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»**

Группа: М8О-215Б-23

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Оценка: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Постановка задачи**

**Вариант 8.**

Цель работы: Приобретение практических навыков диагностики работы программного обеспечения.

Задание: 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**

Для демонстрации системных вызовов будем использовать утилиту strace в операционной системе linux.

Strace — это диагностическая, отладочная и обучающая утилита пользовательского пространства для Linux. Она используется для мониторинга и вмешательства во взаимодействия между процессами и ядром Linux, включая системные вызовы, доставку сигналов и изменение состояния процесса. Работа strace возможна благодаря функции ядра, известной как ptrace. Наиболее часто он используется для запуска программы и вывода списка системных вызовов, которые она выполняет. Это особенно полезно, когда программа часто аварийно завершает работу или ведет себя непредсказуемо; например, strace может показать, что программа пытается получить доступ к несуществующему или недоступному файлу.

Еще одно полезное применение strace — это использование флага -p для присоединения к уже запущенному процессу. Это может быть полезно, если процесс перестал отвечать, и strace может помочь определить, что процесс заблокирован при попытке установить сетевое соединение.

Кроме того, strace предоставляет множество других возможностей:

* Фильтрация системных вызовов: Вы можете указать, какие системные вызовы следует отслеживать, используя параметр -e trace=. Это можно сделать по имени (например, clone, fork, vfork), с использованием предопределенных групп (например, %ipc или %file) или с помощью регулярных выражений (начиная с версии strace 4.17, например, -e trace=/clock\_.\*).
* Трассировка путей: Вы можете указать список путей для трассировки, используя параметр -P (например, -P /etc/ld.so.cache).
* Выгрузка ввода-вывода: Вы можете указать список файловых дескрипторов для выгрузки ввода-вывода, используя параметры -e read= и -e write=.
* Подсчет времени выполнения: Strace позволяет подсчитывать время выполнения системных вызовов и их количество, используя параметры -T, -c, -C и -w. Параметр -U позволяет выводить дополнительную информацию, такую как минимальное и максимальное время выполнения системного вызова.
* Временные метки: Strace может печатать относительные или абсолютные временные метки, используя опции -t и -r.
* Изменение системных вызовов: Strace позволяет изменять выполняемые системные вызовы, включая изменение возвращаемого значения и кода ошибки, внедрение сигналов, задержек и изменение данных, на которые указывают аргументы системных вызовов. Это достигается с помощью опции -e inject=syscall specification:tampering specification:retval=:error=:signal=:delay\_enter=:delay\_exit=:poke\_enter=:poke\_exit=.
* Информация о дескрипторах файлов: Strace может извлекать информацию о дескрипторах файлов, включая сокеты, используя опцию -y. Опция -yy предоставляет дополнительную информацию, такую как адреса конечных точек для сокетов, пути и основные/дополнительные номера устройств для файлов.
* Трассировка стека: Strace может печатать трассировки стека, включая разборку символов (начиная с версии strace 4.21, используя опцию -k).

Strace также поддерживает множество других опций и параметров, которые делают его мощным инструментом для диагностики и отладки программного обеспечения.

**Протокол работы программы**

**Лабораторная работа №1.**

**13589 execve("./main", ["./main"], 0x7ffe92e59918 /\* 26 vars \*/) = 0**

13589 brk(NULL) = 0x9d5000

13589 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbef63e9000

13589 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

13589 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

13589 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0

13589 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fbef63e2000

**13589 close(3) = 0**

13589 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

13589 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

13589 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

13589 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbef6174000

13589 mmap(0x7fbef6219000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7fbef6219000

13589 mmap(0x7fbef6342000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7fbef6342000

13589 mmap(0x7fbef63d0000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7fbef63d0000

13589 mmap(0x7fbef63de000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fbef63de000

**13589 close(3) = 0**

13589 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

13589 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

13589 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

13589 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbef6095000

13589 mmap(0x7fbef60a5000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7fbef60a5000

13589 mmap(0x7fbef6118000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7fbef6118000

13589 mmap(0x7fbef6172000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7fbef6172000

**13589 close(3) = 0**

13589 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

13589 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

13589 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

13589 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbef6068000

13589 mmap(0x7fbef606c000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7fbef606c000

13589 mmap(0x7fbef608f000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7fbef608f000

13589 mmap(0x7fbef6093000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7fbef6093000

**13589 close(3) = 0**

13589 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

13589 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

13589 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

13589 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

13589 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

13589 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbef5e87000

13589 mmap(0x7fbef5ead000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7fbef5ead000

13589 mmap(0x7fbef6002000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7fbef6002000

13589 mmap(0x7fbef6055000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7fbef6055000

13589 mmap(0x7fbef605b000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fbef605b000

**13589 close(3) = 0**

13589 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbef5e85000

13589 arch\_prctl(ARCH\_SET\_FS, 0x7fbef5e86480) = 0

13589 set\_tid\_address(0x7fbef5e86750) = 13589

13589 set\_robust\_list(0x7fbef5e86760, 24) = 0

13589 rseq(0x7fbef5e86da0, 0x20, 0, 0x53053053) = 0

13589 mprotect(0x7fbef6055000, 16384, PROT\_READ) = 0

13589 mprotect(0x7fbef6093000, 4096, PROT\_READ) = 0

13589 mprotect(0x7fbef6172000, 4096, PROT\_READ) = 0

13589 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbef5e83000

13589 mprotect(0x7fbef63d0000, 45056, PROT\_READ) = 0

13589 mprotect(0x404000, 4096, PROT\_READ) = 0

13589 mprotect(0x7fbef641b000, 8192, PROT\_READ) = 0

13589 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

13589 munmap(0x7fbef63e2000, 25258) = 0

13589 futex(0x7fbef63de73c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

13589 getrandom("\xef\xdf\x83\xf7\x6a\x93\xa5\x74", 8, GRND\_NONBLOCK) = 8

13589 brk(NULL) = 0x9d5000

13589 brk(0x9f6000) = 0x9f6000

13589 pipe2([3, 4], 0) = 0

13589 pipe2([5, 6], 0) = 0

13589 clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fbef5e86750) = 13590

13590 set\_robust\_list(0x7fbef5e86760, 24 <unfinished ...>

**13589 close(3 <unfinished ...>**

13590 <... set\_robust\_list resumed>) = 0

**13589 <... close resumed>) = 0**

**13590 close(4 <unfinished ...>**

**13589 close(6 <unfinished ...>**

**13590 <... close resumed>) = 0**

**13589 <... close resumed>) = 0**

**13590 close(5 <unfinished ...>**

**13589 newfstatat(1, "", <unfinished ...>**

**13590 <... close resumed>) = 0**

13589 <... newfstatat resumed>{st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

**13590 dup2(3, 0 <unfinished ...>**

13589 write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265 \321\207\320\270\321\201\320\273\320\260 \320\262 \321\204\320"..., 92 <unfinished ...>

**13590 <... dup2 resumed>) = 0**

13589 <... write resumed>) = 92

**13590 dup2(6, 1 <unfinished ...>**

13589 newfstatat(0, "", <unfinished ...>

**13590 <... dup2 resumed>) = 1**

13589 <... newfstatat resumed>{st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

**13590 execve("./child", ["child"], 0x7ffce21142d8 /\* 26 vars \*/ <unfinished ...>**

13589 read(0, <unfinished ...>

**13590 <... execve resumed>) = 0**

13590 brk(NULL) = 0x19a7000

13590 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f95e6f3b000

13590 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

13590 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 4

13590 newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0

13590 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 4, 0) = 0x7f95e6f34000

**13590 close(4) = 0**

13590 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 4

13590 read(4, "\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

13590 newfstatat(4, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

13590 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 4, 0) = 0x7f95e6cc6000

