Assignment 5 CS4745/6025 Fall 2017

Due: 9:00 am Friday November 17 electronically in Desire2Learn

Consecutive Prime Integers

Sometimes two consecutive odd integers are both prime. For example, the odd integers following 3, 5, and 11 are all prime numbers. However, the odd integer following 7 is not a prime number. For this assignment you will write a MPI program to determine, for all integers less than 1,000,000, the number of times that two consecutive odd integers are prime.

A sequential implementation is given in `consecPrime.c` in D2L. Your MPI implementation must use the SPMD structure, where each process computes an equal size (plus or minus one) chunk of consecutive iterations. Your program must have process 0 print the result. This approach will lead to load imbalance. To determine the degree of imbalance, each process times its execution, and these times are gathered into an array on process 0. Process 0 then prints the time for each process.

Report speedup for n=2, 4, 8 processes, where times are taken from the average of 5 runs.

What to submit: a pdf report with your code listing and experimental results and your source file. Please submit the pdf and source files separately.