CIS-105 – Spring 2021 Lab 6 – Chapters 7 & 8 Maria Burness

Due by 11:59 pm on the date specified in Canvas; 50 points total.

- *Late submissions are penalized 5 points per day late.*

Instructions:

- Complete each of the following problems as a separate Python (.py) file.
- The name of each Python file should be of the form "Lab6_probX.py" where 'X' is the problem number in the lab assignment.
  - Example: Lab6_prob1.py for problem 1, Lab6_prob2.py for problem 2, etc.
- "Zip" all three problem files into ONE zip file and submit to Canvas by the due date.
- Follow variable naming rules as described on pages 43-44.
- Comment frequently in your code using the "# comment" convention. At a minimum, you should have a comment line at the beginning of the program with your name and what the program will do. Comments are for the programmer (and your instructor) to read. *Be sure comments are not so long that they get cut off on the right side of the monitor (continue to the next line, if necessary, to avoid this situation).*
- Display a statement to the user on the purpose of the program through an intro() function called in the main () function *before* asking for any information. This is for the user to see. *Be sure this display is not so long that it gets cut off on the right side of the monitor (continue to the next line, if necessary, to avoid this situation).*
- Check the accuracy of the output. In other words, how do you know that the output is correct?
- The grading rubric is provided at the end of this document for your reference. Use it to 'check' your work before submitting it.
- **Make sure to call a main function in each problem below in addition to whatever other functions are specified in the problem.**

1. **Problem #1 – Daily Step Count (15 points)**
   - Write a program to prompt the user to enter the number of steps taken each day of the week (ask the user for the amount for Sunday/Monday/…./Saturday). Store the user-entered amounts in a **list**.
   - Calculate and display the minimum, maximum, total, and average number of steps per day. Each field should be labeled appropriately. Include units, round to the nearest whole step.

2. **Problem #2 – Use matplotlib to graph Bowie Baysox Annual Attendance (20 points)**
   - Download the source code file called Bowie_Baysox_attend.txt. This file contains a chronological list of annual attendance for the Bowie Baysox at Prince George's Stadium from 2005 through 2017. The first line is the attendance for 2005, the second line is the attendance for 2006, and so on.
   - Using matplotlib, write a program that reads the contents of the Bowie_Baysox_attend.txt file and then plots the data as a line graph. Be sure to display meaningful labels along the X and Y axes, as well as the tick marks. Graph should have an appropriate title.

3. **Problem #3 – Create a Password (15 points)**
   - Write a program that gets a string from the user and creates a password by selecting the first letter of each word and returns that to the user as a new password. Hint: Use split method to return a list containing the words in the inputted string.
   - Example:
     i. Enter a sentence to create a password: Supper will be at five every day.
     ii. Your new password is: Swbafed

Grading Rubric:

1. **Problem #1 – Daily Step Count (15 points)**

_____ (3) Statement displayed to the user on the purpose of the program (intro() function called in main() function before prompting user for any information). Give comments in your code. Program has main program logic in the main function.

_____ (4) Program prompts the user for the number of steps for each day of the week (example: Enter the number of steps taken on Monday:). Answers stored in a list.

_____ (4) Program calculates the min/max/total/average number of steps for the week.

_____ (4) Program displays the min/max/total/average number of steps for the week. Include units and round to the nearest whole step.

2. **Problem #2 – Use matplotlib to graph Bowie Baysox Annual Attendance (20 points)**

_____ (3) Statement displayed to the user on the purpose of the program (intro() function called in main() function before prompting user for any information). Give comments in your code. Program has main program logic in the main function.

_____ (6) Program reads the data in from the Bowie_Baysox_attend.txt file, converts it to a number format, and then stores in a list.

_____ (5) Line graph or bar chart displays Bowie Baysox attendance data by year.

_____ (6) Graph has X and Y axes labels, title, units given.

3. **Problem #3 – Create a Password (15 points)**

_____ (3) Statement displayed to the user on the purpose of the program (intro() function called in main() function before prompting user for any information). Give comments in your code. Program has main program logic in the main function.

_____ (4) Prompt user for a string that will be used to create a password.

_____ (4) Split the string into a list using the split method.

_____ (2) Create a password by selecting the first letter of each word in the string.

_____ (2) Display the correct password to the user.