



Université d'Ottawa • University of Ottawa

Faculty of Engineering – Computer Science Department
CSI3120A: Programming Languages Concepts
Fall 2023 – Assignment 4
Due on Wednesday December 6th, 2023, at 8 pm

Exercise (5 points)

1. Write a program, in any programming language, that includes two subprograms, one that takes a single parameter and performs some simple operation and one that takes 20 parameters and performs the same simple operation. The main program must call these two subprograms many times, for example 2 billion times. Include in the program timing code to output the run time of the calls to each of the two subprograms. Run the program on your machine and output the amount of the time required by the two subprograms (**2 points**).
2. Draw the activation record of the main function and the first subprogram that takes one parameter (**1.5 points**).
3. How can you explain the difference in the execution time between the two subprograms (**1.5 points**)?

Please submit a readme file to give instructions how to execute the program.