

CS 377 – Operating Systems

Homework 1

1. (10 pts) How is a microkernel different from a layered OS architecture? Which would you prefer as an OS designer and why?
2. (10 pts) What are the differences between a program, an executable, and a process?
3. (10 pts) Describe three ways of an OS switching from user mode to kernel mode.
4. (10 pts) What happens in a context switch? Do we want our operating systems to make many or few context switches? Explain your answer.
5. (10 pts) Describe what criteria you would use to evaluate a CPU scheduling algorithm. Then, according to your criteria, compare Shortest Job First scheduling with Round Robin scheduling.
6. (10 pts) What is the difference between user-level threads and kernel-level threads? Why would you prefer one over the other?