CSE 4392 Lab Assignments 3 & 4

Due August 8, 2002

Goals:

1. Understanding of pthreads programming.
2. Understanding of MPI programming.
3. Speed-up and efficiency evaluation.

Requirements:

1. Convert the program `2dclosest.c` that was sent by email to your `ketchup` account to a parallel pthreads program. Submit hardcopy of your program.
2. Execute your pthreads program on the Compaq systems (through the `student` queue) using 1, 2, and 4 threads for a random input file with 2,00,000 points. The program `randomPoints.c` that was emailed to you is useful for this. Submit hardcopy of your executions.
3. Convert the program `2dclosest.c` that was sent by email to your `ketchup` account to a parallel MPI program. Submit hardcopy of your program.
4. Execute your MPI program on the Linux systems using 1, 2, and 4 processes for a random input file with 1,00,000 points. Submit hardcopy of your executions.
5. Write a brief report discussing the speed-up and efficiency of your program on the Linux and Compaq systems

Getting Started:

1. The provided program determines the closest pair of points in 2-d in $\Theta(n \log n)$ time using the algorithm in section 35.4 of Cormen, Leiserson, & Rivest (1st ed.). A few pages from the classic text of Preparata & Shamos are also attached.
2. Your programs may be designed to work with just 2^k processes.