

CSC 106 - SPRING 2016
THE PRACTICE OF COMPUTER SCIENCE
ASSIGNMENT 3
UNIVERSITY OF VICTORIA

Due: Tuesday, March 1st, 2016 at 11:00pm.

This assignment will be submitted electronically through `conneX` (as described in ‘Submission Instructions’ below). Do not submit a hard copy of your answers; paper submissions will not be marked. All code submissions must be your own work. However, you are permitted to use the posted Pep/8 code as the basis for your submissions if proper attribution is given.

Question 1: Computing Polynomials [10 marks]

Download the file `PQR.pep`, which contains a Pep/8 program that reads three values `P`, `Q` and `R` from the user, then prints a value `RESULT`. As provided, the program is missing some code. Modify the provided file so that the value of `RESULT` which is printed at the end of the program is equal to $3P + 2Q + R$. Submit the resulting file (still called `PQR.pep`) electronically to `conneX`.

Question 2: Finding the maximum [20 marks]

Examine the provided file `EnterNumbers.pep`, which reads two values `NUM1` and `NUM2` from the user, then prints the sum `NUM1 + NUM2`. Your task is to write a program, called `Max2.pep`, which reads two values from the user and prints the maximum of the two. Submit your program electronically to `conneX`.

Question 3: Multiplication [30 marks]

The Pep/8 processor does not contain a multiplication instruction. However, since there are addition instructions, it is possible to perform multiplication by repeated addition. This exercise focuses on the special case of multiplying numbers by 9 with repeated addition:

$$\underbrace{9 + 9 + \dots + 9}_n = 9n$$

Examine the file `Multiply9.pep`, which reads a value `INPUT` from the user, then computes and prints the value $9 \times \text{INPUT}$. The program is already functional (when the user enters a non-negative value), and uses a loop which repeatedly adds 9 to produce the final result.

Your task is to write a program `MultiplyYZ.pep` which reads two numbers y and z from the user, then prints out the product $y \times z$. Your code is not required to handle negative input values correctly (but it should be able to handle any values for y and z between 0 and 100). You may want to use the code in `EnterNumbers.pep` as the basis for your submission. Running your code should produce output formatted similar to the format of the example below (where values in blue represent user input).

```
Enter a number: 5
Enter a number: 6
Numbers entered: 5 6
Product: 30
```

Bonus (optional) [10 marks] You will receive 10 bonus marks if your submission for question 3 correctly handles multiplication when the input values y and z are in the range -100 to 100 .

Submission Instructions

All submissions for this assignment will be accepted electronically. Submit your three `.pep` files through the Assignments tab on `conneX`. You are permitted to delete and resubmit your assignment as many times as you want before the due date, but no submissions or resubmissions will be accepted after the due date has passed.

Ensure that each file contains a comment with your name and student number, and that the files for each question are named as follows:

- Question 1: `PQR.pep`
- Question 2: `Max2.pep`
- Question 3: `MultiplyYZ.pep`

If you do not name your files correctly, or if you do not submit them electronically, it will not be possible to mark your submission and you will receive a mark of zero.

After submitting your assignment, `conneX` will automatically send you a confirmation email. If you do not receive such an email, your submission was not received. If you have problems with the submission process, send an email to the instructor **before** the due date.