Московский Авиационный Институт

(Национальный Исследовательский Университет)

Институт №8 "Компьютерные науки и прикладная математика"

Кафедра №806 "Вычислительная математика и программирование"

Лабораторная работа №5 по курсу

«Операционные системы»

Группа: М8О-209БВ-24

Студент: Попов П.А.

Преподаватель: Миронов Е.С.

Оценка: _____

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Постановка задачи

Цель работы:

Приобретение практических навыков диагностики работы программного обеспечения.

Общий метод и алгоритм решения

Для анализа поведения и взаимодействия программ с операционной системой в ходе выполнения лабораторных работ использовалась утилита strace. Этот инструмент позволяет отслеживать и записывать все системные вызовы, выполняемые процессом, предоставляя детальную информацию о его работе на уровне ядра ОС.

Основным применяемым флагом был -f, который обеспечивает трассировку не только основного процесса, но и всех его дочерних процессов. Это критически важно для полного понимания работы многопоточных приложений и программ, создающих дополнительные процессы для выполнения задач.

Утилита strace также предоставляет другие полезные опции, такие как фильтрация по типам вызовов (-e trace=), вывод в файл (-o), подключение к работающим процессам (-p), статистический вывод (-c), временные метки (-t, -tt, -ttt), ограничение длины строк (-s) и расшифровка файловых дескрипторов (-y).

Применение этого метода исследования превратило теоретические знания о работе программ в наблюдаемые и измеряемые данные, что способствовало более глубокому пониманию принципов системного программирования и взаимодействия приложений с операционной системой.

Протокол работы программы

Лабораторная работа №1

Strace

$ strace -f ./parent -f

execve("./parent", ["./parent", "-f"], 0x7ffff4a72830 /* 27 vars */) = 0

brk(NULL)   = 0x5f0b4f33a000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x748393a85000

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

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x748393a7a000

close(3)   = 0

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openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

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

fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

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

mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x748393800000

mmap(0x748393828000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x748393828000

mmap(0x7483939b0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x7483939b0000

mmap(0x7483939ff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x7483939ff000

mmap(0x748393a05000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x748393a05000

close(3)                    = 0

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1,
0) = 0x748393a77000

arch_prctl(ARCH_SET_FS, 0x748393a77740) = 0

set_tid_address(0x748393a77a10)       = 1431

set_robust_list(0x748393a77a20, 24)    = 0

rseq(0x748393a78060, 0x20, 0, 0x53053053) = 0

mprotect(0x7483939ff000, 16384, PROT_READ) = 0

mprotect(0x5f0b4be37000, 4096, PROT_READ) = 0

mprotect(0x748393abd000, 8192, PROT_READ) = 0

prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) =
0

munmap(0x748393a7a000, 41635)         = 0

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x2), ...}) = 0

getrandom("\x1b\x14\xfa\xec\xd5\xbd\x6b\x27", 8, GRND_NONBLOCK) = 8

brk(NULL)                   = 0x5f0b4f33a000

brk(0x5f0b4f35b000)              = 0x5f0b4f35b000
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write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265 \320\270\320\274\321\217\321\204\320\260\320\271\320\273\320\260"..., 48Введите имя файла для child1:) = 48

fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x2), ...}) = 0

read(0, file1.txt

"file1.txt\n", 1024)   = 10

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265 \320\270\320\274\321\217\321\204\320\260\320\271\320\273\320\260"..., 48Введите имя файла для child2:) = 48

read(0, file2.txt

"file2.txt\n", 1024)   = 10

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

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

write(1, "\n", 1

)   = 1

write(1, "=== \320\235\320\260\321\207\320\260\320\273\320\276\320\276\320\261\321\200\320\260\320\261\320\276\321\202\320"..., 51=== Начало обработки строк ===

) = 51

write(1, "\320\222\320\262\320\276\320\264\320\270\321\202\320\265 \321\201\321\202\321\200\320\276\320\272\320\270 (Ctr"..., 77Введите строки (Ctrl+D для завершения ввода):

) = 77

write(1, "-------------------------------"..., 45---

) = 45

clone(child_stack=NULL, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLDstrace: Process 1432 attached

, child_tidptr=0x748393a77a10) = 1432

[pid 1432] set_robust_list(0x748393a77a20, 24 <unfinished ...>

[pid 1431] close(3 <unfinished ...>

[pid 1432] <... set_robust_list resumed>) = 0

[pid 1431] <... close resumed>)   = 0

[pid 1431] **clone(child_stack=NULL, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD <unfinished ...>**

[pid 1432] dup2(3, 0)   = 0

[pid 1432] close(3)   = 0

strace: Process 1433 attached

[pid 1431] <... clone resumed>, child_tidptr=0x748393a77a10) = 1433

[pid 1432] close(4 <unfinished ...>

[pid 1431] close(5 <unfinished ...>

[pid 1433] set_robust_list(0x748393a77a20, 24 <unfinished ...>

[pid 1431] <... close resumed>)   = 0

[pid 1432] <... close resumed>)   = 0

[pid 1431] read(0, <unfinished ...>

[pid 1433] <... set_robust_list resumed>) = 0

[pid 1432] close(5 <unfinished ...>

[pid 1433] dup2(5, 0 <unfinished ...>

[pid 1432] <... close resumed>)   = 0

[pid 1433] <... dup2 resumed>)   = 0

[pid 1432] close(6 <unfinished ...>

[pid 1433] close(5 <unfinished ...>

[pid 1432] <... close resumed>)   = 0

[pid 1433] <... close resumed>)   = 0

[pid 1432] execve("./child", ["child", "file1.txt"], 0x7ffd91b7e790 /* 27 vars */ <unfinished ...>

[pid 1433] close(6)   = 0

[pid 1433] close(3)   = -1 EBADF (Bad file descriptor)

[pid 1433] close(4)   = 0

[pid 1433] execve("./child", ["child", "file2.txt"], 0x7ffd91b7e790 /* 27 vars */) = 0

[pid 1432] <... execve resumed>)   = 0

[pid 1433] brk(NULL <unfinished ...>

[pid 1432] brk(NULL <unfinished ...>

[pid 1433] <... brk resumed>)   = 0x5684271b7000

[pid 1432] <... brk resumed>)   = 0x6198e6c7c000

[pid 1433] mmap(NULL, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7119f23df000

[pid 1432] mmap(NULL, 8192, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 1433] access("/etc/ld.so.preload", R_OK <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x7560713e3000

[pid 1433] <... access resumed>)   = -1 ENOENT (No such file or directory)

[pid 1432] access("/etc/ld.so.preload", R_OK <unfinished ...>

[pid 1433] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 1432] <... access resumed>)   = -1 ENOENT (No such file or directory)

[pid 1433] <... openat resumed>)   = 3

[pid 1432] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

[pid 1433] fstat(3, <unfinished ...>

[pid 1432] <... openat resumed>)   = 3

[pid 1433] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1432] fstat(3, <unfinished ...>

[pid 1433] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0 <unfinished ...>

[pid 1432] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1433] <... mmap resumed>)   = 0x7119f23d4000

[pid 1432] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0 <unfinished ...>

[pid 1433] close(3)   = 0

[pid 1432] <... mmap resumed>)   = 0x7560713d8000

[pid 1433] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC
<unfinished ...>

[pid 1432] close(3 <unfinished ...>

[pid 1433] <... openat resumed>)   = 3

[pid 1432] <... close resumed>)   = 0

[pid 1433] read(3, <unfinished ...>

[pid 1432] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC
<unfinished ...>

[pid 1433] <... read
resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid 1432] <... openat resumed>)   = 3

[pid 1433] pread64(3, <unfinished ...>

[pid 1432] read(3, <unfinished ...>

[pid 1433] <... pread64 resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1432] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid 1433] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1432] pread64(3, <unfinished ...>

[pid 1433] pread64(3, <unfinished ...>

[pid 1432] <... pread64 resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1433] <... pread64 resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1432] fstat(3, <unfinished ...>

[pid 1433] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 1432] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1433] <... mmap resumed>)   = 0x7119f2000000

[pid 1432] pread64(3, <unfinished ...>

[pid 1433] mmap(0x7119f2028000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000 <unfinished ...>

[pid 1432] <... pread64 resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1433] <... mmap resumed>)   = 0x7119f2028000

[pid 1432] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished ...>

[pid 1433] mmap(0x7119f21b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x756071000000

[pid 1433] <... mmap resumed>)   = 0x7119f21b0000

[pid 1432] mmap(0x756071028000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000 <unfinished ...>

[pid 1433] mmap(0x7119f21ff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x756071028000

[pid 1433] <... mmap resumed>)   = 0x7119f21ff000

[pid 1432] mmap(0x7560711b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000 <unfinished ...>

[pid 1433] mmap(0x7119f2205000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x7560711b0000

[pid 1433] <... mmap resumed>)   = 0x7119f2205000

[pid 1432] mmap(0x7560711ff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000 <unfinished ...>

[pid 1433] close(3 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x7560711ff000

[pid 1433] <... close resumed>)   = 0

[pid 1432] mmap(0x756071205000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 1433] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x756071205000

[pid 1433] <... mmap resumed>)   = 0x7119f23d1000

[pid 1432] close(3 <unfinished ...>

[pid 1433] arch_prctl(ARCH_SET_FS, 0x7119f23d1740 <unfinished ...>

[pid 1432] <... close resumed>)   = 0

[pid 1433] <... arch_prctl resumed>)   = 0

[pid 1432] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0 <unfinished ...>

[pid 1433] set_tid_address(0x7119f23d1a10 <unfinished ...>

[pid 1432] <... mmap resumed>)   = 0x7560713d5000

[pid 1433] <... set_tid_address resumed>) = 1433

[pid 1432] arch_prctl(ARCH_SET_FS, 0x7560713d5740 <unfinished ...>

[pid 1433] set_robust_list(0x7119f23d1a20, 24 <unfinished ...>

[pid 1432] <... arch_prctl resumed>)   = 0

[pid 1433] <... set_robust_list resumed>) = 0

[pid 1432] set_tid_address(0x7560713d5a10 <unfinished ...>

[pid 1433] rseq(0x7119f23d2060, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1432] <... set_tid_address resumed>) = 1432

[pid 1433] <... rseq resumed>)   = 0

[pid 1432] set_robust_list(0x7560713d5a20, 24) = 0

[pid 1433] mprotect(0x7119f21ff000, 16384, PROT_READ <unfinished ...>

[pid 1432] rseq(0x7560713d6060, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1433] <... mprotect resumed>)   = 0

[pid 1432] <... rseq resumed>)   = 0

[pid 1433] mprotect(0x5683fa9d3000, 4096, PROT_READ) = 0

[pid 1432] mprotect(0x7560711ff000, 16384, PROT_READ <unfinished ...>

[pid 1433] mprotect(0x7119f2417000, 8192, PROT_READ <unfinished ...>

[pid 1432] <... mprotect resumed>)   = 0

[pid 1433] <... mprotect resumed>)   = 0

[pid 1432] mprotect(0x6198dee8f000, 4096, PROT_READ <unfinished ...>

[pid 1433] prlimit64(0, RLIMIT_STACK, NULL, <unfinished ...>

[pid 1432] <... mprotect resumed>)   = 0

[pid 1433] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1432] mprotect(0x75607141b000, 8192, PROT_READ <unfinished ...>

[pid 1433] munmap(0x7119f23d4000, 41635 <unfinished ...>

[pid 1432] <... mprotect resumed>)   = 0

[pid 1433] <... munmap resumed>)   = 0

[pid 1432] prlimit64(0, RLIMIT_STACK, NULL, <unfinished ...>

[pid 1433] getrandom(<unfinished ...>

[pid 1432] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1433] <... getrandom resumed>"\x17\x53\x5b\x4b\x58\x8e\xa7\xf5", 8,
GRND_NONBLOCK) = 8

[pid 1432] munmap(0x7560713d8000, 41635 <unfinished ...>

[pid 1433] brk(NULL <unfinished ...>

[pid 1432] <... munmap resumed>)   = 0

[pid 1433] <... brk resumed>)   = 0x5684271b7000

[pid 1432] getrandom(<unfinished ...>

[pid 1433] brk(0x5684271d8000 <unfinished ...>

[pid 1432] <... getrandom resumed>"\x52\xac\x32\x9c\x3f\xf0\xc6\x88", 8, GRND_NONBLOCK) = 8

[pid 1433] <... brk resumed>)   = 0x5684271d8000

[pid 1432] brk(NULL <unfinished ...>

[pid 1433] openat(AT_FDCWD, "file2.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666 <unfinished ...>

[pid 1432] <... brk resumed>)   = 0x6198e6c7c000

[pid 1432] brk(0x6198e6c9d000)   = 0x6198e6c9d000

[pid 1432] openat(AT_FDCWD, "file1.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666 <unfinished ...>

[pid 1433] <... openat resumed>)   = 3

[pid 1432] <... openat resumed>)   = 3

[pid 1433] fstat(0, <unfinished ...>

[pid 1432] fstat(0, <unfinished ...>

[pid 1433] <... fstat resumed>{st_mode=S_IFIFO|0600, st_size=0, ...}) = 0

[pid 1432] <... fstat resumed>{st_mode=S_IFIFO|0600, st_size=0, ...}) = 0

[pid 1433] read(0, <unfinished ...>

[pid 1432] read(0, Hello World

 <unfinished ...>

[pid 1431] <... read resumed>"Hello World\n", 1024) = 12

[pid 1431] write(4, "Hello World\n", 12) = 12

[pid 1432] <... read resumed>"Hello World\n", 4096) = 12

[pid 1431] write(1, "[child1] \320\241\321\202\321\200\320\276\320\272\320\260 1: Hello W"..., 37 <unfinished ...>

[child1] Строка 1: Hello World

[pid 1432] fstat(3, <unfinished ...>

[pid 1431] <... write resumed>) = 37

[pid 1431] read(0, <unfinished ...>

[pid 1432] <... fstat resumed>{st_mode=S_IFREG|0777, st_size=0, ...}) = 0

[pid 1432] write(3, "Hll Wrld\n", 9) = 9

[pid 1432] read(0, Test String

 <unfinished ...>

[pid 1431] <... read resumed>"Test String\n", 1024) = 12

[pid 1431] write(6, "Test String\n", 12) = 12

[pid 1433] <... read resumed>"Test String\n", 4096) = 12

[pid 1431] write(1, "[child2] \320\241\321\202\321\200\320\276\320\272\320\260 2: Test St"..., 37 <unfinished ...>

[pid 1433] fstat(3, [child2] Строка 2: Test String

 <unfinished ...>

[pid 1431] <... write resumed>) = 37

[pid 1431] read(0, <unfinished ...>

[pid 1433] <... fstat resumed>{st_mode=S_IFREG|0777, st_size=0, ...}) = 0

[pid 1433] write(3, "Tst Strng\n", 10) = 10

[pid 1433] read(0, Operating System

 <unfinished ...>

[pid 1431] <... read resumed>"Operating System\n", 1024) = 17

[pid 1431] write(4, "Operating System\n", 17) = 17

[pid 1432] <... read resumed>"Operating System\n", 4096) = 17

[pid 1431] write(1, "[child1] \320\241\321\202\321\200\320\276\320\272\320\260 3: Operati"..., 42 <unfinished ...>

[child1] Строка 3: Operating System

[pid 1432] write(3, "prtng Sstm\n", 11 <unfinished ...>

[pid 1431] <... write resumed>) = 42

[pid 1431] read(0, <unfinished ...>

[pid 1432] <... write resumed>) = 11

[pid 1432] read(0, <unfinished ...>

[pid 1431] <... read resumed>"", 1024) = 0

[pid 1431] write(1, "\n", 1

)   = 1

[pid 1431] write(1, "[INFO] \320\232\320\276\320\275\320\265\321\206 \320\262\320\262\320\276\320\264\320\260 (EO"..., 35[INFO] Конец ввода (EOF)

) = 35

[pid 1431] write(1, "\n", 1

)   = 1

[pid 1431] write(1, "------------------------------"..., 45---

) = 45

[pid 1431] write(1, "\320\236\320\266\320\270\320\264\320\260\320\275\320\270\320\265 \320\267\320\260\320\262\320\265\321\200\321\210\320\265\320"..., 77Ожидание завершения дочерних процессов...

