CS6233: Introduction to Operating Systems

Assignment 2

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Strace Log

PFA the strace log when the program is run successfully.

lab2_strace_log.log

```
execve("./lab2_1.o", ["./lab2_1.o"], 0x7ffe625d18f0 /brk(NULL) = 0x5555d4719000 arch_prctl(0x3001 /mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7fd82ee45000 access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory) openat (AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3 newfstatat(3, "", {st_mode=S_IFREG|0644, st_size=53475, ...}, AT_EMPTY_PATH) = 0
                                                                                                                                                                                                                                                                               = 0x5555d4719000
 mmap(NULL, 53475, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7fd82ee37000
 close(3)
 mmap(0x7fd82edbd000, 360448, PROT_READ, Map_PRIVATE|Map_FIXED|Map_DENYWRITE, 3, 0x1bd000) = 0x7fd82edbd000
mmap(0x7fd82ee15000, 24576, PROT_READ|PROT_WRITE, Map_PRIVATE|Map_FIXED|Map_DENYWRITE, 3, 0x214000) = 0x7fd82ee15000
mmap(0x7fd82ee1b000, 52816, PROT_READ|PROT_WRITE, Map_PRIVATE|Map_FIXED|Map_ANONYMOUS, -1, 0) = 0x7fd82ee1b000
 mmap (NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7fd82ee34000
  arch_prct1(ARCH_SET_FS, 0x7fd82ee34740) = 0
  set_tid_address(0x7fd82ee34a10)
                                                                                                                   = 18202
  set_robust_list(0x7fd82ee34a20, 24)
 rseq(0x7fd82ee350e0, 0x20, 0, 0x53053053) = 0
mprotect(0x7fd82ee15000, 16384, PROT_READ) = 0
mprotect(0x5555d3058000, 4096, PROT_READ) = 0
 mprotect(0x7fd82ee7f000, 8192, PROT_READ) = 0
prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192munmap(0x7fd82ee37000, 53475) = 0
newfstatat(1, "", {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}, AT_EMPTY_PATH) = 0
 read(0, "lab2_test.txt\n", 1024) = 14
write(1, "Entered filename: lab2_test.txt\n", 32) = 32
write(1, "Enter filename: ", 16) = 16
read(0, "lab2_out.txt\n", 1024) = 13
write(1, "Entered filename: lab2_out.txt\n", 31) = 31
openat(AT_FDCWD, "lab2_test.txt", O_RDONLY) = 3
openat(AT_FDCWD, "lab2_out.txt\n", O_RDONLY) = 27
openat(AT_FDCWD, "lab2_out.txt\n", O_RDONLY) = 3
openat(AT_FDCWD, TABCOLY, O_RDONLY
  close(4)
  close (3)
 lseek(0, -1, SEEK_CUR)
                                                                                                                    = -1 ESPIPE (Illegal seek)
  exit_group(0)
  +++ exited with 0 +++
```

Answers

Answer 1.

Functionality	System Calls
Opening a file	open_at()
	newfstatat()
Closing a file	close()
Reading a file	read()
writing a file	write()

Answer 2.

Functionality	System Calls
Opening a file	2
Closing a file	1
Reading a file	1
writing a file	1

Answer 3.

The value of file descriptor for read file in my program was 3. Yes, we can expect the value of read file to change, for instance if write file was opened first then the value of file descriptor would have been different (4 in my case).

Answer 3.

The value of file descriptor for write file in my program was **4**. Yes, we can expect the value of write file to change, for instance if write file was opened first then the value of file descriptor would have been different (3 in my case).

Snapshot

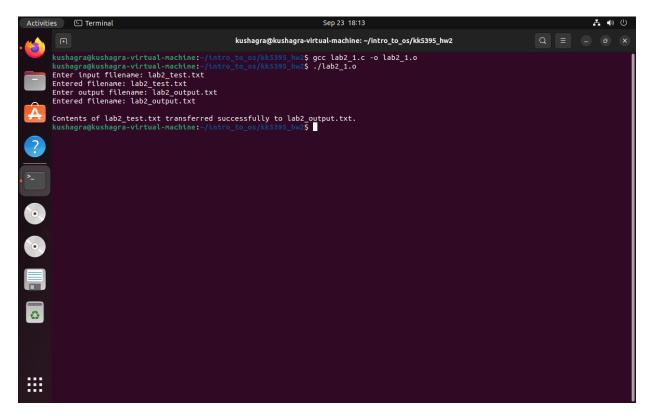


Figure 1: Snapshot