Mathematical Computing II
Math 3200-820

Homework 3

Due Date: 03/11/2022 (Friday)

Points: 30

Note: Download your Jupyter Notebook in HTML (.html) and upload in Canvas.

Part 1[10 Points]: Quick exercise for you to practice your pandas skills! You will be using the SF Salaries Dataset from Kaggle! (CSV file is also uploaded in Canvas - ***Salries.csv***) Just follow along and complete the tasks outlined in the Jupyter Notebook: ***Homework 3 (Part 1) SF Salaries Exercise.ipynb***.

Part 2 [20 Points]: The data set you will be working on is ***Airport_Wait_Time.csv*** (uploaded in Canvas). The data set was collected from https://awt.cbp.gov/, and it shows the number of passengers processed on flights arriving in each hour based on how long it took for those passengers to clear Passport Control. Use numpy and pandas to answer the following questions.

1) How many rows and columns are there in the data set? What are the column names?
2) How many different U.S. international airports are included in the data set?
3) What is the range of the dates (starting and ending date) in the data set?
4) Obtain a subset of the data that only has the Chicago O'Hare International Airport (ORD). How many different international terminals does ORD have?
5) Consider the Christmas day (12/25/2017) for ORD airport. Which hour of the day had the longest average wait time?
6) Compare between the Christmas day and New Year (1/1/2018) for ORD airport. Which hour of the day had the biggest difference of the average wait time?
7) Obtain a subset for the New York John F. Kennedy International Airport (JFK). How many different international terminals does JFK have?
8) For JFK airport, report the total number of flights by date.
9) Find out the number of terminals of each U.S. international airport.
10) Obtain a subset of all airport information on the Christmas Eve (12/24/2017). Which airport had the largest number of passengers on that day?
11) For the airport you found in question 10, which hour of the Christmas Eve (12/24/2017) had the largest number of flights?
12) Find the average daily number of passengers by airport. Sort the airports descendingly.
13) Compare two airports, LAX (Los Angeles) and ATL (Atlanta). On which date did the two airports have the biggest difference of the total number of flights?