Московский Авиационный Институт

(Национальный Исследовательский Университет)

Институт №8 “Компьютерные науки и прикладная математика”

Кафедра №806 “Вычислительная математика и программирование”

**Лабораторная работа №8 по курсу**

**«Операционные системы»**

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Дата: 02.12.2023

Москва, 2023

**Постановка задачи**

Приобретение практических навыков диагностики работы программного обеспечения. При выполнении лабораторных работ по курсу ОС необходимо продемонстрировать ключевые системные вызовы, которые в них используются и то, что их использование соответствует варианту ЛР. По итогам выполнения всех лабораторных работ отчет по данной ЛР должен содержать краткую сводку по исследованию написанных программ.

**Общий метод и алгоритм решения**

Команда**strace** показывает все системные вызовы программы, которые та отправляет к системе во время выполнения, а также их параметры и результат выполнения. Но при необходимости можно подключиться и к уже запущенному процессу. Перед тем, как перейти к практике, разберем опции утилиты и ее синтаксис:

**$ strace опции команда аргументы**

В самом простом варианте **strace** запускает переданную команду с её аргументами и выводит в стандартный поток ошибок все системные вызовы команды. Давайте разберём опции утилиты, с помощью которых можно управлять её поведением:

* **-i** - выводить указатель на инструкцию во время выполнения системного вызова;
* **-k** - выводить стек вызовов для отслеживаемого процесса после каждого системного вызова;
* **-o** - выводить всю информацию о системных вызовах не в стандартный поток ошибок, а в файл;
* **-q** - не выводить сообщения о подключении о отключении от процесса;
* **-qq** - не выводить сообщения о завершении работы процесса;
* **-r** - выводить временную метку для каждого системного вызова;
* **-s** - указать максимальный размер выводимой строки, по умолчанию 32;
* **-t** - выводить время суток для каждого вызова;
* **-tt** - добавить микросекунды;
* **-ttt** - добавить микросекунды и количество секунд после начала эпохи Unix;
* **-T** - выводить длительность выполнения системного вызова;
* **-x** - выводить все не ASCI-строки в шестнадцатеричном виде;
* **-xx** - выводить все строки в шестнадцатеричном виде;
* **-y** - выводить пути для файловых дескрипторов;
* **-yy** - выводить информацию о протоколе для файловых дескрипторов;
* **-c** - подсчитывать количество ошибок, вызовов и время выполнения для каждого системного вызова;
* **-O** - добавить определённое количество микросекунд к счетчику времени для каждого вызова;
* **-S** - сортировать информацию выводимую при опции -c. Доступны поля time, calls, name и nothing. По умолчанию используется time;
* **-w** - суммировать время между началом и завершением системного вызова;
* **-e** - позволяет отфильтровать только нужные системные вызовы или события;
* **-P** - отслеживать только системные вызовы, которые касаются указанного пути;
* **-v** - позволяет выводить дополнительную информацию, такую как версии окружения, статистику и так далее;
* **-b** - если указанный системный вызов обнаружен, трассировка прекращается;
* **-f** - отслеживать также дочерние процессы, если они будут созданы;
* **-ff** - если задана опция -o, то для каждого дочернего процесса будет создан отдельный файл с именем имя\_файла.pid.
* **-I** - позволяет блокировать реакцию на нажатия Ctrl+C и Ctrl+Z;
* **-E** - добавляет переменную окружения для запускаемой программы;
* **-p** - указывает pid процесса, к которому следует подключиться;
* **-u** - запустить программу, от имени указанного пользователя.

**Strace**

**Lab1:**

maksim@caseofpeace:~/course2/sem3/os/lab1/build$ strace -f ./main

execve("./main", ["./main"], 0x7fff22506918 /\* 37 vars \*/) = 0

brk(NULL) = 0x55d1bf50d000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffeafc60e60) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd851990000

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=19407, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 19407, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fd85198b000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd85175f000

mprotect(0x7fd8517f9000, 1576960, PROT\_NONE) = 0

mmap(0x7fd8517f9000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7fd8517f9000

mmap(0x7fd85190a000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7fd85190a000

mmap(0x7fd85197a000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7fd85197a000

mmap(0x7fd851988000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd851988000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\"\233}\305\t\5?\344\337^)\350b\231\21\360"..., 68, 896) = 68

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd851537000

mmap(0x7fd85155f000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7fd85155f000

mmap(0x7fd8516f4000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7fd8516f4000

mmap(0x7fd85174c000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7fd85174c000

mmap(0x7fd851752000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd851752000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd851450000

mmap(0x7fd85145e000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7fd85145e000

mmap(0x7fd8514da000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7fd8514da000

mmap(0x7fd851535000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7fd851535000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd851430000

mmap(0x7fd851433000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7fd851433000

mmap(0x7fd85144a000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7fd85144a000

mmap(0x7fd85144e000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7fd85144e000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd85142e000

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd85142b000

arch\_prctl(ARCH\_SET\_FS, 0x7fd85142b740) = 0

set\_tid\_address(0x7fd85142ba10) = 24504

set\_robust\_list(0x7fd85142ba20, 24) = 0

rseq(0x7fd85142c0e0, 0x20, 0, 0x53053053) = 0

mprotect(0x7fd85174c000, 16384, PROT\_READ) = 0

mprotect(0x7fd85144e000, 4096, PROT\_READ) = 0

mprotect(0x7fd851535000, 4096, PROT\_READ) = 0

mprotect(0x7fd85197a000, 45056, PROT\_READ) = 0

mprotect(0x55d1be2c5000, 4096, PROT\_READ) = 0

mprotect(0x7fd8519ca000, 8192, PROT\_READ) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

munmap(0x7fd85198b000, 19407) = 0

getrandom("\x42\x37\xb5\x82\x0d\x02\x34\x55", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x55d1bf50d000

brk(0x55d1bf52e000) = 0x55d1bf52e000

futex(0x7fd85198877c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

**pipe2([3, 4], 0) = 0**

**pipe2([5, 6], 0) = 0**

**clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLDstrace: Process 24505 attached**

**, child\_tidptr=0x7fd85142ba10) = 24505**

[pid 24505] set\_robust\_list(0x7fd85142ba20, 24 <unfinished ...>

**[pid 24504] close(3 <unfinished ...>**

[pid 24505] <... set\_robust\_list resumed>) = 0

[pid 24504] <... close resumed>) = 0

**[pid 24504] close(6 <unfinished ...>**

**[pid 24505] close(4 <unfinished ...>**

[pid 24504] <... close resumed>) = 0

[pid 24505] <... close resumed>) = 0

[pid 24504] newfstatat(1, "", <unfinished ...>

**[pid 24505] close(5 <unfinished ...>**

[pid 24504] <... newfstatat resumed>{st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0x8), ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] <... close resumed>) = 0

[pid 24504] write(1, "Enter file name:\n", 17 <unfinished ...>

Enter file name:

**[pid 24505] dup2(3, 0 <unfinished ...>**

[pid 24504] <... write resumed>) = 17

[pid 24505] <... dup2 resumed>) = 0

[pid 24504] newfstatat(0, "", <unfinished ...>

**[pid 24505] dup2(6, 1 <unfinished ...>**

[pid 24504] <... newfstatat resumed>{st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0x8), ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] <... dup2 resumed>) = 1

[pid 24504] read(0, <unfinished ...>

[pid 24505] close(3) = 0

[pid 24505] close(6) = 0

**[pid 24505] execve("../build/child", ["../build/child"], 0x7ffeafc61038 /\* 37 vars \*/) = 0**

[pid 24505] brk(NULL) = 0x55ec835b7000

[pid 24505] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffecbddc820) = -1 EINVAL (Invalid argument)

[pid 24505] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f67f14b2000

[pid 24505] access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

[pid 24505] openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

[pid 24505] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=19407, ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] mmap(NULL, 19407, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f67f14ad000

[pid 24505] close(3) = 0

[pid 24505] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 24505] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 24505] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f67f1281000

[pid 24505] mprotect(0x7f67f131b000, 1576960, PROT\_NONE) = 0

[pid 24505] mmap(0x7f67f131b000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7f67f131b000

[pid 24505] mmap(0x7f67f142c000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7f67f142c000

[pid 24505] mmap(0x7f67f149c000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7f67f149c000

[pid 24505] mmap(0x7f67f14aa000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f67f14aa000

[pid 24505] close(3) = 0

[pid 24505] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 24505] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

[pid 24505] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 24505] pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

[pid 24505] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\"\233}\305\t\5?\344\337^)\350b\231\21\360"..., 68, 896) = 68

[pid 24505] newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 24505] mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f67f1059000

[pid 24505] mmap(0x7f67f1081000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7f67f1081000

[pid 24505] mmap(0x7f67f1216000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7f67f1216000

[pid 24505] mmap(0x7f67f126e000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7f67f126e000

[pid 24505] mmap(0x7f67f1274000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f67f1274000

[pid 24505] close(3) = 0

[pid 24505] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 24505] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 24505] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f67f0f72000

[pid 24505] mmap(0x7f67f0f80000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7f67f0f80000

[pid 24505] mmap(0x7f67f0ffc000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7f67f0ffc000

[pid 24505] mmap(0x7f67f1057000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7f67f1057000

[pid 24505] close(3) = 0

[pid 24505] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

[pid 24505] read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 24505] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

[pid 24505] mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f67f0f52000

[pid 24505] mmap(0x7f67f0f55000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7f67f0f55000

[pid 24505] mmap(0x7f67f0f6c000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7f67f0f6c000

[pid 24505] mmap(0x7f67f0f70000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7f67f0f70000