13590 mmap(0x7f95e6d6b000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0xa5000) = 0x7f95e6d6b000

13590 mmap(0x7f95e6e94000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x1ce000) = 0x7f95e6e94000

13590 mmap(0x7f95e6f22000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x25c000) = 0x7f95e6f22000

13590 mmap(0x7f95e6f30000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f95e6f30000

**13590 close(4) = 0**

13590 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 4

13590 read(4, "\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

13590 newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

13590 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 4, 0) = 0x7f95e6be7000

13590 mmap(0x7f95e6bf7000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x10000) = 0x7f95e6bf7000

13590 mmap(0x7f95e6c6a000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x83000) = 0x7f95e6c6a000

13590 mmap(0x7f95e6cc4000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0xdc000) = 0x7f95e6cc4000

**13590 close(4) = 0**

13590 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 4

13590 read(4, "\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

13590 newfstatat(4, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

13590 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 4, 0) = 0x7f95e6bba000

13590 mmap(0x7f95e6bbe000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x4000) = 0x7f95e6bbe000

13590 mmap(0x7f95e6be1000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x27000) = 0x7f95e6be1000

13590 mmap(0x7f95e6be5000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x2b000) = 0x7f95e6be5000

**13590 close(4) = 0**

13590 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 4

13590 read(4, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

13590 pread64(4, "\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

13590 newfstatat(4, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

13590 pread64(4, "\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

13590 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 4, 0) = 0x7f95e69d9000

13590 mmap(0x7f95e69ff000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x26000) = 0x7f95e69ff000

13590 mmap(0x7f95e6b54000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x17b000) = 0x7f95e6b54000

13590 mmap(0x7f95e6ba7000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 4, 0x1ce000) = 0x7f95e6ba7000

13590 mmap(0x7f95e6bad000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f95e6bad000

**13590 close(4) = 0**

13590 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f95e69d7000

13590 arch\_prctl(ARCH\_SET\_FS, 0x7f95e69d8480) = 0

13590 set\_tid\_address(0x7f95e69d8750) = 13590

13590 set\_robust\_list(0x7f95e69d8760, 24) = 0

13590 rseq(0x7f95e69d8da0, 0x20, 0, 0x53053053) = 0

13590 mprotect(0x7f95e6ba7000, 16384, PROT\_READ) = 0

13590 mprotect(0x7f95e6be5000, 4096, PROT\_READ) = 0

13590 mprotect(0x7f95e6cc4000, 4096, PROT\_READ) = 0

13590 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f95e69d5000

13590 mprotect(0x7f95e6f22000, 45056, PROT\_READ) = 0

13590 mprotect(0x403000, 4096, PROT\_READ) = 0

13590 mprotect(0x7f95e6f6d000, 8192, PROT\_READ) = 0

13590 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

13590 munmap(0x7f95e6f34000, 25258) = 0

13590 futex(0x7f95e6f3073c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

13590 getrandom("\x17\x99\x9f\xb1\xb6\xe7\x63\x8e", 8, GRND\_NONBLOCK) = 8

13590 brk(NULL) = 0x19a7000

13590 brk(0x19c8000) = 0x19c8000

13590 read(0, <unfinished ...>

13589 <... read resumed>"4 4 5 5 6\n", 1024) = 10

13589 write(4, "\5\0\0\0", 4) = 4

13590 <... read resumed>"\5\0\0\0", 4) = 4

13589 write(4, "\0\0\200@\0\0\200@\0\0\240@\0\0\240@\0\0\300@", 20 <unfinished ...>

13590 read(0, <unfinished ...>

13589 <... write resumed>) = 20

13590 <... read resumed>"\0\0\200@\0\0\200@\0\0\240@\0\0\240@\0\0\300@", 20) = 20

13589 wait4(13590, <unfinished ...>

13590 openat(AT\_FDCWD, "result.txt", O\_WRONLY|O\_CREAT|O\_TRUNC, 0666) = 4

13590 write(4, "0.666667\n", 9) = 9

**13590 close(4) = 0**

13590 write(1, "\0\0\200?\315\314L?\315\314L?\253\252\*?", 16) = 16

13590 exit\_group(0) = ?

**13590 +++ exited with 0 +++**

13589 <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 13590

**13589 --- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=13590, si\_uid=0, si\_status=0, si\_utime=1 /\* 0.01 s \*/, si\_stime=1 /\* 0.01 s \*/} ---**

13589 read(5, "\0\0\200?\315\314L?\315\314L?\253\252\*?", 16) = 16

13589 write(1, "\320\240\320\265\320\267\321\203\320\273\321\214\321\202\320\260\321\202 \320\264\320\265\320\273\320\265\320\275\320\270\321"..., 45) = 45

**13589 close(4) = 0**

**13589 close(5) = 0**

13589 lseek(0, -1, SEEK\_CUR) = -1 ESPIPE (Illegal seek)

13589 exit\_group(0) = ?

**13589 +++ exited with 0 +++**

**Лабораторная работа №2.**

6088 execve("./kmeans", ["./kmeans", "3", "f"], 0x7ffd1af95c58 /\* 26 vars \*/) = 0

6088 brk(NULL) = 0x1a2f000

6088 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd42af9b000

6088 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

**6088 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3**

6088 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0

6088 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fd42af94000

**6088 close(3) = 0**

**6088 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3**

6088 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

6088 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

6088 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd42ad26000

6088 mmap(0x7fd42adcb000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7fd42adcb000

6088 mmap(0x7fd42aef4000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7fd42aef4000

6088 mmap(0x7fd42af82000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7fd42af82000

6088 mmap(0x7fd42af90000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd42af90000

**6088 close(3) = 0**

**6088 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3**

6088 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

6088 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

6088 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd42ac47000

6088 mmap(0x7fd42ac57000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7fd42ac570006088 mmap(0x7fd42acca000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7fd42acca000

6088 mmap(0x7fd42ad24000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7fd42ad24000

**6088 close(3) = 0**

**6088 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3**

6088 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

6088 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

6088 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd42ac1a000

6088 mmap(0x7fd42ac1e000, 143360, PROT\_READ|PROT\_EopenatXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7fd42ac1e000

6088 mmap(0x7fd42ac41000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7fd42ac41000

6088 mmap(0x7fd42ac45000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7fd42ac45000

**6088 close(3) = 0**

**6088 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3**

6088 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

6088 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

6088 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

6088 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

6088 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd42aa39000

6088 mmap(0x7fd42aa5f000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7fd42aa5f000

6088 mmap(0x7fd42abb4000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7fd42abb4000

6088 mmap(0x7fd42ac07000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7fd42ac07000

6088 mmap(0x7fd42ac0d000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd42ac0d000

**6088 close(3) = 0**

6088 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd42aa37000

6088 arch\_prctl(ARCH\_SET\_FS, 0x7fd42aa38480) = 0

6088 set\_tid\_address(0x7fd42aa38750) = 6088

6088 set\_robust\_list(0x7fd42aa38760, 24) = 0

6088 rseq(0x7fd42aa38da0, 0x20, 0, 0x53053053) = 0

6088 mprotect(0x7fd42ac07000, 16384, PROT\_READ) = 0

6088 mprotect(0x7fd42ac45000, 4096, PROT\_READ) = 0

6088 mprotect(0x7fd42ad24000, 4096, PROT\_READ) = 0

6088 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd42aa35000

6088 mprotect(0x7fd42af82000, 45056, PROT\_READ) = 0

6088 mprotect(0x40d000, 4096, PROT\_READ) = 0

6088 mprotect(0x7fd42afcd000, 8192, PROT\_READ) = 0

6088 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

6088 munmap(0x7fd42af94000, 25258) = 0

**6088 futex(0x7fd42af9073c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0**

6088 getrandom("\x0d\xc5\xb3\xd6\x84\x8c\xc6\xa2", 8, GRND\_NONBLOCK) = 8

6088 brk(NULL) = 0x1a2f000

6088 brk(0x1a50000) = 0x1a50000

**6088 openat(AT\_FDCWD, "input.txt", O\_RDONLY) = 3**

**6088 openat(AT\_FDCWD, "output.txt", O\_WRONLY|O\_CREAT|O\_TRUNC, 0666) = 4**

6088 read(3, "3\n9\n1 1\n2 1\n1 2\n8 8\n9 8\n8 9\n5 5\n"..., 8191) = 40

6088 rt\_sigaction(SIGRT\_1, {sa\_handler=0x7fd42aabf6a0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_ONSTACK|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7fd42aa75050}, NULL, 8) = 0

