

**Lab report**

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| **Course**: | Operating System Principle |
| **Semester**: | 2nd semester of the academic year **2020-2021** |
| **Major**: | Software Engineering |
| **Class**: | 2019SE4 |
| **Student Name**: | 吴嘉诚 |
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| **Teacher:** | ZHAO, Hengjun (赵恒军) |

**School of Computer and Information Science**

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| Name | | C Programming, Makefile and Linux Kernel Module | | | |
| Date | | March 26, 2021 | Type | | √ Confirmatory  √ Design  □Comprehensive |
| 1. **Objective & Requirements**    1. Learn to do C programming with Linux    2. Learn how to write simple Makefile for managing C projects    3. Learn how to write, compile, and load linux kernel modules | | | | | |
| 1. **Experimental environment (**platform and software**)**   Virtualbox + Ubuntu (or other platform+linux system combinations) | | | | | |
| 1. **Experimental content and design** (Main Content, Procedure, Codes and Results) 2. Tasks for this lab    1. Task 1   Write, compile, and run a C program with at least two \*.c source files and one \*.h head file.   * 1. Task 2   Use Makefile and the make tool to compile your C program with at least two \*.c source files and one \*.h head file as in Task 1.   * 1. Task 3   Use kernel module to access the two values jiffies and HZ defined in the linux kernel:   * HZ: the frequency of timer interrupt * jiffies: the number of timer interrupt since system boot   Please output the value of jiffies twice, i.e. when the module is loaded and when the module is removed. Then based on the two jiffies and HZ, compute how long your kernel module stays in the kernel.   1. Please provide your procedure and source codes to perform the tasks.   Task1:   1. Write code:   2021-03-26 20-15-12 的屏幕截图   1. One step compile and Substep compile:   2021-03-26 20-08-48 的屏幕截图  Task2:   1. Make and clean by using Makefile:   2021-03-26 21-01-45 的屏幕截图  Task3:   1. Check module information and insert module   2021-03-26 21-47-56 的屏幕截图   1. Check the output in the memory buffer   2021-03-26 21-51-16 的屏幕截图   1. The homework part   2021-03-26 23-31-08 的屏幕截图 | | | | | |
| 1. **Result analysis and discussion**（Analysis of experimental results and summing up the harvest and the existing problems） 2. **The three tasks are successfully finished.**  5. **EXISTING PROBLEMS** 6. **Is cmake same as make? And what about QT’s qmake. I don’t know their key differences.** 7. **In Task3, i can only see my last prints-out message after my next insmod,rmmod,dmesg.** | | | | | |
| Comments & Evaluation | Content & Design (A-E) | | |  | |
| Procedure & Codes (A-E) | | |  | |
| Results (A-E) | | |  | |
| Analysis & Discussion (A-E) | | |  | |
| Score (A-E):  Feedback comments: | | | | |