[pid 24505] close(3) = 0

[pid 24505] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f67f0f50000

[pid 24505] mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f67f0f4d000

[pid 24505] arch\_prctl(ARCH\_SET\_FS, 0x7f67f0f4d740) = 0

[pid 24505] set\_tid\_address(0x7f67f0f4da10) = 24505

[pid 24505] set\_robust\_list(0x7f67f0f4da20, 24) = 0

[pid 24505] rseq(0x7f67f0f4e0e0, 0x20, 0, 0x53053053) = 0

[pid 24505] mprotect(0x7f67f126e000, 16384, PROT\_READ) = 0

[pid 24505] mprotect(0x7f67f0f70000, 4096, PROT\_READ) = 0

[pid 24505] mprotect(0x7f67f1057000, 4096, PROT\_READ) = 0

[pid 24505] mprotect(0x7f67f149c000, 45056, PROT\_READ) = 0

[pid 24505] mprotect(0x55ec829b1000, 4096, PROT\_READ) = 0

[pid 24505] mprotect(0x7f67f14ec000, 8192, PROT\_READ) = 0

[pid 24505] prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

[pid 24505] munmap(0x7f67f14ad000, 19407) = 0

[pid 24505] getrandom("\x44\x17\x11\xbc\xb1\x8a\x13\x07", 8, GRND\_NONBLOCK) = 8

[pid 24505] brk(NULL) = 0x55ec835b7000

[pid 24505] brk(0x55ec835d8000) = 0x55ec835d8000

[pid 24505] futex(0x7f67f14aa77c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

[pid 24505] read(0, toji

<unfinished ...>

[pid 24504] <... read resumed>"toji\n", 1024) = 5

**[pid 24504] write(4, "toji\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 40) = 40**

**[pid 24505] <... read resumed>"toji\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 40) = 40**

[pid 24504] write(1, "Enter num:\n", 11 <unfinished ...>

Enter num:

**[pid 24505] openat(AT\_FDCWD, "toji", O\_WRONLY|O\_CREAT|O\_TRUNC, 0777 <unfinished ...>**

[pid 24504] <... write resumed>) = 11

[pid 24504] read(0, <unfinished ...>

[pid 24505] <... openat resumed>) = 3

[pid 24505] read(0, 100

<unfinished ...>

[pid 24504] <... read resumed>"100\n", 1024) = 4

**[pid 24504] write(4, "d\0\0\0", 4) = 4**

[pid 24504] read(5, <unfinished ...>

**[pid 24505] <... read resumed>"d\0\0\0", 4) = 4**

**[pid 24505] write(3, "d\0\0\0", 4) = 4**

**[pid 24505] write(1, "\1\0\0\0", 4 <unfinished ...>**

**[pid 24504] <... read resumed>"\1\0\0\0", 4) = 4**

[pid 24505] <... write resumed>) = 4

[pid 24504] read(0, <unfinished ...>

[pid 24505] read(0, 24

<unfinished ...>

[pid 24504] <... read resumed>"24\n", 1024) = 3

**[pid 24504] write(4, "\30\0\0\0", 4) = 4**

[pid 24505] <... read resumed>"\30\0\0\0", 4) = 4

[pid 24504] read(5, <unfinished ...>

**[pid 24505] write(3, "\30\0\0\0", 4) = 4**

**[pid 24505] write(1, "\1\0\0\0", 4 <unfinished ...>**

**[pid 24504] <... read resumed>"\1\0\0\0", 4) = 4**

[pid 24505] <... write resumed>) = 4

[pid 24504] read(0, <unfinished ...>

[pid 24505] read(0, 25

<unfinished ...>

[pid 24504] <... read resumed>"25\n", 1024) = 3

**[pid 24504] write(4, "\31\0\0\0", 4) = 4**

[pid 24505] <... read resumed>"\31\0\0\0", 4) = 4

[pid 24504] read(5, <unfinished ...>

**[pid 24505] write(3, "\31\0\0\0", 4) = 4**

**[pid 24505] write(1, "\1\0\0\0", 4 <unfinished ...>**

**[pid 24504] <... read resumed>"\1\0\0\0", 4) = 4**

[pid 24505] <... write resumed>) = 4

[pid 24504] read(0, <unfinished ...>

[pid 24505] read(0, 53

<unfinished ...>

[pid 24504] <... read resumed>"53\n", 1024) = 3

**[pid 24504] write(4, "5\0\0\0", 4) = 4**

[pid 24505] <... read resumed>"5\0\0\0", 4) = 4

[pid 24504] read(5, <unfinished ...>

**[pid 24505] write(1, "\0\0\0\0", 4 <unfinished ...>**

**[pid 24504] <... read resumed>"\0\0\0\0", 4) = 4**

[pid 24505] <... write resumed>) = 4

[pid 24504] write(1, "Finish processes\n", 17 <unfinished ...>

Finish processes

**[pid 24505] close(3 <unfinished ...>**

[pid 24504] <... write resumed>) = 17

[pid 24505] <... close resumed>) = 0

**[pid 24504] close(4) = 0**

[pid 24505] exit\_group(0 <unfinished ...>

**[pid 24504] close(5 <unfinished ...>**

[pid 24505] <... exit\_group resumed>) = ?

[pid 24504] <... close resumed>) = 0

[pid 24505] +++ exited with 0 +++

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=24505, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

lseek(0, -1, SEEK\_CUR) = -1 ESPIPE (Illegal seek)

exit\_group(0) = ?

+++ exited with 0 +++

**Lab2:**

10216 execve("./main", ["./main", "4", "6"], 0x7fffe72275b8 /\* 31 vars \*/) = 0

10216 brk(NULL) = 0x7fffcb479000

10216 arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffd3f9a4f0) = -1 EINVAL (Invalid argument)

10216 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d6040000

10216 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

10216 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

10216 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=22607, ...}, AT\_EMPTY\_PATH) = 0

10216 mmap(NULL, 22607, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7ff9d5ffa000

10216 close(3) = 0

10216 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

10216 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

10216 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

10216 mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff9d5dc0000

10216 mprotect(0x7ff9d5e5a000, 1576960, PROT\_NONE) = 0

10216 mmap(0x7ff9d5e5a000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7ff9d5e5a000

10216 mmap(0x7ff9d5f6b000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7ff9d5f6b000

10216 mmap(0x7ff9d5fdb000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7ff9d5fdb000

10216 mmap(0x7ff9d5fe9000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5fe9000

10216 close(3) = 0

10216 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

10216 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

10216 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

10216 mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff9d5cd0000

10216 mmap(0x7ff9d5cde000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7ff9d5cde000

10216 mmap(0x7ff9d5d5a000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7ff9d5d5a000

10216 mmap(0x7ff9d5db5000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7ff9d5db5000

10216 close(3) = 0

10216 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

10216 read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

10216 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

10216 mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff9d5cb0000

10216 mmap(0x7ff9d5cb3000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7ff9d5cb3000

10216 mmap(0x7ff9d5cca000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7ff9d5cca000

10216 mmap(0x7ff9d5cce000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7ff9d5cce000

10216 close(3) = 0

10216 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

10216 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

10216 pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

10216 pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

10216 pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\244;\374\204(\337f#\315I\214\234\f\256\271\32"..., 68, 896) = 68

10216 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

10216 pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

10216 mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff9d5a80000

10216 mmap(0x7ff9d5aa8000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7ff9d5aa8000

10216 mmap(0x7ff9d5c3d000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7ff9d5c3d000

10216 mmap(0x7ff9d5c95000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7ff9d5c95000

10216 mmap(0x7ff9d5c9b000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5c9b000

10216 close(3) = 0

10216 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5ff0000

10216 mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5a70000

10216 arch\_prctl(ARCH\_SET\_FS, 0x7ff9d5a70740) = 0

10216 set\_tid\_address(0x7ff9d5a70a10) = 10216

10216 set\_robust\_list(0x7ff9d5a70a20, 24) = 0

10216 rseq(0x7ff9d5a710e0, 0x20, 0, 0x53053053) = -1 ENOSYS (Function not implemented)

10216 mprotect(0x7ff9d5c95000, 16384, PROT\_READ) = 0

10216 mprotect(0x7ff9d5cce000, 4096, PROT\_READ) = 0

10216 mprotect(0x7ff9d5db5000, 4096, PROT\_READ) = 0

10216 mprotect(0x7ff9d5fdb000, 45056, PROT\_READ) = 0

10216 mprotect(0x7ff9d6050000, 4096, PROT\_READ) = 0

10216 mprotect(0x7ff9d6038000, 8192, PROT\_READ) = 0

10216 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=8192\*1024}) = 0

10216 munmap(0x7ff9d5ffa000, 22607) = 0

10216 getrandom("\x68\x27\x9e\x7b\xcf\xbf\x90\xb2", 8, GRND\_NONBLOCK) = 8

10216 brk(NULL) = 0x7fffcb479000

10216 brk(0x7fffcb49a000) = 0x7fffcb49a000

10216 futex(0x7ff9d5fe977c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

10216 brk(0x7fffcb4bb000) = 0x7fffcb4bb000

10216 mmap(NULL, 135168, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5a40000

10216 brk(0x7fffcb4ac000) = 0x7fffcb4ac000

10216 mmap(NULL, 266240, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d59f0000

10216 munmap(0x7ff9d5a40000, 135168) = 0

10216 mmap(NULL, 528384, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5960000

10216 munmap(0x7ff9d59f0000, 266240) = 0

10216 mmap(NULL, 1052672, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5850000

10216 munmap(0x7ff9d5960000, 528384) = 0

10216 mmap(NULL, 2101248, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5640000

10216 munmap(0x7ff9d5850000, 1052672) = 0

10216 mmap(NULL, 4198400, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d5230000

10216 munmap(0x7ff9d5640000, 2101248) = 0

10216 mmap(NULL, 8392704, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d4a20000

10216 munmap(0x7ff9d5230000, 4198400) = 0

10216 mmap(NULL, 16781312, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d3a10000

10216 munmap(0x7ff9d4a20000, 8392704) = 0

10216 brk(0x7fffcb87d000) = 0x7fffcb87d000

10216 brk(0x7fffcbc4d000) = 0x7fffcbc4d000

10216 mmap(NULL, 16003072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d4b20000

10216 rt\_sigaction(SIGRT\_1, {sa\_handler=0x7ff9d5b11870, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_ONSTACK|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7ff9d5ac2520}, NULL, 8) = 0

10216 rt\_sigprocmask(SIG\_UNBLOCK, [RTMIN RT\_1], NULL, 8) = 0

10216 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7ff9d3200000

10216 mprotect(0x7ff9d3201000, 8388608, PROT\_READ|PROT\_WRITE) = 0

10216 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

10216 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7ff9d3a00910, parent\_tid=0x7ff9d3a00910, exit\_signal=0, stack=0x7ff9d3200000, stack\_size=0x7fff00, tls=0x7ff9d3a00640}, 88) = -1 ENOSYS (Function not implemented)

**10216 clone(child\_stack=0x7ff9d39ffef0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tid=[10217], tls=0x7ff9d3a00640, child\_tidptr=0x7ff9d3a00910) = 10217**

10217 set\_robust\_list(0x7ff9d3a00920, 24 <unfinished ...>

10216 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

10217 <... set\_robust\_list resumed>) = 0

10217 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

10216 <... rt\_sigprocmask resumed>NULL, 8) = 0

10217 <... rt\_sigprocmask resumed>NULL, 8) = 0

10217 mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

10216 brk(0x7fffcc01e000 <unfinished ...>

10217 <... mmap resumed>) = 0x7ff9cb200000

10216 <... brk resumed>) = 0x7fffcc01e000

10217 munmap(0x7ff9cb200000, 14680064) = 0

10217 munmap(0x7ff9d0000000, 52428800) = 0

10217 mprotect(0x7ff9cc000000, 135168, PROT\_READ|PROT\_WRITE) = 0

10216 mmap(NULL, 16003072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d22b0000

10217 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

10217 madvise(0x7ff9d3200000, 8368128, MADV\_DONTNEED) = 0

10217 exit(0) = ?

