

Operating Systems  
CSE 3008  
Fall 2019  
Project

Objectives:

- The project is for consolidating the materials covered in the lectures by actually manipulating and analyzing a popular operating system, Linux. Also, the skill for team work is obtained through group project, where a team consists of three people (in a special condition two is also allowed).

Structure:

- Each team first selects a specific module of linux kernel such as communication, memory management, process scheduling, etc. Then analyze and understand the module. Draw a diagram showing the structure of the module, and put comments in each function. Also, explain how the function works, and how they are interrelated. The size of the module needs to be at least 200 lines. Try to modify the module, and compare the performance with the original module.

Project topics:

- Virtually any OS functions can be the topics.
- The candidate topics are process scheduling, memory management, I/O, file system, networking, security, etc. Select the topic which mostly attracts the team members.

Schedule & grading:

- |                                 |               |       |
|---------------------------------|---------------|-------|
| • Proposal                      | Oct. 1 (Tue)  | (20%) |
| • Progress report               | Nov. 12 (Tue) | (40%) |
| • Final report and presentation | Dec. 12(Thu)  | (40%) |

Report format:

- Proposal
  - About 2 pages
  - Here the module is selected and briefly explained.
  - Identify the role of each member
- Progress report
  - About 8 pages
  - Here the module is analyzed.
  - Diagram of the entire module is drawn and explanations of the functions are provided.
- Term paper
  - About 15 pages
  - The complete result of the project is reported. Clarify who handled which part of the job.
  - Structure of term paper
    - Cover page: title and name
    - Introduction
    - Diagram of entire module
    - Explanation of each function in the module
    - Improvement of the module and comparison
  - Submit the hard copy of the report in the class (Dec. 12), and the soft copy to the TA by Dec. 12.

Remarks:

- The report must be typed and printed using word processor, and it should be as precise as possible

- for identifying the rationale of the decision you made.
- All the notations and format follow the textbook for the sake of uniformity.
  - The design of previous phases can be changed in the subsequent phase, but the modification must be clearly identified and justified.
  - In each phase, submit the reports of the previous phases together.
  - Along with the hard copy of the final report, submit softcopy of all the source codes and reports.
  - For the final presentation, use PPT slides. Show the name of team members, diagram of the module, comparison between before and after the modification, and discussion. Each team will be given about three minutes, and each member is required to spend equal time of oral presentation. Submit the slide to the TA by Dec. 11 (Wed.) 24:00.