

Administrivia

- Review sheet for the final on the Web. Sample solutions for homeworks and midterm to be available later today (after class?).

Slide 1

Review — History, Overview, Hardware

- What hardware features help o/s "defend itself".
- System calls

Slide 2

Slide 3

Review — Processes, IPC, Scheduling

- Context switches.
- When synchronization is needed and how it can be done.

Slide 4

Review — Memory Management

- Different methods and which you would use (and how to decide).
- Size calculations, maybe.
- R and M bits in page table entries (when set/cleared, how used).
- Page replacement algorithms (esp. LRU, WSClock, aging) — “big picture” view.
- What happens on page fault.
- Thrashing, memory access.

Review — Filesystems

- Various ways of keeping track of which blocks are in which file — which is fastest? which helps avoid fragmentation?
- Sequential versus direct access.
- FAT versus i-nodes — memory requirements, what happens at shutdown.

Slide 5

Review — I/O

- Memory-mapped I/O versus I/O with special instructions.
- Programmed I/O versus interrupt-driven versus DMA.
- The four-layer scheme — what goes where, why you even want this
- Caching.

Slide 6

Slide 7

Review — Deadlocks, Security

- The “big picture” on deadlocks — when possible, how to avoid.
- The “big picture” on security.

Slide 8

Quotes of the Day/Week/?

- From a key figure in the early days of computing:
“As soon as we started programming, we found to our surprise that it wasn’t as easy to get programs right as we had thought. Debugging had to be discovered. I can remember the exact instant when I realized that a large part of my life from then on was going to be spent finding mistakes in my own programs.” (Maurice Wilkes: 1948)
- From someone in a discussion group for the Java programming language:
“Compilers aren’t friendly to anybody. They are heartless nitpickers that enjoy telling you about all your mistakes. The best one can do is to satisfy their pedantry to keep them quiet :)”

Minute Essay

- None — quiz.
- However, if you have time, now or later:

Over the course of the semester I've told several "war stories" — tales of woe that taught me (or someone) something. Do you have a favorite war story to tell? (I'll read these in class Monday unless you tell me not to.)

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