DAMG 6210

GROUP 12

PROJECT: Streamlining Air Travel

# P2. Database Design, Conceptual Model (new)

**Business Problem:**

* An Airplane Booking System will manage and maintain booking details.
* The database can be used to retrieve data easily.
* Many passengers book tickets hence it is necessary to keep track and record all the booking details.
* Only authorized users can access the information (System administrator).
* This centralized database will reduce redundancy and store all information only once

**Entities:**

* Flight
* Airport
* Passenger
* Reservation
* Payment\_Status
* Payment
* Services\_Offering
* Flight\_Service
* Seat
* Travel\_Class
* Flight\_Cost
* Schedule

**Relationships between entities:**

1. An airport manages many flights. An airport may not have landing/takeoff. therefore, it is optional. However, it is mandatory for flight details to have one airport association.
2. A Flight may have many Services\_offering similarly a Services\_offering may be available in many Flights.
3. A Flight contains more than one seat, seat details should be linked to at least one flight
4. A passenger may book multiple seats, or the passenger may or may not book, booking has to be associated with only one passenger
5. Booking confirms the seat details. Booking should be linked with the seat. A seat might be empty or unreserved.
6. Any class can have multiple seats, but a seat should be associated with only one class.
7. A Payment may have many Payment\_Status. Payment\_Status should have a Payment associated.
8. A Payment\_Status must have a reservation. A Reservation may have multiple status.
9. Cost should be determined from the schedule.
10. The seat details should be related to Flight\_Cost. Flight\_Cost should be calculated based on seat details

**Key Design**:

1. Every Airport can operate many flights details with respective source and destination.
2. Every Flight can offer many Flight\_Services like food, WiFi, etc. Each Flight\_Service may be offered in many flights. Service\_Offering has Service\_ID and Flight\_ID.
3. Every Flight has one or many seats and every seat is mapped to class e.g. seat can belong to economy first or second class.
4. Every Passenger may or may not make multiple bookings. Once the ticket is booked, a seat will be assigned. One seat per reservation.
5. Associative entity Payment\_Status stores Resevation\_ID and Payment\_ID.
6. Payment status and respective payment due date and amount will be stored in Payment.
7. Seat\_Details , Schedule and Class will determine the Flight-Cost

**Entity Relationship Diagram (Initial):**

