Purpose: More complex functions

Learning outcomes: 1, 2 and 3

Time: submit before 5pm Friday of Week 8.

Resources: MyLO: lecture notes and tutorial materials

Description:

The pharmacist from task 6.1PP now has a more difficult problem. They have a collection of medicine bar codes that contains a mixture of numbers and letters. There's a secret 'checksum' that can be calculated by adding all the digits in a bar code together (ignoring the letters). They need your help to write a program to do this - the user will enter all the characters (letters and numbers) from a bar code and your program should print the checksum along with how many digits were found.

Task:

Write a function called `getChecksum` that takes one named parameter *`barcode`*. The function should then calculate the checksum by adding all the digits together that are found in the barcode, and it should return the checksum value to the caller as well as how many digits were found in the barcode. For example, if the input barcode is "abc456", the getChecksum will return the checksum value "15" and digits "3". **NOTE the function `getChecksum` does not print anything itself!**

In the main code, the user should be asked for a value for the requested barcode, and the `getChecksum` function is called with this data. The data **returned** by the function should then be printed to the screen with a suitable message. The user should then be asked if they want to run the program again (answer 'y') and the program should repeat the entire process until they answer 'n' to the *run again* prompt.

Example output:

```
Enter the barcode:abc
The checksum is 0 and 0 digits were entered

Do you want to run this again? (y/n):y

Enter the barcode:abc456
The checksum is 15 and 3 digits were entered

Do you want to run this again? (y/n):y

Enter the barcode:ab123def
The checksum is 6 and 3 digits were entered

Do you want to run this again? (y/n):y

Enter the barcode:aab11109x
The checksum is 12 and 5 digits were entered

Do you want to run this again? (y/n):n
Goodbye!
```

Hint

You **must** define the function `getChecksum` and it must have one parameter, `barcode`. Your main code will need a *while* loop that calls the `getChecksum` function repeatedly until the user decides they don't want to run it any more.

- Look at some of the String functions defined in the week 7 lecture - one in particular is very useful to identify individual numbers in a string..

- A function can return more than one data item by separating each item by a comma in the return statement. To *receive* the data, the caller can define a comma-separated list of variables on the left hand side of the assignment (=) operator
  e.g. `a,b,c = myFunction()` (if *myFunction* returns three items)
- The `getChecksum` function will need a *for* loop to examine each character in the supplied barcode

Submission Details

Upload the following to the MyLO submission folder for this task:

1. The source file (i.e. the text file containing your code)
2. A screenshot of the Python shell window that shows the **execution** results of the source code.

Assessment Criteria & Hints

A completed submission **must**:

1. Include comments about the program purpose and the author of the program (your name)
2. Define function(s) at the start of the program using the parameters specified and return the data specified
3. Use meaningful names for variables, starting with a lower case
4. Ask the user for the values of a barcode
5. Display the calculated checksum and how many digits were in the barcode
6. Ask the user to enter values until they answer 'n' to the "*Do you want to run this again?"* prompt
7. Submit both the source file and the screenshot