10217 +++ exited with 0 +++

10216 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7ff9d1aa0000

10216 mprotect(0x7ff9d1aa1000, 8388608, PROT\_READ|PROT\_WRITE) = 0

10216 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

10216 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7ff9d22a0910, parent\_tid=0x7ff9d22a0910, exit\_signal=0, stack=0x7ff9d1aa0000, stack\_size=0x7fff00, tls=0x7ff9d22a0640}, 88) = -1 ENOSYS (Function not implemented)

**10216 clone(child\_stack=0x7ff9d229fef0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tid=[10218], tls=0x7ff9d22a0640, child\_tidptr=0x7ff9d22a0910) = 10218**

10218 set\_robust\_list(0x7ff9d22a0920, 24 <unfinished ...>

10216 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

10218 <... set\_robust\_list resumed>) = 0

10218 rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

10216 <... rt\_sigprocmask resumed>NULL, 8) = 0

10216 brk(0x7fffcc3ee000) = 0x7fffcc3ee000

10216 mmap(NULL, 16003072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9d0b50000

10218 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

10218 madvise(0x7ff9d1aa0000, 8368128, MADV\_DONTNEED) = 0

10218 exit(0) = ?

10218 +++ exited with 0 +++

10216 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7ff9d0340000

10216 mprotect(0x7ff9d0341000, 8388608, PROT\_READ|PROT\_WRITE) = 0

10216 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

10216 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7ff9d0b40910, parent\_tid=0x7ff9d0b40910, exit\_signal=0, stack=0x7ff9d0340000, stack\_size=0x7fff00, tls=0x7ff9d0b40640}, 88) = -1 ENOSYS (Function not implemented)

**10216 clone(child\_stack=0x7ff9d0b3fef0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tid=[10219], tls=0x7ff9d0b40640, child\_tidptr=0x7ff9d0b40910) = 10219**

10219 set\_robust\_list(0x7ff9d0b40920, 24 <unfinished ...>

10216 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

10219 <... set\_robust\_list resumed>) = 0

10216 <... rt\_sigprocmask resumed>NULL, 8) = 0

10219 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

10216 brk(0x7fffcc7bf000 <unfinished ...>

10219 <... rt\_sigprocmask resumed>NULL, 8) = 0

10216 <... brk resumed>) = 0x7fffcc7bf000

10216 mmap(NULL, 16003072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff9cb0b0000

10219 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

10219 madvise(0x7ff9d0340000, 8368128, MADV\_DONTNEED) = 0

10219 exit(0) = ?

10219 +++ exited with 0 +++

10216 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7ff9ca8a0000

10216 mprotect(0x7ff9ca8a1000, 8388608, PROT\_READ|PROT\_WRITE) = 0

10216 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

10216 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7ff9cb0a0910, parent\_tid=0x7ff9cb0a0910, exit\_signal=0, stack=0x7ff9ca8a0000, stack\_size=0x7fff00, tls=0x7ff9cb0a0640}, 88) = -1 ENOSYS (Function not implemented)

**10216 clone(child\_stack=0x7ff9cb09fef0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tid=[10220], tls=0x7ff9cb0a0640, child\_tidptr=0x7ff9cb0a0910) = 10220**

10220 set\_robust\_list(0x7ff9cb0a0920, 24 <unfinished ...>

10216 rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

10220 <... set\_robust\_list resumed>) = 0

10216 munmap(0x7ff9d4b20000, 16003072 <unfinished ...>

10220 rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

10216 <... munmap resumed>) = 0

10216 munmap(0x7ff9d22b0000, 16003072) = 0

10216 munmap(0x7ff9d0b50000, 16003072) = 0

10216 futex(0x7ff9cb0a0910, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 10220, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

10220 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

10220 madvise(0x7ff9ca8a0000, 8368128, MADV\_DONTNEED) = 0

10220 exit(0) = ?

10216 <... futex resumed>) = 0

10220 +++ exited with 0 +++  
 …………………………………………………………………………

**Lab3:**

maksim@caseofpeace:~/course2/sem3/os/lab3/src$ strace -f ./main

execve("./main", ["./main"], 0x7ffff1d4b568 /\* 31 vars \*/) = 0

brk(NULL) = 0x7fffd25fe000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffda1f5220) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f0b9a460000

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=22607, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 22607, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f0b9a46a000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f0b9a230000

mprotect(0x7f0b9a2ca000, 1576960, PROT\_NONE) = 0

mmap(0x7f0b9a2ca000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7f0b9a2ca000

mmap(0x7f0b9a3db000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7f0b9a3db000

mmap(0x7f0b9a44b000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7f0b9a44b000

mmap(0x7f0b9a459000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f0b9a459000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\244;\374\204(\337f#\315I\214\234\f\256\271\32"..., 68, 896) = 68

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f0b9a000000

mmap(0x7f0b9a028000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7f0b9a028000

mmap(0x7f0b9a1bd000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7f0b9a1bd000

mmap(0x7f0b9a215000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7f0b9a215000

mmap(0x7f0b9a21b000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f0b9a21b000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f0b99f10000

mmap(0x7f0b99f1e000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7f0b99f1e000

mmap(0x7f0b99f9a000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7f0b99f9a000

mmap(0x7f0b99ff5000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7f0b99ff5000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f0b99ef0000

mmap(0x7f0b99ef3000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7f0b99ef3000

mmap(0x7f0b99f0a000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7f0b99f0a000

mmap(0x7f0b99f0e000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7f0b99f0e000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f0b99ee0000

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f0b99ed0000

arch\_prctl(ARCH\_SET\_FS, 0x7f0b99ed0740) = 0

set\_tid\_address(0x7f0b99ed0a10) = 9570

set\_robust\_list(0x7f0b99ed0a20, 24) = 0

rseq(0x7f0b99ed10e0, 0x20, 0, 0x53053053) = -1 ENOSYS (Function not implemented)

mprotect(0x7f0b9a215000, 16384, PROT\_READ) = 0

mprotect(0x7f0b99f0e000, 4096, PROT\_READ) = 0

mprotect(0x7f0b99ff5000, 4096, PROT\_READ) = 0

mprotect(0x7f0b9a44b000, 45056, PROT\_READ) = 0

mprotect(0x7f0b9a4b2000, 4096, PROT\_READ) = 0

mprotect(0x7f0b9a4a8000, 8192, PROT\_READ) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=8192\*1024}) = 0

munmap(0x7f0b9a46a000, 22607) = 0

getrandom("\x99\x0b\x0b\x86\x4f\xe0\xa9\xd0", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x7fffd25fe000

brk(0x7fffd261f000) = 0x7fffd261f000

futex(0x7f0b9a45977c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

openat(AT\_FDCWD, "/dev/shm/mem", O\_RDWR|O\_CREAT|O\_NOFOLLOW|O\_CLOEXEC, 0666) = 3

ftruncate(3, 8) = 0

**mmap(NULL, 8, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7f0b9a4ae000**

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLDstrace: Process 9571 attached

, child\_tidptr=0x7f0b99ed0a10) = 9571

[pid 9571] set\_robust\_list(0x7f0b99ed0a20, 24 <unfinished ...>

[pid 9570] newfstatat(1, "", <unfinished ...>

[pid 9571] <... set\_robust\_list resumed>) = 0

[pid 9570] <... newfstatat resumed>{st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] execve("./child", ["./child"], 0x7fffda1f53f8 /\* 31 vars \*/ <unfinished ...>

[pid 9570] write(1, "Enter file name:\n", 17Enter file name:

) = 17

[pid 9570] newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

[pid 9570] read(0, <unfinished ...>

[pid 9571] <... execve resumed>) = 0

[pid 9571] brk(NULL) = 0x7fffde766000

[pid 9571] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffe6df7ca0) = -1 EINVAL (Invalid argument)

[pid 9571] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbf1cf70000

[pid 9571] access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

[pid 9571] openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

[pid 9571] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=22607, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] mmap(NULL, 22607, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fbf1cf7a000

[pid 9571] close(3) = 0

[pid 9571] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 9571] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 9571] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

**[pid 9571] mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbf1cd40000**

[pid 9571] mprotect(0x7fbf1cdda000, 1576960, PROT\_NONE) = 0

[pid 9571] mmap(0x7fbf1cdda000, 1118208, PROT\_READ|PROT\_EXEC, MAP**\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7fbf1cdda000**

**[pid 9571] mmap(0x7fbf1ceeb000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7fbf1ceeb000**

**[pid 9571] mmap(0x7fbf1cf5b000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7fbf1cf5b000**

**[pid 9571] mmap(0x7fbf1cf69000, 10432, PROT\_READ|PROT\_WRITE**, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fbf1cf69000

[pid 9571] close(3) = 0

[pid 9571] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 9571] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

[pid 9571] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 9571] pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

[pid 9571] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\244;\374\204(\337f#\315I\214\234\f\256\271\32"..., 68, 896) = 68

[pid 9571] newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 9571] mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbf1cb10000

[pid 9571] mmap(0x7fbf1cb38000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7fbf1cb38000

[pid 9571] mmap(0x7fbf1cccd000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7fbf1cccd000

