Announcements/Reminders

- Friday: exam 2; Same place, same time
- Homework 5 due the following week
- Want to see what your classmates have done for lab 3? Ben Anderson has set up a web page for this purpose:

  $http://fieryspoon.com/cs377/$

  Feel free to submit your own projects.

Exam Coverage

- Monitors (last part of Chapter 7)
- Deadlock (Chapter 8)
- Network Structures and RPC (Chapters 14 & 15)
- File Systems (Chapter 11)
- Memory Management (Chapter 9)
  - Contiguous Allocation
  - Basic Paging

Do's and Dont's

Do bring:

- Yourself
- One page of your OWN notes

Do not bring:

- Book
- Other class notes
- Electronic devices

Synchronization with Monitors

- What are the problems with semaphores?
- What are the essential components of a monitor?
- Use of condition variables.
- How are monitors different from semaphores?

Deadlock

- What is it?
- What are the necessary conditions?
- Mechanisms for the detection of deadlocks.
- Deadlock prevention.
- Deadlock avoidance & the Banker's algorithm.

Network Structures

- Why distributed systems?
- Different network models. What are their relative advantages/disadvantages?
- Naming and addressing. How are these accomplished?
- Routing. How is this accomplished?
- Connection strategies. Circuit vs packet vs message switching.
- Packet structures.
- Protocol layers: application, transport, network, link, physical.

Interprocess Communication

- Different modes of distributed computing: data migration, computation migration, and job migration.
- Client/server model of communication.
- Stream socket abstraction.
- Remote procedure call abstraction.
- What happens underneath the remote procedure call?

File Systems

- What is the file abstraction?
- What are properties of the file that the user can observe/manipulate?
- What information is stored by the OS during file access?
- File access methods: sequential versus random.
- File naming and directory structures.
- Referential naming: hard vs soft links.

File System Implementation

- Addressing bits on a disk: cylinders, sectors.
- Overhead in accessing data on a disk.
- Representing a file on a disk. File descriptors (inodes).
- Allocation of files to sectors on the disk. How to map from part of a file to a sector? Linked list vs indexed block vs hierarchically indexed blocks.
- Managing free space.
- Representation of directories.

Memory Management

- Relocation: static vs dynamic.
- Physical vs virtual addresses.
- Contiguous allocation (monolithic segments).
- Internal vs external fragmentation.
- Compaction: why? what are the choices?
- Basic paging (page tables, computing physical addresses)

Next Time

- Monday: Holiday
- Wednesday: Discussion and more exam preparation