

# Introduction to Computer Science (ICS 3U)

## Void Functions Assignment

Create a program to solve the following problem. Use void functions and single result functions whenever possible in order to break your program up into smaller, easier to understand sections. Save your programs in a folder called **Void Functions**.

1. Create a menu-driven program which have the user input a string of any length and allow them to do any or all of the following to that string:
  - Output the length of the string.
  - Output the number of words in the string.
  - Check to see if the word or last word in the phrase an "ing" or "ed" ending (ex. **running**, **closed**) and output the result.
  - Check to see if the entire string is a palindrome and output the result. A palindrome is a word that is the same outputted forward or backward (ex. madam).
  - The program should also allow the user to input a new string. (**Hint**: This is not a function - inputting data must be done in the calling program)
  - Count and output the occurrence of each capital and lower case letter in the word (ie. count how many a's there are, how many B's, etc.) (*Level 4*)
  - Exit the program.

Call your program **VoidFunctionOne.py**

2. Create a menu driven program which will prompt the user to input their name and two integers. It will then display a menu and have the user choose to do one or all of the following:
  - Output the sum, difference, product and quotient of the two integers;
  - Output the result of using the second integer as the exponent of the first (ie. if 3 and 5 where inputted, the computer would calculate  $3^5$ );
  - Output the reciprocal of both integers.
  - Output the integers between the two inputted integers inclusive (ie. including the two integers). For example, if the first integer was 5 and the second was 9, the output would be 5, 6, 7, 8, 9. If the first integer was 15 and the second was 11, the output would be 15, 14, 13, 12, 11. If the two integers are the same, an appropriate message should be outputted. Make sure the output is on the same line.

- Input two new integers (**Hint:** This is not a function - inputting data must be done in the calling program).
- Output the timetables in tabular form between the two integers (ie. if 3 and 5 were entered, the table would output 3x3, 3x4, 3x5, 4x3, 4x4, 4x5, 5x3, 5x4, 5x5 in a table). Use the example in the note on Void Functions as a starting point.
- View a pie chart displaying the relative size of each number between the two numbers as a total. The chart should include a title. (*Level 4*)
- Exit the program.

Call your program **VoidFunctionTwo.py**