**Московский Авиационный Институт**

**(Национальный Исследовательский Университет)**

Институт №8 “Компьютерные науки и прикладная математика”

Кафедра №806 “Вычислительная математика и программирование”

**Лабораторная работа №8 по курсу**

**«Операционные системы»**

Группа: М80-203Б-22

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Оценка:

Подпись:

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**Цель работы:**

Приобретение практических навыков диагностики работы программного обечпечения

**Постановка задачи**

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

**Strace**

Лабораторная №1

ksu@DESKTOP-4J8FFR6:~/naida$ strace -f ./parent

execve("./parent", ["./parent"], 0x7ffe5ca70758 /\* 22 vars \*/) = 0

brk(NULL) = 0x55d119a25000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffddfa87730) = -1 EINVAL (Invalid argument)

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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f58a5c6a000

close(3) = 0

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

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

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=35960, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f58a5c68000

mmap(NULL, 39904, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f58a5c5e000

mmap(0x7f58a5c60000, 16384, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7f58a5c60000

mmap(0x7f58a5c64000, 8192, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x6000) = 0x7f58a5c64000

mmap(0x7f58a5c66000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x7000) = 0x7f58a5c66000

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\300A\2\0\0\0\0\0"..., 832) = 832

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f58a5a6c000

mmap(0x7f58a5a8e000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7f58a5a8e000

mmap(0x7f58a5c06000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7f58a5c06000

mmap(0x7f58a5c54000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7f58a5c54000

mmap(0x7f58a5c5a000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f58a5c5a000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", 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\220q\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=157224, ...}) = 0

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

mmap(NULL, 140408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f58a5a49000

mmap(0x7f58a5a4f000, 69632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x6000) = 0x7f58a5a4f000

mmap(0x7f58a5a60000, 24576, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17000) = 0x7f58a5a60000

mmap(0x7f58a5a66000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1c000) = 0x7f58a5a66000

mmap(0x7f58a5a68000, 13432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f58a5a68000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f58a5a46000

arch\_prctl(ARCH\_SET\_FS, 0x7f58a5a46740) = 0

mprotect(0x7f58a5c54000, 16384, PROT\_READ) = 0

mprotect(0x7f58a5a66000, 4096, PROT\_READ) = 0

mprotect(0x7f58a5c66000, 4096, PROT\_READ) = 0

mprotect(0x55d118057000, 4096, PROT\_READ) = 0

mprotect(0x7f58a5ca6000, 4096, PROT\_READ) = 0

munmap(0x7f58a5c6a000, 57411) = 0

set\_tid\_address(0x7f58a5a46a10) = 180

set\_robust\_list(0x7f58a5a46a20, 24) = 0

rt\_sigaction(SIGRTMIN, {sa\_handler=0x7f58a5a4fbf0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_SIGINFO, sa\_restorer=0x7f58a5a5d420}, NULL, 8) = 0

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7f58a5a4fc90, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7f58a5a5d420}, NULL, 8) = 0

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

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

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x55d119a25000

brk(0x55d119a46000) = 0x55d119a46000

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"..., 54Введите имя файла для чтения: ) = 54

read(0,

task.txt"\n", 1024) = 1

statfs("/dev/shm/", {f\_type=TMPFS\_MAGIC, f\_bsize=4096, f\_blocks=459479, f\_bfree=459479, f\_bavail=459479, f\_files=459479, f\_ffree=459478, f\_fsid={val=[0, 0]}, f\_namelen=255, f\_frsize=4096, f\_flags=ST\_VALID|ST\_NOSUID|ST\_NODEV|ST\_NOATIME}) = 0

futex(0x7f58a5a6b390, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

openat(AT\_FDCWD, "/dev/shm/shared\_memory", O\_RDWR|O\_CREAT|O\_NOFOLLOW|O\_CLOEXEC, 0600) = 3

ftruncate(3, 4) = 0

mmap(NULL, 4, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7f58a5ca5000

clone(strace: Process 183 attached

child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7f58a5a46a10) = 183

[pid 183] set\_robust\_list(0x7f58a5a46a20, 24) = 0

[pid 180] openat(AT\_FDCWD, "", O\_RDONLY <unfinished ...>

[pid 183] close(3 <unfinished ...>

[pid 180] <... openat resumed> ) = -1 ENOENT (No such file or directory)

[pid 183] <... close resumed> ) = 0

[pid 180] dup(2 <unfinished ...>

[pid 183] exit\_group(0 <unfinished ...>

[pid 180] <... dup resumed> ) = 4

[pid 183] <... exit\_group resumed>) = ?

