CSCE A321: Operating Systems
Fall 2019. Homework Assignment 4
Due: 12/01/2019 11:59PM AKST
Group assignment

This fourth (and final) assignment is about implementing a file-system using FUSE.

It is to be done by the same group of 2 students who already worked together on the other homework assignments. Even though it is a team assignment, the instructor will determine each student's **individual** involvement. **Your grade will depend on your individual performance.**

For this assignment, you have to turn in an archive containing:

- the source file `myfs.c`,
- the source file `implementation.c`,
- your report (as a PDF) explaining the design decisions you took, the choices you made, the issues you encountered and the testing campaign you ran.

1 The `myfs` file-system

Design and implement a file-system that runs in memory but that can be initialized from and written back to a backup-file. Your file-system will be based on FUSE, through the provided file `myfs.c`, which you do not need to modify. Implement the 13 operations that are stubbed out in the provided boilerplate file `implementation.c`. Read and follow the instructions given in these two files, in particular the ones in `implementation.c`. Even if you do not understand `myfs.c`, you should be able to implement a complete FUSE file-system with what is in `implementation.c`. Once everything works, run a testing campaign, playing with the different operations, their error conditions and, of course, with mounting, unmounting, remounting the file-system. Do not forget to cover different use-cases implying the `--size` option of `myfs`. Write a report where you describe the design decisions you took, the choices you made, the issues you encountered and the testing campaign you ran.

Start working early on this assignment. Don't get frustrated too easily. Go through a proper design phase before you start coding. It can be done: your instructor implemented everything he asks you for before he asked. Overall, it took him about 16h, testing included. Depending on your proficiency in C, debugging skills and knowledge of data-structures, it may take you longer.