# Advanced Database Systems – Database Description Group – 7

## Airline Management System

## **Database Description and Business Rules**

In our Airline Management system there are Admin, Customer, Airport, Bookings, Flight, Aircrafts, Payment, Tickets, Passengers Collections

Admin consists of all admin who can manage database of the airlines these people have privileges to add flight or cancel flight and maintain bookings and cancel bookings. Admin Collection consists of fields staffID, name, contactNumber. Admins are manually added to database by other admins.

Customers are the people who will use the application to create the flight bookings. Customers are added in the database using a registration form. Customers consists of the fields passengerID, name, contactNumber, email.

Aircraft collection consists of all aircratfs details and the flights collection consists of what flights are running and which aircraft is used for it. Aircrafts collection consists of fields aircraftID, aircraftType, registrationNumber, seatingConfiguration, lastMaintenance. And flights consists of fields departureAirport, arrivalAirport, departureDate, arrivalDate, duration, availableSeats, aircraftNumber, flightID. And the Airports in the flight table consists of airport codes their associate airport details consists in the collection Airport.

Bookings collection consists of the details regarding the bookings of flights by the user it will record who booked the flight and which seat got booked and other details also the Bookings collection consists of fields bookingID, passengerID, flightID, bookingStatus, seatNumber. Tickets consists all booking information of customers it consists of fields PasengersID which contains the array of passengers id for whom the customer booked tickets. Passenger collection consists of passenger information including passport number.

# Collection Details:

## Collection 1 – Admin :

- adminID
- name
- contactNumber

## Collection 2 – Customers :

- passengerID
- name
- contactNumber
- email

## Collection 3 – Flights :

- departureAirport
- arrivalAirport
- departureDate
- arrivalDate
- duration
- availableSeats
- aircraftNumber
- flightID

## Collection 4- Aircraft

- aircraftID
- aircraftType
- registrationNumber
- seatingConfiguration
- lastMaintenance

## Collection 5- Airport

- airportCode
- location

## Collection 6 – Booking

- bookingID
- flightID
- bookingStatus

## Collection 7 – payments

- bookingID
- paidBy
- amount

## Collection 8 – Tickets

- passengerID
- seatNumber
- bookingID

## Collection 9 – passengers

- passengerID
- passportNumber
- name
- contactNumber
- email

## Sample Collections

### Collection 1 – Admin :

ASMA.Admin

Documents   Aggregations   Schema   Indexes   Validation

Filter  🕐 ▾   Type a query: { field: 'value' } or **Generate query** ✦

➕ **ADD DATA** ▾   🖉 **EXPORT DATA** ▾

```
_id: ObjectId('65f7428b1b9d2c092f911137')
name: "Anshu"
contactNumber: 1231231234
adminID: 1
```

### Collection 2 – Aircraft :

ASMA.Aircraft

Documents   Aggregations   Schema   Indexes   Validation

Filter  🕐 ▾   Type a query: { field: 'value' } or **Generate query** ✦

➕ **ADD DATA** ▾   🖉 **EXPORT DATA** ▾

```
_id: ObjectId('65f747ba1b9d2c092f91113b')
aircraftID: 1
aircraftType: "Boeing"
registrationNumber: 10001
seatingConfiguration: 200
lastMaintenance: "11/12/2024"
```

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**Collection 3 – Airport :**

## ASMA.Airport

Documents    Aggregations    Schema    Indexes    Validation

Filter   ● ▼    Type a query: { field: 'value' } or **Generate query** ✦

⊕ ADD DATA ▼    ☑ EXPORT DATA ▼

```
_id: ObjectId('65f74a591b9d2c092f911148')
airportCode: "Hyd"
location: "Hyderabad"
```

```
_id: ObjectId('65f74ab41b9d2c092f911149')
airportCode: "MCI"
location: "Kansas"
```

