CS3204 Operating Systems - Fall 2000
Instructor: Dr. Craig A. Struble
Homework 2

Assigned: Tuesday, Sep. 12, 2000 **Due:** Tuesday, Sep. 19, 2000

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1. *[5 pts.]* Recall that kernels are typically memory resident. Using a Linux or FreeBSD machine of your choice, use the `dmesg` command or look in the `/var/log/messages` and/or `/var/log/dmesg` files to calculate the memory allocated to the kernel at boot time. Include the relevant lines from the output or file(s) and approximate to the nearest kilobyte the amount of allocated memory.

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2. *[5 pts.]* Which of the four basic OS modules might **not** be required on a computer system where there is no multiprogramming? Why are the modules not required?

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3. *[5 pts.]* Exercise 3 in Nutt, Chapter 3. Your answer must be written concisely and in complete sentences.

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4. *[5 pts.]* Study the files `/usr/src/linux/arch/i386/kernel/traps.c` and `/usr/src/linux/arch/i386/kernel/entry.S` in Linux, or `/usr/src/sys/i386/i386/trap.c` and `/usr/src/sys/i386/i386/exception.s` in FreeBSD to see how Linux/FreeBSD initializes the trap table. Each operating system handles system calls through the trap table, but they also handle hardware traps resulting from execution errors. List 5 hardware traps handled by the trap mechanism (the names used in the source files are sufficient).

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5. *[5 pts.]* Exercise 7 in Nutt, Chapter 4. Your answer must be written concisely and in complete sentences.

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6. *[5 pts.]* Exercise 12 in Nutt, Chapter 4. Assume 2 start bits per byte are transmitted. Your answer must be written concisely and in complete sentences. **Note:** The term *baud* means bits per second.