6088 rt\_sigprocmask(SIG\_UNBLOCK, [RTMIN RT\_1], NULL, 8) = 0

6088 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fd42a234000

6088 mprotect(0x7fd42a235000, 8388608, PROT\_READ|PROT\_WRITE) = 0

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd42aa34990, parent\_tid=0x7fd42aa34990, exit\_signal=0, stack=0x7fd42a234000, stack\_size=0x7fff80, tls=0x7fd42aa346c0} => {parent\_tid=[6089]}, 88) = 6089**

6089 rseq(0x7fd42aa34fe0, 0x20, 0, 0x53053053 <unfinished ...>

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6089 <... rseq resumed>) = 0

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6089 set\_robust\_list(0x7fd42aa349a0, 24 <unfinished ...>

6088 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0 <unfinished ...>

6089 <... set\_robust\_list resumed>) = 0

6088 <... mmap resumed>) = 0x7fd429a33000

6089 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6088 mprotect(0x7fd429a34000, 8388608, PROT\_READ|PROT\_WRITE <unfinished ...>

6089 <... rt\_sigprocmask resumed>NULL, 8) = 0

6088 <... mprotect resumed>) = 0

6089 mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

6089 <... mmap resumed>) = 0x7fd421a33000

6088 <... rt\_sigprocmask resumed>[], 8) = 0

6089 munmap(0x7fd421a33000, 39636992 <unfinished ...>

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd42a233990, parent\_tid=0x7fd42a233990, exit\_signal=0, stack=0x7fd429a33000, stack\_size=0x7fff80, tls=0x7fd42a2336c0} <unfinished ...>**

6089 <... munmap resumed>) = 0

**6088 <... clone3 resumed> => {parent\_tid=[6090]}, 88) = 6090**

6089 munmap(0x7fd428000000, 27471872 <unfinished ...>

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6090 rseq(0x7fd42a233fe0, 0x20, 0, 0x53053053 <unfinished ...>

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6089 <... munmap resumed>) = 0

6088 mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0 <unfinished ...>

6090 <... rseq resumed>) = 0

6088 <... mmap resumed>) = 0x7fd429232000

6089 mprotect(0x7fd424000000, 135168, PROT\_READ|PROT\_WRITE <unfinished ...>

6088 mprotect(0x7fd429233000, 8388608, PROT\_READ|PROT\_WRITE <unfinished ...>

6090 set\_robust\_list(0x7fd42a2339a0, 24 <unfinished ...>

6088 <... mprotect resumed>) = 0

6089 <... mprotect resumed>) = 0

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

6090 <... set\_robust\_list resumed>) = 0

6088 <... rt\_sigprocmask resumed>[], 8) = 0

6089 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd429a32990, parent\_tid=0x7fd429a32990, exit\_signal=0, stack=0x7fd429232000, stack\_size=0x7fff80, tls=0x7fd429a326c0} <unfinished ...>**

6090 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

**6088 <... clone3 resumed> => {parent\_tid=[6091]}, 88) = 6091**

6090 <... rt\_sigprocmask resumed>NULL, 8) = 0

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6091 rseq(0x7fd429a32fe0, 0x20, 0, 0x53053053 <unfinished ...>

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6090 mmap(NULL, 134217728, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

**6088 futex(0x7fd42aa34990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 6089, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>**

6091 <... rseq resumed>) = 0

6090 <... mmap resumed>) = 0x7fd41c000000

6091 set\_robust\_list(0x7fd429a329a0, 24 <unfinished ...>

6090 munmap(0x7fd420000000, 67108864 <unfinished ...>

6091 <... set\_robust\_list resumed>) = 0

6090 <... munmap resumed>) = 0

6091 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6090 mprotect(0x7fd41c000000, 135168, PROT\_READ|PROT\_WRITE <unfinished ...>

6091 <... rt\_sigprocmask resumed>NULL, 8) = 0

6090 <... mprotect resumed>) = 0

6091 mmap(0x7fd420000000, 67108864, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_NORESERVE, -1, 0 <unfinished ...>

6090 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

6091 <... mmap resumed>) = 0x7fd420000000

6091 mprotect(0x7fd420000000, 135168, PROT\_READ|PROT\_WRITE) = 0

6091 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

6089 <... clock\_nanosleep resumed>0x7fd42aa33dd0) = 0

**6089 futex(0x7fd42ac46230, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0**

6089 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

6090 <... clock\_nanosleep resumed>0x7fd42a232dd0) = 0

6091 <... clock\_nanosleep resumed>0x7fd429a31dd0) = 0

6089 madvise(0x7fd42a234000, 8368128, MADV\_DONTNEED <unfinished ...>

6091 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

6090 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

6091 <... rt\_sigprocmask resumed>NULL, 8) = 0

6089 <... madvise resumed>) = 0

6091 madvise(0x7fd429232000, 8368128, MADV\_DONTNEED <unfinished ...>

6090 <... rt\_sigprocmask resumed>NULL, 8) = 0

6091 <... madvise resumed>) = 0

6089 exit(0 <unfinished ...>

6091 exit(0 <unfinished ...>

6090 madvise(0x7fd429a33000, 8368128, MADV\_DONTNEED <unfinished ...>

6091 <... exit resumed>) = ?

6089 <... exit resumed>) = ?

6091 +++ exited with 0 +++

6090 <... madvise resumed>) = 0

**6088 <... futex resumed>) = 0**

6089 +++ exited with 0 +++

**6088 futex(0x7fd42a233990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 6090, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>**

**6090 exit(0) = ?**

**6088 <... futex resumed>) = 0**

6090 +++ exited with 0 +++

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], [], 8) = 0

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd429a32990, parent\_tid=0x7fd429a32990, exit\_signal=0, stack=0x7fd429232000, stack\_size=0x7fff80, tls=0x7fd429a326c0} => {parent\_tid=[6153]}, 88) = 6153**

6153 rseq(0x7fd429a32fe0, 0x20, 0, 0x53053053 <unfinished ...>

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6153 <... rseq resumed>) = 0

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6153 set\_robust\_list(0x7fd429a329a0, 24 <unfinished ...>

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

6153 <... set\_robust\_list resumed>) = 0

6088 <... rt\_sigprocmask resumed>[], 8) = 0

6153 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd42a233990, parent\_tid=0x7fd42a233990, exit\_signal=0, stack=0x7fd429a33000, stack\_size=0x7fff80, tls=0x7fd42a2336c0} <unfinished ...>**

6153 <... rt\_sigprocmask resumed>NULL, 8) = 0

**6088 <... clone3 resumed> => {parent\_tid=[6154]}, 88) = 6154**

6154 rseq(0x7fd42a233fe0, 0x20, 0, 0x53053053 <unfinished ...>

6153 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6154 <... rseq resumed>) = 0

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6154 set\_robust\_list(0x7fd42a2339a0, 24 <unfinished ...>

