Assignment 1: Familiarization with Aviation Data Sets

Date Due: January 28, 2016   Professor: Dr. Trani

Problem 1

Briefly answer the following questions:

a) In recent years new generation of highly efficient aircraft have been introduced into the market (Boeing 787-9 and Airbus A350-900). Consult the aircraft manufacturer data (available as links on our web site) and state some of the relevant parameters for these aircraft (i.e., wingspan, length, landing gear width, etc.). Explain the implications of such vehicles in airport design.

b) Identify the commercial aircraft presented in the Table 1. State the Aircraft Design Group (ADG), Taxiway Design Group (TDG) and Aircraft Approach Class (AAC). Here is a list of possible choices (more choices than pictures to add a little challenge): Boeing 747-400, Bombardier DHC-8C (Dash-8), Airbus A330-200, Boeing 787-8 Dreamliner, Boeing 737-900, Boeing 717-200, Bombardier CRJ-900, Airbus A380-800, Airbus A340-600, Airbus A319, Embraer 145 and Embraer 195.

Table 1. Aircraft for Problem 1. All Pictures by A.A. Trani.

Picture	Aircraft Name	ADG	TDG	AAC

Picture	Aircraft Name	ADG	TDG	AAC

Problem 2

Airport Statistics using the Bureau of Transportation Statistics (BTS) web site.

Go to the BTS web site (accessible through our page with "Interesting Web Sites)" and look at the following 2 airports using the airport snapshot link: http://www.transtats.bts.gov/airports.asp.

       1) Atlanta International airport (ATL).

       2) Chicago O'Hare International airport (ORD).

For each airport answer the following questions.

   a) Find the total number of passengers boarding U.S. Flights at the airport in the last two years of data. Comment on the trends observed (i.e., increasing or decreasing passengers).

   b) Find the market share for the top three airlines operating at the airport (market share means the percent of passengers carried by an airline at the airport).

   c) Find the top 3 destinations from the airport selected. Comment on the destinations.

   d) Comment on the departure delays experienced by aircraft operating at the airport in the past three years and compare them to the national average. Are the on-time performance numbers improving with time?

Problem 3

Airport features using the Airnav.com web site.

Go to the Airnav web site (accessible through our page with "Interesting Web Sites" and look at the following airports:

1) Atlanta International Airport (ATL)

2) Chicago O'Hare International Airport (ORD)

For each airport create a table with the following data:

a) Find the number of runways and the runway length and width for each runway at the airport.

b) Find the elevation of each runway end (in feet). Note: A runway has two runway ends labeled numerically. For example Runway 18/36 indicates the number of degrees from the magnetic North multiplied by 10. So an aircraft landing on runway end 18 would be flying South (180 degrees from the magnetic North).

c) State if the newest runway at ORD (10R/28L) has an Instrument landing system.