National Taiwan Normal University
Department of Computer Science and Information Engineering
CSC0016, Assignment 2

1. The assignment is 100 points.

2. Individual work.

3. Due at 12:00 10/6, i.e., Sunday noon.

4. Deliver a report in English or Chinese MS Word or PDF format, whose maximum size is 6 pages without reference and appendix.

1   Content

1. (100 points) This is an individual work. In the assignment, you will add a simple system call to a Linux kernel. The function of the system call is to print a message with the highest priority, `KERN_EMERG`, into the kernel log. The message has to include your school identification. After completing the system call, demonstrate it by calling it in user level. Therefore, you have to write a test program in user level as well. After executing the test program, run a command in user level to observe the kernel log.

   Deliver your assignment as a report in English or Chinese MS Word or PDF, whose maximum size is 6 pages without the reference and appendix. Submit the report to the course website before 12:00 10/6, i.e., Sunday noon. Your report have to include the following directions at least.

   - Hardware and software environment. Skip this part if it is identical to the previous assignment. Otherwise, describe it clearly.

   - Implementation steps. Sequentially record your steps and affected files, e.g., created or modified files or codes, which make the system call work. Briefly describe the goal of each step.

   - Demonstration. Show the user program and call it in user level. Then, run a command in user level and show a partial kernel log, at least 5 lines including the printed message from the system call, as a screen-shot.

   - Comments. At least one most challenging part and your solution, your comments, etc.

   - Any reference if you use.

   - Put full codes in the appendix with a tighter format.

2 Do

- Cover all directions in the report

- Record the implementation steps correctly and in a correct sequence

- Print a highest-priority message into the kernel log

- Put your school identification in the message

- Compile the modified kernel and make it runnable

- Write a user-level program to call the added system call

- Run a user-level command to observe the kernel log

- Include a screen-shot that show a partial kernel log, at least 5 lines, including the printed message

- Submit the report to the course website in time

3 Do not

- Lack any part of the report

- Miss any necessary step

- Print the message to a screen directly

- Forget putting your school identification in the message

- Use a message with other priority level

- Make a modified kernel that cannot be executed

- Run the system call in kernel level directly

- Miss a screen-shot that shows show a partial kernel log, at least 5 lines, including the printed message

- Delay or miss the submission