CS471: Operating System Concepts
Fall 2006
(Lecture: TR 11:25-12:40 PM)
Homework #1
Points: 20
Due: September 7, 2006

Question 1 is from the course textbook (7th edition). Questions 2-5 refer to the programs in the Examples directory.

Question 1 [Points 3] Problem 4.4, page 147 (7th edition)

Question 2 [Points 4] Modify and run **fork1.c** program so that three generations of processes are created (instead of 2 in fork1.c). The original process prints its pid and its child pid. The child process prints its pid, its parent pid, and its child pid. The grandchild prints its pid and its parent id. Show the source listing and program output.

Question 3 [Points 5] Modify and run **thread1.c** in the following way. There is an array of 10 elements defined in the program. The elements of the array are:
[20 18 16 14 12 10 8 6 4 2]. Thread 1 adds the first two elements (i.e., 20, 18), Thread 2 adds the next two elements (i.e., 16, 14), …, Thread 5 adds the last two elements (4, 2). Finally, the sum of all the 10 elements is printed by the program.

Question 4 [Point 4] Run **threads2.c** several times and list the output for each case.

Question 5 [Point 4] Run **thread3.c**, show the output, and write a brief explanation of what the program does.