Lab2 Results

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A computer screen shot of a computer program

Description automatically generated

## Questions:

1. What are the system call names for getting the process’ userID, opening a file, closing a file, reading a file and writing a file?

* userID: getuid()
* opening a file: openat()
* closing a file: close()
* reading a file: read()
* writing a file: write()

1. How many system calls are (i.e. the count) involved with opening a file, closing a file, reading a file and writing a file? (count each individually. You may either use strace options to aid you in doing so, or you may use grep).

Each operation has 1 system call directly linked to it, i.e. for every openat, close, read and write operation you get 1 for every time you call the function. In this case since we opened 2 files, read the input file 2 times (since the file read once to completion and then once at EOF), wrote 5 times to the output file (could be reduced if we wanted to), and closed 2 files; we had 11 openat, read, write and close operations.

1. What was the value of the file descriptor of your read file? Should we expect it to change if you change the order of opening the input and output files?

The file descriptor of the read file (“input.txt”) was 3 (it is convention to start file descriptor numbering at 3 for C since 0, 1, and 2 are linked with the standard input, output and error respectively). If we change the order in which we read the files then we will absolutely get different file descriptor order, as it is done sequentially. In this case if we swap the order then the fd for “input.txt” would have been 4.

1. What was the value of the file descriptor of your write file? Should we expect it to change if you change the order of opening the input and output files?

The file descriptor of the read file (“output.txt”) was 4 (following the input file with fd=3). Once again, if we change the order in which we read the files then we will absolutely get different file descriptor order, as it is done sequentially. In this case if we swap the order then the fd for “output.txt” would have been 3.