**Collection 4- Booking**

## ASMA.Bookings

Documents    Aggregations    Schema    Indexes    Validation

Filter   ● ▼    Type a query: { field: 'value' } or **Generate query** ✦

⊕ ADD DATA ▼    ☑ EXPORT DATA ▼

```
_id: ObjectId('65f7491a1b9d2c092f911140')
bookingID: 1
flightID: "ASM001"
bookingStatus: "confirmed"
```

## Collection 5- Flight

**ASMA.Flights**

Documents  Aggregations  Schema  Indexes  Validation

Filter  🕐 ▼    Type a query: { field: 'value' } or **Generate query** ✦

➕ **ADD DATA** ▼    ☒ EXPORT DATA ▼

```
_id: ObjectId('65f744731b9d2c092f911139')
departureAirport: "HYD"
arrivalAirport: "MCI"
departureDate: "12/2/2024"
arrivalDate: "14/2/2024"
duration: 23
availableSeats: 120
aircraftNumber: 1
flightID: "ASM001"
```

## Collection 6 – Customers

**ASMA.Customers**

Documents  Aggregations  Schema  Indexes  Validation

Filter  🕐 ▼    Type a query: { field: 'value' } or **Generate query** ✦

➕ **ADD DATA** ▼    ☒ EXPORT DATA ▼

```
_id: ObjectId('65fcba24d63974f31ced4186')
passengerID: 1
name: "Anish"
contactNumber: 9879879876
email: "anish@gmail.com"
```

## Collection 7 – payments

**ASMA.payment**

Documents   Aggregations   Schema   Indexes   Validation

Filter  🕐 ▾      Type a query: { field: 'value' } or **Generate query** ✦

⊕ ADD DATA ▾    ⬈ EXPORT DATA ▾

_id: ObjectId('65fc8061f391976a33492499')
amount: 250
bookingId: 1
paidBy: 1

## Collection 8 – Tickets

**ASMA.Tickets**

Documents   Aggregations   Schema   Indexes   Validation

Filter  🕐 ▾      Type a query: { field: 'value' } or **Generate query** ✦

⊕ ADD DATA ▾    ⬈ EXPORT DATA ▾

_id: ObjectId('65fcbc4ed63974f31ced4193')
▸ passengerID: Array (3)
▸ seatNumber: Array (3)
bookingID: 1

## Collection 9 – passengers

ASMA.passengers

0 DOCUMENTS    1 INDEXES

Documents    Aggregations    Schema    Indexes    Validation

Filter    Type a query: { field: 'value' } or Generate query    Explain    Reset    Find    Options

ADD DATA    EXPORT DATA                                          1 – 3 of 3

```
_id: ObjectId('65fc9880d63974f31ced4178')
passengerID: 1
passportNumber: "AXK96410"
name: "Anish"
contactNumber: "9879879876"
email: "anish@gmail.com"
```

```
_id: ObjectId('65fc98e4d63974f31ced4179')
passengerID: 2
passportNumber: "AXG91170"
name: "Anirudh"
contactNumber: "9879879877"
email: "anirudh@gmail.com"
```

```
_id: ObjectId('65fc991dd63974f31ced417a')
passengerID: 3
passportNumber: "MXP77310"
name: "Meghana"
contactNumber: "9879879878"
email: "meghana@gmail.com"
```

# Schema of Database

## passengers
- passengerID
- passportNumber
- name
- contactNumber
- email

## Admin
- adminID
- name
- contactNumber

## Bookings
- bookingID
- flightID
- bookingStatus

## Customers
- passengerID
- name
- contactNumber
- email

## Payments
- bookingID
- paidBy
- amount

## Flights
- departureAirport
- arrivalAirport
- departureDate
- arrivalDate
- duration
- availableSeats
- aircraftNumber
- flightID

## Airport
- airportCode
- location

## Tickets
- passengerID
- seatNumber
- bookingID

## Aircraft
- aircraftID
- aircraftType
- registrationNumber
- seatingConfiguration
- lastMaintenance