

CS341 - Operating Systems

Study Guide for Exam #2

Spring 2004

- Process Synchronization (Chapter 7)
 - Critical Section problem
 - Software solutions to mutual exclusion
 - Hardware solutions to mutual exclusion (i.e., test-and-set instruction)
 - Semaphores - conceptual operation, actual implementation
 - Classic synchronization problems - readers-writers, producer-consumer
- Deadlocks (Chapter 8)
 - Necessary conditions for deadlock
 - Methods for handling deadlock - Prevention, Avoidance, Detection
 - Safety algorithm
 - recovery from deadlock
- Memory Management (Chapter 9)
 - Address Binding, linking, loading, dynamic vs static
 - Logical vs Physical addresses
 - Allocation schemes - advantages vs disadvantages
 - Contiguous Allocation - partitioning, allocation schemes
 - Segmentation
 - * Basic operations
 - * Translation Hardware
 - * Issues - protection, sharing, fragmentation
 - Paging
 - * Basic operations
 - * Translation Hardware (TLB)
 - * Issues - protection, sharing, fragmentation
- Virtual Memory - Demand Paging (Chapter 10)
 - What is it? How different from previous chapter?
 - Page fault handling process
 - Page replacement algorithms - optimal