) = 77

[pid 1431] close(4)   = 0

[pid 1432] <... read resumed>"", 4096) = 0

[pid 1431] close(6 <unfinished ...>

[pid 1432] close(3 <unfinished ...>

[pid 1431] <... close resumed>)   = 0

[pid 1433] <... read resumed>"", 4096) = 0

[pid 1431] wait4(1432, <unfinished ...>

[pid 1433] close(3 <unfinished ...>

[pid 1432] <... close resumed>)   = 0

[pid 1432] exit_group(0 <unfinished ...>

[pid 1433] <... close resumed>)   = 0

[pid 1432] <... exit_group resumed>)   = ?

[pid 1433] exit_group(0)   = ?

[pid 1432] +++ exited with 0 +++

[pid 1431] <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1432

[pid 1431] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1432, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

[pid 1433] +++ exited with 0 +++

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1433, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

wait4(1433, [{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1433

write(1, "\n", 1

)   = 1

write(1, "=== \320\240\320\225\320\227\320\243\320\233\320\254\320\242\320\220\320\242\320\253 \320\240\320\220\320\221\320"..., 42=== РЕЗУЛЬТАТЫ РАБОТЫ ===

) = 42

write(1, "child1 \320\267\320\260\320\262\320\265\321\200\321\210\320\270\320\273\321\201\321\217 \321\201\320"..., 45child1 завершился с кодом: 0

) = 45

write(1, "child2 \320\267\320\260\320\262\320\265\321\200\321\210\320\270\320\273\321\201\321\217 \321\201\320"..., 45child2 завершился с кодом: 0

) = 45

write(1, "\n", 1

)   = 1

write(1, "\320\240\320\265\320\267\321\203\320\273\321\214\321\202\320\260\321\202\321\213\320\267\320\260\320\277\320\270\321\201\320"..., 53Результаты записаны в файлы:

) = 53

write(1, "\342\200\242 file1.txt (child1, \320\275\320\265\321\207\320\265\321"..., 54• file1.txt (child1, нечетные строки)

) = 54

write(1, "\342\200\242 file2.txt (child2, \321\207\320\265\321\202\320\275\321"..., 50• file2.txt (child2, четные строки)

) = 50

write(1, "\n--- \320\241\320\276\320\264\320\265\321\200\320\266\320\270\320\274\320\276\320\265 file1."..., 40

--- Содержимое file1.txt ---

) = 40

rt_sigaction(SIGINT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

rt_sigprocmask(SIG_BLOCK, [CHLD], [], 8) = 0

mmap(NULL, 36864, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) = 0x748393a7c000

rt_sigprocmask(SIG_BLOCK, ~[], [CHLD], 8) = 0

clone3({flags=CLONE_VM|CLONE_VFORK|CLONE_CLEAR_SIGHAND, exit_signal=SIGCHLD, stack=0x748393a7c000, stack_size=0x9000}, 88strace: Process 1436 attached

 <unfinished ...>

[pid 1436] rt_sigprocmask(SIG_BLOCK, NULL, ~[KILL STOP], 8) = 0

[pid 1436] rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

[pid 1436] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

[pid 1436] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

[pid 1436] execve("/bin/sh", ["sh", "-c", "--", "cat file1.txt 2>/dev/null"], 0x7ffd91b7e790 /* 27 vars */ <unfinished ...>

[pid 1431] <... clone3 resumed>)   = 1436

[pid 1431] munmap(0x748393a7c000, 36864) = 0

[pid 1436] <... execve resumed>)   = 0

[pid 1431] rt_sigprocmask(SIG_SETMASK, [CHLD], <unfinished ...>

[pid 1436] brk(NULL <unfinished ...>

[pid 1431] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1436] <... brk resumed>)   = 0x60091bca0000

[pid 1431] wait4(1436, <unfinished ...>

[pid 1436] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7b0a34e4b000

[pid 1436] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid 1436] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1436] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1436] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7b0a34e40000

[pid 1436] close(3)   = 0

[pid 1436] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid 1436] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid 1436] pread64(3, "\6\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1436] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1436] pread64(3, "\6\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1436] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7b0a34c00000

[pid 1436] mmap(0x7b0a34c28000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x7b0a34c28000

[pid 1436] mmap(0x7b0a34db0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x7b0a34db0000

[pid 1436] mmap(0x7b0a34dff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x7b0a34dff000

[pid 1436] mmap(0x7b0a34e05000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7b0a34e05000

[pid 1436] close(3)   = 0

[pid 1436] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x7b0a34e3d000

[pid 1436] arch_prctl(ARCH_SET_FS, 0x7b0a34e3d740) = 0

[pid 1436] set_tid_address(0x7b0a34e3da10) = 1436

[pid 1436] set_robust_list(0x7b0a34e3da20, 24) = 0

[pid 1436] rseq(0x7b0a34e3e060, 0x20, 0, 0x53053053) = 0

[pid 1436] mprotect(0x7b0a34dff000, 16384, PROT_READ) = 0

[pid 1436] mprotect(0x6008e1422000, 8192, PROT_READ) = 0

[pid 1436] mprotect(0x7b0a34e83000, 8192, PROT_READ) = 0

[pid 1436] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1436] munmap(0x7b0a34e40000, 41635) = 0

[pid 1436] getuid()   = 1000

[pid 1436] getgid()   = 1000

[pid 1436] getpid()   = 1436

[pid 1436] rt_sigaction(SIGCHLD, {sa_handler=0x6008e1417cd0, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x7b0a34c45330}, NULL, 8) = 0

[pid 1436] geteuid()   = 1000

[pid 1436] getrandom("\xec\x7d\x95\xfc\x02\x34\x7e\x94", 8, GRND_NONBLOCK) = 8

[pid 1436] brk(NULL)   = 0x60091bca0000

[pid 1436] brk(0x60091bcc1000)   = 0x60091bcc1000

[pid 1436] getppid()   = 1431

[pid 1436] newfstatat(AT_FDCWD, "/mnt/c/Dev/Projects/OS_Labs/lab1", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid 1436] newfstatat(AT_FDCWD, ".", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid 1436] geteuid()   = 1000

[pid 1436] getegid()   = 1000

[pid 1436] rt_sigaction(SIGINT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1436] rt_sigaction(SIGINT, {sa_handler=0x6008e1417cd0, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x7b0a34c45330}, NULL, 8) = 0

[pid 1436] rt_sigaction(SIGQUIT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1436] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x7b0a34c45330}, NULL, 8) = 0

[pid 1436] rt_sigaction(SIGTERM, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1436] rt_sigaction(SIGTERM, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x7b0a34c45330}, NULL, 8) = 0

[pid 1436] openat(AT_FDCWD, "/dev/null", O_WRONLY|O_CREAT|O_TRUNC, 0666) = 3

[pid 1436] fcntl(2, F_DUPFD, 10)   = 10

[pid 1436] close(2)   = 0

[pid 1436] fcntl(10, F_SETFD, FD_CLOEXEC) = 0

[pid 1436] dup2(3, 2)   = 2

[pid 1436] close(3)   = 0

[pid 1436] newfstatat(AT_FDCWD, "/usr/local/sbin/cat", 0x7ffff701c480, 0) = -1 ENOENT (No such file or directory)

[pid 1436] newfstatat(AT_FDCWD, "/usr/local/bin/cat", 0x7ffff701c480, 0) = -1 ENOENT (No such file or directory)

[pid 1436] newfstatat(AT_FDCWD, "/usr/sbin/cat", 0x7ffff701c480, 0) = -1 ENOENT (No such file or directory)

[pid 1436] newfstatat(AT_FDCWD, "/usr/bin/cat", {st_mode=S_IFREG|0755, st_size=39384, ...}, 0) = 0

[pid 1436] rt_sigprocmask(SIG_SETMASK, ~[RTMIN RT_1], NULL, 8) = 0

[pid 1436] vfork(strace: Process 1437 attached

 <unfinished ...>

[pid 1437] rt_sigprocmask(SIG_SETMASK, [], ~[KILL STOP RTMIN RT_1], 8) = 0

[pid 1437] execve("/usr/bin/cat", ["cat", "file1.txt"], 0x60091bca09e8 /* 27 vars */ <unfinished ...>

[pid 1436] <... vfork resumed>)   = 1437

[pid 1436] rt_sigprocmask(SIG_SETMASK, [], ~[KILL STOP RTMIN RT_1], 8) = 0

[pid 1437] <... execve resumed>)   = 0

[pid 1436] wait4(-1, <unfinished ...>

[pid 1437] brk(NULL)   = 0x5bcce79d4000

[pid 1437] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x786b64d0e000

[pid 1437] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1437] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64d03000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0\0"..., 832) = 832

[pid 1437] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1437] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1437] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1437] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x786b64a00000

[pid 1437] mmap(0x786b64a28000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x786b64a28000

[pid 1437] mmap(0x786b64bb0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x786b64bb0000

[pid 1437] mmap(0x786b64bff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x786b64bff000

[pid 1437] mmap(0x786b64c05000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x786b64c05000

[pid 1437] close(3)   = 0

[pid 1437] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x786b64d00000

[pid 1437] arch_prctl(ARCH_SET_FS, 0x786b64d00740) = 0

[pid 1437] set_tid_address(0x786b64d00a10) = 1437

[pid 1437] set_robust_list(0x786b64d00a20, 24) = 0

[pid 1437] rseq(0x786b64d01060, 0x20, 0, 0x53053053) = 0

[pid 1437] mprotect(0x786b64bff000, 16384, PROT_READ) = 0

[pid 1437] mprotect(0x5bccbd7ee000, 4096, PROT_READ) = 0

[pid 1437] mprotect(0x786b64d46000, 8192, PROT_READ) = 0

[pid 1437] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1437] munmap(0x786b64d03000, 41635) = 0

[pid 1437] getrandom("\x16\x78\x0e\x8c\x78\xb0\x8f\x40", 8, GRND_NONBLOCK) = 8

[pid 1437] brk(NULL)   = 0x5bcce79d4000

[pid 1437] brk(0x5bcce79f5000)   = 0x5bcce79f5000

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/locale-archive", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/share/locale/locale.alias", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=2996, ...}) = 0

[pid 1437] read(3, "# Locale name alias data base.\n#"..., 4096) = 2996

[pid 1437] read(3, "", 4096)   = 0

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_IDENTIFICATION", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_IDENTIFICATION", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=258, ...}) = 0

[pid 1437] mmap(NULL, 258, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64d0d000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/gconv/gconv-modules.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=27028, ...}) = 0

[pid 1437] mmap(NULL, 27028, PROT_READ, MAP_SHARED, 3, 0) = 0x786b64d06000

[pid 1437] close(3)   = 0

[pid 1437] futex(0x786b64c0472c, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MEASUREMENT", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MEASUREMENT", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=23, ...}) = 0

[pid 1437] mmap(NULL, 23, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64d05000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=47, ...}) = 0

[pid 1437] mmap(NULL, 47, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64d04000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=127, ...}) = 0

[pid 1437] mmap(NULL, 127, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64d03000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NAME",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NAME", O_RDONLY|O_CLOEXEC)
= 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=62, ...}) = 0

[pid 1437] mmap(NULL, 62, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cff000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_PAPER",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_PAPER",
O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=34, ...}) = 0

[pid 1437] mmap(NULL, 34, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cfe000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MESSAGES",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES",
O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES/SYS_LC_MESSAGES",
O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=48, ...}) = 0

[pid 1437] mmap(NULL, 48, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cfd000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MONETARY",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MONETARY",
O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=270, ...}) = 0

[pid 1437] mmap(NULL, 270, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cfc000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_COLLATE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_COLLATE", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=1406, ...}) = 0

[pid 1437] mmap(NULL, 1406, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cfb000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TIME", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TIME", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=3360, ...}) = 0

[pid 1437] mmap(NULL, 3360, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cfa000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=50, ...}) = 0

[pid 1437] mmap(NULL, 50, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64cf9000

[pid 1437] close(3)   = 0

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1437] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0644, st_size=360460, ...}) = 0

[pid 1437] mmap(NULL, 360460, PROT_READ, MAP_PRIVATE, 3, 0) = 0x786b64ca0000

[pid 1437] close(3)   = 0

[pid 1437] fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x2), ...}) = 0

[pid 1437] openat(AT_FDCWD, "file1.txt", O_RDONLY) = 3

[pid 1437] fstat(3, {st_mode=S_IFREG|0777, st_size=20, ...}) = 0

[pid 1437] fadvise64(3, 0, 0, POSIX_FADV_SEQUENTIAL) = 0

[pid 1437] mmap(NULL, 139264, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x786b64c7e000

[pid 1437] read(3, "Hll Wrld\nprtng Sstm\n", 131072) = 20

[pid 1437] write(1, "Hll Wrld\nprtng Sstm\n", 20Hll Wrld

prtng Sstm

) = 20

[pid 1437] read(3, "", 131072)   = 0

[pid 1437] munmap(0x786b64c7e000, 139264) = 0

[pid 1437] close(3)   = 0

[pid 1437] close(1)   = 0

[pid 1437] close(2)   = 0

[pid 1437] exit_group(0)   = ?

[pid 1437] +++ exited with 0 +++

[pid 1436] <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1437

[pid 1436] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1437, si_uid=1000, si_status=0, si_utime=0, si_stime=1 /* 0.01 s */} ---

[pid 1436] rt_sigreturn({mask=[]})   = 1437

[pid 1436] wait4(-1, 0x7ffff701c3dc, WNOHANG, NULL) = -1 ECHILD (No child processes)

[pid 1436] dup2(10, 2)   = 2

[pid 1436] close(10)   = 0

[pid 1436] exit_group(0)   = ?

