CS 441
Final Project
Functional Programming / Concurrency
Due Sunday night, Dec 9.

For your final project, you will carry out timing studies to demonstrate the effects of concurrent execution as a way of enhancing performance.

Write a program in Clojure that will read a text file containing unsigned integers (which will be provided later). Your program will read in a large collection of integers and put them into a list. Using code in your program (i.e. NOT calling a library routine), sort the integers into order, using either the quicksort or mergesort algorithm. For the first pass, carry this out in a single-threaded program. Then, using Clojure's parallelism options, repeat the sort of the original list, using 2, 4, 8, 16, and 32 threads. Repeat all sorts 5 times on the same hardware and report the average times. Do not count file access time as part of the sorting time. Plot the completion time as a function of the number of threads, and produce a short (1-2 page) document summarizing and explaining your results. The summary document should include charts or graphs as appropriate to summarize your data and support your findings.

Submit your Clojure code and summary document.