CS 525: Parallel Computing

Spring 1999

Problem Set 3: Programming in Threads

Due Date: Mar 23, 1999 in class

No late submissions will be accepted

1. Write a program that plays tic-tac-toe with you. User plays Xs and computer plays Os. Computer goes first. When trying to make a move, the computer must evaluate all positions possible from the current state and select the best one. In our case, we simply define the best position to be the one in which the computer wins in the minimum moves or the user wins in the maximum possible moves. Each board position is spawned as a new thread until the number of threads reaches a threshold k (this is parameter in the program).

   Implement this on a parallel machine (mentor.cc) and note the time taken to make moves for both serial (single threaded) and multithreaded versions of the program.

2. Implement a hash-join using threads (note: you need to lock on hashes.. and using single locks is bad).

3. Implement quick-sort using threads.