[pid 1436] +++ exited with 0 +++

<... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1436

rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1436, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

write(1, "\n---
\320\241\320\276\320\264\320\265\321\200\320\266\320\270\320\274\320\276\320\265 file2."..., 40

--- Содержимое file2.txt ---

) = 40

rt_sigaction(SIGINT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, 8) = 0

rt_sigprocmask(SIG_BLOCK, [CHLD], [], 8) = 0

mmap(NULL, 36864, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) = 0x748393a7c000

rt_sigprocmask(SIG_BLOCK, ~[], [CHLD], 8) = 0

clone3({flags=CLONE_VM|CLONE_VFORK|CLONE_CLEAR_SIGHAND, exit_signal=SIGCHLD, stack=0x748393a7c000, stack_size=0x9000}, 88strace: Process 1438 attached

 <unfinished ...>

[pid 1438] rt_sigprocmask(SIG_BLOCK, NULL, ~[KILL STOP], 8) = 0

[pid 1438] rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

[pid 1438] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

[pid 1438] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

[pid 1438] execve("/bin/sh", ["sh", "-c", "--", "cat file2.txt 2>/dev/null"], 0x7ffd91b7e790 /* 27 vars */ <unfinished ...>

[pid 1431] <... clone3 resumed>)   = 1438

[pid 1431] munmap(0x748393a7c000, 36864) = 0

[pid 1438] <... execve resumed>)   = 0

[pid 1431] rt_sigprocmask(SIG_SETMASK, [CHLD], <unfinished ...>

[pid 1438] brk(NULL <unfinished ...>

[pid 1431] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1438] <... brk resumed>)   = 0x6293387d0000

[pid 1431] wait4(1438, <unfinished ...>

[pid 1438] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x723410035000

[pid 1438] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid 1438] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1438] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1438] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x72341002a000

[pid 1438] close(3)   = 0

[pid 1438] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid 1438] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid 1438] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1438] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1438] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1438] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x72340fe00000

[pid 1438] mmap(0x72340fe28000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x72340fe28000

[pid 1438] mmap(0x72340ffb0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x72340ffb0000

[pid 1438] mmap(0x72340ffff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x72340ffff000

[pid 1438] mmap(0x723410005000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x723410005000

[pid 1438] close(3)   = 0

[pid 1438] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x723410027000

[pid 1438] arch_prctl(ARCH_SET_FS, 0x723410027740) = 0

[pid 1438] set_tid_address(0x723410027a10) = 1438

[pid 1438] set_robust_list(0x723410027a20, 24) = 0

[pid 1438] rseq(0x723410028060, 0x20, 0, 0x53053053) = 0

[pid 1438] mprotect(0x72340ffff000, 16384, PROT_READ) = 0

[pid 1438] mprotect(0x62931ef01000, 8192, PROT_READ) = 0

[pid 1438] mprotect(0x72341006d000, 8192, PROT_READ) = 0

[pid 1438] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1438] munmap(0x72341002a000, 41635) = 0

[pid 1438] getuid()   = 1000

[pid 1438] getgid()   = 1000

[pid 1438] getpid()   = 1438

[pid 1438] rt_sigaction(SIGCHLD, {sa_handler=0x62931eef6cd0, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x72340fe45330}, NULL, 8) = 0

[pid 1438] geteuid()   = 1000

[pid 1438] getrandom("\xd2\xca\xc4\x85\x5d\x91\xd9\x53", 8, GRND_NONBLOCK) = 8

[pid 1438] brk(NULL)   = 0x6293387d0000

[pid 1438] brk(0x6293387f1000)   = 0x6293387f1000

[pid 1438] getppid()   = 1431

[pid 1438] newfstatat(AT_FDCWD, "/mnt/c/Dev/Projects/OS_Labs/lab1", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid 1438] newfstatat(AT_FDCWD, ".", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid 1438] geteuid()   = 1000

[pid 1438] getegid()   = 1000

[pid 1438] rt_sigaction(SIGINT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1438] rt_sigaction(SIGINT, {sa_handler=0x62931eef6cd0, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x72340fe45330}, NULL, 8) = 0

[pid 1438] rt_sigaction(SIGQUIT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1438] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x72340fe45330}, NULL, 8) = 0

[pid 1438] rt_sigaction(SIGTERM, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

[pid 1438] rt_sigaction(SIGTERM, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1], sa_flags=SA_RESTORER, sa_restorer=0x72340fe45330}, NULL, 8) = 0

[pid 1438] openat(AT_FDCWD, "/dev/null", O_WRONLY|O_CREAT|O_TRUNC, 0666) = 3

[pid 1438] fcntl(2, F_DUPFD, 10)   = 10

[pid 1438] close(2)   = 0

[pid 1438] fcntl(10, F_SETFD, FD_CLOEXEC) = 0

[pid 1438] dup2(3, 2)   = 2

[pid 1438] close(3)   = 0

[pid 1438] newfstatat(AT_FDCWD, "/usr/local/sbin/cat", 0x7ffcd925c2e0, 0) = -1 ENOENT (No such file or directory)

[pid 1438] newfstatat(AT_FDCWD, "/usr/local/bin/cat", 0x7ffcd925c2e0, 0) = -1 ENOENT (No such file or directory)

[pid 1438] newfstatat(AT_FDCWD, "/usr/sbin/cat", 0x7ffcd925c2e0, 0) = -1 ENOENT (No such file or directory)

[pid 1438] newfstatat(AT_FDCWD, "/usr/bin/cat", {st_mode=S_IFREG|0755, st_size=39384, ...}, 0) = 0

[pid 1438] rt_sigprocmask(SIG_SETMASK, ~[RTMIN RT_1], NULL, 8) = 0

[pid 1438] vfork(strace: Process 1439 attached

 <unfinished ...>

[pid 1439] rt_sigprocmask(SIG_SETMASK, [], ~[KILL STOP RTMIN RT_1], 8) = 0

[pid 1439] execve("/usr/bin/cat", ["cat", "file2.txt"], 0x6293387d09e8 /* 27 vars */ <unfinished ...>

[pid 1438] <... vfork resumed>)   = 1439

[pid 1438] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1439] <... execve resumed>)   = 0

[pid 1438] <... rt_sigprocmask resumed>~[KILL STOP RTMIN RT_1], 8) = 0

[pid 1439] brk(NULL <unfinished ...>

[pid 1438] wait4(-1, <unfinished ...>

[pid 1439] <... brk resumed>)   = 0x564ff41bb000

[pid 1439] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x76af92e10000

[pid 1439] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid 1439] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e05000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid 1439] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1439] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid 1439] pread64(3, "\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid 1439] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x76af92a00000

[pid 1439] mmap(0x76af92a28000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x76af92a28000

[pid 1439] mmap(0x76af92bb0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x76af92bb0000

[pid 1439] mmap(0x76af92bff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x76af92bff000

[pid 1439] mmap(0x76af92c05000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x76af92c05000

[pid 1439] close(3)   = 0

[pid 1439] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x76af92e02000

[pid 1439] arch_prctl(ARCH_SET_FS, 0x76af92e02740) = 0

[pid 1439] set_tid_address(0x76af92e02a10) = 1439

[pid 1439] set_robust_list(0x76af92e02a20, 24) = 0

[pid 1439] rseq(0x76af92e03060, 0x20, 0, 0x53053053) = 0

[pid 1439] mprotect(0x76af92bff000, 16384, PROT_READ) = 0

[pid 1439] mprotect(0x564fc8424000, 4096, PROT_READ) = 0

[pid 1439] mprotect(0x76af92e48000, 8192, PROT_READ) = 0

[pid 1439] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid 1439] munmap(0x76af92e05000, 41635) = 0

[pid 1439] getrandom("\x69\xc2\x74\x4f\x0a\x33\xcc\xd5", 8, GRND_NONBLOCK) = 8

[pid 1439] brk(NULL)   = 0x564ff41bb000

[pid 1439] brk(0x564ff41dc000)   = 0x564ff41dc000

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/locale-archive", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/share/locale/locale.alias", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=2996, ...}) = 0

[pid 1439] read(3, "# Locale name alias data base.\n#"..., 4096) = 2996

[pid 1439] read(3, "", 4096)   = 0

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_IDENTIFICATION", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_IDENTIFICATION", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=258, ...}) = 0

[pid 1439] mmap(NULL, 258, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e0f000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/gconv/gconv-modules.cache", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=27028, ...}) = 0

[pid 1439] mmap(NULL, 27028, PROT_READ, MAP_SHARED, 3, 0) = 0x76af92e08000

[pid 1439] close(3)   = 0

[pid 1439] futex(0x76af92c0472c, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MEASUREMENT", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MEASUREMENT", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=23, ...}) = 0

[pid 1439] mmap(NULL, 23, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e07000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=47, ...}) = 0

[pid 1439] mmap(NULL, 47, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e06000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=127, ...}) = 0

[pid 1439] mmap(NULL, 127, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e05000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NAME", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NAME", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=62, ...}) = 0

[pid 1439] mmap(NULL, 62, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e01000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_PAPER", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_PAPER", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=34, ...}) = 0

[pid 1439] mmap(NULL, 34, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92e00000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MESSAGES", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES/SYS_LC_MESSAGES", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=48, ...}) = 0

[pid 1439] mmap(NULL, 48, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92dff000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MONETARY", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MONETARY", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=270, ...}) = 0

[pid 1439] mmap(NULL, 270, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92dfe000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_COLLATE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_COLLATE", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=1406, ...}) = 0

[pid 1439] mmap(NULL, 1406, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92dfd000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TIME", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TIME", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=3360, ...}) = 0

[pid 1439] mmap(NULL, 3360, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92dfc000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=50, ...}) = 0

[pid 1439] mmap(NULL, 50, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92dfb000

[pid 1439] close(3)   = 0

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid 1439] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0644, st_size=360460, ...}) = 0

[pid 1439] mmap(NULL, 360460, PROT_READ, MAP_PRIVATE, 3, 0) = 0x76af92da2000

[pid 1439] close(3)   = 0

[pid 1439] fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0x2), ...}) = 0

[pid 1439] openat(AT_FDCWD, "file2.txt", O_RDONLY) = 3

[pid 1439] fstat(3, {st_mode=S_IFREG|0777, st_size=10, ...}) = 0

[pid 1439] fadvise64(3, 0, 0, POSIX_FADV_SEQUENTIAL) = 0

[pid 1439] mmap(NULL, 139264, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x76af92d80000

[pid 1439] read(3, "Tst Strng\n", 131072) = 10

[pid 1439] write(1, "Tst Strng\n", 10Tst Strng

) = 10

[pid 1439] read(3, "", 131072)   = 0

[pid 1439] munmap(0x76af92d80000, 139264) = 0

[pid 1439] close(3)   = 0

[pid 1439] close(1)   = 0

[pid 1439] close(2)   = 0

[pid 1439] exit_group(0)   = ?

[pid 1439] +++ exited with 0 +++

[pid 1438] <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1439

[pid 1438] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1439, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

[pid 1438] rt_sigreturn({mask=[]})   = 1439

[pid 1438] wait4(-1, 0x7ffcd925c23c, WNOHANG, NULL) = -1 ECHILD (No child processes)

[pid 1438] dup2(10, 2)   = 2

[pid 1438] close(10)   = 0

[pid 1438] exit_group(0)   = ?

[pid 1438] +++ exited with 0 +++

<... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 1438

rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER, sa_restorer=0x748393845330}, NULL, 8) = 0

rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=1438, si_uid=1000, si_status=0, si_utime=0, si_stime=0} ---

write(1, "\n", 1

)   = 1

write(1,
"\320\240\320\276\320\264\320\270\321\202\320\265\320\273\321\214\321\201\320\272\320\270\320\271 \320\277\321\200\320\276\321"..., 58Родительский процесс завершен.

) = 58

exit_group(0)   = ?

+++ exited with 0 +++

Лабораторная работа №2
Strace

$ strace -f ./determinant_calculator 4 6 -f

execve("./determinant_calculator", ["./determinant_calculator", "4", "6", "-f"], 0x7ffe9dfc6500 /* 27 vars */) = 0

brk(NULL)   = 0x609205568000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x709423ff2000

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

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x709423fe7000

close(3)   = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

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

fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

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

mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x709423c00000

mmap(0x709423c28000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x709423c28000

mmap(0x709423db0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x709423db0000

mmap(0x709423dff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x709423dff000

mmap(0x709423e05000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x709423e05000

close(3)   = 0

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) = 0x709423fe4000

arch_prctl(ARCH_SET_FS, 0x709423fe4740) = 0

set_tid_address(0x709423fe4a10)   = 1320

set_robust_list(0x709423fe4a20, 24)   = 0

rseq(0x709423fe5060, 0x20, 0, 0x53053053) = 0

mprotect(0x709423dff000, 16384, PROT_READ) = 0

mprotect(0x6091fe1a4000, 4096, PROT_READ) = 0

mprotect(0x70942402a000, 8192, PROT_READ) = 0

prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

munmap(0x709423fe7000, 41635)   = 0

getrandom("\x1a\x93\x8e\x3e\xe3\x62\xaf\x64", 8, GRND_NONBLOCK) = 8

brk(NULL)   = 0x609205568000

brk(0x609205589000)   = 0x609205589000

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

write(1, "\320\230\321\201\320\277\320\276\320\273\321\214\320\267\321\203\320\265\321\202\321\201\321\217 \321\204\320\270\320\272\321"..., 61Используется фиксированный seed: 42

) = 61

write(1, "\n\320\234\320\260\321\202\321\200\320\270\321\206\320\260 6\303\2276:\n", 22

Матрица 6×6:

) = 22

write(1, "   -2 -4 -7   1 -4 -2 "..., 33   -2 -4 -7   1 -4 -2

) = 33

write(1, "   5   4 -1   7 -6 -1 "..., 33   5   4 -1   7 -6 -1

) = 33

write(1, "   -3   0 -8 -6 -4   0 "..., 33   -3   0 -8 -6 -4   0

) = 33

write(1, "   2   3   3 -8 -7   1 "..., 33   2   3   3 -8 -7   1

) = 33

write(1, "   7   3 -7   0   5 -8 "..., 33   7   3 -7   0   5 -8

) = 33

write(1, "   -7 -5 -4 -6   4   0 "..., 33   -7 -5 -4 -6   4   0

) = 33

write(1,
"\n\320\232\320\276\320\273\320\270\321\207\320\265\321\201\321\202\320\262\320\276
\320\277\320\265\321\200\320\265\321\201"..., 52

Количество перестановок: 720

) = 52

rt_sigaction(SIGRT_1, {sa_handler=0x709423c99530, sa_mask=[],
sa_flags=SA_RESTORER|SA_ONSTACK|SA_RESTART|SA_SIGINFO,
sa_restorer=0x709423c45330}, NULL, 8) = 0

rt_sigprocmask(SIG_UNBLOCK, [RTMIN RT_1], NULL, 8) = 0

mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK,
-1, 0) = 0x7094233ff000

mprotect(0x709423400000, 8388608, PROT_READ|PROT_WRITE) = 0

rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0

**clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THR
EAD|CLONE_SYSVSEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLE
ARTID, child_tid=0x709423bff990, parent_tid=0x709423bff990, exit_signal=0,
stack=0x7094233ff000, stack_size=0x7fff80, tls=0x709423bff6c0}strace: Process 1321 attached**

 => {parent_tid=[1321]}, 88) = 1321

[pid 1321] rseq(0x709423bfffe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1320] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1321] <... rseq resumed>)   = 0

[pid 1320] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1320] mmap(NULL, 8392704, PROT_NONE,
MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0 <unfinished ...>

[pid 1321] set_robust_list(0x709423bff9a0, 24 <unfinished ...>

[pid 1320] <... mmap resumed>)   = 0x709422bfe000

[pid 1321] <... set_robust_list resumed>) = 0

[pid 1320] mprotect(0x709422bff000, 8388608, PROT_READ|PROT_WRITE <unfinished ...>