6088 rt\_sigprocmask(SIG\_BLOCK, ~[], <unfinished ...>

6154 <... set\_robust\_list resumed>) = 0

6088 <... rt\_sigprocmask resumed>[], 8) = 0

6154 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

**6088 clone3({flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, child\_tid=0x7fd42aa34990, parent\_tid=0x7fd42aa34990, exit\_signal=0, stack=0x7fd42a234000, stack\_size=0x7fff80, tls=0x7fd42aa346c0} <unfinished ...>**

6154 <... rt\_sigprocmask resumed>NULL, 8) = 0

**6088 <... clone3 resumed> => {parent\_tid=[6155]}, 88) = 6155**

6155 rseq(0x7fd42aa34fe0, 0x20, 0, 0x53053053 <unfinished ...>

6154 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

6088 rt\_sigprocmask(SIG\_SETMASK, [], <unfinished ...>

6155 <... rseq resumed>) = 0

6088 <... rt\_sigprocmask resumed>NULL, 8) = 0

6155 set\_robust\_list(0x7fd42aa349a0, 24 <unfinished ...>

**6088 futex(0x7fd429a32990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 6153, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>**

6155 <... set\_robust\_list resumed>) = 0

6155 rt\_sigprocmask(SIG\_SETMASK, [], NULL, 8) = 0

6155 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=10, tv\_nsec=0}, <unfinished ...>

6153 <... clock\_nanosleep resumed>0x7fd429a31dd0) = 0

6153 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], NULL, 8) = 0

6153 madvise(0x7fd429232000, 8368128, MADV\_DONTNEED) = 0

6154 <... clock\_nanosleep resumed>0x7fd42a232dd0) = 0

6153 exit(0 <unfinished ...>

6154 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

6153 <... exit resumed>) = ?

6155 <... clock\_nanosleep resumed>0x7fd42aa33dd0) = 0

6154 <... rt\_sigprocmask resumed>NULL, 8) = 0

**6088 <... futex resumed>) = 0**

6155 rt\_sigprocmask(SIG\_BLOCK, ~[RT\_1], <unfinished ...>

6153 +++ exited with 0 +++

**6088 futex(0x7fd42a233990, FUTEX\_WAIT\_BITSET|FUTEX\_CLOCK\_REALTIME, 6154, NULL, FUTEX\_BITSET\_MATCH\_ANY <unfinished ...>**

6155 <... rt\_sigprocmask resumed>NULL, 8) = 0

6154 madvise(0x7fd429a33000, 8368128, MADV\_DONTNEED <unfinished ...>

6155 madvise(0x7fd42a234000, 8368128, MADV\_DONTNEED <unfinished ...>

6154 <... madvise resumed>) = 0

6155 <... madvise resumed>) = 0

6154 exit(0 <unfinished ...>

6155 exit(0) = ?

6154 <... exit resumed>) = ?

6155 +++ exited with 0 +++

**6088 <... futex resumed>) = 0**

6154 +++ exited with 0 +++

**6088 close(3) = 0**

**6088 write(4, "\320\244\320\270\320\275\320\260\320\273\321\214\320\275\321\213\320\265 \321\206\320\265\320\275\321\202\321\200\320\276\320"..., 114) = 114**

**6088 close(4) = 0**

6088 exit\_group(0) = ?

6088 +++ exited with 0 +++

**Лабораторная работа №3.**

1858 execve("./main", ["./main"], 0x7ffd697e62a8 /\* 26 vars \*/) = 0

1858 brk(NULL) = 0x26f04000

1858 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f090aa78000

1858 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

1858 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

1858 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0

1858 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f090aa71000

1858 close(3) = 0

1858 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1858 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

1858 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

1858 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f090a803000

1858 mmap(0x7f090a8a8000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7f090a8a8000

1858 mmap(0x7f090a9d1000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f090a9d1000

1858 mmap(0x7f090aa5f000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7f090aa5f000

1858 mmap(0x7f090aa6d000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f090aa6d000

1858 close(3) = 0

1858 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1858 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

1858 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

1858 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f090a724000

1858 mmap(0x7f090a734000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7f090a734000

1858 mmap(0x7f090a7a7000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7f090a7a7000

1858 mmap(0x7f090a801000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7f090a801000

1858 close(3) = 0

1858 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

1858 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

1858 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

1858 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f090a6f7000

1858 mmap(0x7f090a6fb000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f090a6fb000

1858 mmap(0x7f090a71e000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7f090a71e000

1858 mmap(0x7f090a722000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7f090a722000

1858 close(3) = 0

1858 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1858 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

1858 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

1858 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

1858 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

1858 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f090a516000

1858 mmap(0x7f090a53c000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7f090a53c000

1858 mmap(0x7f090a691000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7f090a691000

1858 mmap(0x7f090a6e4000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f090a6e4000

1858 mmap(0x7f090a6ea000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f090a6ea000

1858 close(3) = 0

1858 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f090a514000

1858 arch\_prctl(ARCH\_SET\_FS, 0x7f090a515480) = 0

1858 set\_tid\_address(0x7f090a515750) = 1858

1858 set\_robust\_list(0x7f090a515760, 24) = 0

1858 rseq(0x7f090a515da0, 0x20, 0, 0x53053053) = 0

1858 mprotect(0x7f090a6e4000, 16384, PROT\_READ) = 0

1858 mprotect(0x7f090a722000, 4096, PROT\_READ) = 0

1858 mprotect(0x7f090a801000, 4096, PROT\_READ) = 0

1858 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f090a512000

1858 mprotect(0x7f090aa5f000, 45056, PROT\_READ) = 0

1858 mprotect(0x404000, 4096, PROT\_READ) = 0

1858 mprotect(0x7f090aaaa000, 8192, PROT\_READ) = 0

1858 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

1858 munmap(0x7f090aa71000, 25258) = 0

1858 futex(0x7f090aa6d73c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

1858 getrandom("\x87\xac\x5a\x2d\x29\x23\xde\x37", 8, GRND\_NONBLOCK) = 8

1858 brk(NULL) = 0x26f04000

1858 brk(0x26f25000) = 0x26f25000

1858 newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

1858 write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265 \321\207\320\270\321\201\320\273\320\260 \320\262 \321\204\320"..., 92) = 92

1858 newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0

1858 read(0, "1 2 3\n", 1024) = 6

**1858 openat(AT\_FDCWD, "shared.bin", O\_RDWR|O\_CREAT|O\_TRUNC, 0666) = 3**

**1858 ftruncate(3, 28) = 0**

**1858 mmap(NULL, 28, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7f090aa77000**

**1858 close(3) = 0**

1858 clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7f090a515750) = 1888

1888 set\_robust\_list(0x7f090a515760, 24 <unfinished ...>

1858 wait4(1888, <unfinished ...>

1888 <... set\_robust\_list resumed>) = 0

1888 execve("./child", ["child", "shared.bin"], 0x7ffdcb3d2df8 /\* 26 vars \*/) = 0

1888 brk(NULL) = 0x2de47000

1888 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f8ddf688000

1888 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

1888 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0

1888 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f8ddf681000

1888 close(3) = 0

1888 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1888 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

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

1888 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f8ddf413000

1888 mmap(0x7f8ddf4b8000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7f8ddf4b8000

1888 mmap(0x7f8ddf5e1000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f8ddf5e1000

1888 mmap(0x7f8ddf66f000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7f8ddf66f000

1888 mmap(0x7f8ddf67d000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f8ddf67d000

1888 close(3) = 0

1888 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1888 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

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

1888 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f8ddf334000

1888 mmap(0x7f8ddf344000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7f8ddf344000

1888 mmap(0x7f8ddf3b7000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7f8ddf3b7000