[pid 9571] mmap(0x7fbf1cd25000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7fbf1cd25000

[pid 9571] mmap(0x7fbf1cd2b000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fbf1cd2b000

[pid 9571] close(3) = 0

[pid 9571] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 9571] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 9571] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbf1ca20000

[pid 9571] mmap(0x7fbf1ca2e000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7fbf1ca2e000

[pid 9571] mmap(0x7fbf1caaa000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7fbf1caaa000

[pid 9571] mmap(0x7fbf1cb05000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7fbf1cb05000

[pid 9571] close(3) = 0

[pid 9571] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

[pid 9571] read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

[pid 9571] newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbf1ca00000

[pid 9571] mmap(0x7fbf1ca03000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7fbf1ca03000

[pid 9571] mmap(0x7fbf1ca1a000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7fbf1ca1a000

[pid 9571] mmap(0x7fbf1ca1e000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7fbf1ca1e000

[pid 9571] close(3) = 0

[pid 9571] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbf1c9f0000

[pid 9571] mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbf1c9e0000

[pid 9571] arch\_prctl(ARCH\_SET\_FS, 0x7fbf1c9e0740) = 0

[pid 9571] set\_tid\_address(0x7fbf1c9e0a10) = 9571

[pid 9571] set\_robust\_list(0x7fbf1c9e0a20, 24) = 0

[pid 9571] rseq(0x7fbf1c9e10e0, 0x20, 0, 0x53053053) = -1 ENOSYS (Function not implemented)

[pid 9571] mprotect(0x7fbf1cd25000, 16384, PROT\_READ) = 0

[pid 9571] mprotect(0x7fbf1ca1e000, 4096, PROT\_READ) = 0

[pid 9571] mprotect(0x7fbf1cb05000, 4096, PROT\_READ) = 0

[pid 9571] mprotect(0x7fbf1cf5b000, 45056, PROT\_READ) = 0

[pid 9571] mprotect(0x7fbf1cfc2000, 4096, PROT\_READ) = 0

[pid 9571] mprotect(0x7fbf1cfb8000, 8192, PROT\_READ) = 0

[pid 9571] prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=8192\*1024}) = 0

[pid 9571] munmap(0x7fbf1cf7a000, 22607) = 0

[pid 9571] getrandom("\x4f\x8d\x78\xfe\x71\x87\x4d\xa0", 8, GRND\_NONBLOCK) = 8

[pid 9571] brk(NULL) = 0x7fffde766000

[pid 9571] brk(0x7fffde787000) = 0x7fffde787000

[pid 9571] futex(0x7fbf1cf6977c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

[pid 9571] openat(AT\_FDCWD, "/dev/shm/mem", O\_RDWR|O\_NOFOLLOW|O\_CLOEXEC) = 3

**[pid 9571] mmap(NULL, 8, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7fbf1cfbe000**

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.fmem\_semaphore", O\_RDWR|O\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] getrandom("\x45\xdd\x40\xd7\x37\xda\xde\x9a", 8, GRND\_NONBLOCK) = 8

[pid 9571] newfstatat(AT\_FDCWD, "/dev/shm/sem.1YJz3Y", 0x7fffe6df7950, AT\_SYMLINK\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.1YJz3Y", O\_RDWR|O\_CREAT|O\_EXCL, 0666) = 4

[pid 9571] write(4, "\0\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

[pid 9571] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 4, 0) = 0x7fbf1cfbd000

[pid 9571] link("/dev/shm/sem.1YJz3Y", "/dev/shm/sem.fmem\_semaphore") = 0

[pid 9571] newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] unlink("/dev/shm/sem.1YJz3Y") = 0

[pid 9571] close(4) = 0

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.mem\_semaphore1", O\_RDWR|O\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] getrandom("\x9c\x20\xc2\x2d\x0d\xe8\x98\xde", 8, GRND\_NONBLOCK) = 8

[pid 9571] newfstatat(AT\_FDCWD, "/dev/shm/sem.2RvZaW", 0x7fffe6df7950, AT\_SYMLINK\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.2RvZaW", O\_RDWR|O\_CREAT|O\_EXCL, 0666) = 4

[pid 9571] write(4, "\0\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

[pid 9571] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 4, 0) = 0x7fbf1cfbc000

[pid 9571] link("/dev/shm/sem.2RvZaW", "/dev/shm/sem.mem\_semaphore1") = 0

[pid 9571] newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] unlink("/dev/shm/sem.2RvZaW") = 0

[pid 9571] close(4) = 0

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.mem\_semaphore2", O\_RDWR|O\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] getrandom("\x38\xd1\xa8\x52\x4a\xa1\xe5\x29", 8, GRND\_NONBLOCK) = 8

[pid 9571] newfstatat(AT\_FDCWD, "/dev/shm/sem.miL3sW", 0x7fffe6df7950, AT\_SYMLINK\_NOFOLLOW) = -1 ENOENT (No such file or directory)

[pid 9571] openat(AT\_FDCWD, "/dev/shm/sem.miL3sW", O\_RDWR|O\_CREAT|O\_EXCL, 0666) = 4

[pid 9571] write(4, "\0\0\0\0\0\0\0\0\200\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0", 32) = 32

[pid 9571] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 4, 0) = 0x7fbf1cfb7000

[pid 9571] link("/dev/shm/sem.miL3sW", "/dev/shm/sem.mem\_semaphore2") = 0

[pid 9571] newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9571] unlink("/dev/shm/sem.miL3sW") = 0

[pid 9571] close(4) = 0

[pid 9571] futex(0x7fbf1cfbd000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9570] <... read resumed>0x7fffd26102c0, 1024) = ? ERESTARTSYS (To be restarted if SA\_RESTART is set)

[pid 9571] <... futex resumed>) = ? ERESTART\_RESTARTBLOCK (Interrupted by signal)

[pid 9570] --- SIGWINCH {si\_signo=SIGWINCH, si\_code=SI\_KERNEL} ---

[pid 9571] --- SIGWINCH {si\_signo=SIGWINCH, si\_code=SI\_KERNEL} ---

[pid 9570] read(0, <unfinished ...>

[pid 9571] restart\_syscall(<... resuming interrupted futex ...>toji

<unfinished ...>

[pid 9570] <... read resumed>"toji\n", 1024) = 5

[pid 9570] openat(AT\_FDCWD, "/dev/shm/filename", O\_RDWR|O\_CREAT|O\_NOFOLLOW|O\_CLOEXEC, 0666) = 4

[pid 9570] ftruncate(4, 40) = 0

**[pid 9570] mmap(NULL, 40, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 4, 0) = 0x7f0b9a4ad000**

[pid 9570] openat(AT\_FDCWD, "/dev/shm/sem.fmem\_semaphore", O\_RDWR|O\_NOFOLLOW) = 5

[pid 9570] newfstatat(5, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9570] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 5, 0) = 0x7f0b9a4ac000

[pid 9570] close(5) = 0

[pid 9570] openat(AT\_FDCWD, "/dev/shm/sem.mem\_semaphore1", O\_RDWR|O\_NOFOLLOW) = 5

[pid 9570] newfstatat(5, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9570] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 5, 0) = 0x7f0b9a4a7000

[pid 9570] close(5) = 0

[pid 9570] openat(AT\_FDCWD, "/dev/shm/sem.mem\_semaphore2", O\_RDWR|O\_NOFOLLOW) = 5

[pid 9570] newfstatat(5, "", {st\_mode=S\_IFREG|0644, st\_size=32, ...}, AT\_EMPTY\_PATH) = 0

[pid 9570] mmap(NULL, 32, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 5, 0) = 0x7f0b9a46f000

[pid 9570] close(5) = 0

[pid 9570] futex(0x7f0b9a4ac000, FUTEX\_WAKE, 1) = 1

[pid 9571] <... restart\_syscall resumed>) = 0

[pid 9570] write(1, "Enter num:\n", 11Enter num:

<unfinished ...>

[pid 9571] openat(AT\_FDCWD, "/dev/shm/filename", O\_RDWR|O\_NOFOLLOW|O\_CLOEXEC <unfinished ...>

[pid 9570] <... write resumed>) = 11

[pid 9570] read(0, <unfinished ...>

[pid 9571] <... openat resumed>) = 4

**[pid 9571] mmap(NULL, 40, PROT\_READ, MAP\_SHARED, 4, 0) = 0x7fbf1cf7f000**

[pid 9571] openat(AT\_FDCWD, "toji", O\_WRONLY|O\_CREAT|O\_TRUNC, 0777) = 5

[pid 9571] futex(0x7fbf1cfb7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY10

<unfinished ...>

[pid 9570] <... read resumed>"10\n", 1024) = 3

[pid 9570] futex(0x7f0b9a46f000, FUTEX\_WAKE, 1) = 1

[pid 9571] <... futex resumed>) = 0

[pid 9570] futex(0x7f0b9a4a7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9571] write(5, "\n\0\0\0", 4) = 4

[pid 9571] futex(0x7fbf1cfbc000, FUTEX\_WAKE, 1 <unfinished ...>

[pid 9570] <... futex resumed>) = 0

[pid 9571] <... futex resumed>) = 1

[pid 9570] read(0, <unfinished ...>

[pid 9571] futex(0x7fbf1cfb7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY20

<unfinished ...>

[pid 9570] <... read resumed>"20\n", 1024) = 3

[pid 9570] futex(0x7f0b9a46f000, FUTEX\_WAKE, 1) = 1

[pid 9571] <... futex resumed>) = 0

[pid 9570] futex(0x7f0b9a4a7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9571] write(5, "\24\0\0\0", 4) = 4

[pid 9571] futex(0x7fbf1cfbc000, FUTEX\_WAKE, 1 <unfinished ...>

[pid 9570] <... futex resumed>) = 0

[pid 9571] <... futex resumed>) = 1

[pid 9570] read(0, <unfinished ...>

[pid 9571] futex(0x7fbf1cfb7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY34

<unfinished ...>

[pid 9570] <... read resumed>"34\n", 1024) = 3

[pid 9570] futex(0x7f0b9a46f000, FUTEX\_WAKE, 1) = 1

[pid 9570] futex(0x7f0b9a4a7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9571] <... futex resumed>) = 0

