EECS 211: Advanced System Software Lecture 6

Rainer Dömer

doemer@uci.edu

The Henry Samueli School of Engineering
Electrical Engineering and Computer Science
University of California, Irvine

Lecture 6: Overview

- Assignment 1
  - Discussion: Introduction to Nachos
- Assignment 2
  - Discussion: Concurrency and Synchronization
- Assignment 3
  - Proper (!) use of Condition Variables
- Memory Management
  - Paging
  - Segmentation

Assignment 1

- Schedule
  - posted Jan 16, 2008 (week 2)
  - due Jan 23, 2008 (week 3)
- The Nachos System
  - Task 1: Read the overview chapter
    - Text book, Appendix D (contents online)
  - Task 2: Setup the software
    - Setup environment, copy tar-ball, unpack, compile, test
  - Task 3: *Understand* the Nachos system!
    - Read documents and source code
- Deliverable
  - log output when running the plain Nachos installation
  - Email to doemer@uci.edu

Assignment 2

- Schedule
  - posted Jan 16, 2008 (week 2)
  - due Jan 30, 2008 (week 4)
- The Nachos System
  - Task 1: Analyze the thread mechanism
    - file **`threads/threadtest.cc`** and others
  - Task 2: Implement locks and condition variables
    - files **`synch.h`** and **`synch.cc`**
- Deliverables
  - brief explanation of **`Yield`** and **`SWITCH`** functions
  - code for locks and condition variables
  - test run of using condition variables for alternating threads
  - Email to doemer@uci.edu

Assignment 3

- Schedule
  - posted Jan 31, 2008 (week 4)
  - due Feb 7, 2008 (week 5)
- The Nachos System
  - Task: Properly (!) use locks and condition variables
    - re-do Assignment 2, Task 2
    - use provided locks and condition variables
      - **`synch.h`** and **`synch.cc`**
    - implement *safe* scheduling of two alternating threads
      - *no change in execution order due to any* **`-rs`** *# option!*
- Deliverables
  - brief explanation of proper use of condition variables
  - code for safe **`threadtest.cc`**
  - 5 identical test runs for options **`-rs 1, 2, 3, 4, 5`**
  - Email to doemer@uci.edu

Memory Management

- Excerpts from chapter 8 of *"Operating System Concepts",* 7th Edition, by A. Silberschatz, P. B. Galvin, G. Gagne, John Wiley & Sons, 2005.
- Memory Management
  - Paging
  - Segmentation