Introduction to Operating Systems

Chapter 0: Course information

Manuel

Fall 2017

Outline

Who?

Teaching team:

- Instructor: Manuel (charlem@sjtu.edu.cn)
- Teaching assistants:
  - Chengzhe (lcz0129@sjtu.edu.cn)
  - Yue (patrickyao@sjtu.edu.cn)

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Important notes:

- When contacting a TA for an important matter such as updating a grade cc the message to the instructor
- Add the tag [ve482] to the email subject, e.g.
  `Subject: [ve482] grade issue`
- Do not send large files ($>$ 2 MB) by email, instead use the "Large file upload" assignment on Canvas

When?

Course organisation:

- Lectures:
  - Tuesday 12:10 – 13:50
  - Thursday 12:10 – 13:50
  - Friday 8:00 – 9:40 (even weeks)
- Labs: TBA
- Office hours:
  - Tuesday 14:00 – 15:50
  - Thursday 14:00 – 15:50

Appointments outside of the office hours can be taken by email

What?

Main goals of this course:

- Understand the functioning of operating systems
- Become familiar with the internal structure of operating systems
- Be able to perform basic operating system coding

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Ultimate goal: be able to share in the development of an operating system

How?

Learning strategy:

- Course side:
  1. Getting the CPU to work properly
  2. Memory, Input/Output, and Filesystems
  3. Security and distributed systems

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Learning strategy:

- Course side:
  1. Getting the CPU to work properly
  2. Memory, Input/Output, and Filesystems
  3. Security and distributed systems
- Personal side:
  1. Read and write code
  2. Relate known strategies to new problems
  3. Perform extra research

Course outcomes

Detailed goals:

- Understand the general organisation of an OS
- Understand the hardware organisation
- Be familiar with the concept of process and threads
- Be able to solve common problems related to inter-process communication
- Be able to implement the most common scheduling algorithms
- Be able to analyse, prevent or solve deadlock issues
- Be familiar with the memory management and filesystems
- Be proficient at using Unix systems, spot particular parts of the kernel code, and write clean and well shaped code
- Understand the concept of security in an OS

Outline

Assignments, labs, and projects

Assignments:

- Total: 8
- Content: basic concepts, programming, scripting

Labs:

- Total: 7
- Content: improve programming skills

Projects:

- Total: 3
- Content: shell, thread communication, scheduling

Extra:

- OS as a hobby
- Linux kernel challenges

Grading policy

Grade weighting:

- Assignments: 12.5%
- Projects: 40%
- Labs: 7.5%
- Midterm exam: 20%
- Final exam: 20%

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Penalties:

- Late submission: -10% per day, not accepted after 3 days
- Dirty or hard to decipher: up to -10%

Final letter garde: the median will be in the range $[\![B, B+]\!]$

Honor Code

General rules:

- Not allowed:
  - Reuse the code/work from other students
  - Reuse the code/work from the internet
  - Give too many details on how to solve an exercise

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  - Give too many details on how to solve an exercise
- Allowed:
  - Reuse part of the code/work from the course/textbooks under the condition of quoting its origin
  - Share ideas and understandings on the course
  - Give hints (not solutions)

Honor Code

Documents allowed during the exams:

- A single A4 paper sheet with original handwritten notes on only one side
- A mono or bilingual paper dictionary

Group works:

- Every student in a group is responsible for his group submission
- If a student breaks the Honor Code, the whole group is sent to Honour Council

Special circumstances

Contact us as early as possible when:

- Facing special circumstances (e.g. full time work, illness. . .)
- Feeling late in the course
- Feeling to work hard without any result

Any late request will be rejected

Outline

Canvas

On Canvas platform:

- Course materials and assignments
- Announcements and notifications
- Polls

References

Places to find information:

- *Modern Operating Systems*, A. Tanembaum
- *Operating System Concepts*, A. Silberschatz
- OS creation: `http://wiki.osdev.org/Main_Page`
- Search the web

Key points

- Work regularly, do not wait the last minute/day
- Respect the Honor Code
- Go beyond what is taught
- Do not learn, understand
- Keep in touch with us
- Any advice/suggestions will be much appreciated

Thank you!