[pid 180] fcntl(4, F\_GETFL) = 0x8002 (flags O\_RDWR|O\_LARGEFILE)

[pid 183] +++ exited with 0 +++

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=183, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

fstat(4, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(4, "\320\236\321\210\320\270\320\261\320\272\320\260 \320\276\321\202\320\272\321\200\321\213\321\202\320\270\321\217 \321\204"..., 68Ошибка открытия файла: No such file or directory

) = 68

close(4) = 0

exit\_group(-1) = ?

+++ exited with 255 +++

ksu@DESKTOP-4J8FFR6:~/naida$ strace -f ./parent

execve("./parent", ["./parent"], 0x7fffaecce0f8 /\* 22 vars \*/) = 0

brk(NULL) = 0x55990ab6e000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fffc5f11480) = -1 EINVAL (Invalid argument)

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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fd8582d4000

close(3) = 0

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

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

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=35960, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd8582d2000

mmap(NULL, 39904, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd8582c8000

mmap(0x7fd8582ca000, 16384, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7fd8582ca000

mmap(0x7fd8582ce000, 8192, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x6000) = 0x7fd8582ce000

mmap(0x7fd8582d0000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x7000) = 0x7fd8582d0000

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\300A\2\0\0\0\0\0"..., 832) = 832

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd8580d6000

mmap(0x7fd8580f8000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7fd8580f8000

mmap(0x7fd858270000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7fd858270000

mmap(0x7fd8582be000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fd8582be000

mmap(0x7fd8582c4000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd8582c4000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", 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\220q\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=157224, ...}) = 0

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

mmap(NULL, 140408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fd8580b3000

mmap(0x7fd8580b9000, 69632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x6000) = 0x7fd8580b9000

mmap(0x7fd8580ca000, 24576, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17000) = 0x7fd8580ca000

mmap(0x7fd8580d0000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1c000) = 0x7fd8580d0000

mmap(0x7fd8580d2000, 13432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fd8580d2000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fd8580b0000

arch\_prctl(ARCH\_SET\_FS, 0x7fd8580b0740) = 0

mprotect(0x7fd8582be000, 16384, PROT\_READ) = 0

mprotect(0x7fd8580d0000, 4096, PROT\_READ) = 0

mprotect(0x7fd8582d0000, 4096, PROT\_READ) = 0

mprotect(0x55990a268000, 4096, PROT\_READ) = 0

mprotect(0x7fd858310000, 4096, PROT\_READ) = 0

munmap(0x7fd8582d4000, 57411) = 0

set\_tid\_address(0x7fd8580b0a10) = 188

set\_robust\_list(0x7fd8580b0a20, 24) = 0

rt\_sigaction(SIGRTMIN, {sa\_handler=0x7fd8580b9bf0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_SIGINFO, sa\_restorer=0x7fd8580c7420}, NULL, 8) = 0

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7fd8580b9c90, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7fd8580c7420}, NULL, 8) = 0

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

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

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x55990ab6e000

brk(0x55990ab8f000) = 0x55990ab8f000

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"..., 54Введите имя файла для чтения: ) = 54

read(0, task.txt

"task.txt\n", 1024) = 9

statfs("/dev/shm/", {f\_type=TMPFS\_MAGIC, f\_bsize=4096, f\_blocks=459479, f\_bfree=459479, f\_bavail=459479, f\_files=459479, f\_ffree=459477, f\_fsid={val=[0, 0]}, f\_namelen=255, f\_frsize=4096, f\_flags=ST\_VALID|ST\_NOSUID|ST\_NODEV|ST\_NOATIME}) = 0

futex(0x7fd8580d5390, FUTEX\_WAKE\_PRIVATE, 2147483647) = 0

openat(AT\_FDCWD, "/dev/shm/shared\_memory", O\_RDWR|O\_CREAT|O\_NOFOLLOW|O\_CLOEXEC, 0600) = 3

