CS 3753 & 5163 Data Science

Homework 2 (100 points)

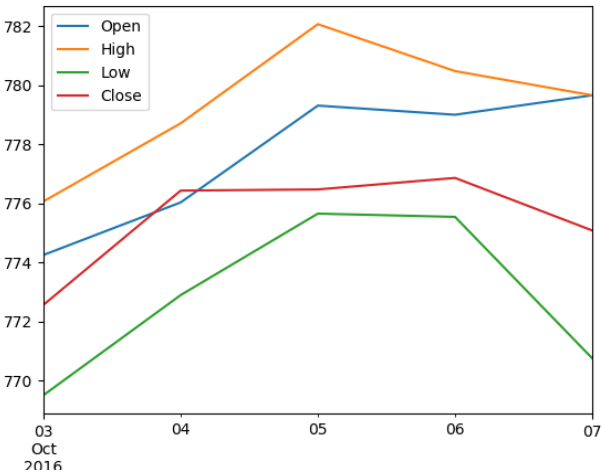
Submission:

1. Submit a single python script (abc123_hw#.ipynb or abc123_hw#.py) through Blackboard learn. All the results are outputted from your Python code.
2. You should have the instruction of running your code at the beginning of your code (e.g. Download the file abc123_hw#.py; Open the file in Spyder; Run the code by clicking the "Run" button, …). It should run successfully either in the basic command prompt with Python3, Jupyter Notebook, or Spyder.
3. If your code cannot run, we assume your code can run, then we will check whether your code is correct logically. If so, half points will be deducted. Otherwise, more points will be deducted if your code is wrong or there is no code.
4. Do not compress your source code and data files. The compressed files will receive a warning at the first time and will lose 10% points in future assignments. Make sure all your files are in the same folder when you run the code. So, after the graders download your homework, they do not need to set the path for the data file. They can run your code successfully.
5. If there is any plagiarism, you will lose all points on the questions at first time. In next, you will lose all points in the whole homework.
6. You can submit your homework 3 times before the deadline. The late submission will lose 15% of the total points in the assignment. The late work is unacceptable if it is late more than 10 minutes.

Questions

Please use the provided code skeleton in HW2_skeleton.py

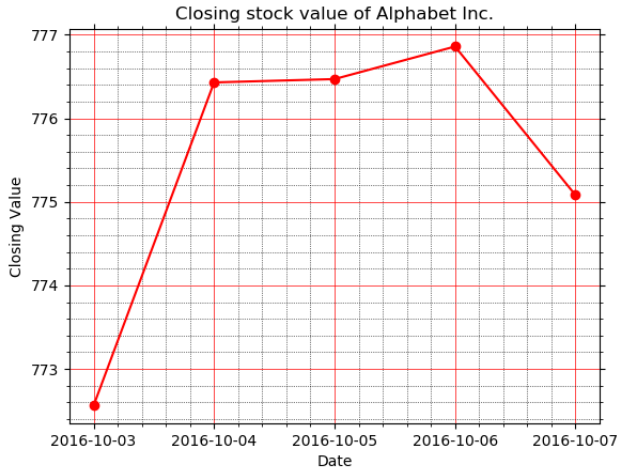
1. Write a Python program to draw line charts of the financial data of Alphabet Inc. between October 3, 2016 to October 7, 2016. The sample financial data is in the file (fdata.csv). If you installed Pandas module, you can use the function read_csv() to read the data from the file directly. Or, you can write a function to read the data from the file. The code snippet gives the output shown in the following screenshot (the date can be in mm/dd/yy format): (20 pts)



2. Write a Python program to display the grid and draw line charts of the closing value of Alphabet Inc. between October 3, 2016 to October 7, 2016. You can type the following data into your code directly. Customized the grid lines with rendering with a larger grid (major grid) and a smaller grid (minor grid). You can refer to the grid() function to plot grids (20 pts).

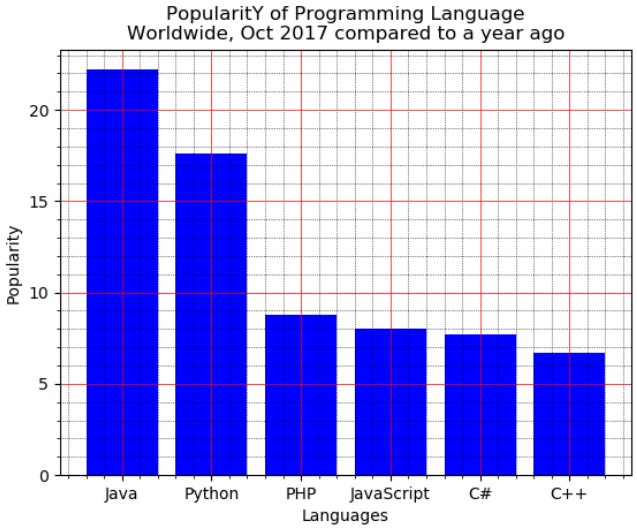
Date,	Close
03-10-16,	772.559998
04-10-16,	776.429993
05-10-16,	776.469971
06-10-16,	776.859985
07-10-16,	775.080017

The code snippet gives the output shown in the following screenshot:

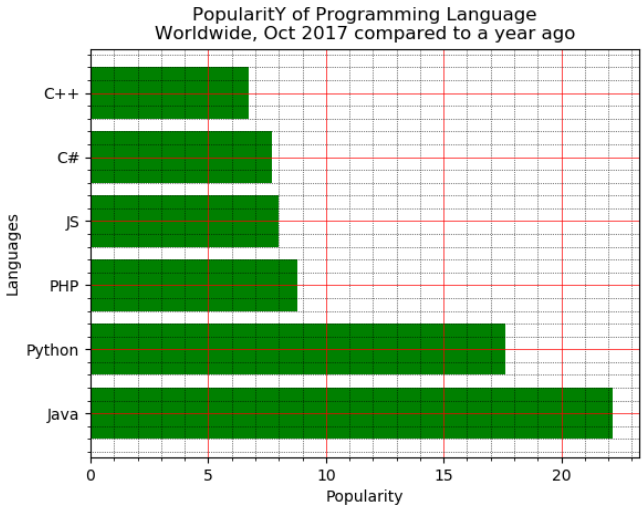


3. Write a Python programming to display a bar chart of the popularity of programming Languages (20 pts).
   Sample data:

Programming languages: Java, Python, PHP, JavaScript, C#, C++
Popularity: 22.2, 17.6, 8.8, 8, 7.7, 6.7
You can type the data into your code directly. The code snippet gives the output shown in the following screenshot:



4. Write a Python programming to display a horizontal bar chart of the popularity of programming Languages using the data in Question 3 (20 pts). The code snippet gives the output shown in the following screenshot:



5. Write a Python program to draw a scatter plot for three different groups comparing weights and heights (20 pts).

weight1: 67,57.2,59.6,59.64,55.8,61.2,60.45,61,56.23,56
height1: 101.7,197.6,98.3,125.1,113.7,157.7,136,148.9,125.3,114.9
weight2: 61.9,64,62.1,64.2,62.3,65.4,62.4,61.4,62.5,63.6

height2: 152.8,155.3,135.1,125.2,151.3,135,182.2,195.9,165.1,125.1
weight3: 68.2,67.2,68.4,68.7,71,71.3,70.8,70,71.1,71.7
height3: 165.8,170.9,192.8,135.4,161.4,136.1,167.1,235.1,181.1,177.3
The code snippet gives the output shown in the following screenshot: