

1. Assignment

Unbuffered I/O using system calls

Issue: 27.04.—Due: 04.05.

Exercise 3: `cat(1)` re-implementation

10 Points

During the lecture we have discussed an implementation of `cat(1)` using *standard* I/O routines. However, we have also discussed low level I/O using system calls. Rewrite the program `cat` presented in the lecture using *unbuffered* I/O system call routines. Experiment with the two versions and give an evaluation/explanation of their relative performance when compared to each other. Source code of the lecture version can be downloaded from the website¹.

Experimental analysis. It is sufficient to use the `time(1)` command. If you want to measure from inside your code `gettimeofday(2)` may be of interest to you. To generate test data you may use `dd(1)` in a statement such as `$ dd bs=1024 of=10mb if=/dev/random count=10000`.

Filing. Please make sure that your solution complies to the following criteria. These are set up to make the life of your tutors more comfortable ;-)

- Prepare an archive (`zip`, `tar`, ...) of all files that contribute to your solution.
- Make sure to only use open file formats, such as `txt`, `pdf`, `png`, `jpg` and the like and please have an eye on moderate file sizes.
- The archive should not contain compiled (executable or object) files.
- Name the archive according to, *e.g.*, `os_ass1_groupN.tar`
- Send the archive containing your solution as an attachment
To: `alexander.holupirek@uni-konstanz.de`, `stefan.klinger@uni-konstanz.de`
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Some compile warnings (see `cc(1)`)

- `-Wall`
Combination of common `-W` options. This enables all the warnings about constructions that some users consider questionable, and that are easy to avoid (or modify to prevent the warning), even in conjunction with macros. **Good practice to use at least this one.**
- `-Wextra`, `-Wshadow`, `-Wpointer-arith`, `-Wbad-function-cast`, `-Wconversion`
- `-Wmissing-prototypes`, `-Wmissing-declarations`, `-Wwrite-strings`

Have fun.

¹<http://www.inf.uni-konstanz.de/dbis/teaching/ss09/os/cat.c>