ftruncate(3, 4) = 0

mmap(NULL, 4, PROT\_READ|PROT\_WRITE, MAP\_SHARED, 3, 0) = 0x7fd85830f000

clone(strace: Process 189 attached

child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fd8580b0a10) = 189

[pid 189] set\_robust\_list(0x7fd8580b0a20, 24 <unfinished ...>

[pid 188] openat(AT\_FDCWD, "task.txt", O\_RDONLY <unfinished ...>

[pid 189] <... set\_robust\_list resumed> ) = 0

[pid 188] <... openat resumed> ) = 4

[pid 189] close(3 <unfinished ...>

[pid 188] fstat(4, <unfinished ...>

[pid 189] <... close resumed> ) = 0

[pid 188] <... fstat resumed> {st\_mode=S\_IFREG|0644, st\_size=19, ...}) = 0

[pid 189] exit\_group(0 <unfinished ...>

[pid 188] read(4, <unfinished ...>

[pid 189] <... exit\_group resumed>) = ?

[pid 189] +++ exited with 0 +++

<... read resumed> "11.11 13.256 14.045", 4096) = 19

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=189, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

read(4, "", 4096) = 0

clock\_nanosleep(CLOCK\_REALTIME, 0, {tv\_sec=20, tv\_nsec=0},

Лабораторная №2

ksu@DESKTOP-4J8FFR6:~/naidalaba2$ strace ./main abc fabcrakqwertyfenty 3

execve("./main", ["./main", "abc", "fabcrakqwertyfenty", "3"], 0x7ffda117f628 /\* 22 vars \*/) = 0

brk(NULL) = 0x55e12d97c000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fff206c4720) = -1 EINVAL (Invalid argument)

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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fb05f587000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libpthread.so.0", 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\220q\0\0\0\0\0\0"..., 832) = 832

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=157224, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fb05f585000

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\365\267\271\263\357\340\36\367\256\306\221\334\217N',"..., 68, 824) = 68

mmap(NULL, 140408, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fb05f562000

mmap(0x7fb05f568000, 69632, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x6000) = 0x7fb05f568000

mmap(0x7fb05f579000, 24576, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x17000) = 0x7fb05f579000

mmap(0x7fb05f57f000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1c000) = 0x7fb05f57f000

mmap(0x7fb05f581000, 13432, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fb05f581000

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\300A\2\0\0\0\0\0"..., 832) = 832

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fb05f370000

mmap(0x7fb05f392000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7fb05f392000

mmap(0x7fb05f50a000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7fb05f50a000

mmap(0x7fb05f558000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fb05f558000

mmap(0x7fb05f55e000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fb05f55e000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fb05f36d000

arch\_prctl(ARCH\_SET\_FS, 0x7fb05f36d740) = 0

mprotect(0x7fb05f558000, 16384, PROT\_READ) = 0

mprotect(0x7fb05f57f000, 4096, PROT\_READ) = 0

mprotect(0x55e12bf7e000, 4096, PROT\_READ) = 0

mprotect(0x7fb05f5c3000, 4096, PROT\_READ) = 0

munmap(0x7fb05f587000, 57411) = 0

set\_tid\_address(0x7fb05f36da10) = 162

set\_robust\_list(0x7fb05f36da20, 24) = 0

rt\_sigaction(SIGRTMIN, {sa\_handler=0x7fb05f568bf0, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_SIGINFO, sa\_restorer=0x7fb05f576420}, NULL, 8) = 0

rt\_sigaction(SIGRT\_1, {sa\_handler=0x7fb05f568c90, sa\_mask=[], sa\_flags=SA\_RESTORER|SA\_RESTART|SA\_SIGINFO, sa\_restorer=0x7fb05f576420}, NULL, 8) = 0

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

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

brk(NULL) = 0x55e12d97c000

brk(0x55e12d99d000) = 0x55e12d99d000

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fb05eb6c000

mprotect(0x7fb05eb6d000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fb05f36bfb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fb05f36c9d0, tls=0x7fb05f36c700, child\_tidptr=0x7fb05f36c9d0) = 163

