CSC 501: Operating Systems

Final Review

Final Exam is Comprehensive

- Topics covered in lectures
- Papers discussed during my lectures will be tested
- Review your PAs
- Closed book/notes/discussion/cell phone/PDA

Format

- Question/Answering
  - Short questions
    - Basic concepts
    - Comparisons
  - Long questions
    - Complex concepts
    - Problem solving

Topic (before midterm)

- Lecture 0
  - Introduction to OS
  - Design Principles
- Lecture 1
  - Computer Architecture
  - OS Structures
- Lecture 2
  - Process vs. Thread
- Lecture 3
  - Process Lifecycle
  - Context Switching

- Lecture 4
  - Process Scheduling
  - Priority Inversion
- Lecture 5
  - Proc. Synchronization
  - Semaphore
- Lecture 6
  - Deadlock
- Lecture 7
  - Interrupts

Topics (after midterm)

- Memory Management
- I/O and Storage systems, File systems
- Distributed Systems
- Advanced Topics
  - Virtual machines/Xen
  - Multi-core
  - MapReduce
  - Cloud computing

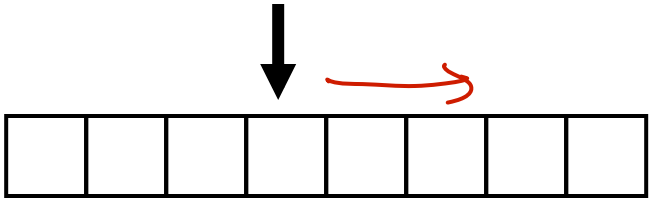
Sample Short questions

- What is the thrashing problem? When will thrashing happen?
- What is cloud computing? List three advantages of cloud computing.

Sample long questions: Multi-level Page Table

- Consider the following setting
  - 6-bit logical address size, 4-byte page size
  - Each page table entry takes 1 byte, total physical memory with 256 pages
  - A process allocates 10 pages, pages 0-4 in physical memory frames 128-132, page 5 not paged in, page 6-9 in frames 150-153. Its page table resides in contiguous frames starting from frame 16 (and up).
- Draw the page table for this process, and illustrate how logical address “011010” is mapped to physical frame.

Sample long questions: Disk Scheduling



Queue: 2 5 1 6

Calculate the seek distance under the following disk scheduling policies

1) FIFO
2) SSTF:
3) Scan
4) C-Scan
5) C-look

Conclusion

- Congratulations on surviving CSC 501
  - It's a tough course, but I hope you found it worthwhile
  - Your feedback through class evaluation appreciated!
- See you on Tuesday morning, May 1st
  - 8 – 11Am
- Good luck, and thanks for a great class!