[pid 1321] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1320] <... mprotect resumed>)   = 0

[pid 1321] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1320] rt_sigprocmask(SIG_BLOCK, ~[], [], 8) = 0

[pid 1321] mmap(NULL, 134217728, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS, -1,
0 <unfinished ...>

[pid 1320]
**clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|
CLONE_SYSVSEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTI
D, child_tid=0x7094233fe990, parent_tid=0x7094233fe990, exit_signal=0, stack=0x709422bfe000,
stack_size=0x7fff80, tls=0x7094233fe6c0} <unfinished ...>**

[pid 1321] <... mmap resumed>)   = 0x70941abfe000

[pid 1321] munmap(0x70941abfe000, 20979712strace: Process 1322 attached

) = 0

[pid 1320] <... clone3 resumed> => {parent_tid=[1322]}, 88) = 1322

[pid 1322] rseq(0x7094233fefe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1320] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1321] munmap(0x709420000000, 46129152 <unfinished ...>

[pid 1320] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1322] <... rseq resumed>)   = 0

[pid 1320] mmap(NULL, 8392704, PROT_NONE,
MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0 <unfinished ...>

[pid 1321] <... munmap resumed>)   = 0

[pid 1320] <... mmap resumed>)   = 0x7094223fd000

[pid 1322] set_robust_list(0x7094233fe9a0, 24 <unfinished ...>

[pid 1320] mprotect(0x7094223fe000, 8388608, PROT_READ|PROT_WRITE <unfinished ...>

[pid 1321] mprotect(0x70941c000000, 135168, PROT_READ|PROT_WRITE <unfinished ...>

[pid 1320] <... mprotect resumed>)   = 0

[pid 1322] <... set_robust_list resumed>) = 0

[pid 1320] rt_sigprocmask(SIG_BLOCK, ~[], <unfinished ...>

[pid 1321] <... mprotect resumed>)   = 0

[pid 1320] <... rt_sigprocmask resumed>[], 8) = 0

[pid 1322] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1320]
clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|
CLONE_SYSVSEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTI
D, child_tid=0x709422bfd990, parent_tid=0x709422bfd990, exit_signal=0, stack=0x7094223fd000,
stack_size=0x7fff80, tls=0x709422bfd6c0} <unfinished ...>

[pid 1321] rt_sigprocmask(SIG_BLOCK, ~[RT_1], <unfinished ...>

[pid 1322] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1321] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1322] rt_sigprocmask(SIG_BLOCK, ~[RT_1], <unfinished ...>

[pid 1321] madvise(0x7094233ff000, 8368128, MADV_DONTNEEDstrace: Process 1323
attached

 <unfinished ...>

[pid 1322] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1321] <... madvise resumed>)   = 0

[pid 1320] <... clone3 resumed> => {parent_tid=[1323]}, 88) = 1323

[pid 1323] rseq(0x709422bfdfe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1322] madvise(0x709422bfe000, 8368128, MADV_DONTNEED <unfinished ...>

[pid 1320] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1323] <... rseq resumed>)   = 0

[pid 1321] exit(0 <unfinished ...>

[pid 1320] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1323] set_robust_list(0x709422bfd9a0, 24 <unfinished ...>

[pid 1322] <... madvise resumed>)   = 0

[pid 1320] mmap(NULL, 8392704, PROT_NONE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0 <unfinished ...>

[pid 1323] <... set_robust_list resumed>) = 0

[pid 1321] <... exit resumed>)   = ?

[pid 1320] <... mmap resumed>)   = 0x709421bfc000

[pid 1323] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1322] exit(0 <unfinished ...>

[pid 1320] mprotect(0x709421bfd000, 8388608, PROT_READ|PROT_WRITE <unfinished ...>

[pid 1323] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1321] +++ exited with 0 +++

[pid 1320] <... mprotect resumed>)   = 0

[pid 1322] <... exit resumed>)   = ?

[pid 1320] rt_sigprocmask(SIG_BLOCK, ~[], <unfinished ...>

[pid 1323] rt_sigprocmask(SIG_BLOCK, ~[RT_1], <unfinished ...>

[pid 1320] <... rt_sigprocmask resumed>[], 8) = 0

[pid 1322] +++ exited with 0 +++

[pid 1320] **clone3({flags=CLONE_VM|CLONE_FS|CLONE_FILES|CLONE_SIGHAND|CLONE_THREAD|CLONE_SYSVSEM|CLONE_SETTLS|CLONE_PARENT_SETTID|CLONE_CHILD_CLEARTID, child_tid=0x7094223fc990, parent_tid=0x7094223fc990, exit_signal=0, stack=0x709421bfc000, stack_size=0x7fff80, tls=0x7094223fc6c0} <unfinished ...>**

[pid 1323] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1323] madvise(0x7094223fd000, 8368128, MADV_DONTNEEDstrace: Process 1324 attached

 <unfinished ...>

[pid 1320] <... clone3 resumed> => {parent_tid=[1324]}, 88) = 1324

[pid 1323] <... madvise resumed>)   = 0

[pid 1320] rt_sigprocmask(SIG_SETMASK, [], <unfinished ...>

[pid 1324] rseq(0x7094223fcfe0, 0x20, 0, 0x53053053 <unfinished ...>

[pid 1320] <... rt_sigprocmask resumed>NULL, 8) = 0

[pid 1323] exit(0 <unfinished ...>

[pid 1320] **futex(0x709422bfd990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 1323, NULL, FUTEX_BITSET_MATCH_ANY <unfinished ...>**

[pid 1324] <... rseq resumed>)   = 0

[pid 1323] <... exit resumed>)   = ?

[pid 1324] set_robust_list(0x7094223fc9a0, 24 <unfinished ...>

[pid 1320] <... futex resumed>)   = 0

[pid 1323] +++ exited with 0 +++

[pid 1320] **futex(0x7094223fc990, FUTEX_WAIT_BITSET|FUTEX_CLOCK_REALTIME, 1324, NULL, FUTEX_BITSET_MATCH_ANY <unfinished ...>**

[pid 1324] <... set_robust_list resumed>) = 0

[pid 1324] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

[pid 1324] rt_sigprocmask(SIG_BLOCK, ~[RT_1], NULL, 8) = 0

[pid 1324] madvise(0x709421bfc000, 8368128, MADV_DONTNEED) = 0

[pid 1324] exit(0)   = ?

[pid 1320] <... futex resumed>)   = 0

[pid 1324] +++ exited with 0 +++

write(1, "\n", 1

)   = 1

write(1, "===
\320\240\320\225\320\227\320\243\320\233\320\254\320\242\320\220\320\242\320\253 ===\n", 29=== РЕЗУЛЬТАТЫ ===

) = 29

write(1, "
\320\236\320\277\321\200\320\265\320\264\320\265\320\273\320\270\321\202\320\265\320\273\321\21 4: -"..., 43 Определитель: -51832.0000

) = 43

write(1, " \320\222\321\200\320\265\320\274\321\217
\321\200\320\260\320\261\320\276\321\202\321\213:   "..., 45 Время работы: 0.007831 с

) = 45

write(1, "
\320\230\321\201\320\277\320\276\320\273\321\214\320\267\320\276\320\262\320\260\320\275\320\27 6 \320\277\320\276\321"..., 55 Использовано потоков: 4 из 4

) = 55

write(1, "
\320\237\321\200\320\276\320\270\320\267\320\262\320\276\320\264\320\270\321\202\320\265\320\273\321\214\320\275\320\276"..., 83 Производительность: 91941 перестановок/с

) = 83

getpid()   = 1320

write(1, " ID \320\277\321\200\320\276\321\206\320\265\321\201\321\201\320\260:   "..., 39
ID процесса: 1320

) = 39

exit_group(0)   = ?

