Lecture 12: MidTerm Review (Mar 1, 2005) Yap

March 1, 2005

1 ADMIN

- Reminder that Midterm is on Thu Mar 3.

- This a closed book exam but you will be allowed a 8"x11" sheet of notes (you can write anything in any size on both sides of this sheet).

- Format of the midterm: Short Questions (multiple choice or single sentence answers), plus 2 longer questions.

2 Study Guide

- Programming Facts.

  We may ask some basic questions about C-programming, unix and Make program, especially issues related to our homework.

- Below, we will go over the assigned chapters for reading. But the *general rule* is that we will emphasize (1) whatever is actually lectured upon, and (2) whatever is asked in homework.

  That is why it is vital that you attend all lectures – attendence is not optional.

- Chapter 1: Intro to OS

  COMMENT: Light reading of historical background. Many of the themes here would be repeated in greater detail later!

  Some Study Questions:

  1. Question 15 (p.68), relocation.
  2. Question 18 (p.69), failure of fork, exec, unlink.
  3. Question 26 (p.69), unit conversions.

- Chapter 2: Processes and threads.

  SKIP: Sect.2.3.7 (monitor), Sect.2.3.8 (message passing), Sect.2.3.9 (barrier).

  COMMENT: Focus on Process and Thread Management, and Scheduling. Be familiar with mutex problem (+Peterson's solution). Read up on the Producer-Consumer Problem, Dining Philosophers Problem, Readers-Writers Problem, Sleeping Barber Problem.

  Some Study Questions:

  1. Question 16 (p.154), priority inversion.
  2. Question 22 (p.154), TSL alternative.
  3. Question 29 (p.155), fast food restaurant.
  4. Question 44 (p.157), Schedulability.

- Chapter 3: Deadlocks.

  SKIP Section 3.7 and beyond.

  COMMENT: Conditions for deadlock, Resource Graphs, Deadlock Detection Algorithm, Bankers Algorithm.

  Study Questions:

  1. Question 20 (p.187), safety.
  2. Question 28 (p.188), babboons.

- Chapter 4: Memory Management

  SKIP: Sect. 4.6. (Design Issues), Sect.4.7 (Implementation Issues). Skip most of Sect.4.8 (Segmentation), but do read Sect.4.8.3 (Intel Segmentation).

  COMMENT: Page replacement algorithms and Working Set Algorithms are key topics.

  1. Can you show an anomaly for FIFO page replacement where having 3 pages will cause more page faults than having 2 pages? (p.229)
  2. Question 7, p.264. Virtual page numbers and offset.
  3. Question 22, p.265. Comparing FIFO and LRU.
  4. Question 25, p.265. Aging.
  5. Question 29, p.266. Page replacement policies.