CPSC 479 Homework 3: Introduction to HPC

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Upload the program(s) on Canvas together with a description file (text, DOC or PDF) on how to execute it.

**Problem 1. [ 12 points]** An *inclusive scan* operation takes a binary associative operator , and an input array of n elements [x0, x1, ..., xn-1], and returns the output array

[x0,(x0 x1),...,(x0 x1 ...xn-1)]  
For example, if represents addition, then an inclusive scan operation on the input array   
[3 1 7 1 5 1 5 3] would return [3 4 11 12 16 17 23 26].

Consider that a very large array is made available to several processes and each process requests a positive integer amount of the array for exclusive use (like slicing bread). That number must be randomly generated by each process and must be odd.

Write a single program that displays the indexes of the array allocated to these processes. The index of the array starts at 1.

For example, if we have 8 processes and the request of the processes is [3 1 7 1 5 1 5 3] then process 0 will receive the array portion between index 1-3

process 1 will receive the array portion between index 4-4

process 2 will receive the array portion between index 5-11

process 3 will receive the array portion between index 12-12

process 4 will receive the array portion between index 13-17

process 5 will receive the array portion between index 18-18

process 6 will receive the array portion between index 19-23

process 7 will receive the array portion between index 24-26