Московский Авиационный Институт

(Национальный Исследовательский Университет)

Институт №8 “Компьютерные науки и прикладная математика”

Кафедра №806 “Вычислительная математика и программирование”

**Лабораторная работа №1 по курсу**

**«Операционные системы»**

Группа: М8О-215Б-23

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**Постановка задачи**

**Вариант 10.**

Родительский процесс создает дочерний процесс. Первой строчкой пользователь в консоль родительского процесса вводит имя файла, которое будет использовано для открытия файла с таким именем на чтение. Стандартный поток ввода дочернего процесса переопределяется открытым файлом. Дочерний процесс читает команды из стандартного потока ввода. Стандартный поток вывода дочернего процесса перенаправляется в pipe1. Родительский процесс читает из pipe1 и прочитанное выводит в свой стандартный поток вывода. Родительский и дочерний процесс должны быть представлены разными программами.

В файле записаны команды вида: «число». Дочерний процесс производит проверку этого числа на простоту. Если число составное, то дочерний процесс пишет это число в стандартный поток вывода. Если число отрицательное или простое, то тогда дочерний и родительский процессы завершаются. Количество чисел может быть произвольным.

**Общий метод и алгоритм решения**

Использованные системные вызовы:

* pid\_t fork() - создание дочернего процесса
* execl(const char \*path, const char \*arg, ...) – замена памяти процесса
* pid\_t wait(int \*status) - ожидание завершения дочернего процесса
* int pipe(int pipefd[2]) - создание неименованного канала для передачи данных между
* процессами
* int dup2(int oldfd, int newfd) - переназначение файлового дескриптора
* int open(const char \*pathname, int flags, mode\_t mode) - открытие\создание файла
* int close(int fd) - закрыть файл
* size\_t read (int fd, void\* buf, size\_t cnt) – чтение из файла
* size\_t write (int fd, void\* buf, size\_t cnt) – запись в файл

size\_t write (int fd, void\* buf, size\_t cnt); **Код программы**

**parent.c**

#include "stdio.h"

int main() {

printf("Hello, World!");

return 0;

}

**Протокол работы программы**

**Здесь нужно показать тесты программы (текст или скриншоты), а затем показать полный вывод утилиты strace (или какой-либо другой утилиты на Windows, если вы выполняете лабы на этой операционной системе).**

**В strace нужно обязательно выделить, где происходят системные вызовы, которые вы использовали в лабораторной работе (например, где в первой лабораторной работе был вызван fork и другие вызовы). Полный список вызовов, которые нужно будет выделить в выводе strace, будет указан при выдаче лабы в нашем канале.**

**Тестирование:**

$ ./main

file1.txt

file2.txt

string1

string2

string3

string4

string5

$ cat < file1.txt

string1

string2

string3

$ cat < file2.txt

string4

string5

**Strace:**

$ strace -f ./main

execve("./main", ["./main"], 0x7ffde1b8ad38 /\* 49 vars \*/) = 0

brk(NULL) = 0x5643edd4d000

arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffed25bee60) = -1 EINVAL (Недопустимый аргумент)

access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

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

fstat(3, {st\_mode=S\_IFREG|0644, st\_size=73833, ...}) = 0

mmap(NULL, 73833, PROT\_READ, MAP\_PRIVATE, 3, 0) = 0x7fb731768000

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\360q\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\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7fb731766000

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\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7fb731574000

mprotect(0x7fb731599000, 1847296, PROT\_NONE) = 0

mmap(0x7fb731599000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7fb731599000

mmap(0x7fb731711000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7fb731711000

mmap(0x7fb73175c000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7fb73175c000

mmap(0x7fb731762000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7fb731762000

close(3) = 0

arch\_prctl(ARCH\_SET\_FS, 0x7fb731767540) = 0

mprotect(0x7fb73175c000, 12288, PROT\_READ) = 0

mprotect(0x5643edb3c000, 4096, PROT\_READ) = 0

mprotect(0x7fb7317a8000, 4096, PROT\_READ) = 0

munmap(0x7fb731768000, 73833) = 0

brk(NULL) = 0x5643edd4d000

brk(0x5643edd6e000) = 0x5643edd6e000

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

read(0, file1.txt

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

openat(AT\_FDCWD, "file1.txt", O\_WRONLY|O\_CREAT|O\_TRUNC, 0666) = 3

read(0, file2.txt

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

openat(AT\_FDCWD, "file2.txt", O\_WRONLY|O\_CREAT|O\_TRUNC, 0666) = 4

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

**pipe([7, 8]) = 0**

**clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fb731767810) = 4728**

**clone(child\_stack=NULL, flags=CLONE\_CHILD\_CLEARTID|CLONE\_CHILD\_SETTID|SIGCHLD, child\_tidptr=0x7fb731767810) = 4729**

