Assignment 2

1. In Assignment 1 you were asked to write a parallel program to solve the Red/Blue computation problem and the processes are organized as a one dimensional torus. In the first part of this assignment you are asked to make some changes to the program you wrote for Assignment 1, that is, to solve the Red/Blue computation problem by a set of processes which are organized as a two dimensional torus.
   - § The processes are organized as a *p* by *q* 2D torus, assuming the total number of processes is *p*q*.
   - § Each process will hold a block of size *a*n/t* by *b*n/t* for *a* and *b* being greater than or equal to 0.
   - § Your program must produce correct results for *nprocs* being greater than or equal to one.

2. In the second part of this assignment you are asked to use Pthreads to write a program to find all prime numbers within a range from 2 to n using the Sieve of Eratosthenes.
   - § Your program needs to ask for two parameters as the inputs: the largest integer in the range and the number of thread used to solve the problem.
   - § Your program needs to output all the prime numbers to a file.
   - § Your parallel algorithm and implementation must consider the issue of load balancing.

Your submissions will be marked on accuracy of results, suitability of the parallelism applied, and quality of your reports.
The format of the reports will be the same as that specified in Assignment 1.

You MUST attempt this assignment individually.

Submission Requirements

Your submission must be made by **11:59pm on Friday, 27 May, 2015**.

1. Create **a tar file** which contains your **reports**, ***makefiles*** and **any source files (e.g., .c and .h files)**. **DO NOT INCLUD ANY OBJECT OR BINARY FILES.**

2. Submit *only* the **.tar** file.

NB: NO LATE SUMISSIONS WILL BE PERMITTED

Failure to follow these submission requirements can result in loss of marks.

Marking Scheme

Program for part 1	5
Program for part 2	8
Report Contents/Justification	4
Code Quality (algorithm efficiency, readability, portability, robustness, etc.)	3
Total	**20**