1888 mmap(0x7f8ddf411000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7f8ddf411000

1888 close(3) = 0

1888 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

1888 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

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

1888 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f8ddf307000

1888 mmap(0x7f8ddf30b000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f8ddf30b000

1888 mmap(0x7f8ddf32e000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7f8ddf32e000

1888 mmap(0x7f8ddf332000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7f8ddf332000

1888 close(3) = 0

1888 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

1888 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

1888 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

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

1888 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

1888 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f8ddf126000

1888 mmap(0x7f8ddf14c000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7f8ddf14c000

1888 mmap(0x7f8ddf2a1000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7f8ddf2a1000

1888 mmap(0x7f8ddf2f4000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f8ddf2f4000

1888 mmap(0x7f8ddf2fa000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f8ddf2fa000

1888 close(3) = 0

1888 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f8ddf124000

1888 arch\_prctl(ARCH\_SET\_FS, 0x7f8ddf125480) = 0

1888 set\_tid\_address(0x7f8ddf125750) = 1888

1888 set\_robust\_list(0x7f8ddf125760, 24) = 0

1888 rseq(0x7f8ddf125da0, 0x20, 0, 0x53053053) = 0

1888 mprotect(0x7f8ddf2f4000, 16384, PROT\_READ) = 0

1888 mprotect(0x7f8ddf332000, 4096, PROT\_READ) = 0

1888 mprotect(0x7f8ddf411000, 4096, PROT\_READ) = 0

1888 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f8ddf122000

1888 mprotect(0x7f8ddf66f000, 45056, PROT\_READ) = 0

1888 mprotect(0x403000, 4096, PROT\_READ) = 0

1888 mprotect(0x7f8ddf6ba000, 8192, PROT\_READ) = 0

1888 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=8192\*1024, rlim\_max=RLIM64\_INFINITY}) = 0

1888 munmap(0x7f8ddf681000, 25258) = 0

1888 futex(0x7f8ddf67d73c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

1888 getrandom("\xdd\xcb\x8a\xca\x7d\x8a\x5c\xfe", 8, GRND\_NONBLOCK) = 8

1888 brk(NULL) = 0x2de47000

1888 brk(0x2de68000) = 0x2de68000

**1888 openat(AT\_FDCWD, "shared.bin", O\_RDWR) = 3**

1888 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=28, ...}, AT\_EMPTY\_PATH) = 0

**1888 mmap(NULL, 28, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7f8ddf687000**

**1888 close(3) = 0**

**1888 munmap(0x7f8ddf687000, 28) = 0**

1888 exit\_group(0) = ?

1888 +++ exited with 0 +++

1858 <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1888

1858 --- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=1888, si\_uid=0, si\_status=0, si\_utime=0, si\_stime=1 /\* 0.01 s \*/} ---

1858 write(1, "\320\240\320\265\320\267\321\203\320\273\321\214\321\202\320\260\321\202 \320\264\320\265\320\273\320\265\320\275\320\270\321"..., 44) = 44

**1858 munmap(0x7f090aa77000, 28) = 0**

1858 lseek(0, -1, SEEK\_CUR) = -1 ESPIPE (Illegal seek)

1858 exit\_group(0) = ?

1858 +++ exited with 0 +++

**Лабораторная работа №4.**

**Program 1**

*21142 execve("./program1", ["./program1"], 0x7ffc76498648 /\* 27 vars /) = 0  
21142 brk(NULL) = 0x40323000  
21142 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff25bdfe000  
21142 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libderivative1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libderivative1.so", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 read(3, "\177ELF\2\1\1\0\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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15288, ...}, AT\_EMPTY\_PATH) = 0  
21142 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
21142 mmap(NULL, 16408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25bdf9000  
21142 mmap(0x7ff25bdfa000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7ff25bdfa000  
21142 mmap(0x7ff25bdfb000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7ff25bdfb000  
21142 mmap(0x7ff25bdfc000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7ff25bdfc000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libsquare1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libsquare1.so", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 read(3, "\177ELF\2\1\1\0\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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15160, ...}, AT\_EMPTY\_PATH) = 0  
21142 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
21142 mmap(NULL, 16400, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25bdf4000  
21142 mmap(0x7ff25bdf5000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7ff25bdf5000  
21142 mmap(0x7ff25bdf6000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7ff25bdf6000  
21142 mmap(0x7ff25bdf7000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7ff25bdf7000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0  
21142 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7ff25bded000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0  
21142 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25bb7f000  
21142 mmap(0x7ff25bc24000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7ff25bc24000  
21142 mmap(0x7ff25bd4d000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7ff25bd4d000  
21142 mmap(0x7ff25bddb000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7ff25bddb000  
21142 mmap(0x7ff25bde9000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7ff25bde9000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0  
21142 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25baa0000  
21142 mmap(0x7ff25bab0000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7ff25bab0000  
21142 mmap(0x7ff25bb23000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7ff25bb23000  
21142 mmap(0x7ff25bb7d000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7ff25bb7d000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0  
21142 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25ba73000  
21142 mmap(0x7ff25ba77000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7ff25ba77000  
21142 mmap(0x7ff25ba9a000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7ff25ba9a000  
21142 mmap(0x7ff25ba9e000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7ff25ba9e000  
21142 close(3) = 0****21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./tls/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "./libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******21142 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *21142 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832  
21142 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  
21142 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0  
21142 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff25ba71000  
21142 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  
21142 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7ff25b890000  
21142 mmap(0x7ff25b8b6000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7ff25b8b6000  
21142 mmap(0x7ff25ba0b000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7ff25ba0b000  
21142 mmap(0x7ff25ba5e000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7ff25ba5e000  
21142 mmap(0x7ff25ba64000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7ff25ba64000  
21142 close(3) = 0  
21142 mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7ff25b88d000  
21142 arch\_prctl(ARCH\_SET\_FS, 0x7ff25b88d740) = 0  
21142 set\_tid\_address(0x7ff25b88da10) = 21142  
21142 set\_robust\_list(0x7ff25b88da20, 24) = 0  
21142 rseq(0x7ff25b88e060, 0x20, 0, 0x53053053) = 0  
21142 mprotect(0x7ff25ba5e000, 16384, PROT\_READ) = 0  
21142 mprotect(0x7ff25ba9e000, 4096, PROT\_READ) = 0  
21142 mprotect(0x7ff25bb7d000, 4096, PROT\_READ) = 0  
21142 mprotect(0x7ff25bddb000, 45056, PROT\_READ) = 0  
21142 mprotect(0x7ff25bdf7000, 4096, PROT\_READ) = 0  
21142 mprotect(0x7ff25bdfc000, 4096, PROT\_READ) = 0  
21142 mprotect(0x404000, 4096, PROT\_READ) = 0  
21142 mprotect(0x7ff25be30000, 8192, PROT\_READ) = 0  
21142 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=81921024, rlim\_max=RLIM64\_INFINITY}) = 0  
21142 munmap(0x7ff25bded000, 25258) = 0  
21142 futex(0x7ff25bde973c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0  
21142 getrandom("\x05\x7d\x50\x77\xed\x92\x55\x2a", 8, GRND\_NONBLOCK) = 8  
21142 brk(NULL) = 0x40323000  
21142 brk(0x40344000) = 0x40344000  
21142 newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0  
21142 write(1, "Program1 (Linked at compile time"..., 69) = 69  
21142 write(1, "> ", 2) = 2  
21142 newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0  
21142 read(0, "1 0.0 0.001\n", 1024) = 12  
21142 write(1, "Derivative(0, 0.001) = -0.000476"..., 36) = 36  
21142 write(1, "> ", 2) = 2  
21142 read(0, "2 3 4\n", 1024) = 6  
21142 write(1, "Square(3, 4) = 12\n", 18) = 18  
21142 write(1, "> ", 2) = 2  
21142 read(0, 0x403356c0, 1024) = ? ERESTARTSYS (To be restarted if SA\_RESTART is set)  
21142 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---  
21142 +++ killed by SIGINT +++*

