

Project Phase – 1

- 2019101092 – Kevin Vargis
- 2019101093 - Abdullah Mujtaba
- 2019111041 – Prateek Sancheti

Overview:

The mini-world consists of an Airport in the city Hyderabad , and flights , employees, and passengers that pass through the airport.

The database stores information about all of the above ,and a few other objects.

It can be used to track passengers and their destinations, to obtain information about frequency and timing of flights, quality control (eg: by storing details about food supply) , and statistics regarding employee base.

Entities:

1. Airline Employee :
 - Airline: [Set of 20 Airlines TBD]
 - Employee ID – Primary Key – String
 - Position : [Pilot , Flight, Attendant, Logistics]
 - Name (composite)
 - First Name
 - Second Name
2. Flight
 - Airline:
 - Destination
 - Take-off Location
 - Boarding Time – (derived)
 - Ticket Numbers (Multi Valued)
 - Employee ID's - { array }
 - Flight Number – Primary Key
 - Time of Arrival/Take-off (composite)
 - Date
 - Slot
3. Passengers
 - Passport ID – Primary Key
 - Ticket Number – Primary Key
 - Gender - [M/F/Other]
 - Age Group- [Minor, Adult] - derived
 - Flight Number
 - DOB: DD/MM/YYYY
 - Name (composite)
 - First Name
 - Second Name
4. Luggage Bag (Weak Entity)
 - Passport ID
 - Bag Number :[1,2,3] - Partial Key
 - Weight

- Dimensions: (composite)
 - Length
 - Breadth
 - Height (integers)
- 5. Meal Package: (Weak Entity)
 - Passenger/ Airline Employee ID:
 - Flight Number :
 - Employee Id (for the caterer who supplies the meal)
 - Class - [Luxury, Economy]
 - Type - [Veg, Non- Veg]
- 6. Employee
 - Employee Id – Primary Key – String
 - Gender – [M/F/Other]
 - Role - [Administrator, Border Security, Retail, Caterer, Housekeeping]
 - Name (composite)
 - First Name
 - Second Name

Assumptions and Constraints

- Each flight has a set of ticket numbers that are created when a new passenger registers, and can have at max 150 passengers at a time
- A list of 20 airlines that serve as valid input will be decided
- Each passenger/airline employee can carry a maximum of 3 luggage bags
- All seats in the flight are identical in terms of price, and class.
- Each passenger can have a maximum of 1 meal on a flight.
- A particular airline employee can work on any flight of that airline, and a flight can have any number of employees on it
- Each passenger can have at max 30 kg of luggage

Relations:

1. **Passenger** flies on **Flight [N-1]**
2. **Passenger** carries **Luggage [1-N]**
3. **Employee [1-N]** supplies **Meal Package[1-1]** to **Passenger[1-1]**
4. **Airline Employee** works on **Flight [M-N]**
5. **Employee [1-M]** supplies **Meal Package[1-1]** to **Airline Employee[N-1]** on **Flight [M-N]**

Functional Requirements:

1. Retrieval
 - a) Selection : All out-going flights on a particular day
 - b) Projection: All the airlines with $\geq n$ flights on a particular day
 - c) Aggregate: City with most incoming flights
 - d) Search: Passenger Name
 - e) **Analysis/Report:**
 1. Number of flights with less than average passengers
 2. Airlines with highest number of minors per flights
2. Modification
 - a) Insertion – A new passenger on a flight with validity constraints that the flight is not full
 - b) Update – Change meal type
 - c) Delete – Delete passenger on a flight