

CSE 7343 - Operating Systems and System Software

Assignment #2

Due Date: 2/5/2009

Preparation

Brush up your C even more with <http://www.box.net/shared/static/qgtm40rory.pdf>

Text Book Problems

Answer review questions (optional): 4.2, 4.6, 4.7, 4.14, 5.5, 5.11

Solve problems: 4.2, 4.7, 5.3, 5.6,

Programming Assignment: Multithreaded application

You will write a multithreaded program to sort a large integer array. Your application will have a main thread whose job is to read the data from a file into an array (a space or newline-separated list of positive integers) and delegate the sorting function to two threads. Each created thread will sort half of the array. When both child threads are done with the sorting, the parent thread will merge these two sorted subarrays and write the sorted array into a file. Child threads may use the same sort function (e.g., quicksort or the system call *qsort()*) or each may sort its portion of array using different sort algorithms.

Required: You have to use POSIX Pthread library.

Helpful URLs:

- <http://users.actcom.co.il/~choo/lupg/tutorials/handling-files/handling-files.html> (File handling)
- <http://answers.yahoo.com/question/index?qid=20080106061807AARf65o> (Reading an array from file)
- http://en.wikipedia.org/wiki/Sorting_algorithm#Summaries_of_popular_sorting_algorithms (Sorting algorithms)
- <http://users.actcom.co.il/~choo/lupg/tutorials/multi-thread/multi-thread.html> (Pthreads)