# Assignment 4

**Group Members -** Aditi Jain, Prerana Urs Praveen Kumar Urs, Suhani Shah

## I. Problem Statement

To create a Travel agency model to enable Travel agents to optimise the ticket booking process across all airliners for the customers

## II. Purpose

To learn the techniques for turning an object model into a machine for information gathering and data aggregation

## III. Proposed Solution

a. Manage Travel Agency
    - Search and list all flights (from & to) across all airliners

b. Register Airlines
    - Create Airliner profiles
    - View airliner profiles

c. Manage Customers
    - Search for best flights
    - Book customer reservation on a flight (Book tickets for customers)

**We identify the following people as responsible for providing good quality of education in our model :**

1. **Travel Agency** - Accesses Master Travel schedule consisting of all the available flights across all airliners
2. **Customer** - Accesses the flight schedule to book flight tickets
3. **Airliners** - Contains the list of flights with different flight schedule for each flight

**How to approach the solution?**

1) Enabling Travel Agency to manage Airlines
2) Managing flights and airplanes under each Airliner
3) Adding relevant flight schedules with respect to Source and Destination of flights
4) Adding Customer profiles in order to book tickets
5) Displaying the available flights for Customer to book ticket
6) Saving booking history of each Customer

## IV. Entities

1. **Customer :**

- Create customer profile
- Add customer details in the profile
- View & Update customer details
- Customer can search for the best flights available and book tickets accordingly

2. **Airliners :**

- Contains list of flights based on its availability
- Create, view & Update Airliner details

3. **Flights :**
    - Consists of attributes like Name, Seat, Crew, list of flight schedule
    - Add flights to respective Airliner
    - View & Update Flight details

4. **Flight Schedule :**
    - List of Flights
    - List of schedules for each flight
    - Consists of attributes like source (from) ,destination (to), flight Seat count, date, time, airliner

5. **Master Travel Schedule :**
    - Contains cumulative table of all the available flights across all airliners
    - Contains Customer Directory

6. **Ticket :**
    - Customer can book flight tickets based on the date, source and destination
    - Each ticket booked by a Customer is saved for further bookings

7. **Seat :**
    - Consists of seat number, type of Seat - middle, aisle, window
      Seat booking status - booked or cancelled

## V. Design

- On clicking the **'Manage Travel Agency' button**, Customer Directory can be managed. Customer profiles can be created, customer details can be viewed and edited accordingly

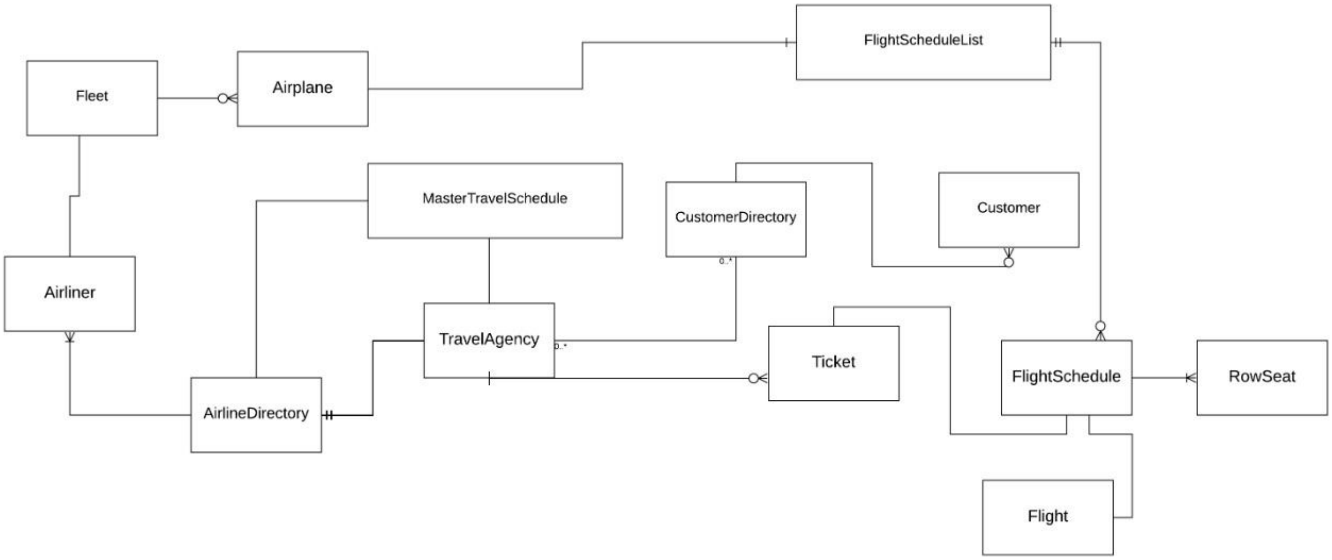
- On clicking the **'Book Ticket' button**, Customers can book flight tickets based on Source, Destination, Time and Date. They can also choose the seat type and ticket is booked under the registered Customer ID
- On clicking the **'Search' button**, customers can search the best available Flights based on the binding attributes - Source, Destination, Time and Date
- On clicking the **'View booked ticket' button**, Travel agency can view the booking history of the preferred customer
- On clicking the **'Master Travel Catalog' button**, Travel agency can view all the Flights available for booking across all Airliners
- On clicking the **'Manage Airliner' button**, new Airliners can be added, viewed/updated and respective Flights under the specific airliner can be added too
- On clicking the **'Manage Flights' button**, new Flights can be added or deleted
- On clicking the **'Manage Flight Schedule' button**, new schedule can be added for each flight and updated with regard to the Airplane category

