

## Outline for May 30, 2008

*Reading: Text, §8, 9*

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1. Greetings and felicitations!
2. Disk directory
  - a. What blocks are in use, where files are, etc.
  - b. Free list implementations, bit maps
  - c. File maps: linked list, pairs
3. Allocation of Disk Blocks to Files
  - a. Contiguous allocation
  - b. Linked allocation
  - c. Indexed allocation
4. Network File System (NFS)
  - a. How it works
  - b. Protocol
  - c. Generation numbers
5. Deadlock
  - a. Resource manager, request, release
  - b. What is deadlock
  - c. Difference between it and starvation
  - d. Liberal, conservative, and serialization approaches to resource allocation
6. Resource types
  - a. Reusable
  - b. Consumable
7. How to Deal with Deadlock (Policies)
  - a. Ignore
  - b. Detection and recovery
  - c. Prevention: mutual exclusion, no preemption, circular wait, hold and wait
  - d. Avoidance
8. Deadlock Recovery
  - a. Breaking circular wait
  - b. Break no preemption (i.e., allow preemption)
9. Deadlock Prevention
  - a. Single-programming environment
  - b. Hierarchical ordering (ordered resource) policy
  - c. Acquire all resources before running
  - d. Maximum claim techniques
10. Deadlock Avoidance
  - a. Banker's Algorithm