SS201μ Introduction to the Internal Design of Operating Systems

Coding 1: System call

This assessment evaluates the following competencies:

- *OS101 – Understand and define what is an operating system* *(+1)*
- *OS121 – Understand how the user mode interacts with the kernel mode and explain the system call mechanism* *(+1)*
- *OS129 – Write a program directly using system calls to perform low-level operations* *(+2)*

You may also be assessed on the following competencies:

- *OS102 – Explain mechanisms used by the operating system to abstract the CPU, the memory and the input/output* *(+2)*
- *OS821 – Retrieve information about the data structures manipulated by Linux with system commands* *(+2)*

In this coding assessment, you have to write a C program that uses at least one system call to propose a service built on system calls proposed by the Linux operating system. To succeed the assessment, you have to:

1. Write a program using at least one system call, compile and run it on a Linux machine.

2. Explain to the teacher how you designed your program and how the system call(s) you selected are interacting with the operating system.

Optionally, depending on the system call(s) you selected, you may work on the two following elements:

- Explain which abstraction of the operating system your system call(s) is/are working on, should it be related to the CPU, the memory or input/output devices.

- Explain what data structures of the Linux operating system your system call(s) is/are interacting with and how they get modified after your system call(s) has/have been executed.