Homework 1
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27 January 2003

You will not hand in the answers to this homework assignment. Instead, at the beginning of class on **3 February 2002** you will be asked to solve one of the problems as a closed notes, closed book quiz. The question to be solved will be randomly selected.

1. Name the major components of the OS, and briefly describe the functionality of each.

2. What is the difference between a process and a thread?

3. Explain how the mixture of I/O bound processes with CPU bound processes maximizes system utilization. Why is this more important in batch systems than it is on most computers sitting around in our department?

4. Why are main memory operations implemented as part of the kernel and not in user space?

5. Polling a device for when an operation completes is typically a bad idea because while polling, the CPU is not doing useful work. Nonetheless, this is not always true. Explain a circumstance when polling might be better than interrupts.

6. In your first project, you will need to manage access to some data structures shared among multiple threads. Briefly sketch how you can use the POSIX mutex operations to protect the data structure containing the current best tour of the TSP. Pseudocode is appropriate.