## Term Project

* You are designing a database to track airline related information. I'm a frequent flyer and have found that existing airline reservation systems just don't provide the data and reports that I need to handle all my travel so I've hired you to create a specialized airline database just for me. Let's name this system "mifly".
* In my travels, I have flown into and out of many different airports. Each of these airports has a name, a location, and an FAA-approved abbreviation. For example: Dulles Airport, Washington DC, IAD or Kennedy Airport, New York, JFK. Sometimes an area is so large that is can be serviced by mulitple airports. If my destination again happens to be the Washington DC area, I can fly into Dulles airport, Reagan National Airport or Baltimore Washington International Airport. New York is serviced by Kennedy, La Guardia and Newark.
* An airline can fly into and out of many airports. Each airline has a name and is headquartered in one particular city. A airline headquarted in the United States can either fly locally (limited to a portion of the country), domestic (the entire United States) or International (outside of the United States).
* An airline can own any number of planes. These planes are made by a specific manufacturer with a specific model number (ex. Boeing 747) and hold a set number of passengers. Each of these airplanes have a tail number assigned by the FAA (ex. TB134). Some of the airplanes are even given names. Recently JetBlue airline had a contest to name each of their planes (ex. Bluebird).
* Travel on an airplane is refered to as a flight. Each flight is arranged to leave a particular airport and return to a different airport. The flight is identified by the airline and a number assigned by the airline itself. This flight number is associated with a specific departure time and an arrival time. The same flight number is used any day of the week that an airlines flies between the same airports at the same time.
* Each flight is assigned a specific crew. Each crew is composed of one pilot, one co-pilot, one navigator, and anywhere from two to five flight attendants according to the number of passengers an airplane holds and the length of the flight.
* Due to the tightened security restrictions, each crew member ungoes a background check by the FAA and is assigned an FAA number before being allowed on an airplane.
* With the rising cost of gasonline, some airlines are now charging for water, pillows and blankets, and checking bags on a per flight basis on local or domestic flight.
* Model this enterprise using only the information supplied here. Do not model any processes not mentioned here such as payments, travel agents, customers, etc.
* You may assume that all flights are non-stop. You don't need to worry about changing planes or detailing portions of a flight.
* You should use your knowledge of airlines and flying in general, and you may want to pay new, closer attention to details of the operation of any airline or airport sites you may visit on the web as you are working on this assignment.

### Design

* Your design must support the following functions of the enterprise:
  + Flight Crew assignment
  + Assignment of non-flight crew personnel such as ticket takers and ground workers
  + Incident report - this allows a flight crew employee to file a report related to any type of incident that occured on a flight. It could be a problem, a concern, an emergency, or recognition of good customer service. This report involves a particular flight, the type of incident, a description of the incident, the crew member reporting the incident, and the crew member involved in the incident.

### Output

* Output of the database must support the following products. You do not need to develop “pretty” printed or on-screen reports. You will run the views/queries in MySQL Query Browser in the lab.
  + The list of all airlines for a given airport.
  + The list of all flights for a given airline. You must be able to sort this list by starting location, destination, longest flight or shortest flight.
  + Flights that charge for extras (water, etc.)
  + The crew roster for each flight for each airline
  + The trips that are available if you do make one stop over
  + Management reports of mifly information, including arriving flights per city, departing flights per city, list of airlines in each service category, crews that fly multiple flights in a single day.
  + A list of all incident reports by flight
  + Each team member must design his/her own query that will produce something meaningful for the customer

### Teams

This project will be done in teams, whom you may self-select. I will determine the size of each team based on the enrollment in the class when the assignment is made.

### Deliverables

* Your work will be done in two parts, with one submission of each part for each team. See the class schedule for due dates. I will answer questions about the enterprise in class, also on the dates shown in the schedule.

#### **The first part, design, will consist of:**

* + Class diagram.
  + English description of all classes and associations.
  + A paragraph describing the denormalization in your design stating what you did and why.

#### **The second part, implementation, will include:**

* + A revised design, based on feedback from the first part. This includes class diagrams and English descriptions of classes and associations.
  + English description of all attributes.
  + The relation scheme, based on the design.
  + DDL used to create all the tables and the DML used to insert the data
  + Queries to produce the reports, as described above along with sample output for each of these queries.