+++ exited with 0 +++

Лабораторная работа №3
Strace

```
$ strace -f ./parent -f

execve("./parent", ["./parent", "-f"], 0x7ffd6603d590 /* 27 vars */) = 0

brk(NULL)                               = 0x5907d2c67000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x72e5dd611000

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

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x72e5dd606000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) =
832

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

fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

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

mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x72e5dd200000

mmap(0x72e5dd228000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x28000) = 0x72e5dd228000

mmap(0x72e5dd3b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1b0000) = 0x72e5dd3b0000
```

```
mmap(0x72e5dd3ff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x1fe000) = 0x72e5dd3ff000

mmap(0x72e5dd405000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS,
-1, 0) = 0x72e5dd405000

close(3)                                = 0

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x72e5dd603000

arch_prctl(ARCH_SET_FS, 0x72e5dd603740) = 0

set_tid_address(0x72e5dd603a10)         = 649

set_robust_list(0x72e5dd603a20, 24)     = 0

rseq(0x72e5dd604060, 0x20, 0, 0x53053053) = 0

mprotect(0x72e5dd3ff000, 16384, PROT_READ) = 0

mprotect(0x5907ad153000, 4096, PROT_READ) = 0

mprotect(0x72e5dd649000, 8192, PROT_READ) = 0

prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

munmap(0x72e5dd606000, 41635)           = 0

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

getrandom("\x17\xab\xbc\x32\xa8\x68\xda\xb0", 8, GRND_NONBLOCK) = 8

brk(NULL)                               = 0x5907d2c67000

brk(0x5907d2c88000)                     = 0x5907d2c88000

fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\270\320\274\321\217 \321\204\320\260\320\271\320\273\320\260"..., 48Введите имя файла
для child1: ) = 48

read(0, file1.txt

"file1.txt\n", 1024)                    = 10

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\270\320\274\321\217 \321\204\320\260\320\271\320\273\320\260"..., 48Введите имя файла
для child2: ) = 48

read(0, file2.txt

"file2.txt\n", 1024)                    = 10

openat(AT_FDCWD, "lab3.dat", O_RDWR|O_CREAT|O_TRUNC, 0666) = 3

ftruncate(3, 1048)                      = 0

mmap(NULL, 1048, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0) = 0x72e5dd610000

close(3)                                = 0
```

```
      rt_sigaction(SIGUSR2, {sa_handler=0x5907ad151409, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

      clone(child_stack=NULL, flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLDstrace:
Process 650 attached

      , child_tidptr=0x72e5dd603a10) = 650

      [pid   650] set_robust_list(0x72e5dd603a20, 24 <unfinished ...>

      [pid   649] clone(child_stack=NULL,
flags=CLONE_CHILD_CLEARTID|CLONE_CHILD_SETTID|SIGCHLD <unfinished ...>

      [pid   650] <... set_robust_list resumed>) = 0

      [pid   650] execve("./child", ["child", "1", "file1.txt", "lab3.dat"], 0x7ffe7890f650
/* 27 vars */strace: Process 651 attached

       <unfinished ...>

      [pid   649] <... clone resumed>, child_tidptr=0x72e5dd603a10) = 651

      [pid   651] set_robust_list(0x72e5dd603a20, 24) = 0

      [pid   651] execve("./child", ["child", "2", "file2.txt", "lab3.dat"], 0x7ffe7890f650
/* 27 vars */) = 0

      [pid   650] <... execve resumed>)        = 0

      [pid   651] brk(NULL <unfinished ...>

      [pid   650] brk(NULL <unfinished ...>

      [pid   651] <... brk resumed>)           = 0x61977cef8000

      [pid   650] <... brk resumed>)           = 0x5c2aea265000

      [pid   651] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0
<unfinished ...>

      [pid   650] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0
<unfinished ...>

      [pid   651] <... mmap resumed>)          = 0x7c00743e3000

      [pid   650] <... mmap resumed>)          = 0x7d29df969000

      [pid   651] access("/etc/ld.so.preload", R_OK <unfinished ...>

      [pid   650] access("/etc/ld.so.preload", R_OK <unfinished ...>

      [pid   651] <... access resumed>)        = -1 ENOENT (No such file or directory)

      [pid   650] <... access resumed>)        = -1 ENOENT (No such file or directory)

      [pid   651] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

      [pid   650] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC <unfinished ...>

      [pid   651] <... openat resumed>)        = 3

      [pid   650] <... openat resumed>)        = 3

      [pid   651] fstat(3,  <unfinished ...>
```

```
    [pid    650] fstat(3, <unfinished ...>

    [pid    651] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

    [pid    650] <... fstat resumed>{st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

    [pid    651] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0 <unfinished ...>

    [pid    650] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0 <unfinished ...>

    [pid    651] <... mmap resumed>)          = 0x7c00743d8000

    [pid    650] <... mmap resumed>)          = 0x7d29df95e000

    [pid    651] close(3 <unfinished ...>

    [pid    650] close(3 <unfinished ...>

    [pid    651] <... close resumed>)         = 0

    [pid    650] <... close resumed>)         = 0

    [pid    651] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC
<unfinished ...>

    [pid    650] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC
<unfinished ...>

    [pid    651] <... openat resumed>)        = 3

    [pid    650] <... openat resumed>)        = 3

    [pid    651] read(3, <unfinished ...>

    [pid    650] read(3, <unfinished ...>

    [pid    651] <... read
resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

    [pid    650] <... read
resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

    [pid    651] pread64(3, <unfinished ...>

    [pid    650] pread64(3, <unfinished ...>

    [pid    651] <... pread64
resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

    [pid    650] <... pread64
resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

    [pid    651] fstat(3, <unfinished ...>

    [pid    650] fstat(3, <unfinished ...>

    [pid    651] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

    [pid    650] <... fstat resumed>{st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

    [pid    651] pread64(3, <unfinished ...>

    [pid    650] pread64(3, <unfinished ...>
```

```
    [pid    651] <... pread64
resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

    [pid    650] <... pread64
resumed>"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

    [pid    651] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished
...>

    [pid    650] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0 <unfinished
...>

    [pid    651] <... mmap resumed>)          = 0x7c0074000000

    [pid    650] <... mmap resumed>)          = 0x7d29df600000

    [pid    651] mmap(0x7c0074028000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000 <unfinished ...>

    [pid    650] mmap(0x7d29df628000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000 <unfinished ...>

    [pid    651] <... mmap resumed>)          = 0x7c0074028000

    [pid    650] <... mmap resumed>)          = 0x7d29df628000

    [pid    651] mmap(0x7c00741b0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000 <unfinished ...>

    [pid    650] mmap(0x7d29df7b0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000 <unfinished ...>

    [pid    651] <... mmap resumed>)          = 0x7c00741b0000

    [pid    650] <... mmap resumed>)          = 0x7d29df7b0000

    [pid    651] mmap(0x7c00741ff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000 <unfinished ...>

    [pid    650] mmap(0x7d29df7ff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000 <unfinished ...>

    [pid    651] <... mmap resumed>)          = 0x7c00741ff000

    [pid    650] <... mmap resumed>)          = 0x7d29df7ff000

    [pid    651] mmap(0x7c0074205000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

    [pid    650] mmap(0x7d29df805000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0 <unfinished ...>

    [pid    651] <... mmap resumed>)          = 0x7c0074205000

    [pid    650] <... mmap resumed>)          = 0x7d29df805000

    [pid    651] close(3 <unfinished ...>

    [pid    650] close(3 <unfinished ...>

    [pid    651] <... close resumed>)         = 0

    [pid    650] <... close resumed>)         = 0
```

```
[pid    651] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0
<unfinished ...>

[pid    650] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0
<unfinished ...>

[pid    651] <... mmap resumed>)        = 0x7c00743d5000

[pid    651] arch_prctl(ARCH_SET_FS, 0x7c00743d5740 <unfinished ...>

[pid    650] <... mmap resumed>)        = 0x7d29df95b000

[pid    651] <... arch_prctl resumed>)   = 0

[pid    650] arch_prctl(ARCH_SET_FS, 0x7d29df95b740 <unfinished ...>

[pid    651] set_tid_address(0x7c00743d5a10 <unfinished ...>

[pid    650] <... arch_prctl resumed>)   = 0

[pid    651] <... set_tid_address resumed>) = 651

[pid    650] set_tid_address(0x7d29df95ba10 <unfinished ...>

[pid    651] set_robust_list(0x7c00743d5a20, 24 <unfinished ...>

[pid    650] <... set_tid_address resumed>) = 650

[pid    651] <... set_robust_list resumed>) = 0

[pid    650] set_robust_list(0x7d29df95ba20, 24 <unfinished ...>

[pid    651] rseq(0x7c00743d6060, 0x20, 0, 0x53053053 <unfinished ...>

[pid    650] <... set_robust_list resumed>) = 0

[pid    651] <... rseq resumed>)          = 0

[pid    650] rseq(0x7d29df95c060, 0x20, 0, 0x53053053) = 0

[pid    651] mprotect(0x7c00741ff000, 16384, PROT_READ) = 0

[pid    650] mprotect(0x7d29df7ff000, 16384, PROT_READ <unfinished ...>

[pid    651] mprotect(0x6197553e7000, 4096, PROT_READ) = 0

[pid    650] <... mprotect resumed>)      = 0

[pid    651] mprotect(0x7c007441b000, 8192, PROT_READ <unfinished ...>

[pid    650] mprotect(0x5c2aacabe000, 4096, PROT_READ <unfinished ...>

[pid    651] <... mprotect resumed>)      = 0

[pid    650] <... mprotect resumed>)      = 0

[pid    651] prlimit64(0, RLIMIT_STACK, NULL,  <unfinished ...>

[pid    650] mprotect(0x7d29df9a1000, 8192, PROT_READ <unfinished ...>

[pid    651] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid    650] <... mprotect resumed>)      = 0

[pid    651] munmap(0x7c00743d8000, 41635 <unfinished ...>
```

```
[pid   650] prlimit64(0, RLIMIT_STACK, NULL,  <unfinished ...>

[pid   651] <... munmap resumed>)        = 0

[pid   650] <... prlimit64 resumed>{rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

[pid   651] rt_sigaction(SIGUSR1, {sa_handler=0x6197553e52e9, sa_mask=[USR1],
sa_flags=SA_RESTORER|SA_RESTART, sa_restorer=0x7c0074045330},  <unfinished ...>

[pid   650] munmap(0x7d29df95e000, 41635 <unfinished ...>

[pid   651] <... rt_sigaction resumed>{sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8)
= 0

[pid   650] <... munmap resumed>)        = 0

[pid   651] openat(AT_FDCWD, "lab3.dat", O_RDWR <unfinished ...>

[pid   650] rt_sigaction(SIGUSR1, {sa_handler=0x5c2aacabc2e9, sa_mask=[USR1],
sa_flags=SA_RESTORER|SA_RESTART, sa_restorer=0x7d29df645330}, {sa_handler=SIG_DFL,
sa_mask=[], sa_flags=0}, 8) = 0

[pid   650] openat(AT_FDCWD, "lab3.dat", O_RDWR <unfinished ...>

[pid   651] <... openat resumed>)        = 3

[pid   650] <... openat resumed>)        = 3

[pid   651] mmap(NULL, 1048, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0 <unfinished ...>

[pid   650] mmap(NULL, 1048, PROT_READ|PROT_WRITE, MAP_SHARED, 3, 0 <unfinished ...>

[pid   651] <... mmap resumed>)          = 0x7c00743e2000

[pid   650] <... mmap resumed>)          = 0x7d29df968000

[pid   651] close(3 <unfinished ...>

[pid   650] close(3 <unfinished ...>

[pid   651] <... close resumed>)         = 0

[pid   650] <... close resumed>)         = 0

[pid   651] getrandom( <unfinished ...>

[pid   649] write(1, "\n", 1 <unfinished ...>

[pid   650] getrandom(

 <unfinished ...>

[pid   651] <... getrandom resumed>"\x9c\xfd\x83\xfd\xe7\xcc\xf2\x5c", 8,
GRND_NONBLOCK) = 8

[pid   649] <... write resumed>)         = 1

[pid   650] <... getrandom resumed>"\x56\x8f\xbc\xdd\x7d\x3d\x64\x49", 8,
GRND_NONBLOCK) = 8

[pid   649] write(1, "\320\222\320\262\320\276\320\264\320\270\321\202\320\265
\321\201\321\202\321\200\320\276\320\272\320\270 (Ctr"..., 66 <unfinished ...>

Вводите строки (Ctrl+D для завершения):
```

```
[pid   651] brk(NULL <unfinished ...>

[pid   649] <... write resumed>)       = 66

[pid   650] brk(NULL <unfinished ...>

[pid   649] read(0,  <unfinished ...>

[pid   651] <... brk resumed>)         = 0x61977cef8000

[pid   650] <... brk resumed>)         = 0x5c2aea265000

[pid   651] brk(0x61977cf19000 <unfinished ...>

[pid   650] brk(0x5c2aea286000 <unfinished ...>

[pid   651] <... brk resumed>)         = 0x61977cf19000

[pid   650] <... brk resumed>)         = 0x5c2aea286000

[pid   651] openat(AT_FDCWD, "file2.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666 <unfinished
...>

[pid   650] openat(AT_FDCWD, "file1.txt", O_WRONLY|O_CREAT|O_TRUNC, 0666 <unfinished
...>

[pid   651] <... openat resumed>)      = 3

[pid   651] getppid( <unfinished ...>

[pid   650] <... openat resumed>)      = 3

[pid   651] <... getppid resumed>)     = 649

[pid   650] getppid()                  = 649

Hello World

[pid   649] <... read resumed>"Hello World\n", 1024) = 12

[pid   649] kill(650, SIGUSR1)         = 0

[pid   650] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid   650] rt_sigreturn({mask=[]})    = 0

[pid   650] fstat(3, {st_mode=S_IFREG|0777, st_size=0, ...}) = 0

[pid   650] kill(649, SIGUSR2 <unfinished ...>

[pid   649] --- SIGUSR2 {si_signo=SIGUSR2, si_code=SI_USER, si_pid=650, si_uid=1000}
---

[pid   650] <... kill resumed>)        = 0

[pid   649] rt_sigreturn({mask=[]})    = 0

[pid   649] write(1, "[child1]
\320\236\320\261\321\200\320\260\320\261\320\276\321\202\320\260\320\275\320\260
\321\201"..., 45[child1] Обработана строка 1

) = 45
```

```
[pid   649] read(0, Test String

"Test String\n", 1024) = 12

[pid   649] kill(651, SIGUSR1)          = 0

[pid   651] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid   651] rt_sigreturn({mask=[]})     = 0

[pid   651] fstat(3, {st_mode=S_IFREG|0777, st_size=0, ...}) = 0

[pid   651] kill(649, SIGUSR2 <unfinished ...>

[pid   649] --- SIGUSR2 {si_signo=SIGUSR2, si_code=SI_USER, si_pid=651, si_uid=1000}
---

[pid   651] <... kill resumed>)         = 0

[pid   649] rt_sigreturn({mask=[]})     = 0

[pid   649] write(1, "[child2]
\320\236\320\261\321\200\320\260\320\261\320\276\321\202\320\260\320\275\320\260
\321\201"..., 45[child2] Обработана строка 2

) = 45

[pid   649] read(0, Operating System

"Operating System\n", 1024) = 17

[pid   649] kill(650, SIGUSR1)          = 0

[pid   650] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid   650] rt_sigreturn({mask=[]})     = 0

[pid   650] kill(649, SIGUSR2 <unfinished ...>

[pid   649] --- SIGUSR2 {si_signo=SIGUSR2, si_code=SI_USER, si_pid=650, si_uid=1000}
---

[pid   650] <... kill resumed>)         = 0

[pid   649] rt_sigreturn({mask=[]})     = 0

[pid   649] write(1, "[child1]
\320\236\320\261\321\200\320\260\320\261\320\276\321\202\320\260\320\275\320\260
\321\201"..., 45[child1] Обработана строка 3

) = 45

[pid   649] read(0, Bye World

"Bye World\n", 1024) = 10

[pid   649] kill(651, SIGUSR1)          = 0

[pid   651] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid   651] rt_sigreturn({mask=[]})     = 0
```

```
[pid    651] kill(649, SIGUSR2 <unfinished ...>

[pid    649] --- SIGUSR2 {si_signo=SIGUSR2, si_code=SI_USER, si_pid=651, si_uid=1000}
---

[pid    651] <... kill resumed>)         = 0

[pid    649] rt_sigreturn({mask=[]})      = 0

[pid    649] write(1, "[child2]
\320\236\320\261\321\200\320\260\320\261\320\276\321\202\320\260\320\275\320\260
\321\201"..., 45[child2] Обработана строка 4

)  = 45

[pid    649] read(0, "", 1024)           = 0

[pid    649] write(1, "\n", 1

)         = 1

[pid    649] write(1,
"\320\227\320\260\320\262\320\265\321\200\321\210\320\265\320\275\320\270\320\265
\321\200\320\260\320\261\320\276\321\202\321"..., 37Завершение работы...

)  = 37

[pid    649] kill(650, SIGUSR1 <unfinished ...>

[pid    651] fstat(1,  <unfinished ...>

[pid    650] fstat(1,  <unfinished ...>

[pid    649] <... kill resumed>)         = 0

[pid    649] kill(651, SIGUSR1 <unfinished ...>

[pid    651] <... fstat resumed>{st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) =
0

[pid    650] <... fstat resumed>{st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) =
0

[pid    649] <... kill resumed>)         = 0

[pid    649] wait4(650,  <unfinished ...>

[pid    651] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid    650] --- SIGUSR1 {si_signo=SIGUSR1, si_code=SI_USER, si_pid=649, si_uid=1000}
---

[pid    651] rt_sigreturn({mask=[]} <unfinished ...>

[pid    650] rt_sigreturn({mask=[]} <unfinished ...>

[pid    651] <... rt_sigreturn resumed>) = 0

[pid    651] write(1, "Child2: 2 \321\201\321\202\321\200\320\276\320\272\n", 21
<unfinished ...>

[pid    650] <... rt_sigreturn resumed>) = 0
```

```
Child2: 2 строк

[pid   651] <... write resumed>)          = 21

[pid   650] write(1, "Child1: 2 \321\201\321\202\321\200\320\276\320\272\n", 21
<unfinished ...>

[pid   651] write(3, "Tst Strng\nB Wrld\n", 17Child1: 2 строк

 <unfinished ...>

[pid   650] <... write resumed>)          = 21

[pid   650] write(3, "Hll Wrld\nprtng Sstm\n", 20 <unfinished ...>

[pid   651] <... write resumed>)          = 17

[pid   650] <... write resumed>)          = 20

[pid   651] close(3 <unfinished ...>

[pid   650] close(3 <unfinished ...>

[pid   651] <... close resumed>)          = 0

[pid   650] <... close resumed>)          = 0

[pid   651] munmap(0x7c00743e2000, 1048 <unfinished ...>

[pid   650] munmap(0x7d29df968000, 1048 <unfinished ...>

[pid   651] <... munmap resumed>)         = 0

[pid   651] exit_group(0)                 = ?

[pid   650] <... munmap resumed>)         = 0

[pid   651] +++ exited with 0 +++

[pid   650] exit_group(0 <unfinished ...>

[pid   649] <... wait4 resumed>NULL, 0, NULL) = ? ERESTARTSYS (To be restarted if
SA_RESTART is set)

[pid   649] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=651, si_uid=1000,
si_status=0, si_utime=2076 /* 20.76 s */, si_stime=0} ---

[pid   650] <... exit_group resumed>)     = ?

[pid   649] wait4(650,  <unfinished ...>

[pid   650] +++ exited with 0 +++

<... wait4 resumed>NULL, 0, NULL)         = 650

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=650, si_uid=1000,
si_status=0, si_utime=2076 /* 20.76 s */, si_stime=0} ---

wait4(651, NULL, 0, NULL)                 = 651

write(1, "\n", 1

)                         = 1
```

```
    write(1, "===
\320\240\320\265\320\267\321\203\320\273\321\214\321\202\320\260\321\202\321\213 ===\n",
29=== Результаты ===

    ) = 29

    write(1, "\n\320\244\320\260\320\271\320\273 file1.txt:\n", 21

    Файл file1.txt:

    ) = 21

    rt_sigaction(SIGINT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

    rt_sigaction(SIGQUIT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8) = 0

    rt_sigprocmask(SIG_BLOCK, [CHLD], [], 8) = 0

    mmap(NULL, 36864, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x72e5dd607000

    rt_sigprocmask(SIG_BLOCK, ~[], [CHLD], 8) = 0

    clone3({flags=CLONE_VM|CLONE_VFORK|CLONE_CLEAR_SIGHAND, exit_signal=SIGCHLD,
stack=0x72e5dd607000, stack_size=0x9000}, 88strace: Process 652 attached

     <unfinished ...>

    [pid   652] rt_sigprocmask(SIG_BLOCK, NULL, ~[KILL STOP], 8) = 0

    [pid   652] rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

    [pid   652] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[],
sa_flags=SA_RESTORER, sa_restorer=0x72e5dd245330}, NULL, 8) = 0

    [pid   652] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

    [pid   652] execve("/bin/sh", ["sh", "-c", "--", "cat file1.txt 2>/dev/null ||
ech"...], 0x7ffe7890f650 /* 27 vars */ <unfinished ...>

    [pid   649] <... clone3 resumed>)        = 652

    [pid   649] munmap(0x72e5dd607000, 36864) = 0

    [pid   652] <... execve resumed>)        = 0

    [pid   649] rt_sigprocmask(SIG_SETMASK, [CHLD],  <unfinished ...>

    [pid   652] brk(NULL <unfinished ...>

    [pid   649] <... rt_sigprocmask resumed>NULL, 8) = 0

    [pid   652] <... brk resumed>)           = 0x5ee8538bf000

    [pid   649] wait4(652,  <unfinished ...>

    [pid   652] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x78e52c09f000

    [pid   652] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)
```

```
[pid    652] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid    652] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid    652] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x78e52c094000

[pid    652] close(3)                    = 0

[pid    652] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid    652] read(3,
"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid    652] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid    652] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid    652] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid    652] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x78e52be00000

[pid    652] mmap(0x78e52be28000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x78e52be28000

[pid    652] mmap(0x78e52bfb0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x78e52bfb0000

[pid    652] mmap(0x78e52bfff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x78e52bfff000

[pid    652] mmap(0x78e52c005000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x78e52c005000

[pid    652] close(3)                    = 0

[pid    652] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x78e52c091000

[pid    652] arch_prctl(ARCH_SET_FS, 0x78e52c091740) = 0

[pid    652] set_tid_address(0x78e52c091a10) = 652

[pid    652] set_robust_list(0x78e52c091a20, 24) = 0

[pid    652] rseq(0x78e52c092060, 0x20, 0, 0x53053053) = 0

[pid    652] mprotect(0x78e52bfff000, 16384, PROT_READ) = 0

[pid    652] mprotect(0x5ee84c1a2000, 8192, PROT_READ) = 0

[pid    652] mprotect(0x78e52c0d7000, 8192, PROT_READ) = 0

[pid    652] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024,
rlim_max=RLIM64_INFINITY}) = 0

[pid    652] munmap(0x78e52c094000, 41635) = 0

[pid    652] getuid()                    = 1000

[pid    652] getgid()                    = 1000
```

```
[pid   652] getpid()                  = 652

[pid   652] rt_sigaction(SIGCHLD, {sa_handler=0x5ee84c197cd0, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x78e52be45330}, NULL, 8) = 0

[pid   652] geteuid()                 = 1000

[pid   652] getrandom("\xa4\x90\xfd\xc4\x09\xd9\x49\x11", 8, GRND_NONBLOCK) = 8

[pid   652] brk(NULL)                 = 0x5ee8538bf000

[pid   652] brk(0x5ee8538e0000)       = 0x5ee8538e0000

[pid   652] getppid()                 = 649

[pid   652] newfstatat(AT_FDCWD, "/mnt/c/Dev/Projects/OS_Labs/lab3",
{st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid   652] newfstatat(AT_FDCWD, ".", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid   652] geteuid()                 = 1000

[pid   652] getegid()                 = 1000

[pid   652] rt_sigaction(SIGINT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8)
= 0

[pid   652] rt_sigaction(SIGINT, {sa_handler=0x5ee84c197cd0, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x78e52be45330}, NULL, 8) = 0

[pid   652] rt_sigaction(SIGQUIT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0},
8) = 0

[pid   652] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x78e52be45330}, NULL, 8) = 0

[pid   652] rt_sigaction(SIGTERM, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0},
8) = 0

[pid   652] rt_sigaction(SIGTERM, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x78e52be45330}, NULL, 8) = 0

[pid   652] openat(AT_FDCWD, "/dev/null", O_WRONLY|O_CREAT|O_TRUNC, 0666) = 3

[pid   652] fcntl(2, F_DUPFD, 10)     = 10

[pid   652] close(2)                  = 0

[pid   652] fcntl(10, F_SETFD, FD_CLOEXEC) = 0

[pid   652] dup2(3, 2)                = 2

[pid   652] close(3)                  = 0

[pid   652] newfstatat(AT_FDCWD, "/usr/local/sbin/cat", 0x7ffe5677e210, 0) = -1 ENOENT
(No such file or directory)

[pid   652] newfstatat(AT_FDCWD, "/usr/local/bin/cat", 0x7ffe5677e210, 0) = -1 ENOENT
(No such file or directory)

[pid   652] newfstatat(AT_FDCWD, "/usr/sbin/cat", 0x7ffe5677e210, 0) = -1 ENOENT (No
such file or directory)
```

```
[pid    652] newfstatat(AT_FDCWD, "/usr/bin/cat", {st_mode=S_IFREG|0755, st_size=39384,
...}, 0) = 0

[pid    652] rt_sigprocmask(SIG_SETMASK, ~[RTMIN RT_1], NULL, 8) = 0

[pid    652] vfork(strace: Process 653 attached

 <unfinished ...>

[pid    653] rt_sigprocmask(SIG_SETMASK, [], ~[KILL STOP RTMIN RT_1], 8) = 0

