SysProg Assignment 2: Reverse Read

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Deadline: 26 September 2016 at 13:29

This assignment must be submitted via Blackboard.

Assignments *must* contain:

- One source file called `reverse.c`
- A text file called `README` containing your full name, student number and email address.

Assignments must be packaged into an uncompressed `tar` file with the files in the top-level directory (no subdirectories!). It is not necessary to submit a Makefile.

If your submission does not adhere to these requirements it will be refused!

A reverse program

Write a program called `reverse.c` which reads one file into memory, and outputs its content to the standard output in reverse order. That means for example, if the input file contains "qwertyuiop", then your program must output "poiuytrewq".

- The interface to this program **must** be the following:
  reverse *filename*
  The program must output the result on screen, with no other message. We will automate the tests of your programs, so if you change the interface your programs will fail the tests!
- Your program must work correctly with files of any reasonable size (at least 10-20 MB)
- Your program must work correctly with files containing binary contents. This means running:

```
reverse input > output
reverse output > output2
```

should result in `input` and `output2` being the same, byte-by-byte (check with `cmp input output2`). When you print extra output this no longer holds.

- For the sake of this exercise, you are not allowed to allocate memory buffers larger than 1 KiB. That means, if you call `malloc(x)`, then `x` must be lower or equal to 1024. Of course, to store large files you will be obliged to allocate several such buffers.
- You are not allowed to use intermediate files nor the functions `lseek()`,`fseek()`, or any similar function that changes the file position indicator, such as `rewind()` or `fsetpos()`. Also any of the `stat()` variants are forbidden.
- Finally, submissions that require modification of the normal stack size are not allowed.