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fb05e36b000

mprotect(0x7fb05e36c000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fb05eb6afb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fb05eb6b9d0, tls=0x7fb05eb6b700, child\_tidptr=0x7fb05eb6b9d0) = 164

mmap(NULL, 8392704, PROT\_NONE, MAP\_PRIVATE|MAP\_ANONYMOUS|MAP\_STACK, -1, 0) = 0x7fb05db6a000

mprotect(0x7fb05db6b000, 8388608, PROT\_READ|PROT\_WRITE) = 0

clone(child\_stack=0x7fb05e369fb0, flags=CLONE\_VM|CLONE\_FS|CLONE\_FILES|CLONE\_SIGHAND|CLONE\_THREAD|CLONE\_SYSVSEM|CLONE\_SETTLS|CLONE\_PARENT\_SETTID|CLONE\_CHILD\_CLEARTID, parent\_tidptr=0x7fb05e36a9d0, tls=0x7fb05e36a700, child\_tidptr=0x7fb05e36a9d0) = 165

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(1, "substring found in string\n", 26substring found in string

) = 26

write(1, "\320\222\321\200\320\265\320\274\321\217 \320\262\321\213\320\277\320\276\320\273\320\275\320\265\320\275\320\270\321\217:"..., 38Время выполнения: 8965

) = 38

exit\_group(0) = ?

+++ exited with 0 +++

Лабораторная №3:

ksu@DESKTOP-4J8FFR6:~/naida$ strace -f ./parent1

execve("./parent1", ["./parent1"], 0x7ffd78264648 /\* 22 vars \*/) = 0

brk(NULL) = 0x555a5c1b5000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffc5be03290) = -1 EINVAL (Invalid argument)

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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7f5398e77000

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\300A\2\0\0\0\0\0"..., 832) = 832

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f5398e75000

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f5398c83000

mmap(0x7f5398ca5000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7f5398ca5000

mmap(0x7f5398e1d000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7f5398e1d000

mmap(0x7f5398e6b000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7f5398e6b000

mmap(0x7f5398e71000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f5398e71000

close(3) = 0

arch\_prctl(ARCH\_SET\_FS, 0x7f5398e76540) = 0

mprotect(0x7f5398e6b000, 16384, PROT\_READ) = 0

mprotect(0x555a5a88c000, 4096, PROT\_READ) = 0

mprotect(0x7f5398eb3000, 4096, PROT\_READ) = 0

munmap(0x7f5398e77000, 57411) = 0

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x555a5c1b5000

brk(0x555a5c1d6000) = 0x555a5c1d6000

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"..., 54Введите имя файла для чтения: ) = 54

read(0, task.txt

"\320\265\321\204task.txt\n", 1024) = 13

pipe([3, 4]) = 0

clone(strace: Process 78 attached

child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7f5398e76810) = 78

[pid 78] close(3 <unfinished ...>

[pid 76] close(4 <unfinished ...>

[pid 78] <... close resumed> ) = 0

[pid 76] <... close resumed> ) = 0

[pid 78] dup2(4, 1 <unfinished ...>

[pid 76] read(3, <unfinished ...>

[pid 78] <... dup2 resumed> ) = 1

[pid 78] close(4) = 0

[pid 78] execve("./child1", ["./child1", "\320\265\321\204task.txt"], 0x7ffc5be03378 /\* 22 vars \*/) = 0

[pid 78] brk(NULL) = 0x55d593845000

[pid 78] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7fff84cee180) = -1 EINVAL (Invalid argument)

[pid 78] access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (No such file or directory)

[pid 78] openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

[pid 78] fstat(3, {st\_mode=S\_IFREG|0644, st\_size=57411, ...}) = 0

[pid 78] mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fe2f0238000

[pid 78] close(3) = 0

[pid 78] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 78] read(3, "\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\300A\2\0\0\0\0\0"..., 832) = 832

[pid 78] 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 78] pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

[pid 78] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

[pid 78] fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 0

[pid 78] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fe2f0236000

[pid 78] 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 78] pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

[pid 78] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

[pid 78] mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fe2f0044000

[pid 78] mmap(0x7fe2f0066000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7fe2f0066000

[pid 78] mmap(0x7fe2f01de000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7fe2f01de000

[pid 78] mmap(0x7fe2f022c000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fe2f022c000