[pid    653] execve("/usr/bin/cat", ["cat", "file1.txt"], 0x5ee8538bf908 /* 27 vars */
<unfinished ...>

[pid    652] <... vfork resumed>)          = 653

[pid    652] rt_sigprocmask(SIG_SETMASK, [],  <unfinished ...>

[pid    653] <... execve resumed>)          = 0

[pid    652] <... rt_sigprocmask resumed>~[KILL STOP RTMIN RT_1], 8) = 0

[pid    653] brk(NULL <unfinished ...>

[pid    652] wait4(-1,  <unfinished ...>

[pid    653] <... brk resumed>)            = 0x55595a7be000

[pid    653] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7785527e0000

[pid    653] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid    653] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid    653] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid    653] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d5000

[pid    653] close(3)                    = 0

[pid    653] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid    653] read(3,
"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid    653] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid    653] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid    653] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid    653] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x778552400000

[pid    653] mmap(0x778552428000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x778552428000

[pid    653] mmap(0x7785525b0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x7785525b0000
```

```
[pid    653] mmap(0x7785525ff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x7785525ff000

[pid    653] mmap(0x778552605000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x778552605000

[pid    653] close(3)                   = 0

[pid    653] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7785527d2000

[pid    653] arch_prctl(ARCH_SET_FS, 0x7785527d2740) = 0

[pid    653] set_tid_address(0x7785527d2a10) = 653

[pid    653] set_robust_list(0x7785527d2a20, 24) = 0

[pid    653] rseq(0x7785527d3060, 0x20, 0, 0x53053053) = 0

[pid    653] mprotect(0x7785525ff000, 16384, PROT_READ) = 0

[pid    653] mprotect(0x55592a58b000, 4096, PROT_READ) = 0

[pid    653] mprotect(0x778552818000, 8192, PROT_READ) = 0

[pid    653] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024,
rlim_max=RLIM64_INFINITY}) = 0

[pid    653] munmap(0x7785527d5000, 41635) = 0

[pid    653] getrandom("\x83\x28\xc7\xe7\xf2\xc8\x15\x72", 8, GRND_NONBLOCK) = 8

[pid    653] brk(NULL)                   = 0x55595a7be000

[pid    653] brk(0x55595a7df000)         = 0x55595a7df000

[pid    653] openat(AT_FDCWD, "/usr/lib/locale/locale-archive", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

[pid    653] openat(AT_FDCWD, "/usr/share/locale/locale.alias", O_RDONLY|O_CLOEXEC) = 3

[pid    653] fstat(3, {st_mode=S_IFREG|0644, st_size=2996, ...}) = 0

[pid    653] read(3, "# Locale name alias data base.\n#"..., 4096) = 2996

[pid    653] read(3, "", 4096)           = 0

[pid    653] close(3)                   = 0

[pid    653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_IDENTIFICATION",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid    653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_IDENTIFICATION",
O_RDONLY|O_CLOEXEC) = 3

[pid    653] fstat(3, {st_mode=S_IFREG|0644, st_size=258, ...}) = 0

[pid    653] mmap(NULL, 258, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527df000

[pid    653] close(3)                   = 0

[pid    653] openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/gconv/gconv-modules.cache",
O_RDONLY|O_CLOEXEC) = 3
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[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=27028, ...}) = 0

[pid   653] mmap(NULL, 27028, PROT_READ, MAP_SHARED, 3, 0) = 0x7785527d8000

[pid   653] close(3)                    = 0

[pid   653] futex(0x77855260472c, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MEASUREMENT",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MEASUREMENT",
O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=23, ...}) = 0

[pid   653] mmap(NULL, 23, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d7000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TELEPHONE",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC)
= 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=47, ...}) = 0

[pid   653] mmap(NULL, 47, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d6000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_ADDRESS", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) =
3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=127, ...}) = 0

[pid   653] mmap(NULL, 127, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d5000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NAME", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NAME", O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=62, ...}) = 0

[pid   653] mmap(NULL, 62, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d1000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_PAPER", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_PAPER", O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=34, ...}) = 0

[pid   653] mmap(NULL, 34, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527d0000
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```
[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MESSAGES", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES", O_RDONLY|O_CLOEXEC)
= 3

[pid   653] fstat(3, {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES/SYS_LC_MESSAGES",
O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=48, ...}) = 0

[pid   653] mmap(NULL, 48, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527cf000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MONETARY", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MONETARY", O_RDONLY|O_CLOEXEC)
= 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=270, ...}) = 0

[pid   653] mmap(NULL, 270, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527ce000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_COLLATE", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_COLLATE", O_RDONLY|O_CLOEXEC) =
3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=1406, ...}) = 0

[pid   653] mmap(NULL, 1406, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527cd000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TIME", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TIME", O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=3360, ...}) = 0

[pid   653] mmap(NULL, 3360, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527cc000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NUMERIC", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) =
3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=50, ...}) = 0
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```
[pid   653] mmap(NULL, 50, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7785527cb000

[pid   653] close(3)                    = 0

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_CTYPE", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid   653] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0644, st_size=360460, ...}) = 0

[pid   653] mmap(NULL, 360460, PROT_READ, MAP_PRIVATE, 3, 0) = 0x778552772000

[pid   653] close(3)                    = 0

[pid   653] fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

[pid   653] openat(AT_FDCWD, "file1.txt", O_RDONLY) = 3

[pid   653] fstat(3, {st_mode=S_IFREG|0777, st_size=20, ...}) = 0

[pid   653] fadvise64(3, 0, 0, POSIX_FADV_SEQUENTIAL) = 0

[pid   653] mmap(NULL, 139264, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0)
= 0x778552750000

[pid   653] read(3, "Hll Wrld\nprtng Sstm\n", 131072) = 20

[pid   653] write(1, "Hll Wrld\nprtng Sstm\n", 20Hll Wrld

prtng Sstm

) = 20

[pid   653] read(3, "", 131072)         = 0

[pid   653] munmap(0x778552750000, 139264) = 0

[pid   653] close(3)                    = 0

[pid   653] close(1)                    = 0

[pid   653] close(2)                    = 0

[pid   653] exit_group(0)               = ?

[pid   653] +++ exited with 0 +++

[pid   652] <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 653

[pid   652] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=653, si_uid=1000,
si_status=0, si_utime=0, si_stime=0} ---

[pid   652] rt_sigreturn({mask=[]})     = 653

[pid   652] wait4(-1, 0x7ffe5677e16c, WNOHANG, NULL) = -1 ECHILD (No child processes)

[pid   652] dup2(10, 2)                 = 2

[pid   652] close(10)                   = 0

[pid   652] exit_group(0)               = ?

[pid   652] +++ exited with 0 +++
```

```
<... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 652

rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=652, si_uid=1000,
si_status=0, si_utime=0, si_stime=0} ---

write(1, "\n\320\244\320\260\320\271\320\273 file2.txt:\n", 21

Файл file2.txt:

) = 21

rt_sigaction(SIGINT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_IGN, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, 8) = 0

rt_sigprocmask(SIG_BLOCK, [CHLD], [], 8) = 0

mmap(NULL, 36864, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS|MAP_STACK, -1, 0) =
0x72e5dd607000

rt_sigprocmask(SIG_BLOCK, ~[], [CHLD], 8) = 0

clone3({flags=CLONE_VM|CLONE_VFORK|CLONE_CLEAR_SIGHAND, exit_signal=SIGCHLD,
stack=0x72e5dd607000, stack_size=0x9000}, 88strace: Process 654 attached

 <unfinished ...>

[pid   654] rt_sigprocmask(SIG_BLOCK, NULL, ~[KILL STOP], 8) = 0

[pid   654] rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

[pid   654] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[],
sa_flags=SA_RESTORER, sa_restorer=0x72e5dd245330}, NULL, 8) = 0

[pid   654] rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

[pid   654] execve("/bin/sh", ["sh", "-c", "--", "cat file2.txt 2>/dev/null ||
ech"...], 0x7ffe7890f650 /* 27 vars */ <unfinished ...>

[pid   649] <... clone3 resumed>)        = 654

[pid   649] munmap(0x72e5dd607000, 36864) = 0

[pid   654] <... execve resumed>)        = 0

[pid   649] rt_sigprocmask(SIG_SETMASK, [CHLD],  <unfinished ...>

[pid   654] brk(NULL <unfinished ...>

[pid   649] <... rt_sigprocmask resumed>NULL, 8) = 0
```

```
[pid   654] <... brk resumed>)            = 0x5b93e3a1f000

[pid   649] wait4(654,  <unfinished ...>

[pid   654] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7d052983f000

[pid   654] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

[pid   654] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

[pid   654] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

[pid   654] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7d0529834000

[pid   654] close(3)                    = 0

[pid   654] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

[pid   654] read(3,
"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

[pid   654] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid   654] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

[pid   654] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

[pid   654] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7d0529600000

[pid   654] mmap(0x7d0529628000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x7d0529628000

[pid   654] mmap(0x7d05297b0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x7d05297b0000

[pid   654] mmap(0x7d05297ff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x7d05297ff000

[pid   654] mmap(0x7d0529805000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7d0529805000

[pid   654] close(3)                    = 0

[pid   654] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7d0529831000

[pid   654] arch_prctl(ARCH_SET_FS, 0x7d0529831740) = 0

[pid   654] set_tid_address(0x7d0529831a10) = 654

[pid   654] set_robust_list(0x7d0529831a20, 24) = 0

[pid   654] rseq(0x7d0529832060, 0x20, 0, 0x53053053) = 0

[pid   654] mprotect(0x7d05297ff000, 16384, PROT_READ) = 0

[pid   654] mprotect(0x5b93cbc83000, 8192, PROT_READ) = 0

[pid   654] mprotect(0x7d0529877000, 8192, PROT_READ) = 0
```

```
[pid   654] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024,
rlim_max=RLIM64_INFINITY}) = 0

[pid   654] munmap(0x7d0529834000, 41635) = 0

[pid   654] getuid()                    = 1000

[pid   654] getgid()                    = 1000

[pid   654] getpid()                    = 654

[pid   654] rt_sigaction(SIGCHLD, {sa_handler=0x5b93cbc78cd0, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x7d0529645330}, NULL, 8) = 0

[pid   654] geteuid()                   = 1000

[pid   654] getrandom("\xcc\xa4\xfe\x6a\xfa\x72\x6c\x05", 8, GRND_NONBLOCK) = 8

[pid   654] brk(NULL)                   = 0x5b93e3a1f000

[pid   654] brk(0x5b93e3a40000)         = 0x5b93e3a40000

[pid   654] getppid()                   = 649

[pid   654] newfstatat(AT_FDCWD, "/mnt/c/Dev/Projects/OS_Labs/lab3",
{st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid   654] newfstatat(AT_FDCWD, ".", {st_mode=S_IFDIR|0777, st_size=4096, ...}, 0) = 0

[pid   654] geteuid()                   = 1000

[pid   654] getegid()                   = 1000

[pid   654] rt_sigaction(SIGINT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0}, 8)
= 0

[pid   654] rt_sigaction(SIGINT, {sa_handler=0x5b93cbc78cd0, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x7d0529645330}, NULL, 8) = 0

[pid   654] rt_sigaction(SIGQUIT, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0},
8) = 0

[pid   654] rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x7d0529645330}, NULL, 8) = 0

[pid   654] rt_sigaction(SIGTERM, NULL, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=0},
8) = 0

[pid   654] rt_sigaction(SIGTERM, {sa_handler=SIG_DFL, sa_mask=~[RTMIN RT_1],
sa_flags=SA_RESTORER, sa_restorer=0x7d0529645330}, NULL, 8) = 0

[pid   654] openat(AT_FDCWD, "/dev/null", O_WRONLY|O_CREAT|O_TRUNC, 0666) = 3

[pid   654] fcntl(2, F_DUPFD, 10)       = 10

[pid   654] close(2)                    = 0

[pid   654] fcntl(10, F_SETFD, FD_CLOEXEC) = 0

[pid   654] dup2(3, 2)                  = 2

[pid   654] close(3)                    = 0
```

```
    [pid    654] newfstatat(AT_FDCWD, "/usr/local/sbin/cat", 0x7fff0e86ff40, 0) = -1 ENOENT
(No such file or directory)

    [pid    654] newfstatat(AT_FDCWD, "/usr/local/bin/cat", 0x7fff0e86ff40, 0) = -1 ENOENT
(No such file or directory)

    [pid    654] newfstatat(AT_FDCWD, "/usr/sbin/cat", 0x7fff0e86ff40, 0) = -1 ENOENT (No
such file or directory)

    [pid    654] newfstatat(AT_FDCWD, "/usr/bin/cat", {st_mode=S_IFREG|0755, st_size=39384,
...}, 0) = 0

    [pid    654] rt_sigprocmask(SIG_SETMASK, ~[RTMIN RT_1], NULL, 8) = 0

    [pid    654] vfork(strace: Process 655 attached

     <unfinished ...>

    [pid    655] rt_sigprocmask(SIG_SETMASK, [], ~[KILL STOP RTMIN RT_1], 8) = 0

    [pid    655] execve("/usr/bin/cat", ["cat", "file2.txt"], 0x5b93e3a1f908 /* 27 vars */
<unfinished ...>

    [pid    654] <... vfork resumed>)         = 655

    [pid    654] rt_sigprocmask(SIG_SETMASK, [],  <unfinished ...>

    [pid    655] <... execve resumed>)        = 0

    [pid    654] <... rt_sigprocmask resumed>~[KILL STOP RTMIN RT_1], 8) = 0

    [pid    655] brk(NULL <unfinished ...>

    [pid    654] wait4(-1,  <unfinished ...>

    [pid    655] <... brk resumed>)           = 0x62cf80cc3000

    [pid    655] mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7830ee048000

    [pid    655] access("/etc/ld.so.preload", R_OK) = -1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

    [pid    655] mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee03d000

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

    [pid    655] read(3,
"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) = 832

    [pid    655] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784

    [pid    655] fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

    [pid    655] pread64(3,
"\6\0\0\0\4\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0@\0\0\0\0\0\0\0"..., 784, 64) = 784
```

```
[pid   655] mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) =
0x7830ede00000

[pid   655] mmap(0x7830ede28000, 1605632, PROT_READ|PROT_EXEC,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x28000) = 0x7830ede28000

[pid   655] mmap(0x7830edfb0000, 323584, PROT_READ,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1b0000) = 0x7830edfb0000

[pid   655] mmap(0x7830edfff000, 24576, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x1fe000) = 0x7830edfff000

[pid   655] mmap(0x7830ee005000, 52624, PROT_READ|PROT_WRITE,
MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS, -1, 0) = 0x7830ee005000

[pid   655] close(3)                    = 0

[pid   655] mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7830ee03a000

[pid   655] arch_prctl(ARCH_SET_FS, 0x7830ee03a740) = 0

[pid   655] set_tid_address(0x7830ee03aa10) = 655

[pid   655] set_robust_list(0x7830ee03aa20, 24) = 0

[pid   655] rseq(0x7830ee03b060, 0x20, 0, 0x53053053) = 0

[pid   655] mprotect(0x7830edfff000, 16384, PROT_READ) = 0

[pid   655] mprotect(0x62cf62d5d000, 4096, PROT_READ) = 0

[pid   655] mprotect(0x7830ee080000, 8192, PROT_READ) = 0

[pid   655] prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024,
rlim_max=RLIM64_INFINITY}) = 0

[pid   655] munmap(0x7830ee03d000, 41635) = 0

[pid   655] getrandom("\x3e\x00\xc5\x36\x61\x6a\x47\x11", 8, GRND_NONBLOCK) = 8

[pid   655] brk(NULL)                   = 0x62cf80cc3000

[pid   655] brk(0x62cf80ce4000)         = 0x62cf80ce4000

[pid   655] openat(AT_FDCWD, "/usr/lib/locale/locale-archive", O_RDONLY|O_CLOEXEC) = -1
ENOENT (No such file or directory)

[pid   655] openat(AT_FDCWD, "/usr/share/locale/locale.alias", O_RDONLY|O_CLOEXEC) = 3

[pid   655] fstat(3, {st_mode=S_IFREG|0644, st_size=2996, ...}) = 0

[pid   655] read(3, "# Locale name alias data base.\n#"..., 4096) = 2996

[pid   655] read(3, "", 4096)           = 0

[pid   655] close(3)                    = 0

[pid   655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_IDENTIFICATION",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid   655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_IDENTIFICATION",
O_RDONLY|O_CLOEXEC) = 3
```

```
[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=258, ...}) = 0

[pid    655] mmap(NULL, 258, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee047000

[pid    655] close(3)                     = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/x86_64-linux-gnu/gconv/gconv-modules.cache",
O_RDONLY|O_CLOEXEC) = 3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=27028, ...}) = 0

[pid    655] mmap(NULL, 27028, PROT_READ, MAP_SHARED, 3, 0) = 0x7830ee040000

[pid    655] close(3)                     = 0

[pid    655] futex(0x7830ee00472c, FUTEX_WAKE_PRIVATE, 2147483647) = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MEASUREMENT",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MEASUREMENT",
O_RDONLY|O_CLOEXEC) = 3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=23, ...}) = 0

[pid    655] mmap(NULL, 23, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee03f000

[pid    655] close(3)                     = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TELEPHONE",
O_RDONLY|O_CLOEXEC) = -1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TELEPHONE", O_RDONLY|O_CLOEXEC)
= 3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=47, ...}) = 0

[pid    655] mmap(NULL, 47, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee03e000

[pid    655] close(3)                     = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_ADDRESS", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_ADDRESS", O_RDONLY|O_CLOEXEC) =
3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=127, ...}) = 0

[pid    655] mmap(NULL, 127, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee03d000

[pid    655] close(3)                     = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NAME", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NAME", O_RDONLY|O_CLOEXEC) = 3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=62, ...}) = 0

[pid    655] mmap(NULL, 62, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee039000

[pid    655] close(3)                     = 0
```

```
    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_PAPER", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_PAPER", O_RDONLY|O_CLOEXEC) = 3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=34, ...}) = 0

    [pid    655] mmap(NULL, 34, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee038000

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MESSAGES", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES", O_RDONLY|O_CLOEXEC)
= 3

    [pid    655] fstat(3, {st_mode=S_IFDIR|0755, st_size=4096, ...}) = 0

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MESSAGES/SYS_LC_MESSAGES",
O_RDONLY|O_CLOEXEC) = 3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=48, ...}) = 0

    [pid    655] mmap(NULL, 48, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee037000

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_MONETARY", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_MONETARY", O_RDONLY|O_CLOEXEC)
= 3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=270, ...}) = 0

    [pid    655] mmap(NULL, 270, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee036000

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_COLLATE", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_COLLATE", O_RDONLY|O_CLOEXEC) =
3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=1406, ...}) = 0

    [pid    655] mmap(NULL, 1406, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee035000

    [pid    655] close(3)                    = 0

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_TIME", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

    [pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_TIME", O_RDONLY|O_CLOEXEC) = 3

    [pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=3360, ...}) = 0

    [pid    655] mmap(NULL, 3360, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee034000

    [pid    655] close(3)                    = 0
```

```
[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_NUMERIC", O_RDONLY|O_CLOEXEC)
= -1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_NUMERIC", O_RDONLY|O_CLOEXEC) =
3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=50, ...}) = 0

[pid    655] mmap(NULL, 50, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830ee033000

[pid    655] close(3)                     = 0

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.UTF-8/LC_CTYPE", O_RDONLY|O_CLOEXEC) =
-1 ENOENT (No such file or directory)

[pid    655] openat(AT_FDCWD, "/usr/lib/locale/C.utf8/LC_CTYPE", O_RDONLY|O_CLOEXEC) = 3

[pid    655] fstat(3, {st_mode=S_IFREG|0644, st_size=360460, ...}) = 0

[pid    655] mmap(NULL, 360460, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7830edda7000

[pid    655] close(3)                     = 0

[pid    655] fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

[pid    655] openat(AT_FDCWD, "file2.txt", O_RDONLY) = 3

[pid    655] fstat(3, {st_mode=S_IFREG|0777, st_size=17, ...}) = 0

[pid    655] fadvise64(3, 0, 0, POSIX_FADV_SEQUENTIAL) = 0

[pid    655] mmap(NULL, 139264, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0)
= 0x7830edd85000

[pid    655] read(3, "Tst Strng\nB Wrld\n", 131072) = 17

[pid    655] write(1, "Tst Strng\nB Wrld\n", 17Tst Strng

B Wrld

) = 17

[pid    655] read(3, "", 131072)          = 0

[pid    655] munmap(0x7830edd85000, 139264) = 0

[pid    655] close(3)                     = 0

[pid    655] close(1)                     = 0

[pid    655] close(2)                     = 0

[pid    655] exit_group(0)                = ?

[pid    655] +++ exited with 0 +++

[pid    654] <... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 655

[pid    654] --- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=655, si_uid=1000,
si_status=0, si_utime=0, si_stime=1 /* 0.01 s */} ---

[pid    654] rt_sigreturn({mask=[]})      = 655

[pid    654] wait4(-1, 0x7fff0e86fe9c, WNOHANG, NULL) = -1 ECHILD (No child processes)
```

```
[pid   654] dup2(10, 2)                  = 2

[pid   654] close(10)                    = 0

[pid   654] exit_group(0)                = ?

[pid   654] +++ exited with 0 +++

<... wait4 resumed>[{WIFEXITED(s) && WEXITSTATUS(s) == 0}], 0, NULL) = 654

rt_sigaction(SIGINT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

rt_sigaction(SIGQUIT, {sa_handler=SIG_DFL, sa_mask=[], sa_flags=SA_RESTORER,
sa_restorer=0x72e5dd245330}, NULL, 8) = 0

rt_sigprocmask(SIG_SETMASK, [], NULL, 8) = 0

--- SIGCHLD {si_signo=SIGCHLD, si_code=CLD_EXITED, si_pid=654, si_uid=1000,
si_status=0, si_utime=0, si_stime=0} ---

munmap(0x72e5dd610000, 1048)             = 0

unlink("lab3.dat")                       = 0

write(1, "\n", 1

)                          = 1

write(1, "\320\240\320\260\320\261\320\276\321\202\320\260
\320\267\320\260\320\262\320\265\321\200\321\210\320\265\320\275\320\260.".., 33Работа
завершена.

) = 33

exit_group(0)                            = ?

+++ exited with 0 +++
```

