

## SENG1000 – C/C++ PROGRAMMING

### MAJOR ASSIGNMENT 1 - DISPLAYING AND AVERAGING CHARACTERS

#### OVERVIEW

Write a program that displays characters and their averaged values.

#### GENERAL COURSE OBJECTIVES ADDRESSED IN THIS ASSIGNMENT

- Use header files and the main () function.
- Declare and initialize variables.
- Use formatting codes to output data types.
- Use arithmetic operators.
- Use logical operators.
- Use if statements.
- Use a loop.
- Use pre-existing functions.

#### ACADEMIC INTEGRITY AND LATE PENALTIES

- Link to [Academic Integrity Information](#)
- Link to [Late Policy](#)

#### EVALUATION

- The evaluation of this assignment will be done as detailed in the Marking lecture from Week 2.

#### PREPARATION

- Do Focused Assignment 2.
- View Week 2 videos.

#### REQUIREMENTS

##### DISPLAYING CHARACTERS & AVERAGES

- Display the alphabet on the screen, one letter on each line. Next to each letter, each line should also contain an average (obtained through the use of a [running total](#)) of all letters displayed in the left-hand column up to that point.
- You must use a running total to calculate the average. No other method is acceptable.
- The average should be displayed in a right-hand column as an integer if the current letter is your first initial and as a character otherwise.
- Don't worry about rounding or truncation of the average.
- Create a constant for your initial.

##### USER INPUT:

- There is no user input. Having user input will cap the mark at 40.

##### LOOPING:

- You must use a loop of some kind for displaying the required information.

#### DISPLAYING:

- Do not use more than three printf() (or other output) statements.
- The reason for this is that I don't want you handing in a solution with 26 printf() statements because you don't want to use a loop. Doing something like this will result in a mark of 0.

#### COMMENTING AND INDENTATION:

- You must have a file header comment similar to that found in the SET Coding Standards or the Course Notes. This requirement is the same as in Focused Assignment 2.

#### OTHER REQUIREMENTS:

- Use the SET Coding Standards (found on eConestoga) that are relevant.
- All variables must be declared within functions (i.e. it must not use global variables (covered later in the Scope and Style lecture)).
- Appropriate programming style as discussed in lecture and in the Course Notes must be used.
- **Do not have any input or output except as required by this assignment.**
- It is assumed that you will adhere to all course requirements detailed in the Course Notes readings so far in the course. **This requirement holds for all subsequent assignments.**
- Do not clear the screen (this requirement is true for all assignments).

#### CHECKLIST REQUIREMENTS

- Create a requirements checklist. This should contain the specific requirements from this assignment as well as any relevant requirements that have been covered in lecture or that are found in the SET Coding Standards or SET Submission Standards. Do it in whatever form you wish. Hand in your completed checklist in PDF form as checklist.pdf. Not having this checklist will result in a cap of 80 on your mark.

#### FILE NAMING REQUIREMENTS

- You must call your source file m1.cpp.
- You must call your checklist checklist.pdf.

#### SUBMISSION REQUIREMENTS

- Do not hand in any other source files besides those mentioned in the File Naming Requirements.
- Follow the instructions in the SET Submission Standards and the lecture on Submitting Assignments to submit your program. Submit both files in one submission to the correct Assignment folder.
- Once you have submitted your files, make sure that you've received the eConestoga e-mail confirming your submission. Do not submit that e-mail (simply keep it for your own records until you get your mark).

#### ADDITIONAL INFORMATION

- It is important to note that you can hand in a program that works perfectly and still get a failing mark because you don't follow the requirements.
- Sample output if your first name is Carlo:

a	a
b	a
c	98
d	b
e	c
f	c
g	d
h	d
i	e
j	e
k	f
l	f
m	g
n	g
o	h
p	h
q	i
r	i
s	j
t	j
u	k
v	k
w	l
x	l
y	m
z	m

- If your first name was Sam, the 98 would be replaced by a letter 'b' and the 'j' next to the 's' would be replaced by the ASCII value of the character 'j'.