[pid 78] mmap(0x7fe2f0232000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fe2f0232000

[pid 78] close(3) = 0

[pid 78] arch\_prctl(ARCH\_SET\_FS, 0x7fe2f0237540) = 0

[pid 78] mprotect(0x7fe2f022c000, 16384, PROT\_READ) = 0

[pid 78] mprotect(0x55d59207b000, 4096, PROT\_READ) = 0

[pid 78] mprotect(0x7fe2f0274000, 4096, PROT\_READ) = 0

[pid 78] munmap(0x7fe2f0238000, 57411) = 0

[pid 78] brk(NULL) = 0x55d593845000

[pid 78] brk(0x55d593866000) = 0x55d593866000

[pid 78] openat(AT\_FDCWD, "\320\265\321\204task.txt", O\_RDONLY) = -1 ENOENT (No such file or directory)

[pid 78] dup(2) = 3

[pid 78] fcntl(3, F\_GETFL) = 0x8002 (flags O\_RDWR|O\_LARGEFILE)

[pid 78] fstat(3, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

[pid 78] write(3, "\320\236\321\210\320\270\320\261\320\272\320\260 \320\277\321\200\320\270 \320\276\321\202\320\272\321\200\321\213\321\202"..., 75Ошибка при открытии файла: No such file or directory

) = 75

[pid 78] close(3) = 0

[pid 78] exit\_group(-1) = ?

[pid 76] <... read resumed> "", 100000) = 0

[pid 78] +++ exited with 255 +++

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=78, si\_uid=1000, si\_status=255, si\_utime=0, si\_stime=1} ---

close(3) = 0

wait4(-1, NULL, 0, NULL) = 78

exit\_group(0) = ?

+++ exited with 0 +++

ksu@DESKTOP-4J8FFR6:~/naida$ strace ./parent1

execve("./parent1", ["./parent1"], 0x7ffd4ebdd820 /\* 22 vars \*/) = 0

brk(NULL) = 0x55575e858000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffd7cc65170) = -1 EINVAL (Invalid argument)

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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fbdc6d60000

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\300A\2\0\0\0\0\0"..., 832) = 832

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fbdc6d5e000

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fbdc6b6c000

mmap(0x7fbdc6b8e000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7fbdc6b8e000

mmap(0x7fbdc6d06000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7fbdc6d06000

mmap(0x7fbdc6d54000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fbdc6d54000

mmap(0x7fbdc6d5a000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fbdc6d5a000

close(3) = 0

arch\_prctl(ARCH\_SET\_FS, 0x7fbdc6d5f540) = 0

mprotect(0x7fbdc6d54000, 16384, PROT\_READ) = 0

mprotect(0x55575d475000, 4096, PROT\_READ) = 0

mprotect(0x7fbdc6d9c000, 4096, PROT\_READ) = 0

munmap(0x7fbdc6d60000, 57411) = 0

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x55575e858000

brk(0x55575e879000) = 0x55575e879000

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"..., 54Введите имя файла для чтения: ) = 54

read(0, task.txt

"task.txt\n", 1024) = 9

pipe([3, 4]) = 0

clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fbdc6d5f810) = 98

close(4) = 0

read(3, "\320\241\321\203\320\274\320\274\320\260 \321\207\320\270\321\201\320\265\320\273 \320\270\320\267 \321\204\320\260\320"..., 100000) = 58

--- SIGCHLD {si\_signo=SIGCHLD, si\_code=CLD\_EXITED, si\_pid=98, si\_uid=1000, si\_status=0, si\_utime=0, si\_stime=0} ---

write(1, "\320\241\321\203\320\274\320\274\320\260 \321\207\320\270\321\201\320\265\320\273 \320\270\320\267 \321\204\320\260\320"..., 58Сумма чисел из файла task.txt: 38.410999

) = 58

read(3, "", 100000) = 0

close(3) = 0

wait4(-1, NULL, 0, NULL) = 98

exit\_group(0) = ?

