CSE 4701, Fall 2019 Project 1

Part II (Revised): Due September 23, 2019 (Monday) 11:59 pm on HuskyCT

1. Consider the AIRLINE database you created. First, empty your database using proper SQL command (DELETE FROM <table>). Then do SELECT * <table> to show that they are all cleared.

2. Now repopulate your AIRLINE database with the tuple values given in Project1_Part2_Data.txt (Note: It has been revised).

3. For each of the following query in English, provide a SQL statement, and show its evaluated result. Views are not allowed, and the query must be a single statement.

   (a) List all the flight numbers by American Airlines.
   (b) How many flights does American Airlines offer on Mondays?
   (c) List the flight numbers and weekdays of all flights or flight legs that depart from George Bush Intercontinental Airport and arrive in Los Angeles International Airport.
   (d) List the flight number, departure airport code, scheduled departure time, arrival airport code, schedule arrival time and weekdays of all flights or flight legs that depart from some airport in the city of Houston and arrive at some airport in the city of Los Angeles.
   (e) List the airliner who flew with a greater number of empty seats (available seats) than any other airliners during September 2019.
   (f) Find the airliners that flew with less than 30 empty seats (available seats) in September 2019. [Hint: Use HAVING & DATE_FORMAT( )]
   (g) Find airline pairs that are directly competing at Houston? Direct competition at a city is defined by having flights from that city to the common destination. Answer should include <TWA, Southwest> since both airlines have flights from Houston to LA. Note that Houston has two airports (**Requirement**: Use EXISTS/NOT EXISTS).
   (h) List all the flights from "FLIGHT" table along with their scheduling information from "FLIGHT_LEG" table. Show NULL values for scheduling information if the flight has not been scheduled yet. (Hint: Use Outer Join)

4. This time you are rewriting the query after introducing a view.
   (a) Define a view as "For each flight, list the flight number, the departure airport code for the first leg of the flight, and the arrival airport code for the last leg of the flight".
   (b) Show how the systems catalog stores the view definition.
   (c) Express the following query: "List the flight number of all flights that depart from some airport in the city of Houston and arrive at some airport in the city of Los Angeles" by using the view and show the result. Do you have the same flight numbers in your answer for this question as the flight numbers in the answer for 3.(c)? Discuss what you find.

5. The following points should be observed and discussed. Do this with SQL.

   (a) Do the following two problems: (1) Create an index with UNIQUE option on 'Name' field of AIRPORT table. Show that you successfully created the index by appropriately interrogating system catalog. (2) This time try to create an index with UNIQUE option on 'Airline' field of FLIGHT table. Are you successful in this attempt?

   (b) Insert in FLIGHT_LEG table the following tuple: (TWA023, 3, LAX, 1400, YVR, 1500). What do you find and why?

On Report Format: Your report must be a PDF document and should contain the solution for each subproblem in the following forms (i) Problem number, (ii) SQL expression, (iii) Machine-generated solution, and (iv) Comments or discussion if they were required. Try to fit (i) - (iv) in one page, if possible, and the sequence of the solutions must be in order. Any report not following this format is subject to **5% penalty.** The penalty for a late report is **5% off per day.**