Лабораторная работа №4
Strace

```
$ strace -f ./program1

execve("./program1", ["./program1"], 0x7ffce6c48508 /* 28 vars */) = 0

brk(NULL)                                = 0x5b5dabb64000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7ac89f93a000

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

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7ac89f92f000

close(3)                                 = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3
```

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

fstat(3, {st_mode=S_IFREG|0644, st_size=952616, ...}) = 0

mmap(NULL, 950296, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7ac89f846000

mmap(0x7ac89f856000, 520192, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x10000) = 0x7ac89f856000

mmap(0x7ac89f8d5000, 360448, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x8f000) = 0x7ac89f8d5000

mmap(0x7ac89f92d000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xe7000) = 0x7ac89f92d000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) =
832

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

fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

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

mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7ac89f600000

mmap(0x7ac89f628000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x28000) = 0x7ac89f628000

mmap(0x7ac89f7b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1b0000) = 0x7ac89f7b0000

mmap(0x7ac89f7ff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x1fe000) = 0x7ac89f7ff000

mmap(0x7ac89f805000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS,
-1, 0) = 0x7ac89f805000

close(3)                                = 0

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7ac89f843000

arch_prctl(ARCH_SET_FS, 0x7ac89f843740) = 0

set_tid_address(0x7ac89f843a10)         = 627

set_robust_list(0x7ac89f843a20, 24)     = 0

rseq(0x7ac89f844060, 0x20, 0, 0x53053053) = 0

mprotect(0x7ac89f7ff000, 16384, PROT_READ) = 0

mprotect(0x7ac89f92d000, 4096, PROT_READ) = 0

mprotect(0x5b5d719cc000, 4096, PROT_READ) = 0
```

```
    mprotect(0x7ac89f972000, 8192, PROT_READ) = 0

    prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

    munmap(0x7ac89f92f000, 41635)           = 0

    fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

    getrandom("\x79\x78\xa9\xda\xd4\x68\x02\x2c", 8, GRND_NONBLOCK) = 8

    brk(NULL)                               = 0x5b5dabb64000

    brk(0x5b5dabb85000)                     = 0x5b5dabb85000

    write(1, "=== \320\237\321\200\320\276\320\263\321\200\320\260\320\274\320\274\320\260
1: \320\241\321\202\320\260"..., 70=== Программа 1: Статическая линковка ===
    ) = 70

    write(1, "\320\244\321\203\320\275\320\272\321\206\320\270\321\217 1:
\320\237\321\200\320\276\320\270\320\267\320\262\320\276"..., 78Функция 1: Производная
cos(x) (f'(x) = (f(A+Δx)-f(A))/Δx)
    ) = 78

    write(1, "\320\244\321\203\320\275\320\272\321\206\320\270\321\217 2:
\320\237\321\203\320\267\321\213\321\200\321\214\320\272"..., 62Функция 2: Пузырьковая
сортировка
    ) = 62

    write(1, "\320\244\320\276\321\200\320\274\320\260\321\202
\320\262\320\262\320\276\320\264\320\260:\n", 25Формат ввода:
    ) = 25

    write(1, "  1 A deltaX           - \320\277\321\200\320\276\320\270"..., 91  1 A deltaX
- производная cos(x) в точке A с шагом deltaX
    ) = 91

    write(1, "  2 size n1 n2 ...     - \321\201\320\276\321\200\321\202"..., 101  2 size n1
n2 ...    - сортировка массива (size = количество чисел)
    ) = 101

    write(1, "  Ctrl+D               - \320\267\320\260\320\262\320\265"..., 62  Ctrl+D
- завершить программу
    ) = 62

    write(1, "\320\237\321\200\320\270\320\274\320\265\321\200: 2 5 3 8 1 2   -
\321\201"..., 71Пример: 2 5 3 8 1 2   - сортирует 5 чисел: 3,8,1,2
    ) = 71

    write(1, "=============================="...,
43========================================
    ) = 43

    fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0
```

```
write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, 1 0.5 0.001

"1 0.5 0.001\n", 1024)           = 12

write(1,
"\320\237\321\200\320\276\320\270\320\267\320\262\320\276\320\264\320\275\320\260\321\217
cos(x) \320\262"..., 80Производная cos(x) в точке 0.5 с шагом 0.001 = -0.479817

) = 80

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, 2 5 0 1 6 7 4

"2 5 0 1 6 7 4\n", 1024)          = 14

write(1, "\320\230\321\201\321\205\320\276\320\264\320\275\321\213\320\271
\320\274\320\260\321\201\321\201\320\270\320\262: 0"..., 42Исходный массив: 0 1 6 7 4

) = 42

write(1,
"\320\236\321\202\321\201\320\276\321\200\321\202\320\270\321\200\320\276\320\262\320\260\320\275\320\275\321\213\320\271 \320"..., 81Отсортированный массив (пузырьковая): 0 1 4 6 7

) = 81

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, "", 1024)                      = 0

write(1, "\n", 1

)                         = 1

write(1,
"\320\227\320\260\320\262\320\265\321\200\321\210\320\265\320\275\320\270\320\265
\321\200\320\260\320\261\320\276\321\202\321"..., 37Завершение работы...