[pid 9571] write(5, "\"\0\0\0", 4) = 4

[pid 9571] futex(0x7fbf1cfbc000, FUTEX\_WAKE, 1 <unfinished ...>

[pid 9570] <... futex resumed>) = 0

[pid 9571] <... futex resumed>) = 1

[pid 9571] futex(0x7fbf1cfb7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9570] read(0, 46

"46\n", 1024) = 3

[pid 9570] futex(0x7f0b9a46f000, FUTEX\_WAKE, 1) = 1

[pid 9571] <... futex resumed>) = 0

[pid 9570] futex(0x7f0b9a4a7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9571] write(5, ".\0\0\0", 4) = 4

[pid 9571] futex(0x7fbf1cfbc000, FUTEX\_WAKE, 1 <unfinished ...>

[pid 9570] <... futex resumed>) = 0

[pid 9571] <... futex resumed>) = 1

[pid 9570] read(0, <unfinished ...>

[pid 9571] futex(0x7fbf1cfb7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY2

<unfinished ...>

[pid 9570] <... read resumed>"2\n", 1024) = 2

[pid 9570] futex(0x7f0b9a46f000, FUTEX\_WAKE, 1) = 1

[pid 9570] futex(0x7f0b9a4a7000, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 0, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>

[pid 9571] <... futex resumed>) = 0

[pid 9571] futex(0x7fbf1cfbc000, FUTEX\_WAKE, 1 <unfinished ...>

[pid 9570] <... futex resumed>) = 0

[pid 9571] <... futex resumed>) = 1

[pid 9570] write(1, "Finish processes\n", 17 <unfinished ...>

**[pid 9571] munmap(0x7fbf1cfbc000, 32**Finish processes

<unfinished ...>

[pid 9570] <... write resumed>) = 17

[pid 9571] <... munmap resumed>) = 0

**[pid 9570] munmap(0x7f0b9a4ad000, 40) = 0**

[pid 9571] unlink("/dev/shm/sem.mem\_semaphore1" <unfinished ...>

[pid 9570] close(4) = 0

[pid 9570] unlink("/dev/shm/filename" <unfinished ...>

[pid 9571] <... unlink resumed>) = 0

**[pid 9571] munmap(0x7fbf1cfb7000, 32) = 0**

[pid 9571] unlink("/dev/shm/sem.mem\_semaphore2" <unfinished ...>

[pid 9570] <... unlink resumed>) = 0

**[pid 9570] munmap(0x7f0b9a4a7000, 32) = 0**

[pid 9570] unlink("/dev/shm/sem.mem\_semaphore1") = -1 ENOENT (No such file or directory)

[pid 9571] <... unlink resumed>) = 0

**[pid 9570] munmap(0x7f0b9a46f000, 32 <unfinished ...>**

**[pid 9571] munmap(0x7fbf1cfbe000, 8) = 0**

**[pid 9571] munmap(0x7fbf1cf7f000, 40) = 0**

[pid 9571] close(3 <unfinished ...>

[pid 9570] <... munmap resumed>) = 0

[pid 9570] unlink("/dev/shm/sem.mem\_semaphore2" <unfinished ...>

[pid 9571] <... close resumed>) = 0

[pid 9570] <... unlink resumed>) = -1 ENOENT (No such file or directory)

[pid 9571] close(4 <unfinished ...>

**[pid 9570] munmap(0x7f0b9a4ac000, 32) = 0**

[pid 9570] unlink("/dev/shm/sem.fmem\_semaphore" <unfinished ...>

[pid 9571] <... close resumed>) = 0

[pid 9571] unlink("/dev/shm/mem" <unfinished ...>

[pid 9570] <... unlink resumed>) = 0

**[pid 9570] munmap(0x7f0b9a4ae000, 8) = 0**

[pid 9570] close(3) = 0

[pid 9570] unlink("/dev/shm/mem") = -1 ENOENT (No such file or directory)

[pid 9571] <... unlink resumed>) = 0

[pid 9571] unlink("/dev/shm/filename") = -1 ENOENT (No such file or directory)

[pid 9570] lseek(0, -1, SEEK\_CUR <unfinished ...>

[pid 9571] close(5 <unfinished ...>

[pid 9570] <... lseek resumed>) = -1 ESPIPE (Illegal seek)

[pid 9570] exit\_group(0 <unfinished ...>

[pid 9571] <... close resumed>) = 0

[pid 9570] <... exit\_group resumed>) = ?

[pid 9571] exit\_group(0) = ?

[pid 9570] +++ exited with 0 +++

+++ exited with 0 +++

**Lab4:**

**STRACE (dynamic):**

maksim@caseofpeace:~/course2/sem3/os/lab4/src/build$ strace -f ./lab4

execve("./lab4", ["./lab4"], 0x7fffdefcb498 /\* 31 vars \*/) = 0

brk(NULL) = 0x7ffff1aff000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffff8c730e0) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f54eb010000

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v4/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v4", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v3/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v3", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v2/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v2", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/x86\_64", 0x7ffff8c72300, 0) = -1 ENOENT (No such file or directory)

**openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)**

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build", {st\_mode=S\_IFDIR|0755, st\_size=4096, ...}, 0) = 0

**openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3**

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=22607, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 22607, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f54eb01a000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2260296, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 2275520, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eade0000

mprotect(0x7f54eae7a000, 1576960, PROT\_NONE) = 0

mmap(0x7f54eae7a000, 1118208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9a000) = 0x7f54eae7a000

mmap(0x7f54eaf8b000, 454656, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ab000) = 0x7f54eaf8b000

mmap(0x7f54eaffb000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21a000) = 0x7f54eaffb000

mmap(0x7f54eb009000, 10432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f54eb009000

close(3) = 0

**openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)**

**openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3**

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\244;\374\204(\337f#\315I\214\234\f\256\271\32"..., 68, 896) = 68

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eabb0000

mmap(0x7f54eabd8000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7f54eabd8000

mmap(0x7f54ead6d000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7f54ead6d000

mmap(0x7f54eadc5000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7f54eadc5000

mmap(0x7f54eadcb000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f54eadcb000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eaac0000

mmap(0x7f54eaace000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7f54eaace000

mmap(0x7f54eab4a000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7f54eab4a000

mmap(0x7f54eaba5000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7f54eaba5000

close(3) = 0

**openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3**

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=125488, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 127720, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eaaa0000

mmap(0x7f54eaaa3000, 94208, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7f54eaaa3000

mmap(0x7f54eaaba000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1a000) = 0x7f54eaaba000

mmap(0x7f54eaabe000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1d000) = 0x7f54eaabe000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f54eaa90000

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f54eaa80000

arch\_prctl(ARCH\_SET\_FS, 0x7f54eaa80740) = 0

set\_tid\_address(0x7f54eaa80a10) = 9803

set\_robust\_list(0x7f54eaa80a20, 24) = 0

rseq(0x7f54eaa810e0, 0x20, 0, 0x53053053) = -1 ENOSYS (Function not implemented)

mprotect(0x7f54eadc5000, 16384, PROT\_READ) = 0

mprotect(0x7f54eaabe000, 4096, PROT\_READ) = 0

mprotect(0x7f54eaba5000, 4096, PROT\_READ) = 0

mprotect(0x7f54eaffb000, 45056, PROT\_READ) = 0

mprotect(0x7f54eb063000, 4096, PROT\_READ) = 0

mprotect(0x7f54eb058000, 8192, PROT\_READ) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=8192\*1024}) = 0

munmap(0x7f54eb01a000, 22607) = 0

getrandom("\x7f\x8d\x3e\x91\xaf\x39\xac\x56", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x7ffff1aff000

brk(0x7ffff1b20000) = 0x7ffff1b20000

futex(0x7f54eb00977c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

**openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libGCF.so", O\_RDONLY|O\_CLOEXEC) = 3**

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=16184, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 16464, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eaa70000

mmap(0x7f54eaa71000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f54eaa71000

mmap(0x7f54eaa72000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f54eaa72000

mmap(0x7f54eaa73000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f54eaa73000

close(3) = 0

mprotect(0x7f54eaa73000, 4096, PROT\_READ) = 0

**openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libEXP.so", O\_RDONLY|O\_CLOEXEC) = 3**

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15944, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 16448, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f54eaa60000

mmap(0x7f54eaa61000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f54eaa61000

mmap(0x7f54eaa62000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f54eaa62000

mmap(0x7f54eaa63000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f54eaa63000

close(3) = 0

mprotect(0x7f54eaa63000, 4096, PROT\_READ) = 0

newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

write(1, "Enter command: ", 15Enter command: ) = 15

newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

read(0, 1

"1\n", 1024) = 2

write(1, "Enter a and b: ", 15Enter a and b: ) = 15

read(0, 36 78

"36 78\n", 1024) = 6

write(1, "GCF(36, 78) = 6\n", 16GCF(36, 78) = 6

) = 16

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 0

"0\n", 1024) = 2

write(1, "Mode changed: Second\n", 21Mode changed: Second

) = 21

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 1

"1\n", 1024) = 2

write(1, "Enter a and b: ", 15Enter a and b: ) = 15

read(0, 97 67

"97 67\n", 1024) = 6

write(1, "GCF(97, 67) = 1\n", 16GCF(97, 67) = 1

) = 16

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 2

"2\n", 1024) = 2

write(1, "Enter x: ", 9Enter x: ) = 9

read(0, 4

"4\n", 1024) = 2

write(1, "Exp(4) = 2.70833\n", 17Exp(4) = 2.70833

) = 17

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 0

"0\n", 1024) = 2

write(1, "Mode changed: First\n", 20Mode changed: First

) = 20

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 2

"2\n", 1024) = 2

write(1, "Enter x: ", 9Enter x: ) = 9

read(0, 6

"6\n", 1024) = 2

write(1, "Exp(6) = 2.52163\n", 17Exp(6) = 2.52163

) = 17

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, "", 1024) = 0

write(1, "Finish work\n", 12Finish work

) = 12

munmap(0x7f54eaa70000, 16464) = 0

munmap(0x7f54eaa60000, 16448) = 0

exit\_group(0) = ?

