CS 021 Lab – Strings

1. (analyze_sentence.py)

   Write a script that will ask the user to enter a sentence. The script should then report the number of words in the sentence and the average length of each word (hint: the split method will be helpful). The script should continue asking for sentences until the user provides a sentence with the word "quit" in it. The script should still analyze the sentence containing quit before exiting. Any capitalization of the word "quit" should be recognized as a command to quit the program.

   Note: if you have punctuation in your sentence such as commas or apostrophe's it is fine to count those characters in the length of the word they are paired with. You do not need to try to remove them before finding the length of the word. For example, the word I'll has a length of 4 because we count the apostrophe as well.

   Sample runs:

```
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: Hello, how are you doing today
That sentence contains 6 words with an average word length of 4.2
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: Are you excited for today's lab?
That sentence contains 6 words with an average word length of 4.5
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: this is kind of a weird program, I think
I'll quit now
That sentence contains 12 words with an average word length of 3.6
>>>

Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: Let's try this again
That sentence contains 4 words with an average word length of 4.2
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: I keep entering short words
That sentence contains 5 words with an average word length of 4.6
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: Perhaps I should be more verbose
That sentence contains 6 words with an average word length of 4.5
Please type a sentence. When you are done entering sentences, enter a
sentence containing the word quit: I think I'll just QUit instead
That sentence contains 6 words with an average word length of 4.2
>>>
```

2. (sort_input.py)

   Write a script that will ask the user to continuously enter input of any type (text or numbers). They will continue to enter input until they enter the letter q to quit. After they are done entering input, the program should print all the values they entered that only contain digits, and the sum of all of those values. The program will then display all the values they entered that only contained letters (no spaces or special characters). After that the program will display any remaining values that contained a mix of digits, letters, and special characters.

   You should not use try/except statements to try to determine which category the values fall into. You want to use our string testing methods covered on page 420 in the text book. Please note that negative numbers and numbers with a decimal place (such as -7 and 63.27) contain a mixture of numeric digits and special characters.

   HINT: make 3 lists, one for entries containing only digits, one for entries containing only letters and one for everything else. As you take input, put the user input into the appropriate list.

Sample runs:

```
Enter any value (numbers, text or a mix). Enter when q you are done entering
values: hello
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 42
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 76.5
Enter any value (numbers, text or a mix). Enter when you are done entering
values: -1
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 1337 5p34k
Enter any value (numbers, text or a mix). Enter when you are done entering
values: world
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 17
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 9
Enter any value (numbers, text or a mix). Enter when you are done entering
values: forty two
Enter any value (numbers, text or a mix). Enter when you are done entering
values: 30seven
Enter any value (numbers, text or a mix). Enter when you are done entering
values: q
You entered the following numbers:
42
17
9
The sum of those numbers is: 68
You entered the following words
hello
world
You entered the following values which contain a mix of numbers, letters,
and characters:
76.5
-1
1337 5p34k
forty two
30seven
>>>
```