PRACTICE WITH DICTIONARIES

Working with a partner/group, use the following steps to solve each of the following problems.

(a) Plan your code on the white board (either on the classroom wall or on Zoom). Write out your entire program. Think about what errors might occur and how to fix them.

(b) Plan multiple test cases. What input will you send to your function? For each input, what value should be returned?

(c) *Only after you have completed steps (a) and (b) should you type your code in Python.*

(d) After you have typed your code, run your test cases. Does your code work? If not, how can you fix it?

1. In some dictionaries, the values are all integers. Write a function `allIntVals(d)` that accepts a dictionary `d` as a parameter and checks to see whether all of the values in the dictionary are integers. If they are, your function returns `True`; otherwise it returns `False`.

2. Write a function `sumValues(d)` that accepts a dictionary as a parameter. If dictionary `d` contains only integer values (call your function `allIntVals(d)`), then return the sum of the values. Otherwise, print an error message.

3. Write a function `merge(d1, d2)` that merges two dictionaries and returns the result. Any key that appears in `d1` or `d2` should appear in the returned dictionary. If a key appears in only one of `d1` or `d2`, then its value in the returned dictionary should be the same as its value in `d1` or `d2`. However, if a key appears in both `d1` and `d2`, then its value in the returned dictionary should be the sum of its values in `d1` and `d2`.

   For example, if `d1 = {'a':5, 'b':2}` and `d2 = {'a':3, 'c':4}`, then the returned dictionary should be `{'a':8, 'b':2, 'c':4}`.

   Make sure your function does not modify either or the dictionaries sent as parameters! You might want to use the dictionary `.copy()` method to make a copy of a dictionary.

4. **Bonus:** Write a function `wordfrequencies(text)` that accepts a string of text and uses a dictionary to count the frequencies of each word in the text. Remove non-alphabetic characters from the text before counting words. Then modify your code so that you can read in a (possibly large) text file and compute the frequencies of all words in the file.