) = 37

exit_group(0)                     = ?

+++ exited with 0 +++
```

Strace

```
$ strace -f ./program2

execve("./program2", ["./program2"], 0x7ffd9b2e2f38 /* 28 vars */) = 0

brk(NULL)                         = 0x59c8fa0d5000

mmap(NULL, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7a3af8bd0000
```

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

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7a3af8bc5000

close(3)                                = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libc.so.6", O_RDONLY|O_CLOEXEC) = 3

read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\220\243\2\0\0\0\0\0"..., 832) =
832

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

fstat(3, {st_mode=S_IFREG|0755, st_size=2125328, ...}) = 0

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

mmap(NULL, 2170256, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8800000

mmap(0x7a3af8828000, 1605632, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x28000) = 0x7a3af8828000

mmap(0x7a3af89b0000, 323584, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1b0000) = 0x7a3af89b0000

mmap(0x7a3af89ff000, 24576, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x1fe000) = 0x7a3af89ff000

mmap(0x7a3af8a05000, 52624, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_ANONYMOUS,
-1, 0) = 0x7a3af8a05000

close(3)                                = 0

mmap(NULL, 12288, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_ANONYMOUS, -1, 0) =
0x7a3af8bc2000

arch_prctl(ARCH_SET_FS, 0x7a3af8bc2740) = 0

set_tid_address(0x7a3af8bc2a10)         = 643

set_robust_list(0x7a3af8bc2a20, 24)     = 0

rseq(0x7a3af8bc3060, 0x20, 0, 0x53053053) = 0

mprotect(0x7a3af89ff000, 16384, PROT_READ) = 0

mprotect(0x59c8d8f04000, 4096, PROT_READ) = 0

mprotect(0x7a3af8c08000, 8192, PROT_READ) = 0

prlimit64(0, RLIMIT_STACK, NULL, {rlim_cur=8192*1024, rlim_max=RLIM64_INFINITY}) = 0

munmap(0x7a3af8bc5000, 41635)           = 0

fstat(1, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

getrandom("\x2f\xca\x96\x01\x6f\xa2\xfc\x5a", 8, GRND_NONBLOCK) = 8
```

```
    brk(NULL)                               = 0x59c8fa0d5000

    brk(0x59c8fa0f6000)                     = 0x59c8fa0f6000

    write(1, "=== \320\237\321\200\320\276\320\263\321\200\320\260\320\274\320\274\320\260
2: \320\224\320\270\320\275"..., 72=== Программа 2: Динамическая загрузка ===

) = 72

    write(1, "\320\235\320\260\321\207\320\260\320\273\321\214\320\275\321\213\320\265
\321\200\320\265\320\260\320\273\320\270\320\267\320"..., 41Начальные реализации:

) = 41

    write(1, "  \320\244\321\203\320\275\320\272\321\206\320\270\321\217 1:
\320\237\321\200\320\276\320\270\320\267\320\262"..., 80  Функция 1: Производная cos(x)
(f'(x) = (f(A+Δx)-f(A))/Δx)

) = 80

    write(1, "  \320\244\321\203\320\275\320\272\321\206\320\270\321\217 2:
\320\237\321\203\320\267\321\213\321\200\321\214"..., 64  Функция 2: Пузырьковая сортировка

) = 64

    write(1, "\320\244\320\276\321\200\320\274\320\260\321\202
\320\262\320\262\320\276\320\264\320\260:\n", 25Формат ввода:

) = 25

    write(1, "  0                       - \320\277\320\265\321\200\320\265"..., 68  0
- переключить реализацию

) = 68

    write(1, "  1 A deltaX        - \320\277\321\200\320\276\320\270"..., 91  1 A deltaX
- производная cos(x) в точке A с шагом deltaX

) = 91

    write(1, "  2 size n1 n2 ...   - \321\201\320\276\321\200\321\202"..., 101  2 size n1
n2 ...   - сортировка массива (size = количество чисел)

) = 101

    write(1, "  Ctrl+D             - \320\267\320\260\320\262\320\265"..., 62  Ctrl+D
- завершить программу

) = 62

    write(1, "\320\237\321\200\320\270\320\274\320\265\321\200: 2 5 3 8 1 2   -
\321\201"..., 71Пример: 2 5 3 8 1 2   - сортирует 5 чисел: 3,8,1,2

) = 71

    write(1, "================================="...,
45=========================================

) = 45

    openat(AT_FDCWD, "./lib1.so", O_RDONLY|O_CLOEXEC) = 3

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

```
fstat(3, {st_mode=S_IFREG|0777, st_size=15568, ...}) = 0

getcwd("/mnt/c/Dev/Projects/OS_Labs/lab4", 128) = 33

mmap(NULL, 16416, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8bcb000

mmap(0x7a3af8bcc000, 4096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1000) = 0x7a3af8bcc000

mmap(0x7a3af8bcd000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) =
0x7a3af8bcd000

mmap(0x7a3af8bce000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x2000) = 0x7a3af8bce000

close(3)                          = 0

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7a3af8bb7000

close(3)                          = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3

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

fstat(3, {st_mode=S_IFREG|0644, st_size=952616, ...}) = 0

mmap(NULL, 950296, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8ace000

mmap(0x7a3af8ade000, 520192, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x10000) = 0x7a3af8ade000

mmap(0x7a3af8b5d000, 360448, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x8f000) = 0x7a3af8b5d000

mmap(0x7a3af8bb5000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xe7000) = 0x7a3af8bb5000

close(3)                          = 0

mprotect(0x7a3af8bb5000, 4096, PROT_READ) = 0

mprotect(0x7a3af8bce000, 4096, PROT_READ) = 0

munmap(0x7a3af8bb7000, 41635)             = 0

fstat(0, {st_mode=S_IFCHR|0620, st_rdev=makedev(0x88, 0), ...}) = 0

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, 1 0.5 0.001

"1 0.5 0.001\n", 1024)            = 12

write(1,
"\320\237\321\200\320\276\320\270\320\267\320\262\320\276\320\264\320\275\320\260\321\217
cos(x) \320\262"..., 80Производная cos(x) в точке 0.5 с шагом 0.001 = -0.479817

) = 80
```

```
write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, 2 5 0 1 6 7 4

"2 5 0 1 6 7 4\n", 1024)        = 14

write(1, "\320\230\321\201\321\205\320\276\320\264\320\275\321\213\320\271
\320\274\320\260\321\201\321\201\320\270\320\262: 0"..., 42Исходный массив: 0 1 6 7 4
) = 42

write(1,
"\320\236\321\202\321\201\320\276\321\200\321\202\320\270\321\200\320\276\320\262\320\260\32
0\275\320\275\321\213\320\271 \320"..., 81Отсортированный массив (пузырьковая): 0 1 4 6 7
) = 81

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, 0

"0\n", 1024)                    = 2

munmap(0x7a3af8bcb000, 16416)          = 0

munmap(0x7a3af8ace000, 950296)         = 0

openat(AT_FDCWD, "./lib2.so", O_RDONLY|O_CLOEXEC) = 3

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

fstat(3, {st_mode=S_IFREG|0777, st_size=15648, ...}) = 0

getcwd("/mnt/c/Dev/Projects/OS_Labs/lab4", 128) = 33

mmap(NULL, 16416, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8bcb000

mmap(0x7a3af8bcc000, 4096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1000) = 0x7a3af8bcc000

mmap(0x7a3af8bcd000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) =
0x7a3af8bcd000

mmap(0x7a3af8bce000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x2000) = 0x7a3af8bce000

close(3)                               = 0

openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7a3af8bb7000

close(3)                               = 0

openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3

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

fstat(3, {st_mode=S_IFREG|0644, st_size=952616, ...}) = 0
```

```
    mmap(NULL, 950296, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8ace000

    mmap(0x7a3af8ade000, 520192, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x10000) = 0x7a3af8ade000

    mmap(0x7a3af8b5d000, 360448, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x8f000) = 0x7a3af8b5d000

    mmap(0x7a3af8bb5000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xe7000) = 0x7a3af8bb5000

    close(3)                                  = 0

    mprotect(0x7a3af8bb5000, 4096, PROT_READ) = 0

    mprotect(0x7a3af8bce000, 4096, PROT_READ) = 0

    munmap(0x7a3af8bb7000, 41635)             = 0

    write(1, "---
\320\240\320\225\320\220\320\233\320\230\320\227\320\220\320\246\320\230\320\230
\320\237\320\225\320\240\320"..., 52--- РЕАЛИЗАЦИИ ПЕРЕКЛЮЧЕНЫ ---

    ) = 52

    write(1, "\320\242\320\265\320\272\321\203\321\211\320\270\320\265
\321\200\320\265\320\260\320\273\320\270\320\267\320\260\321\206\320"..., 37Текущие
реализации:

    ) = 37

    write(1, "  \320\244\321\203\320\275\320\272\321\206\320\270\321\217 1: f'(x) =
(f(A"..., 56  Функция 1: f'(x) = (f(A+Δx)-f(A-Δx))/(2*Δx)

    ) = 56

    write(1, "  \320\244\321\203\320\275\320\272\321\206\320\270\321\217 2:
\320\241\320\276\321\200\321\202\320\270\321\200"..., 90  Функция 2: Сортировка Хоара
(быстрая сортировка)

    ) = 90

    write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

    read(0, 1 0.5 0.001

    "1 0.5 0.001\n", 1024)          = 12

    write(1,
"\320\237\321\200\320\276\320\270\320\267\320\262\320\276\320\264\320\275\320\260\321\217
cos(x) \320\262"..., 78Производная cos(x) в точке 0.5 с шагом 0.001 = -0.4794

    ) = 78

    write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

    read(0, 2 5 0 1 6 7 4

    "2 5 0 1 6 7 4\n", 1024)        = 14
```

```
    write(1, "\320\230\321\201\321\205\320\276\320\264\320\275\321\213\320\271
\320\274\320\260\321\201\321\201\320\270\320\262: 0"..., 42Исходный массив: 0 1 6 7 4
    ) = 42

    write(1,
"\320\236\321\202\321\201\320\276\321\200\321\202\320\270\321\200\320\276\320\262\320\260\32
0\275\320\275\321\213\320\271 \320"..., 69Отсортированный массив (Хоара): 0 1 4 6 7
    ) = 69

    write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

    read(0, 0

    "0\n", 1024)                     = 2

    munmap(0x7a3af8bcb000, 16416)          = 0

    munmap(0x7a3af8ace000, 950296)         = 0

    openat(AT_FDCWD, "./lib1.so", O_RDONLY|O_CLOEXEC) = 3

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

    fstat(3, {st_mode=S_IFREG|0777, st_size=15568, ...}) = 0

    getcwd("/mnt/c/Dev/Projects/OS_Labs/lab4", 128) = 33

    mmap(NULL, 16416, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8bcb000

    mmap(0x7a3af8bcc000, 4096, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x1000) = 0x7a3af8bcc000

    mmap(0x7a3af8bcd000, 4096, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3, 0x2000) =
0x7a3af8bcd000

    mmap(0x7a3af8bce000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x2000) = 0x7a3af8bce000

    close(3)                              = 0

    openat(AT_FDCWD, "/etc/ld.so.cache", O_RDONLY|O_CLOEXEC) = 3

    fstat(3, {st_mode=S_IFREG|0644, st_size=41635, ...}) = 0

    mmap(NULL, 41635, PROT_READ, MAP_PRIVATE, 3, 0) = 0x7a3af8bb7000

    close(3)                              = 0

    openat(AT_FDCWD, "/lib/x86_64-linux-gnu/libm.so.6", O_RDONLY|O_CLOEXEC) = 3

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

    fstat(3, {st_mode=S_IFREG|0644, st_size=952616, ...}) = 0

    mmap(NULL, 950296, PROT_READ, MAP_PRIVATE|MAP_DENYWRITE, 3, 0) = 0x7a3af8ace000

    mmap(0x7a3af8ade000, 520192, PROT_READ|PROT_EXEC, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0x10000) = 0x7a3af8ade000

    mmap(0x7a3af8b5d000, 360448, PROT_READ, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE, 3,
0x8f000) = 0x7a3af8b5d000
```

```
mmap(0x7a3af8bb5000, 8192, PROT_READ|PROT_WRITE, MAP_PRIVATE|MAP_FIXED|MAP_DENYWRITE,
3, 0xe7000) = 0x7a3af8bb5000

close(3)                                = 0

mprotect(0x7a3af8bb5000, 4096, PROT_READ) = 0

mprotect(0x7a3af8bce000, 4096, PROT_READ) = 0

munmap(0x7a3af8bb7000, 41635)           = 0

write(1, "---
\320\240\320\225\320\220\320\233\320\230\320\227\320\220\320\246\320\230\320\230
\320\237\320\225\320\240\320"..., 52--- РЕАЛИЗАЦИИ ПЕРЕКЛЮЧЕНЫ ---

) = 52

write(1, "\320\242\320\265\320\272\321\203\321\211\320\270\320\265
\321\200\320\265\320\260\320\273\320\270\320\267\320\260\321\206\320"..., 37Текущие
реализации:

) = 37

write(1, " \320\244\321\203\320\275\320\272\321\206\320\270\321\217 1: f'(x) =
(f(A"..., 48  Функция 1: f'(x) = (f(A+Δx)-f(A))/Δx

) = 48

write(1, " \320\244\321\203\320\275\320\272\321\206\320\270\321\217 2:
\320\237\321\203\320\267\321\213\321\200\321\214"..., 64  Функция 2: Пузырьковая сортировка

) = 64

write(1, "\320\222\320\262\320\265\320\264\320\270\321\202\320\265
\320\272\320\276\320\274\320\260\320\275\320\264\321\203: ", 31Введите команду: ) = 31

read(0, "", 1024)                       = 0

write(1, "\n", 1

)                               = 1

write(1,
"\320\227\320\260\320\262\320\265\321\200\321\210\320\265\320\275\320\270\320\265
\321\200\320\260\320\261\320\276\321\202\321"..., 37Завершение работы...

) = 37

munmap(0x7a3af8bcb000, 16416)           = 0

munmap(0x7a3af8ace000, 950296)          = 0

exit_group(0)                           = ?

+++ exited with 0 +++
```

Вывод

Применение утилиты strace позволило на практике исследовать взаимодействие разработанных программ с ядром операционной системы через анализ системных вызовов. Этот

инструмент дал возможность наблюдать за работой приложений на самом низком уровне, регистрируя все обращения к функциям ядра. Такой подход превратил теоретические принципы системного программирования в наблюдаемые и анализируемые события, что значительно углубило понимание работы приложений в среде операционной системы.