

University of Pittsburgh
Department of Computer Science

CS2001 – Research Topics in Computer Science

Assignment by Prof. Cho
(Due on Wednesday October 11)

NOTE: This assignment should be done by yourself. Do NOT share workload! No late submission is accepted.

1. Write a C program to implement quicksort to sort “int” type numbers. Implement a separate function “quicksort” and invoke it from main(), which prepares input data arrays.
2. Assume that your input is a reversely sorted numbers from 100 down to 1. The result will be 100 numbers in the increasing order, say, 1, 2, ..., 99, 100.
3. Your task is to figure out the number of memory accesses when you invoke “quicksort”. You can use any methods: pencil and paper, performance counters, profiling, simulation, etc. Note that the number of memory accesses is the number of memory instructions executed. Mainly focus on memory accesses due to data manipulations. If you wish, you can analyze stack references.
4. Submit your program and the methods you used to estimate the number of memory accesses. You have to justify your methods and results. If you expect errors, then determine the bounds.

DO NOT FORGET TO PUT YOUR NAME.
SUBMIT DIRECTLY TO SANGYEUN CHO'S MAILBOX:
Mailbox 276, 5th floor, SENNOTT SQUARE