CSCI 4320 (Principles of Operating Systems), Fall 2004

Homework 1

Assigned: September 7, 2004.

Due: September 16, 2004, at 5pm.

Credit: 10 points.

1 Reading

Be sure you have read Chapter 1.

2 Problems

Answer the following questions. You may write out your answers by hand or using a word processor or other program, but please submit hard copy, either in class or in my mailbox in the department office.

1. (5 points) Writing an operating system that can operate without interference from faulty or malicious application programs is difficult if not impossible without certain hardware features. Name three such features and briefly explain how each contributes to the goal (of writing an operating system that can defend itself, so to speak).

2. (5 points) For each of the following instructions, say whether it should be executed only in kernel (i.e., supervisor) mode and briefly explain why.

   (a) Set the time-of-day clock.

   (b) Disable all interrupts.

   (c) Read the time-of-day clock.

   (d) Change the base and limit registers (assuming the memory-management scheme described on pp. 26–27).

   (e) Switch from user mode to supervisor mode.