CS474 Lab #3

Due 05/14/2016

What to do

Write a **data**-parallel program (all processors working on removing the multiple of the ***same*** prime) that finds out the number of primes that are less than 1000, 1,000,000, and 2,000,000 respectively using the Sieve of Eratosthenes method.

The rough steps are

1. Again define a constant SIZE and make it 20 initially for easy debugging.
2. Declare an array of int/short/char/bit of SIZE representing integers from 1 to SIZE.
3. Initialize the array to all 1's. This step can be done in parallel.
4. Looping through the array to remove the multiples of primes. The loop needs to go from 2 to square root of SIZE. Within each iteration, if the array element representing an integer that is the multiple of the current prime, set the array element to 0. Select a suitable method to parallelize the loop body.
5. Count the number of 1's still in the array.

Optional

Start with odd numbers only.

What to turn in

1. Then turn in the code with a one-page report, in MS Word, that analyzes the result with the calculation of speedup.

What are the things I will check?

1.	Documentation of code	20%
2.	Logic structure of your code,	20%
3.	Correctness,	40%
4.	Efficiency, and	10%
5.	Analysis	10%