@example.com'),
('Mohammad', 'Kuddus', 'Flight Coordinator', '2020-07-01', 'Operations', '+8801812345678', 'kuddus.mohammad@example.com');


INSERT INTO Maintenance (flight_id, employee_id, description, maintenance_date, status)
VALUES
(1, 1, 'Routine engine check and repair.', '2024-11-23 08:00:00', 'Completed'),
(2, 2, 'Cleaning and refuelling.', '2024-11-23 09:00:00', 'Scheduled'),
(3, 1, 'Landing gear inspection.', '2024-11-23 10:00:00', 'In Progress');
```