

EECS 211: Advanced System Software Lecture 12

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Lecture 12: Overview

- Assignment 5
 - User programs and system calls in Nachos
- Storage Management
 - I/O Systems

Assignment 5

- User programs and system calls in Nachos
 - Task 1: Implement exception handling and system calls
 - Implement `ExceptionHandler()`; handle 9 exceptions
 - Implement `SystemCall()`; handle 7 (out of 9) system calls
 - Task 2: Validate kernel using simple test programs
 - “good” programs: `Print.c`, `Reverse.c`, `Show.c`
 - “bad” programs: `MemError.c`, `FileError.c`, `IOError.c`
- Deliverables
 - brief explanation (in body of email)
 - `addrspace.h`, `addrspace.cc`, `exception.cc`
 - `Print.c`, `Reverse.c`, `Show.c`, `MemError.c`, `FileError.c`, `IOError.c`
 - Email to `doemer@uci.edu`
- Due
 - Wednesday, March 4, 2009, at 12pm (noon)

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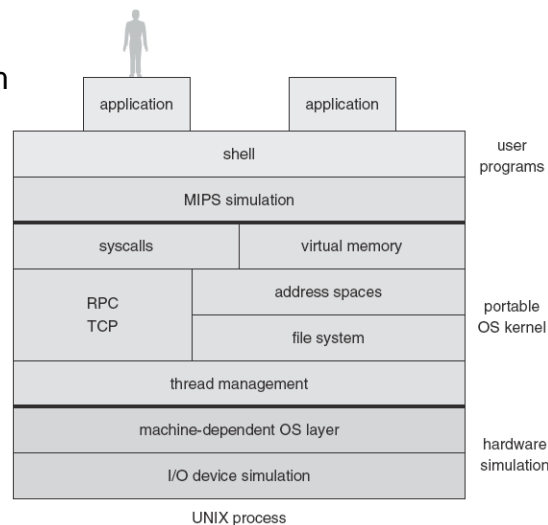
Assignment 5

- Overview
 - The Nachos System

- User code: emulated by MIPS simulator

- Kernel: normal (debug'able) Unix process

- I/O System: simulated by std. process I/O



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Assignment 5

- User Programs in Nachos
 - Interactive discussion, online code review
 - `cd code/userprog`
 - `./nachos`
 - `./nachos -x ../test/halt`
 - `./nachos -x ../test/shell`
 - `vim exception.cc`
 - `more ../machine/machine.h`
 - `more ../syscall.h`
 - `cd ../test`
 - `more halt.c`
 - `more sort.c`
 - `more shell.c`
 - `vim Makefile`

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Storage Management

- Note: We skip chapter 12, “Mass-Storage Structure”
 - Hard disks and RAID are devices
 - important, but still only devices
 - Modern hard disks handle physical block layout internally
 - cylinder, track, sector numbers (and bad blocks)
 - OS only sees logical block numbers
- Excerpts from chapter 13 of
“*Operating System Concepts*”, 8th Edition,
by A. Silberschatz, P. B. Galvin, G. Gagne,
John Wiley & Sons, 2009.
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