CSCE A321: Operating Systems
Fall 2019. Homework Assignment 3
Due: 11/03/2018 02:00AM AKST
Group assignment

This third assignment is about utilizing the `mmap` and `munmap` system calls to implement the `malloc`, `calloc`, `realloc` and `free` family of functions for memory management.

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** involvment. **Your grade will depend on your individual performance.**

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

- the source file `memory.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 Memory management

Implement the `malloc`, `calloc`, `realloc` and `free` family of functions for memory management by completing what is needed in the provided boilerplate file `implementation.c`, using also the provided file `memory.c`. Base your implementation solely on the two system calls `mmap` and `munmap`. Read and follow the instructions given in these two files. Once everything works, run a testing campaign, as described in the two C files. 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. It can be done: your instructor implemented everything he asks you for before he asked. It took him about 6 hours, testing included. Depending on your proficency in C, debugging skills and knowledge of data-structures like ordered linked-lists, it may take you longer.