CSE 306
Operating Systems
Introduction
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Paperwork

ываем издаю опросник о вашем ареале и мини-тест

Пожалуйста заполните и верните его перед тем как вы уйдете.
What is an OS?

- All of the stuff between you/your application and the hardware
  - Kernel
  - Device Drivers
  - API libraries
  - UI
- Our focus is mostly on the kernel, with some attention to the others
Why Operating Systems?

✦ Primary Goal: Demystify how computers work
  ✦ Lots of abstractions and heuristics between your application and the hardware
  ✦ A good computer scientist should understand what happens inside the system when one types a command
✦ Secondary: Learn how to write robust programs
  ✦ OSes like Linux have many users and work on a wide range of hardware
  ✦ Deal with subtle issues: concurrency, consistency, etc.
This course is coding intensive

- You should know C, or be prepared to remediate quickly
- You will learn basic, inline x86 assembly
- You must learn on your own/with lab partner

- You will write substantial applications in C
- Final project will involve substantial modifications to the Linux kernel
- Challenging, but a very marketable skill
Lab Teams

✧ Lab 1: Everyone does this lab alone
✧ Lab 2 and 3: May work with a partner or alone
✧ Lab 4: May work in a team up to 4 students
Lab Teams

- Can work alone, but better with help
  - No need to be a hero
- Choose your own partners
  - Course mailing list good for finding them
- Same for entire course
  - Changes only with instructor permission
  - For lab 4, you can only join with another team
Challenge Problems

- Each lab may include challenge problems, which you may complete for bonus points (generally 5—10 points out of 100)

  - Unwise to turn in a lab late to do challenge problems
  - Can complete challenge problems at any point in the semester---even on old labs

- Indicate any challenge problems completed in challenge.txt file
Administrative

✦ Syllabus, schedule, homework, etc. posted on course website

✦ www.cs.stonybrook.edu/~porter/courses/cse306/s15
Required Readings

- Primarily from the class textbook
- Should be completed before the lecture
- Required reading material may appear on the exams, even if not discussed in lecture
- Several recommended texts will be posted
  - Several free on SBU safari online site
  - Papers you can print out or read electronically
  - Others on reserve at library
Lectures

- Discuss and supplement reading material
- An important chance to clarify issues
  - Questions are encouraged!
- I expect you to arrive prepared to answer and ask questions about the reading material
- Everything in lectures may appear on the exams, even if not in the book
Prerequisites

- CSE 219 (CS III) or CSE 260 (CS B, Honors)
- CSE 220 (Systems-level Programming) or ESE 380 (Embedded Microprocessor Design I)
- The background courses are necessary
- In some cases, industry experience is ok
  - In-class quiz, due before you leave
    - If you can’t answer 50% of these questions you are not prepared
- C programming
- Basic Unix command-line proficiency
You should have learned C in the prerequisite courses.

If you have not and want to take the course, you should read “The C Programming Language” by Kernighan and Ritchie cover to cover this week.

And complete all exercises in the book.

If you can do this, you will be prepared to complete this course on schedule.
Course email list

- We will use Piazza this semester. Details will be posted on course website
- This is the primary announcement medium
- And for discussions about course work
  - Do not post code here or other solutions
  - Goal: Everyone can learn from general questions
- Material discussed on the mailing list can be an exam question
Other administrative notes

 대해서는 다음과 같습니다:

- Read syllabus completely
- Subscribe to the class mailing list
- 2 exams cover: lectures, labs, mailing list
- Every student will get a VM for lab work
  - You may use your own computer, staff can’t support it
- All staff email goes to cse306ta@cs.stonybrook.edu
  - Except private issues for instructor only
Special Offer!

✧ You can write your own exam questions

✧ Send them to me in advance of the test, if I like them, I will use them

✧ Do NOT share with anyone else
Academic Integrity

✧ I take cheating very seriously. It can end your career.

✧ In a gray area, it is your job to stay on right side of line

✧ Never show your code to anyone except your partner and course staff

✧ Never look at anyone else’s code (incl. other universities)

✧ Do not discuss code; do not debug each other’s code

✧ Acknowledge students that give you good ideas
Why do we care?

- Analogy: This is the programming dojo
  - If you don’t do your exercises, you will be unprepared for battle
  - You’ve wasted your money and both of our time
  - It brings dishonor on the dojo when you lose every battle
- Similarly, a lot of what I have to teach (and what will make you a valuable employee when you graduate) has no short cut
  - How do you learn to punch through a board?
  - You punch a board over and over until your fist goes through it
Productive Frustration

- One of the “meta skills” that distinguishes an excellent programmer is the ability to get un-stuck
  - Fixing a “heisenbug” has this property
- How do you learn this skill?
  - Get stuck on a hard, but solvable problem
  - Learn which strategies will get you moving again
- If you take a quick cheat, you won’t learn the skills to solve truly hard problems
Lateness

- Each student gets 72 late hours
  - List how many you use in slack.txt
  - Each day after these are gone costs a full letter grade on the assignment
  - If you work in a team, each member loses 1 hour for each hour late
- It is your responsibility to use these to manage:
  - Holidays, weddings, research deadlines, conference travel, Buffy marathons, release of the next Zelda game, etc.
- 3 Exceptions: illness (need doctor’s note), death in immediate family, accommodation for disability
Getting help

- TA’s will keep office hours (TBD)
- Instructor keeps office hours
  - Note that “by appointment” means more time available on demand
Questions?

✧ Remember:
  ✧ Hand-in survey
  ✧ Assignment coming out soon
  ✧ Reading assigned for Thursday