CS 101 – Second Python lab

Write short Python programs to solve these problems. Please work with a partner. Please note that I am here to help you, and if you have questions you should not hesitate to ask me. Please look at examples we have done in class and lab for inspiration as you do these problems. Enjoy!

Please create a folder called lab2 and do all of today’s work in that folder. For the following 4 problems, the names of the source files should be: q1.py, q2.py, q3.py and q4.py, respectively. Each source file should begin with a comment that identifies the problem number, your name(s) and the purpose of the program.

1. Suppose somebody is going to the post office to buy first-class stamps and postcards. Ask the user how many stamps and how many post cards are desired. Print the grand total cost of these items. You may assume that stamps are 45 cents each and post cards are 32 cents each. Your output should be a complete sentence like this: “The total cost is $ 3.28” Be sure your output includes the dollar sign. Do not be concerned about the number of decimal places. For example, if we ask for 10 post cards, then $ 3.2 (without the last zero) is acceptable.
2. Let’s do temperature conversion. First, ask the user whether they want to go from Fahrenheit to Celsius or from Celsius to Fahrenheit. After you obtain that information, then ask for the appropriate temperature, and then output the converted temperature. Note that in Python, when you want to get a number from the user you use the *input* function, but to get text from the user you use the analogous *raw\_input* function.
3. Ask the user to enter 5 numbers. Put these 5 numbers into a list. Output four things for the user: the sum of all 5 numbers, the maximum value, the minimum value, and how many values are positive (i.e. greater than zero). Note that you can accomplish this with one loop, rather than four loops.
4. Ask the user to enter a word, and output the number of vowels in the word. Assume that all the letters in the input are lowercase letters. Hint #1: To determine how many letters are in the word, you can use the built-in function called len. For example, if “word” is your variable containing a word, then len(word) will be the number of characters in the word. Hint #2: your if-statement for testing to see if a letter is a vowel will look something like the following, assuming that “c” is the name of a variable containing a single letter:

if c == ‘a’ or c == ‘e’ or c == ‘i’ or c == ‘o’ or c == ‘u’: