

Lab 3 Problem 1

February 28, 2017

Activities to do-

1. Study the two alternative methods of working on the question after completing the second version.
2. Run both solutions using the timing framework provided and note down how long each method takes to process.
3. Now, using the same timing framework, run the code version that you created for Lab 1 (Problem 4). Report the difference between the performance between your code and the two versions of the solution codes.

Time Difference:

My solution:

Timer Resolution = 1 nanoseconds

Calibration time = 0 seconds and 1031 nanoseconds

The measured code took 0 seconds and 4294966929 nano seconds to run

Solution 1:

Timer Resolution = 1 nanoseconds

Calibration time = 0 seconds and 957 nanoseconds

The measured code took 0 seconds and 4294967071 nano seconds to run

Solution 2:

Timer Resolution = 1 nanoseconds

Calibration time = 0 seconds and 894 nanoseconds

The measured code took 0 seconds and 4294967113 nano seconds to run

(My solution) - (Solution1) = 142 nanoseconds

(My solution) - (Solution2) = 184 nanoseconds

4. Write an analysis why different versions of the solution code might be faster. Also provide an analysis why your code is slower or faster than the solution code(s).

Different versions on the solution code may vary in runtime speed due to addition computation by writing more or less conditional statements compared

to different solutions. In this case, my solution yielded a faster runtime result compared to both solutions, because instead of using a switch statement, my program only checks a total of three cases each run. Solution 2 involves less assignment operators but it involved two switch conditionals and an if-conditional statement. Solution 1 has 16 cases to check within the switch conditional with a total of 6 assignment operators, and thus does more computation.

5. Identify ways to improve your code (or the solution code, in case your code performs better).

To make Solution 1 and Solution 2 better, minimize the amount of computation involved in the program. One switch statement can involve multiple cases, for which the program has to check for each cases. Dividing the solution to several switch statements involves less statements; however, having multiple switch statements mean there are more computation involved. My program involves at worst case 5 conditional statements and at best 3 conditional statements, for which each operation is done in the conditional statement.