**Basic functionalities that can be implemented in our System are -**

1. **Airliners** - addAirliner() , viewAirliner(), updateAirliner()
2. **Flights** - addFlight(), viewFlight(), updateflight()
3. **Search Flights** - searchFlights()
4. **Customer** - addCustomer(), viewCustomer(), updateCustomer()
5. **Ticket** - bookTicket(), viewTicket() - Booking history, cancelTicket()
6. **Source/Destination** - getSource(), getDestination()
7. **Flight Schedule** - addSchedule(), viewSchedule(), updateSchedule()
8. **Master Travel Schedule** - viewMTS()

## VI. Object Model Diagram

The object model shows different objects interacting with each other. Various objects are connected with each other to get the desired functionality and to generate the required information. Please refer to the below diagram for our solution -

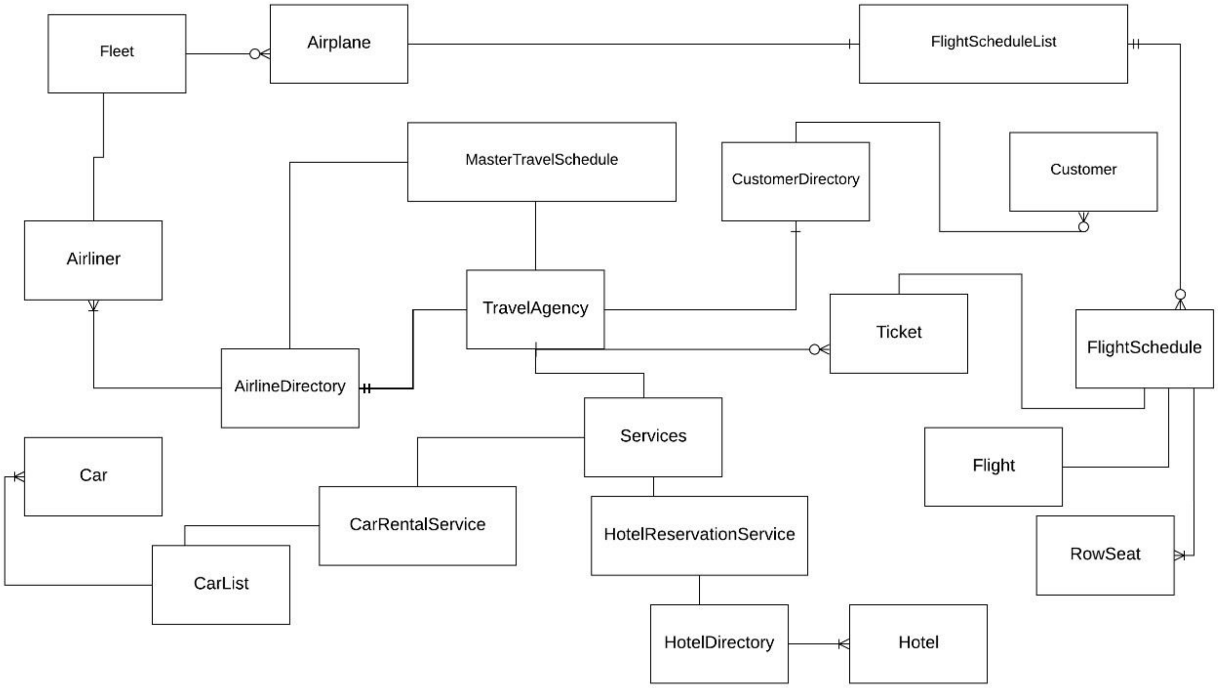


<u>**EXTRA - CREDIT POINT**</u>

**Additional features that can be accommodated by the Travel Agency model to improve the following services :**

- Car rental from car rental companies :
  - We can add an entity ‘Car rental company’ which has a tie up with the Travel agency and can be accessed by the customers when required
  - Travel agency coordinates with the car rental company based on the customer details provided while booking the flight ticket (source and destination **Address**)
- Hotel reservations from local hotels in the area :
  - We can add an entity ‘Hotels’ which has a tie up with the Travel agency and can be accessed by the customers when required
  - This option is provided to the customer while booking the flight tickets if they also want a hotel booking on the **Date** of departure or arrival
- Provide support for multiple stops on a travel plan :
  - We can add an entity ‘Customer Itenary’ which is provided by the Travel agency for the customer to fill in their travel details along with Source, Destination, **Number of Stops**, **Stop location**
  - With this information, Travel Agency will be able to provide services for Car rental and Hotel reservations mentioned above

# UML Diagram (including improved services) :


Fleet
Airplane
FlightScheduleList
MasterTravelSchedule
CustomerDirectory
Customer
Airliner
TravelAgency
Ticket
FlightSchedule
AirlineDirectory
Services
Car
Flight
CarRentalService
HotelReservationService
RowSeat
CarList
HotelDirectory
Hotel