**Program 2**

*21142 execve("./program2", ["./program2"], 0x7ffc6da36878 /\* 27 vars /) = 0  
23380 brk(NULL) = 0xe715000  
23380 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f70abe8a000  
23380 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)****23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25258, ...}, AT\_EMPTY\_PATH) = 0  
23380 mmap(NULL, 25258, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f70abe83000  
23380 close(3) = 0****23380 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0  
23380 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70abc15000  
23380 mmap(0x7f70abcba000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7f70abcba000  
23380 mmap(0x7f70abde3000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f70abde3000  
23380 mmap(0x7f70abe71000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7f70abe71000  
23380 mmap(0x7f70abe7f000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f70abe7f000  
23380 close(3) = 0****23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./libm.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0  
23380 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70abb36000  
23380 mmap(0x7f70abb46000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7f70abb46000  
23380 mmap(0x7f70abbb9000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7f70abbb9000  
23380 mmap(0x7f70abc13000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7f70abc13000  
23380 close(3) = 0****23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0  
23380 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70abb09000  
23380 mmap(0x7f70abb0d000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f70abb0d000  
23380 mmap(0x7f70abb30000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7f70abb30000  
23380 mmap(0x7f70abb34000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7f70abb34000  
23380 close(3) = 0****23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v3/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./glibc-hwcaps/x86-64-v2/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./tls/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "./libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)******23380 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832  
23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0  
23380 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  
23380 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70ab928000  
23380 mmap(0x7f70ab94e000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7f70ab94e000  
23380 mmap(0x7f70abaa3000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7f70abaa3000  
23380 mmap(0x7f70abaf6000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f70abaf6000  
23380 mmap(0x7f70abafc000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f70abafc000  
23380 close(3) = 0  
23380 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f70ab926000  
23380 mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f70ab923000  
23380 arch\_prctl(ARCH\_SET\_FS, 0x7f70ab923740) = 0  
23380 set\_tid\_address(0x7f70ab923a10) = 23380  
23380 set\_robust\_list(0x7f70ab923a20, 24) = 0  
23380 rseq(0x7f70ab924060, 0x20, 0, 0x53053053) = 0  
23380 mprotect(0x7f70abaf6000, 16384, PROT\_READ) = 0  
23380 mprotect(0x7f70abb34000, 4096, PROT\_READ) = 0  
23380 mprotect(0x7f70abc13000, 4096, PROT\_READ) = 0  
23380 mprotect(0x7f70abe71000, 45056, PROT\_READ) = 0  
23380 mprotect(0x404000, 4096, PROT\_READ) = 0  
23380 mprotect(0x7f70abebc000, 8192, PROT\_READ) = 0  
23380 prlimit64(0, RLIMIT\_STACK, NULL, {rlim\_cur=81921024, rlim\_max=RLIM64\_INFINITY}) = 0  
23380 munmap(0x7f70abe83000, 25258) = 0  
23380 futex(0x7f70abe7f73c, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0  
23380 getrandom("\x30\xfc\x4a\x97\x0e\x39\x87\x00", 8, GRND\_NONBLOCK) = 8  
23380 brk(NULL) = 0xe715000  
23380 brk(0xe736000) = 0xe736000  
23380 newfstatat(1, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0  
23380 write(1, "Program2 (Runtime loading)\n", 27) = 27****23380 openat(AT\_FDCWD, "./libderivative1.so", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15288, ...}, AT\_EMPTY\_PATH) = 0  
23380 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
23380 mmap(NULL, 16408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70abe85000  
23380 mmap(0x7f70abe86000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f70abe86000  
23380 mmap(0x7f70abe87000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70abe87000  
23380 mmap(0x7f70abe88000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70abe88000  
23380 close(3) = 0  
23380 mprotect(0x7f70abe88000, 4096, PROT\_READ) = 0****23380 openat(AT\_FDCWD, "./libsquare1.so", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15160, ...}, AT\_EMPTY\_PATH) = 0  
23380 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
23380 mmap(NULL, 16400, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70ab91e000  
23380 mmap(0x7f70ab91f000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f70ab91f000  
23380 mmap(0x7f70ab920000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70ab920000  
23380 mmap(0x7f70ab921000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70ab921000  
23380 close(3) = 0  
23380 mprotect(0x7f70ab921000, 4096, PROT\_READ) = 0  
23380 write(1, "> ", 2) = 2  
23380 newfstatat(0, "", {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}, AT\_EMPTY\_PATH) = 0  
23380 read(0, "1 0.0 0.01\n", 1024) = 11  
23380 write(1, "Derivative(0, 0.01) = -0.0050008"..., 34) = 34  
23380 write(1, "> ", 2) = 2  
23380 read(0, "2 3 4\n", 1024) = 6  
23380 write(1, "Square(3, 4) = 12\n", 18) = 18  
23380 write(1, "> ", 2) = 2  
23380 read(0, "0\n", 1024) = 2  
23380 munmap(0x7f70abe85000, 16408) = 0  
23380 munmap(0x7f70ab91e000, 16400) = 0  
23380 write(1, "Switched to second set of librar"..., 37) = 37****23380 openat(AT\_FDCWD, "./libderivative2.so", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15288, ...}, AT\_EMPTY\_PATH) = 0  
23380 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
23380 mmap(NULL, 16408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70abe85000  
23380 mmap(0x7f70abe86000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f70abe86000  
23380 mmap(0x7f70abe87000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70abe87000  
23380 mmap(0x7f70abe88000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70abe88000  
23380 close(3) = 0  
23380 mprotect(0x7f70abe88000, 4096, PROT\_READ) = 0****23380 openat(AT\_FDCWD, "./libsquare2.so", O\_RDONLY|O\_CLOEXEC) = 3*** *23380 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  
23380 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=15232, ...}, AT\_EMPTY\_PATH) = 0  
23380 getcwd("/workspaces/MAI\_OS\_Labs/Lab4/src", 128) = 33  
23380 mmap(NULL, 16400, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f70ab91e000  
23380 mmap(0x7f70ab91f000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7f70ab91f000  
23380 mmap(0x7f70ab920000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70ab920000  
23380 mmap(0x7f70ab921000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f70ab921000  
23380 close(3) = 0  
23380 mprotect(0x7f70ab921000, 4096, PROT\_READ) = 0  
23380 write(1, "> ", 2) = 2  
23380 read(0, "1 0.0 0.01\n", 1024) = 11  
23380 write(1, "Derivative(0, 0.01) = 0\n", 24) = 24  
23380 write(1, "> ", 2) = 2  
23380 read(0, "2 3 4\n", 1024) = 6  
23380 write(1, "Square(3, 4) = 6\n", 17) = 17  
23380 write(1, "> ", 2) = 2  
23380 read(0, 0xe729610, 1024) = ? ERESTARTSYS (To be restarted if SA\_RESTART is set)  
23380 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---  
23380 +++ killed by SIGINT +++*

**Лабораторная работа 5-7.**

**18039 execve("./control", ["./control"], 0x7ffde6015368 /\* 26 vars \*/) = 0**

18039 brk(NULL) = 0x6b3a000

18039 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f1d0466d000

18039 access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

18039 openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=25786, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 25786, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f1d04666000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libzmq.so.5", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=774184, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 772088, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d045a9000

18039 mmap(0x7f1d045c2000, 487424, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19000) = 0x7f1d045c2000

