CS 115 - Introduction to Programming in Python

Lab 03

Lab Objectives: Functions

Notes:

- Upload your solutions as a single .zip file to the Lab03 assignment for your section on Moodle. You must use the following naming convention: Lab03_Surname_FirstName.zip where Surname is your family name and FirstName is your first name
- **You should not use lists, tuples, dictionaries in your solution.**
- For each of the functions below, you should include a docstring comment. The docstring should have the following format:

```
"""
Summary of what the function is for
Parameters:
param1 (param1 type): Description of param1
Returns:
type: variable/value
"""
```

Q1: Write a script, `Lab03_Q1.py`, that does the following:

    a. Write a function *sum_without_twenties()* that returns the sum of three integer arguments a, b, and c. However, do not include any integer as part of the sum if it is within the range [20, 29] (inclusive).

    b. Write a program that inputs three integers and displays their sum by using the *sum_without_twenties* function. The program will continue to take inputs until any negative number is entered.

Sample Run : *(User inputs are in red)*
```
Enter first integer: 14
Enter second integer: 25
Enter third integer: 18
Sum of 14 25 18 without twenties is 32

Enter first integer: 21
Enter second integer: 22
Enter third integer: 23
Sum of 21 22 23 without twenties is 0

Enter first integer: 12
Enter second integer: 45
Enter third integer: 30
Sum of 12 45 30 without twenties is 87

Enter first integer: 23
Enter second integer: -4
Enter third integer: 12
```

Q2: Write a script, *Lab03_Q2.py*, that does the following:

a. Write a function, *get_substring_positions()* that accepts two strings as arguments. It will return the number of the positions where they contain the same substring of length 2. For example, "docatzz" and "dobatz" should yield 3, since the "do", "at", and "tz" substrings appear in the same place in both strings.

b. Write a program to take a number of two strings and call the above function and display the result. The program will stop when the first string is an empty string.

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Sample Run: *(User inputs are in red)*

```
Enter first string: docatzz
Enter second string: dobatz
"docatzz" and "dobatz" have 3 positions where they contain
the same substrings of length 2

Enter first string: conversation
Enter second string: done
"conversation" and "done" have 1 positions where they contain
the same substrings of length 2

Enter first string: examination
Enter second string: discrimination
"examination" and "discrimination" have 0 positions where
they contain the same substrings of length 2

Enter first string:
Enter second string: finished
```

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Q3: Write a script, *Lab03_Q3.py*, that does the following:

a) Write a function called *getSuffix()*, that takes two int parameters, **number** and **sizeOfSuffix**, and returns an integer value that is the suffix of number having the specified number of digits, i.e. sizeOfSuffix.

   For example, getSuffix(12345, 3) returns the value 345 and getSuffix(1234567, 2) returns the value 67.

   Note: DO NOT use Strings in your solution and Math module.

b) Write a function called *getNoOfDigits()* that takes a single int parameter, **n**, and returns the number of digits in **n**. Even though it will be very inefficient, you MUST USE ONLY your getSuffix method (from part a above) to do this.

c. Write a program to input 3 integer numbers and the number of the digits of the suffix and return the suffix of each number and the number of digits in each number using the above two methods.

```
Sample Run: (User inputs are in red)

Enter an integer number: 34673
Enter the number of digits of suffix: 3
The suffix is: 673
The number of digits of 34673 is 5

Enter an integer number: 12
Enter the number of digits of suffix: 4
The suffix is: 12
The number of digits of 12 is 2

Enter an integer number: 1234
Enter the number of digits of suffix: 1
The suffix is: 4
The number of digits of 1234 is 4
```