+++ exited with 0 +++

**STRACE(static)**

maksim@caseofpeace:~/course2/sem3/os/lab4/src/build$ strace -f ./example

execve("./example", ["./example"], 0x7fffe93375f8 /\* 31 vars \*/) = 0

brk(NULL) = 0x7fffbfb71000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffc6bd3920) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7febb11d0000

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v4/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v4", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v3/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v3", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v2/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/glibc-hwcaps/x86-64-v2", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/avx512\_1", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/haswell", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/avx512\_1", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/tls", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/avx512\_1", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/haswell", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/avx512\_1", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/x86\_64/libEXP.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

newfstatat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/x86\_64", 0x7fffc6bd2b40, 0) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libEXP.so", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15944, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 16448, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb11c0000

mmap(0x7febb11c1000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7febb11c1000

mmap(0x7febb11c2000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7febb11c2000

mmap(0x7febb11c3000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7febb11c3000

close(3) = 0

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libGCF.so", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=16184, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 16464, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb11b0000

mmap(0x7febb11b1000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7febb11b1000

mmap(0x7febb11b2000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7febb11b2000

mmap(0x7febb11b3000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7febb11b3000

close(3) = 0

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -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=23887, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 23887, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7febb11da000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=2522584, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 2539968, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb0f40000

mprotect(0x7febb0fdc000, 1830912, PROT\_NONE) = 0

mmap(0x7febb0fdc000, 1249280, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9c000) = 0x7febb0fdc000

mmap(0x7febb110d000, 577536, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1cd000) = 0x7febb110d000

mmap(0x7febb119b000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25a000) = 0x7febb119b000

mmap(0x7febb11a9000, 12736, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7febb11a9000

close(3) = 0

openat(AT\_FDCWD, "/home/maksim/course2/sem3/os/lab4/src/build/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0P\237\2\0\0\0\0\0"..., 832) = 832

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

pread64(3, "\4\0\0\0 \0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0"..., 48, 848) = 48

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0 =\340\2563\265?\356\25x\261\27\313A#\350"..., 68, 896) = 68

newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2216304, ...}, AT\_EMPTY\_PATH) = 0

pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

mmap(NULL, 2260560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb0d10000

mmap(0x7febb0d38000, 1658880, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x28000) = 0x7febb0d38000

mmap(0x7febb0ecd000, 360448, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1bd000) = 0x7febb0ecd000

mmap(0x7febb0f25000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x214000) = 0x7febb0f25000

mmap(0x7febb0f2b000, 52816, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7febb0f2b000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=940560, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 942344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb0c20000

mmap(0x7febb0c2e000, 507904, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe000) = 0x7febb0c2e000

mmap(0x7febb0caa000, 372736, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x8a000) = 0x7febb0caa000

mmap(0x7febb0d05000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xe4000) = 0x7febb0d05000

close(3) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7febb0c10000

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\0\0\0\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=141896, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 144232, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7febb0be0000

mmap(0x7febb0be3000, 110592, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7febb0be3000

mmap(0x7febb0bfe000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e000) = 0x7febb0bfe000

mmap(0x7febb0c02000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x21000) = 0x7febb0c02000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7febb0bd0000

arch\_prctl(ARCH\_SET\_FS, 0x7febb0bd0740) = 0

set\_tid\_address(0x7febb0bd0a10) = 30867

set\_robust\_list(0x7febb0bd0a20, 24) = 0

rseq(0x7febb0bd10e0, 0x20, 0, 0x53053053) = -1 ENOSYS (Function not implemented)

mprotect(0x7febb0f25000, 16384, PROT\_READ) = 0

mprotect(0x7febb0c02000, 4096, PROT\_READ) = 0

mprotect(0x7febb0d05000, 4096, PROT\_READ) = 0

mprotect(0x7febb119b000, 45056, PROT\_READ) = 0

mprotect(0x7febb11b3000, 4096, PROT\_READ) = 0

mprotect(0x7febb11c3000, 4096, PROT\_READ) = 0

mprotect(0x7febb1222000, 4096, PROT\_READ) = 0

mprotect(0x7febb1218000, 8192, PROT\_READ) = 0

prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=8192\*1024}) = 0

munmap(0x7febb11da000, 23887) = 0

futex(0x7febb11a97fc, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

getrandom("\x27\x84\x58\x2c\xd0\x02\x96\x26", 8, GRND\_NONBLOCK) = 8

brk(NULL) = 0x7fffbfb71000

brk(0x7fffbfb92000) = 0x7fffbfb92000

newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

write(1, "Enter command: ", 15Enter command: ) = 15

newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

read(0, 0

"0\n", 1024) = 2

write(1, "Mode changed: Second\n", 21Mode changed: Second

) = 21

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 1

"1\n", 1024) = 2

write(1, "Enter a and b: ", 15Enter a and b: ) = 15

read(0, 10 2

"10 2\n", 1024) = 5

write(1, "GCF(10, 2) = 2\n", 15GCF(10, 2) = 2

) = 15

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 2

"2\n", 1024) = 2

write(1, "Enter x: ", 9Enter x: ) = 9

read(0, 10

"10\n", 1024) = 3

write(1, "Exp(10) = 2.71828\n", 18Exp(10) = 2.71828

) = 18

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 0

"0\n", 1024) = 2

write(1, "Mode changed: First\n", 20Mode changed: First

) = 20

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 2

"2\n", 1024) = 2

write(1, "Enter x: ", 9Enter x: ) = 9

read(0, 10

"10\n", 1024) = 3

write(1, "Exp(10) = 2.59374\n", 18Exp(10) = 2.59374

) = 18

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, 1

"1\n", 1024) = 2

write(1, "Enter a and b: ", 15Enter a and b: ) = 15

read(0, 3 4

"3 4\n", 1024) = 4

write(1, "GCF(3, 4) = 1\n", 14GCF(3, 4) = 1

) = 14

write(1, "\n", 1

) = 1

write(1, "Enter command: ", 15Enter command: ) = 15

read(0, "", 1024) = 0

write(1, "Finish work\n", 12Finish work

) = 12

exit\_group(0) = ?

+++ exited with 0 +++

**Lab5-7:**

maksim@caseofpeace:~/course2/sem3/os/lab5-7/src$ strace -f ./control

execve("./control", ["./control"], 0x7fffd591a428 /\* 31 vars \*/) = 0

brk(NULL) = 0x7fffc3b08000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffcb1be8b0) = -1 EINVAL (Invalid argument)

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff410ba0000

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=23887, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 23887, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7ff410b5a000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libzmq.so.5", O\_RDONLY|O\_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\240\233\1\0\0\0\0\0"..., 832) = 832

newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=634936, ...}, AT\_EMPTY\_PATH) = 0

mmap(NULL, 636784, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff410ab0000

mmap(0x7ff410ac8000, 397312, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x18000) = 0x7ff410ac8000

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clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7ff4100c0910, parent\_tid=0x7ff4100c0910, exit\_signal=0, stack=0x7ff40f8c0000, stack\_size=0x7ffc80, tls=0x7ff4100c0640}, 88) = -1 ENOSYS (Function not implemented)

clone(child\_stack=0x7ff4100bfc70, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTIDstrace: Process 14828 attached

, parent\_tid=[14828], tls=0x7ff4100c0640, child\_tidptr=0x7ff4100c0910) = 14828

[pid 14828] set\_robust\_list(0x7ff4100c0920, 24 <unfinished ...>

[pid 14827] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 14828] <... set\_robust\_list resumed>) = 0

[pid 14827] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 14828] rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

[pid 14827] eventfd2(0, EFD\_CLOEXEC <unfinished ...>

[pid 14828] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 14827] <... eventfd2 resumed>) = 6

[pid 14828] rt\_sigprocmask(SIG\_BLOCK, ~[RTMIN RT\_1], <unfinished ...>

[pid 14827] fcntl(6, F\_GETFL <unfinished ...>

[pid 14828] <... rt\_sigprocmask resumed>NULL, 8) = 0

[pid 14827] <... fcntl resumed>) = 0x2 (flags O\_RDWR)

[pid 14828] sched\_getparam(14828, <unfinished ...>

[pid 14827] fcntl(6, F\_SETFL, O\_RDWR|O\_NONBLOCK <unfinished ...>

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[pid 14827] recvmsg(9, {msg\_name={sa\_family=AF\_NETLINK, nl\_pid=0, nl\_groups=00000000}, msg\_namelen=12, msg\_iov=[{iov\_base=[{nlmsg\_len=20, nlmsg\_type=NLMSG\_DONE, nlmsg\_flags=NLM\_F\_MULTI, nlmsg\_seq=1704380934, nlmsg\_pid=14827}, 0], iov\_len=4096}], msg\_iovlen=1, msg\_controllen=0, msg\_flags=0}, 0) = 20

[pid 14827] close(9) = 0

[pid 14827] socket(AF\_INET, SOCK\_STREAM|SOCK\_CLOEXEC, IPPROTO\_TCP) = 9

[pid 14827] setsockopt(9, SOL\_SOCKET, SO\_REUSEADDR, [1], 4) = 0

[pid 14827] bind(9, {sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("0.0.0.0")}, 16) = 0

[pid 14827] listen(9, 100) = 0

[pid 14827] getsockname(9, {sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("0.0.0.0")}, [128 => 16]) = 0

[pid 14827] getsockname(9, {sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("0.0.0.0")}, [128 => 16]) = 0

[pid 14827] getpid() = 14827

[pid 14827] write(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=3283220064, u64=140736476608096}}], 256, -1) = 1

[pid 14827] getpid( <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 14827] <... getpid resumed>) = 14827

[pid 14829] <... getpid resumed>) = 14827

[pid 14827] write(8, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 14827] <... write resumed>) = 8

[pid 14829] <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

[pid 14827] futex(0x7ff410aa9808, FUTEX\_WAKE\_PRIVATE, 2147483647 <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 14827] <... futex resumed>) = 0

[pid 14829] <... getpid resumed>) = 14827

[pid 14829] read(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 14829] mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0) = 0x7ff4070b0000

[pid 14829] munmap(0x7ff4070b0000, 16056320) = 0

[pid 14829] munmap(0x7ff40c000000, 51052544) = 0

[pid 14829] mprotect(0x7ff408000000, 135168, PROT\_READ|PROT\_WRITE) = 0

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_ADD, 9, {events=0, data={u32=134220656, u64=140686082968432}}) = 0

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=134220656, u64=140686082968432}}) = 0

[pid 14829] getpid() = 14827

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0) = 0 (Timeout)

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 14827] newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