+++ exited with 0 +++

Лабораторная №4

ksu@DESKTOP-4J8FFR6:~/naida$ strace ./main2

execve("./main2", ["./main2"], 0x7ffda0f30f70 /\* 22 vars \*/) = 0

brk(NULL) = 0x559fe160f000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffdbac8ffc0) = -1 EINVAL (Invalid argument)

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

openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./libdl.so.2", O\_RDONLY|O\_CLOEXEC) = -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=57411, ...}) = 0

mmap(NULL, 57411, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fadc6cab000

close(3) = 0

openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libdl.so.2", 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 \22\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=18848, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fadc6ca9000

mmap(NULL, 20752, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fadc6ca3000

mmap(0x7fadc6ca4000, 8192, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7fadc6ca4000

mmap(0x7fadc6ca6000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7fadc6ca6000

mmap(0x7fadc6ca7000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x3000) = 0x7fadc6ca7000

close(3) = 0

openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./libc.so.6", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

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

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

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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029592, ...}) = 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

pread64(3, "\4\0\0\0\20\0\0\0\5\0\0\0GNU\0\2\0\0\300\4\0\0\0\3\0\0\0\0\0\0\0", 32, 848) = 32

pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\346x\376T\245\322\302\t/\216G\353\v3\20^"..., 68, 880) = 68

mmap(NULL, 2037344, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fadc6ab1000

mmap(0x7fadc6ad3000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x22000) = 0x7fadc6ad3000

mmap(0x7fadc6c4b000, 319488, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19a000) = 0x7fadc6c4b000

mmap(0x7fadc6c99000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fadc6c99000

mmap(0x7fadc6c9f000, 13920, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fadc6c9f000

close(3) = 0

mmap(NULL, 12288, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fadc6aae000

arch\_prctl(ARCH\_SET\_FS, 0x7fadc6aae740) = 0

mprotect(0x7fadc6c99000, 16384, PROT\_READ) = 0

mprotect(0x7fadc6ca7000, 4096, PROT\_READ) = 0

mprotect(0x559fe1192000, 4096, PROT\_READ) = 0

mprotect(0x7fadc6ce7000, 4096, PROT\_READ) = 0

munmap(0x7fadc6cab000, 57411) = 0

fstat(1, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

brk(NULL) = 0x559fe160f000

brk(0x559fe1630000) = 0x559fe1630000

fstat(0, {st\_mode=S\_IFCHR|0620, st\_rdev=makedev(0x88, 0), ...}) = 0

write(1, "Choose start library: 1 or 2: ", 30Choose start library: 1 or 2: ) = 30

read(0, 1

"1\n", 1024) = 2

read(0, 5 22

"5 22\n", 1024) = 5

openat(AT\_FDCWD, "./tls/x86\_64/x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./tls/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./x86\_64/libd1.so", O\_RDONLY|O\_CLOEXEC) = -1 ENOENT (No such file or directory)

openat(AT\_FDCWD, "./libd1.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\200\20\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=16040, ...}) = 0

getcwd("/home/ksu/naida", 128) = 16

mmap(NULL, 16440, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fadc6cb5000

mmap(0x7fadc6cb6000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7fadc6cb6000

mmap(0x7fadc6cb7000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7fadc6cb7000

mmap(0x7fadc6cb8000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7fadc6cb8000

close(3) = 0

mprotect(0x7fadc6cb8000, 4096, PROT\_READ) = 0

read(0, 0

"0\n", 1024) = 2

munmap(0x7fadc6cb5000, 16440) = 0

openat(AT\_FDCWD, "./libd2.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\200\20\0\0\0\0\0\0"..., 832) = 832

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=16280, ...}) = 0

getcwd("/home/ksu/naida", 128) = 16

mmap(NULL, 16440, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fadc6cb5000

mmap(0x7fadc6cb6000, 4096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1000) = 0x7fadc6cb6000

mmap(0x7fadc6cb7000, 4096, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7fadc6cb7000

mmap(0x7fadc6cb8000, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x2000) = 0x7fadc6cb8000

close(3) = 0

mprotect(0x7fadc6cb8000, 4096, PROT\_READ) = 0

read(0,

# **Вывод**

В ходе лабораторной работы по операционным системам были приобретены практические навыки диагностики работы программного обеспечения. Я изучила программы, которые писала в течение семестра с помощью утилиты strace, что помогло убедиться «на практике», что системные вызовы действительно были выполнены.