18039 mmap(0x7f1d04639000, 147456, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x90000) = 0x7f1d04639000

18039 mmap(0x7f1d0465d000, 36864, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xb4000) = 0x7f1d0465d000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/usr/local/lib64/libstdc++.so.6", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=2530008, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 2543808, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d0433b000

18039 mmap(0x7f1d043e0000, 1216512, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa5000) = 0x7f1d043e0000

18039 mmap(0x7f1d04509000, 581632, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f1d04509000

18039 mmap(0x7f1d04597000, 57344, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25c000) = 0x7f1d04597000

18039 mmap(0x7f1d045a5000, 12480, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f1d045a5000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libm.so.6", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=907784, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 909560, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d0425c000

18039 mmap(0x7f1d0426c000, 471040, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7f1d0426c000

18039 mmap(0x7f1d042df000, 368640, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x83000) = 0x7f1d042df000

18039 mmap(0x7f1d04339000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xdc000) = 0x7f1d04339000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/usr/local/lib64/libgcc\_s.so.1", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=906528, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 181160, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d0422f000

18039 mmap(0x7f1d04233000, 143360, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f1d04233000

18039 mmap(0x7f1d04256000, 16384, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x27000) = 0x7f1d04256000

18039 mmap(0x7f1d0425a000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2b000) = 0x7f1d0425a000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

18039 read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\20t\2\0\0\0\0\0"..., 832) = 832

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0755, st\_size=1922136, ...}, AT\_EMPTY\_PATH) = 0

18039 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

18039 mmap(NULL, 1970000, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d0404e000

18039 mmap(0x7f1d04074000, 1396736, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x26000) = 0x7f1d04074000

18039 mmap(0x7f1d041c9000, 339968, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17b000) = 0x7f1d041c9000

18039 mmap(0x7f1d0421c000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1ce000) = 0x7f1d0421c000

18039 mmap(0x7f1d04222000, 53072, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f1d04222000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libbsd.so.0", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=84840, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f1d0404c000

18039 mmap(NULL, 86224, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d04036000

18039 mmap(0x7f1d0403a000, 49152, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f1d0403a000

18039 mmap(0x7f1d04046000, 12288, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x10000) = 0x7f1d04046000

18039 mmap(0x7f1d04049000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x13000) = 0x7f1d04049000

18039 mmap(0x7f1d0404b000, 208, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f1d0404b000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libsodium.so.23", O\_RDONLY|O\_CLOEXEC) = 3

18039 read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0 \314\0\0\0\0\0\0"..., 832) = 832

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=363208, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 365576, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d03fdc000

18039 mprotect(0x7f1d03fe8000, 311296, PROT\_NONE) = 0

18039 mmap(0x7f1d03fe8000, 233472, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xc000) = 0x7f1d03fe8000

18039 mmap(0x7f1d04021000, 73728, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x45000) = 0x7f1d04021000

18039 mmap(0x7f1d04034000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x57000) = 0x7f1d04034000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpgm-5.3.so.0", O\_RDONLY|O\_CLOEXEC) = 3

18039 read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220I\0\0\0\0\0\0"..., 832) = 832

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=306400, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 326096, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d03f8c000

18039 mmap(0x7f1d03f90000, 167936, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4000) = 0x7f1d03f90000

18039 mmap(0x7f1d03fb9000, 118784, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2d000) = 0x7f1d03fb9000

18039 mmap(0x7f1d03fd6000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x49000) = 0x7f1d03fd6000

18039 mmap(0x7f1d03fd8000, 14800, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f1d03fd8000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libnorm.so.1", O\_RDONLY|O\_CLOEXEC) = 3

18039 read(3, "\177ELF\2\1\1\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300\246\0\0\0\0\0\0"..., 832) = 832

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=489480, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 1214976, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d03e63000

18039 mprotect(0x7f1d03e6d000, 438272, PROT\_NONE) = 0

18039 mmap(0x7f1d03e6d000, 278528, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa000) = 0x7f1d03e6d000

18039 mmap(0x7f1d03eb1000, 155648, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4e000) = 0x7f1d03eb1000

18039 mmap(0x7f1d03ed8000, 16384, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x74000) = 0x7f1d03ed8000

18039 mmap(0x7f1d03edc000, 719360, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f1d03edc000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libgssapi\_krb5.so.2", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=338680, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 337152, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d03e10000

18039 mmap(0x7f1d03e1c000, 221184, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xc000) = 0x7f1d03e1c000

18039 mmap(0x7f1d03e52000, 53248, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x42000) = 0x7f1d03e52000

18039 mmap(0x7f1d03e5f000, 16384, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x4f000) = 0x7f1d03e5f000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libmd.so.0", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=47312, ...}, AT\_EMPTY\_PATH) = 0

18039 mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f1d03e0e000

18039 mmap(NULL, 49384, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f1d03e01000

18039 mmap(0x7f1d03e03000, 28672, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f1d03e03000

18039 mmap(0x7f1d03e0a000, 8192, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x9000) = 0x7f1d03e0a000

18039 mmap(0x7f1d03e0c000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0xa000) = 0x7f1d03e0c000

18039 close(3) = 0

18039 openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", O\_RDONLY|O\_CLOEXEC) = 3

18039 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

18039 newfstatat(3, "", {st\_mode=S\_IFREG|0644, st\_size=14480, ...}, AT\_EMPTY\_PATH) = 0

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18124 getpid() = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

**18039 <... pselect6 resumed>) = 0 (Timeout)**

18101 getpid( <unfinished ...>

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... getpid resumed>) = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 getpid() = 18101

18101 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18124 getpid() = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18074 getpid() = 18074

18074 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18039 getpid() = 18039

18039 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18039 getpid() = 18039

18039 poll([{fd=16, events=POLLIN}], 1, 0 <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18039 <... poll resumed>) = 0 (Timeout)

18101 getpid( <unfinished ...>

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL <unfinished ...>**

18101 <... getpid resumed>) = 18101

**18039 <... pselect6 resumed>) = 0 (Timeout)**

18101 poll([{fd=15, events=POLLIN}], 1, 0 <unfinished ...>

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... poll resumed>) = 0 (Timeout)

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18074 getpid() = 18074

18074 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18101 getpid() = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 getpid() = 18101

18101 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18101 <... poll resumed>) = 0 (Timeout)

18039 getpid( <unfinished ...>

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... getpid resumed>) = 18039

18039 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18039 getpid() = 18039

18039 poll([{fd=16, events=POLLIN}], 1, 0) = 0 (Timeout)

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL) = 0 (Timeout)**

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18124 getpid() = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18074 getpid() = 18074

18074 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18118 getpid( <unfinished ...>

18039 <... getpid resumed>) = 18039

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 poll([{fd=16, events=POLLIN}], 1, 0 <unfinished ...>

18118 <... getpid resumed>) = 18101

18039 <... poll resumed>) = 0 (Timeout)

18118 poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL <unfinished ...>**

18118 <... poll resumed>) = 1 ([{fd=6, revents=POLLIN}])

**18039 <... pselect6 resumed>) = 0 (Timeout)**

18118 getpid( <unfinished ...>

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18118 <... getpid resumed>) = 18101

18124 getpid( <unfinished ...>

18118 read(6, <unfinished ...>

18124 <... getpid resumed>) = 18124

18118 <... read resumed>"\1\0\0\0\0\0\0\0", 8) = 8

18124 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18118 epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN|EPOLLOUT, data={u32=1275073584, u64=140468180489264}} <unfinished ...>

18124 <... poll resumed>) = 0 (Timeout)

18118 <... epoll\_ctl resumed>) = 0

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

**18118 sendto(9, "\0\200\4\0\0\0\2\0\0\0\0\0\0\0\376\177\0\0\244Omg\0\0\0\0\0\0\0\0\0\0"..., 130, 0, NULL, 0 <unfinished ...>**