[pid 14827] write(1, "Started\n", 8Started

) = 8

[pid 14827] write(1, "Enter command: ", 15Enter command: ) = 15

[pid 14827] newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

[pid 14827] read(0,

"create 10\n", 1024) = 10

[pid 14827] clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLDstrace: Process 15520 attached

<unfinished ...>

[pid 15520] set\_robust\_list(0x7ff4100e0ca0, 24 <unfinished ...>

[pid 14827] <... clone resumed>, child\_tidptr=0x7ff4100e0c90) = 15520

[pid 15520] <... set\_robust\_list resumed>) = 0

[pid 14827] write(1, "Ok: 15520\n", 10Ok: 15520

) = 10

[pid 14827] clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=500000000}, <unfinished ...>

[pid 15520] execve("./calculate", ["calculate", "10"], 0x7fffcb1bea88 /\* 31 vars \*/) = 0

[pid 15520] brk(NULL) = 0x7fffd8c6f000

[pid 15520] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffe0359b60) = -1 EINVAL (Invalid argument)

[pid 15520] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f5c2bfb0000

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[pid 15520] brk(0x7fffd8cb1000) = 0x7fffd8cb1000

[pid 15520] futex(0x7f5c2bec9808, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

[pid 15520] getpid() = 15520

[pid 15520] write(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 15520] getpid( <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=3637012064, u64=140736830400096}}], 256, -1) = 1

[pid 15520] <... getpid resumed>) = 15520

[pid 15522] getpid( <unfinished ...>

[pid 15520] write(8, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

[pid 15522] <... getpid resumed>) = 15520

[pid 15520] <... write resumed>) = 8

[pid 15522] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 15520] getpid( <unfinished ...>

[pid 15522] <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

[pid 15520] <... getpid resumed>) = 15520

[pid 15522] getpid( <unfinished ...>

[pid 15520] poll([{fd=8, events=POLLIN}], 1, -1 <unfinished ...>

[pid 15522] <... getpid resumed>) = 15520

[pid 15520] <... poll resumed>) = 1 ([{fd=8, revents=POLLIN}])

[pid 15522] read(6, <unfinished ...>

[pid 15520] getpid( <unfinished ...>

[pid 15522] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 15520] <... getpid resumed>) = 15520

[pid 15522] mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

[pid 15520] read(8, <unfinished ...>

[pid 15522] <... mmap resumed>) = 0x7f5c224c0000

[pid 15520] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 15522] munmap(0x7f5c224c0000, 28573696 <unfinished ...>

[pid 15520] getpid( <unfinished ...>

[pid 15522] <... munmap resumed>) = 0

[pid 15520] <... getpid resumed>) = 15520

[pid 15522] munmap(0x7f5c28000000, 38535168 <unfinished ...>

[pid 15520] poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

[pid 15522] <... munmap resumed>) = 0

[pid 15520] <... poll resumed>) = 0 (Timeout)

[pid 15522] mprotect(0x7f5c24000000, 135168, PROT\_READ|PROT\_WRITE <unfinished ...>

[pid 15520] getpid( <unfinished ...>

[pid 15522] <... mprotect resumed>) = 0

[pid 15520] <... getpid resumed>) = 15520

[pid 15520] poll([{fd=8, events=POLLIN}], 1, -1 <unfinished ...>

[pid 15522] socket(AF\_INET, SOCK\_STREAM|SOCK\_CLOEXEC, IPPROTO\_TCP) = 9

[pid 15522] fcntl(9, F\_GETFL) = 0x80002 (flags O\_RDWR|O\_CLOEXEC)

[pid 15522] fcntl(9, F\_SETFL, O\_RDWR|O\_NONBLOCK|O\_CLOEXEC) = 0

[pid 15522] connect(9, {sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("0.0.0.0")}, 16) = -1 EINPROGRESS (Operation now in progress)

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134220656, u64=140686082968432}}], 256, -1) = 1

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_ADD, 9, {events=0, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] accept4(9, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... accept4 resumed>{sa\_family=AF\_INET, sin\_port=htons(54363), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16], SOCK\_CLOEXEC) = 10

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLOUT, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] setsockopt(10, SOL\_TCP, TCP\_NODELAY, [1], 4 <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... setsockopt resumed>) = 0f

[pid 15522] getpid( <unfinished ...>

[pid 14829] getpeername(10, <unfinished ...>

[pid 15522] <... getpid resumed>) = 15520

[pid 14829] <... getpeername resumed>{sa\_family=AF\_INET, sin\_port=htons(54363), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 15522] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 14829] getsockname(10, <unfinished ...>

[pid 15522] <... poll resumed>) = 0 (Timeout)

[pid 14829] <... getsockname resumed>{sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 15522] epoll\_wait(7, <unfinished ...>

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[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN, data={u32=134220752, u64=140686082968528}} <unfinished ...>

[pid 15522] <... sendto resumed>) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=357603400}) = 0

[pid 15522] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=357691300}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134220752, u64=140686082968528}}], 256, 29997) = 1

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=603984944, u64=140033717703728}}], 256, 29997) = 1

[pid 14829] <... recvfrom resumed>"\3", 2, 0, NULL, NULL) = 1

[pid 15522] recvfrom(9, <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN|EPOLLOUT, data={u32=134220752, u64=140686082968528}} <unfinished ...>

[pid 15522] <... recvfrom resumed>"\3", 2, 0, NULL, NULL) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>0x7ff408001303, 53, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 15522] recvfrom(9, <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 15522] <... recvfrom resumed>0x7f5c24001bf3, 53, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=358270600}) = 0

[pid 15522] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=358364200}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=134220752, u64=140686082968528}}], 256, 29996) = 1

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] sendto(10, "\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, 0 <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=603984944, u64=140033717703728}}], 256, 29996) = 1

[pid 15522] sendto(9, "\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, 0 <unfinished ...>

[pid 14829] <... sendto resumed>) = 53

[pid 15522] <... sendto resumed>) = 53

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN, data={u32=134220752, u64=140686082968528}} <unfinished ...>

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 15522] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=358844300}) = 0

[pid 15522] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=358867200}) = 0

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134220752, u64=140686082968528}}], 256, 29996) = 1

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=603984944, u64=140033717703728}}], 256, 29996) = 1

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] recvfrom(9, <unfinished ...>

[pid 14829] <... recvfrom resumed>"\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, NULL) = 53

[pid 15522] <... recvfrom resumed>"\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, NULL) = 53

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN|EPOLLOUT, data={u32=134220752, u64=140686082968528}}) = 0

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>0x7ff408003b48, 8192, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 15522] recvfrom(9, <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 15522] <... recvfrom resumed>0x7f5c24003d18, 8192, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=359457100}) = 0

[pid 15522] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=359540800}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=134220752, u64=140686082968528}}], 256, 29995) = 1

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] sendto(10, "\4\31\5READY\vSocket-Type\0\0\0\3PUB", 27, 0, NULL, 0 <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=603984944, u64=140033717703728}}], 256, 29995) = 1

[pid 14829] <... sendto resumed>) = 27

[pid 15522] sendto(9, "\4\31\5READY\vSocket-Type\0\0\0\3SUB", 27, 0, NULL, 0 <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 15522] <... sendto resumed>) = 27

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=359833900}) = 0

[pid 15522] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... clock\_gettime resumed>{tv\_sec=7227, tv\_nsec=359915200}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN|EPOLLOUT, data={u32=134220752, u64=140686082968528}}], 256, 29995) = 1

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN, data={u32=134220752, u64=140686082968528}} <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLIN|EPOLLOUT, data={u32=603984944, u64=140033717703728}}], 256, 29995) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>"\4\31\5READY\vSocket-Type\0\0\0\3SUB", 8192, 0, NULL, NULL) = 27

[pid 15522] recvfrom(9, "\4\31\5READY\vSocket-Type\0\0\0\3PUB", 8192, 0, NULL, NULL) = 27

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN|EPOLLOUT, data={u32=134220752, u64=140686082968528}}) = 0

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN, data={u32=134220752, u64=140686082968528}} <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 15522] sendto(9, "\4\n\tSUBSCRIBE", 12, 0, NULL, 0 <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... sendto resumed>) = 12

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134220752, u64=140686082968528}}], 256, -1) = 1

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14829] recvfrom(10, <unfinished ...>

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=603984944, u64=140033717703728}}], 256, -1) = 1

[pid 14829] <... recvfrom resumed>"\4\n\tSUBSCRIBE", 8192, 0, NULL, NULL) = 12

[pid 15522] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=603984944, u64=140033717703728}} <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 15522] <... epoll\_ctl resumed>) = 0

[pid 15522] epoll\_wait(7, <unfinished ...>

[pid 14827] <... clock\_nanosleep resumed>0x7fffcb1be690) = 0

[pid 14827] write(1, "Enter command: ", 15Enter command: ) = 15

[pid 14827] read(0, create 12

"create 12\n", 1024) = 10

[pid 14827] getpid() = 14827

[pid 14827] poll([{fd=8, events=POLLIN}], 1, 0) = 1 ([{fd=8, revents=POLLIN}])

[pid 14827] getpid() = 14827

[pid 14827] read(8, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 14827] getpid() = 14827

[pid 14827] poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

[pid 14827] getpid() = 14827

[pid 14827] write(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=3283220064, u64=140736476608096}}], 256, -1) = 1

[pid 14827] clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=500000000}, <unfinished ...>

[pid 14829] getpid() = 14827

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0) = 1 ([{fd=6, revents=POLLIN}])

[pid 14829] getpid() = 14827

[pid 14829] read(6, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 10, {events=EPOLLIN|EPOLLOUT, data={u32=134220752, u64=140686082968528}}) = 0

[pid 14829] sendto(10, "\0\fcreate 10 12", 14, 0, NULL, 0) = 14

[pid 15522] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=603984944, u64=140033717703728}}], 256, -1) = 1

[pid 14829] getpid() = 14827

[pid 15522] recvfrom(9, <unfinished ...>

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 15522] <... recvfrom resumed>"\0\fcreate 10 12", 8192, 0, NULL, NULL) = 14

[pid 14829] <... poll resumed>) = 0 (Timeout)

