Assignment P2

Due Date: October 8

Purpose
Hi-ho! In this new and funtastic assignment, you’ll have the pleasure (?) of trying out some graphics as well as working with strings and lists. Along the way, you will also practice your basic Python statements.

Problem
The WeeBar Rebar Company sells rebar (reinforcing steel bar) to construction companies. They wish to display their recent sales for three different sizes of rebar, cleverly called #1, #2, and #3. As a matter of fact, they recently sold many tons of rebar to Wheaton for the Chase Dining Hall project. In any case, the company hires you to write a Python program that will graph some rebar data in a nice way.

Input
The program should prompt for three items: the amount of rebar (in integer tons) used for three different construction projects. For each project, the user will input additional three integers, one for each kind of rebar, as well as the name of the project. To make this quicker, the data for each job will be entered all on one line. For example:

Enter first job : 804060Science Center
Enter second job: 551040New Dorm
Enter third job : 100515Mike’s Office

Thus, the amount of #1 rebar for the Science Center project is 80 tons, the amount of #2 rebar is 40 tons, and the amount of #3 rebar is 60 tons. Similarly, the company sold 55, 10, and 40 tons of #1, #2, and #3, respectively, for the dorm project, and 10, 5, and 15 tons for Mike’s new office. Note that there are no spaces or commas between items. You may assume that the amount of rebar of each type is in the (integer) range of 0 to 99 tons, inclusive, and that values less than 10 will have a leading 0. You may also assume that the project description will not exceed 20 characters. You must follow these input conventions exactly in your program!

Output
For the input above, the program should produce a nice graphic similar to the picture on the top of the next page. The graphic does not need to look exactly like the one shown, but must include:

- A stacked-bar graph representing the amount of rebar sold for each job.
- A stacked-bar graph representing the average amount of each rebar type sold.
- A legend depicting the colors used for each type of rebar.
- Appropriate labels for everything, including the $x$– and $y$–axes.

Lastly, the numeric averages for each rebar type should be displayed as floating point values (with one decimal place) in the Python shell.
Specifics

- Because the data is all on one line and has numbers and text mixed together, you will have to read it as a string.

- The graphic should be well aligned and be as neat as possible.

- You may use the `round()` function to find the integer value of the averages for graphing purposes.

- Follow good programming practices, such as a good introductory comment, as in the first project. Write a one-line comment at the start of each section of your code.
Notes

• Besides being quite a bit longer than P1, there are quite possibly some unforeseen problems in this project. Start early and develop an algorithm to solve the problem. It is much easier to program when you have a good grasp of the solution!

• Work on the solution in parts. Be sure one part works (for example, getting the input correctly) before moving on to the next.

• Your project must work in Wing IDE 101 using Python 3 and graphics.py.

• As before, the name of your program file should be your last name and project number; e.g., gousieP2.py.

• To turn in the project, send your program as an attachment via email to mgousie@wheatoncollege.edu. Submit by 11:59:59 PM on the due date for the project to be on time.

• A printed version of your source code is due in class on October 9. Write/print and sign the Wheaton Honor Code Pledge on what you turn in: “I have abided by the Wheaton College Honor Code in this work.”

• Remember to save all of your work until your project is returned.

I think there is a world market for maybe five computers.
– Thomas Watson, IBM chairman, 1943