18074 <... clock\_nanosleep resumed>NULL) = 0

**18118 <... sendto resumed>) = 130**

18103 <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=4093643728, u64=139762329455568}}], 256, -1) = 1

18118 getpid( <unfinished ...>

18074 getpid( <unfinished ...>

18118 <... getpid resumed>) = 18101

**18103 recvfrom(18, <unfinished ...>**

18118 poll([{fd=6, events=POLLIN}], 1, 0 <unfinished ...>

18074 <... getpid resumed>) = 18074

18118 <... poll resumed>) = 0 (Timeout)

**18103 <... recvfrom resumed>"\0\200\4\0\0\0\2\0\0\0\0\0\0\0\376\177\0\0\244Omg\0\0\0\0\0\0\0\0\0\0"..., 8192, 0, NULL, NULL) = 130**

18118 epoll\_wait(7, <unfinished ...>

18074 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18118 <... epoll\_wait resumed>[{events=EPOLLOUT, data={u32=1275073584, u64=140468180489264}}], 256, -1) = 1

18103 getpid( <unfinished ...>

18118 epoll\_ctl(7, EPOLL\_CTL\_MOD, 9, {events=EPOLLIN, data={u32=1275073584, u64=140468180489264}} <unfinished ...>

18074 <... poll resumed>) = 0 (Timeout)

18118 <... epoll\_ctl resumed>) = 0

18103 <... getpid resumed>) = 18039

18118 epoll\_wait(7, <unfinished ...>

18074 getpid( <unfinished ...>

18103 write(16, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

18074 <... getpid resumed>) = 18074

18103 <... write resumed>) = 8

18074 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18103 epoll\_wait(15, <unfinished ...>

18074 <... poll resumed>) = 0 (Timeout)

18074 getpid() = 18074

18074 write(6, "\1\0\0\0\0\0\0\0", 8 <unfinished ...>

18082 <... epoll\_wait resumed>[{events=EPOLLIN, data={u32=975308208, u64=975308208}}], 256, -1) = 1

18074 <... write resumed>) = 8

18039 getpid() = 18039

18039 poll([{fd=16, events=POLLIN}], 1, 0) = 0 (Timeout)

18039 getpid() = 18039

18039 poll([{fd=16, events=POLLIN}], 1, 0 <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18039 <... poll resumed>) = 0 (Timeout)

18074 getpid( <unfinished ...>

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL <unfinished ...>**

18074 <... getpid resumed>) = 18074

**18039 <... pselect6 resumed>) = 0 (Timeout)**

18074 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... poll resumed>) = 0 (Timeout)

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18101 getpid() = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 getpid() = 18101

18101 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18124 getpid() = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18039 getpid( <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18039 <... getpid resumed>) = 18039

18074 getpid( <unfinished ...>

18039 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18074 <... getpid resumed>) = 18074

18039 <... poll resumed>) = 0 (Timeout)

18074 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 getpid() = 18039

18074 <... poll resumed>) = 0 (Timeout)

18039 poll([{fd=16, events=POLLIN}], 1, 0 <unfinished ...>

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... poll resumed>) = 0 (Timeout)

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL) = 0 (Timeout)**

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18101 getpid() = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0) = 0 (Timeout)

18101 getpid() = 18101

18101 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18101 <... poll resumed>) = 0 (Timeout)

18124 getpid( <unfinished ...>

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... getpid resumed>) = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18074 getpid() = 18074

18074 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18074 <... poll resumed>) = 0 (Timeout)

18039 getpid( <unfinished ...>

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... getpid resumed>) = 18039

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18101 getpid() = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18101 <... poll resumed>) = 0 (Timeout)

18039 getpid( <unfinished ...>

18101 getpid( <unfinished ...>

18039 <... getpid resumed>) = 18039

18101 <... getpid resumed>) = 18101

18039 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18101 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... poll resumed>) = 0 (Timeout)

18101 <... poll resumed>) = 0 (Timeout)

18039 getpid( <unfinished ...>

18101 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18039 <... getpid resumed>) = 18039

18039 poll([{fd=16, events=POLLIN}], 1, 0) = 0 (Timeout)

**18039 pselect6(1, [0], NULL, NULL, {tv\_sec=0, tv\_nsec=0}, NULL) = 0 (Timeout)**

18039 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18124 getpid() = 18124

18124 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18124 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = 0

18074 getpid() = 18074

18074 poll([{fd=8, events=POLLIN}], 1, 0) = 0 (Timeout)

18074 clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=0, tv\_nsec=50000000}, <unfinished ...>

18101 <... clock\_nanosleep resumed>NULL) = 0

18101 getpid() = 18101

18101 poll([{fd=15, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... clock\_nanosleep resumed>NULL) = 0

18101 <... poll resumed>) = 0 (Timeout)

18039 getpid( <unfinished ...>

18101 getpid( <unfinished ...>

18039 <... getpid resumed>) = 18039

18101 <... getpid resumed>) = 18101

18039 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18124 <... clock\_nanosleep resumed>NULL) = 0

18101 poll([{fd=8, events=POLLIN}], 1, 0 <unfinished ...>

18039 <... poll resumed>) = 0 (Timeout)

18124 getpid( <unfinished ...>

18074 <... clock\_nanosleep resumed>NULL) = ? ERESTART\_RESTARTBLOCK (Interrupted by signal)

18039 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---

18124 <... getpid resumed>) = 18124

18101 <... poll resumed>) = ? ERESTART\_RESTARTBLOCK (Interrupted by signal)

18124 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---

18103 <... epoll\_wait resumed> <unfinished ...>) = ?

18102 <... epoll\_wait resumed> <unfinished ...>) = ?

18076 <... epoll\_wait resumed> <unfinished ...>) = ?

18075 <... epoll\_wait resumed> <unfinished ...>) = ?

18074 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---

18128 <... epoll\_wait resumed> <unfinished ...>) = ?

18127 <... epoll\_wait resumed> <unfinished ...>) = ?

18103 +++ killed by SIGINT +++

18102 +++ killed by SIGINT +++

18101 --- SIGINT {si\_signo=SIGINT, si\_code=SI\_KERNEL} ---

18076 +++ killed by SIGINT +++

18128 +++ killed by SIGINT +++

18127 +++ killed by SIGINT +++

18126 <... epoll\_wait resumed> <unfinished ...>) = ?

18125 <... epoll\_wait resumed> <unfinished ...>) = ?

18124 +++ killed by SIGINT +++

18118 <... epoll\_wait resumed> <unfinished ...>) = ?

18117 <... epoll\_wait resumed> <unfinished ...>) = ?

18082 <... epoll\_wait resumed> <unfinished ...>) = ?

18080 <... epoll\_wait resumed> <unfinished ...>) = ?

18075 +++ killed by SIGINT +++

18039 +++ killed by SIGINT +++

18126 +++ killed by SIGINT +++

18125 +++ killed by SIGINT +++

18118 +++ killed by SIGINT +++

18117 +++ killed by SIGINT +++

18101 +++ killed by SIGINT +++

18082 +++ killed by SIGINT +++

18080 +++ killed by SIGINT +++

18074 +++ killed by SIGINT +++

**Вывод**

При выполнении лабораторных работ по курсу “Операционные Системы” мне часто приходилось пользоваться утилитой strace. Она показывает выполняемые процессы, команды, взаимосвязи: одним словом, необходимые разработчику вещи для отладки любой программы. А наличие у strace возможности задавать флаги, указывающие, что именно следует сохранять, делает эту утилиту особенно удобной! Мне было приятно познакомиться с strace и я буду и дальше использовать его в работе!