[pid 15522] getpid( <unfinished ...>

……………………………………………………………………………………………

[pid 16367] <... write resumed>) = 8

[pid 16369] <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

[pid 16367] getpid( <unfinished ...>

[pid 16369] getpid( <unfinished ...>

[pid 16367] <... getpid resumed>) = 16367

[pid 16369] <... getpid resumed>) = 16367

[pid 16367] poll([{fd=8, events=POLLIN}], 1, -1 <unfinished ...>

[pid 16369] read(6, <unfinished ...>

[pid 16367] <... poll resumed>) = 1 ([{fd=8, revents=POLLIN}])

[pid 16369] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 16367] getpid( <unfinished ...>

[pid 16369] mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

[pid 16367] <... getpid resumed>) = 16367

[pid 16369] <... mmap resumed>) = 0x7f3188930000

[pid 16367] read(8, "\1\0\0\0\0\0\0\0", 8) = 8

[pid 16369] munmap(0x7f3188930000, 57475072 <unfinished ...>

[pid 16367] getpid( <unfinished ...>

[pid 16369] <... munmap resumed>) = 0

[pid 16367] <... getpid resumed>) = 16367

[pid 16369] munmap(0x7f3190000000, 9633792 <unfinished ...>

[pid 16367] poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

[pid 16369] <... munmap resumed>) = 0

[pid 16367] <... poll resumed>) = 0 (Timeout)

[pid 16369] mprotect(0x7f318c000000, 135168, PROT\_READ|PROT\_WRITE <unfinished ...>

[pid 16367] getpid( <unfinished ...>

[pid 16369] <... mprotect resumed>) = 0

[pid 16367] <... getpid resumed>) = 16367

[pid 16367] poll([{fd=8, events=POLLIN}], 1, -1 <unfinished ...>

[pid 16369] socket(AF\_INET, SOCK\_STREAM|SOCK\_CLOEXEC, IPPROTO\_TCP) = 9

[pid 16369] fcntl(9, F\_GETFL) = 0x80002 (flags O\_RDWR|O\_CLOEXEC)

[pid 16369] fcntl(9, F\_SETFL, O\_RDWR|O\_NONBLOCK|O\_CLOEXEC) = 0

[pid 16369] connect(9, {sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("0.0.0.0")}, 16) = -1 EINPROGRESS (Operation now in progress)

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134220656, u64=140686082968432}}], 256, -1) = 1

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_ADD, 9, {events=0, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] accept4(9, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... accept4 resumed>{sa\_family=AF\_INET, sin\_port=htons(60978), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16], SOCK\_CLOEXEC) = 11

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLOUT, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] setsockopt(11, SOL\_TCP, TCP\_NODELAY, [1], 4 <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... setsockopt resumed>) = 0

[pid 16369] getpid( <unfinished ...>

[pid 14829] getpeername(11, <unfinished ...>

[pid 16369] <... getpid resumed>) = 16367

[pid 14829] <... getpeername resumed>{sa\_family=AF\_INET, sin\_port=htons(60978), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 16369] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 14829] getsockname(11, <unfinished ...>

[pid 16369] <... poll resumed>) = 0 (Timeout)

[pid 14829] <... getsockname resumed>{sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] getpeername(11, <unfinished ...>

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=2348815408, u64=139850778940464}}], 256, -1) = 1

[pid 14829] <... getpeername resumed>{sa\_family=AF\_INET, sin\_port=htons(60978), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_DEL, 9, 0x7f318c001434 <unfinished ...>

[pid 14829] fcntl(11, F\_GETFL <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... fcntl resumed>) = 0x2 (flags O\_RDWR)

[pid 16369] getsockopt(9, SOL\_SOCKET, SO\_ERROR, <unfinished ...>

[pid 14829] fcntl(11, F\_SETFL, O\_RDWR|O\_NONBLOCK <unfinished ...>

[pid 16369] <... getsockopt resumed>[0], [4]) = 0

[pid 14829] <... fcntl resumed>) = 0

[pid 16369] setsockopt(9, SOL\_TCP, TCP\_NODELAY, [1], 4 <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 16369] <... setsockopt resumed>) = 0

[pid 14829] <... getpid resumed>) = 14827

[pid 16369] getsockname(9, <unfinished ...>

[pid 14829] write(6, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

[pid 16369] <... getsockname resumed>{sa\_family=AF\_INET, sin\_port=htons(60978), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 14829] <... write resumed>) = 8

[pid 16369] getpeername(9, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... getpeername resumed>{sa\_family=AF\_INET, sin\_port=htons(5555), sin\_addr=inet\_addr("127.0.0.1")}, [128 => 16]) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=3283220064, u64=140736476608096}}], 256, -1) = 1

[pid 16369] fcntl(9, F\_GETFL <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 16369] <... fcntl resumed>) = 0x80802 (flags O\_RDWR|O\_NONBLOCK|O\_CLOEXEC)

[pid 14829] <... getpid resumed>) = 14827

[pid 16369] fcntl(9, F\_SETFL, O\_RDWR|O\_NONBLOCK|O\_CLOEXEC <unfinished ...>

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 16369] <... fcntl resumed>) = 0

[pid 14829] <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

[pid 16369] getpid( <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 16369] <... getpid resumed>) = 16367

[pid 14829] <... getpid resumed>) = 14827

[pid 16369] write(6, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

[pid 14829] read(6, <unfinished ...>

[pid 16369] <... write resumed>) = 8

[pid 14829] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_ADD, 11, {events=0, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=3315906144, u64=140736509294176}}], 256, -1) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] getpid( <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... getpid resumed>) = 16367

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=59953300}) = 0

[pid 16369] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] getpid( <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN|EPOLLOUT, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... getpid resumed>) = 16367

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] read(6, <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

[pid 14829] <... recvfrom resumed>0x7ff4080117a8, 12, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_ADD, 9, {events=0, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] getpid( <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... getpid resumed>) = 14827

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=60541600}) = 0

[pid 14829] <... poll resumed>) = 0 (Timeout)

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=60713800}) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=134287488, u64=140686083035264}}], 256, 29999) = 1

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] sendto(11, "\377\0\0\0\0\0\0\0\1\177", 10, 0, NULL, 0 <unfinished ...>

[pid 16369] <... recvfrom resumed>0x7f318c001be8, 12, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 14829] <... sendto resumed>) = 10

[pid 16369] getpid( <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... getpid resumed>) = 16367

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... poll resumed>) = 0 (Timeout)

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=61285700}) = 0

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=61375400}) = 0

[pid 16369] epoll\_wait(7, [{events=EPOLLIN|EPOLLOUT, data={u32=2348815408, u64=139850778940464}}], 256, 29999) = 1

[pid 16369] sendto(9, "\377\0\0\0\0\0\0\0\1\177", 10, 0, NULL, 0) = 10

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134287488, u64=140686083035264}}], 256, 29998) = 1

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>"\377\0\0\0\0\0\0\0\1\177", 12, 0, NULL, NULL) = 10

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN|EPOLLOUT, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... recvfrom resumed>"\377\0\0\0\0\0\0\0\1\177", 12, 0, NULL, NULL) = 10

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>0x7ff4080117b2, 2, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... recvfrom resumed>0x7f318c001bf2, 2, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=62218300}) = 0

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=62303400}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=134287488, u64=140686083035264}}], 256, 29997) = 1

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] sendto(11, "\3", 1, 0, NULL, 0 <unfinished ...>

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=2348815408, u64=139850778940464}}], 256, 29998) = 1

[pid 14829] <... sendto resumed>) = 1

[pid 16369] sendto(9, "\3", 1, 0, NULL, 0 <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... sendto resumed>) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=62753300}) = 0

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=62861200}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134287488, u64=140686083035264}}], 256, 29997) = 1

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=2348815408, u64=139850778940464}}], 256, 29998) = 1

[pid 14829] <... recvfrom resumed>"\3", 2, 0, NULL, NULL) = 1

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN|EPOLLOUT, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... recvfrom resumed>"\3", 2, 0, NULL, NULL) = 1

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>0x7ff4080117b3, 53, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... recvfrom resumed>0x7f318c001bf3, 53, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=63464000}) = 0

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=63565200}) = 0

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=134287488, u64=140686083035264}}], 256, 29996) = 1

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] sendto(11, "\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, 0 <unfinished ...>

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=2348815408, u64=139850778940464}}], 256, 29997) = 1

[pid 14829] <... sendto resumed>) = 53

[pid 16369] sendto(9, "\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, 0 <unfinished ...>

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN, data={u32=134287488, u64=140686083035264}} <unfinished ...>

[pid 16369] <... sendto resumed>) = 53

[pid 14829] <... epoll\_ctl resumed>) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=64042200}) = 0

[pid 16369] clock\_gettime(CLOCK\_MONOTONIC, <unfinished ...>

[pid 14829] epoll\_wait(7, <unfinished ...>

[pid 16369] <... clock\_gettime resumed>{tv\_sec=7756, tv\_nsec=64124700}) = 0

[pid 16369] epoll\_wait(7, <unfinished ...>

[pid 14829] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=134287488, u64=140686083035264}}], 256, 29995) = 1

[pid 16369] <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=2348815408, u64=139850778940464}}], 256, 29996) = 1

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] recvfrom(9, <unfinished ...>

[pid 14829] <... recvfrom resumed>"\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, NULL) = 53

[pid 16369] <... recvfrom resumed>"\1NULL\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0\0"..., 53, 0, NULL, NULL) = 53

[pid 14829] epoll\_ctl(7, EPOLL\_CTL\_MOD, 11, {events=EPOLLIN|EPOLLOUT, data={u32=134287488, u64=140686083035264}}) = 0

[pid 16369] epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=2348815408, u64=139850778940464}} <unfinished ...>

[pid 14829] recvfrom(11, <unfinished ...>

[pid 16369] <... epoll\_ctl resumed>) = 0

[pid 14829] <... recvfrom resumed>0x7ff408013f18, 8192, 0, NULL, NULL) = -1 EAGAIN (Resource temporarily unavailable)

[pid 16369] recvfrom(9, <unfinished ...>

**………………………………………………………………………………………………………**

**Вывод**

Strace используется для отладки программы и помогает найти проблемы кода намного легче, так как работает непосредственно с системными вызовами. В моих работах эта команда нужна была не только для отчета.Например, в лабораторной работе по ООП strace помог мне найти ошибку в работе потоков, что было легче и быстрее, чем сделать отладочную печать или использовать gdb.