close(3) = 0

close(4) = 0

close(5) = 0

close(7) = 0

read(0, strace: Process 4728 attached

<unfinished ...>

[pid 4728] close(4) = 0

[pid 4728] close(7) = 0

[pid 4728] close(8) = 0

[pid 4728] close(6) = 0

[pid 4728] dup2(5, 0) = 0

[pid 4728] dup2(3, 1) = 1

[pid 4728] close(3strace: Process 4729 attached

) = 0

[pid 4728] execve("child", NULL, 0x7ffed25bef48 /\* 49 vars \*/ <unfinished ...>

[pid 4729] close(3) = 0

[pid 4729] close(5) = 0

[pid 4729] close(6) = 0

[pid 4729] close(8) = 0

[pid 4729] dup2(7, 0) = 0

[pid 4729] dup2(4, 1) = 1

[pid 4729] close(4) = 0

[pid 4729] execve("child", NULL, 0x7ffed25bef48 /\* 49 vars \*/ <unfinished ...>

[pid 4728] <... execve resumed>) = 0

[pid 4728] brk(NULL <unfinished ...>

[pid 4729] <... execve resumed>) = 0

[pid 4729] brk(NULL <unfinished ...>

[pid 4728] <... brk resumed>) = 0x55b32f123000

[pid 4728] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffc0937eb80 <unfinished ...>

[pid 4729] <... brk resumed>) = 0x55884ee36000

[pid 4729] arch\_prctl(0x3001 /\* ARCH\_??? \*/, 0x7ffd061df910) = -1 EINVAL (Недопустимый аргумент)

[pid 4728] <... arch\_prctl resumed>) = -1 EINVAL (Недопустимый аргумент)

[pid 4729] access("/etc/ld.so.preload", R\_OK <unfinished ...>

[pid 4728] access("/etc/ld.so.preload", R\_OK) = -1 ENOENT (Нет такого файла или каталога)

[pid 4729] <... access resumed>) = -1 ENOENT (Нет такого файла или каталога)

[pid 4728] openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC <unfinished ...>

[pid 4729] openat(AT\_FDCWD, "/etc/ld.so.cache", O\_RDONLY|O\_CLOEXEC) = 3

[pid 4728] <... openat resumed>) = 3

[pid 4728] fstat(3, <unfinished ...>

[pid 4729] fstat(3, <unfinished ...>

[pid 4728] <... fstat resumed>{st\_mode=S\_IFREG|0644, st\_size=73833, ...}) = 0

[pid 4729] <... fstat resumed>{st\_mode=S\_IFREG|0644, st\_size=73833, ...}) = 0

[pid 4729] mmap(NULL, 73833, PROT\_READ, MAP\_PRIVATE, 3, 0 <unfinished ...>

[pid 4728] mmap(NULL, 73833, PROT\_READ, MAP\_PRIVATE, 3, 0 <unfinished ...>

[pid 4729] <... mmap resumed>) = 0x7f9f03ba1000

[pid 4728] <... mmap resumed>) = 0x7f8c0c66c000

[pid 4728] close(3 <unfinished ...>

[pid 4729] close(3 <unfinished ...>

[pid 4728] <... close resumed>) = 0

[pid 4729] <... close resumed>) = 0

[pid 4728] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC <unfinished ...>

[pid 4729] openat(AT\_FDCWD, "/lib/x86\_64-linux-gnu/libc.so.6", O\_RDONLY|O\_CLOEXEC) = 3

[pid 4728] <... openat resumed>) = 3

[pid 4729] read(3, <unfinished ...>

[pid 4728] read(3, <unfinished ...>

[pid 4729] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

[pid 4728] <... read resumed>"\177ELF\2\1\1\3\0\0\0\0\0\0\0\0\3\0>\0\1\0\0\0\360q\2\0\0\0\0\0"..., 832) = 832

[pid 4729] pread64(3, <unfinished ...>

[pid 4728] pread64(3, <unfinished ...>

[pid 4729] <... 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 4728] <... 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 4729] pread64(3, <unfinished ...>

[pid 4728] pread64(3, <unfinished ...>

[pid 4729] <... pread64 resumed>"\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 4728] <... pread64 resumed>"\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 4729] pread64(3, <unfinished ...>

[pid 4728] pread64(3, <unfinished ...>

[pid 4729] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

[pid 4728] <... pread64 resumed>"\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

[pid 4729] fstat(3, {st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

[pid 4729] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0) = 0x7f9f03b9f000

[pid 4729] 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 4729] 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 4729] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

[pid 4729] mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f9f039ad000

[pid 4729] mprotect(0x7f9f039d2000, 1847296, PROT\_NONE) = 0

[pid 4729] mmap(0x7f9f039d2000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7f9f039d2000

[pid 4729] mmap(0x7f9f03b4a000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7f9f03b4a000

[pid 4729] mmap(0x7f9f03b95000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000 <unfinished ...>

[pid 4728] fstat(3, <unfinished ...>

[pid 4729] <... mmap resumed>) = 0x7f9f03b95000

[pid 4728] <... fstat resumed>{st\_mode=S\_IFREG|0755, st\_size=2029224, ...}) = 0

[pid 4728] mmap(NULL, 8192, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_ANONYMOUS, -1, 0 <unfinished ...>

[pid 4729] mmap(0x7f9f03b9b000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0 <unfinished ...>

[pid 4728] <... mmap resumed>) = 0x7f8c0c66a000

[pid 4728] pread64(3, <unfinished ...>

[pid 4729] <... mmap resumed>) = 0x7f9f03b9b000

[pid 4729] close(3 <unfinished ...>

[pid 4728] <... 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 4728] pread64(3, <unfinished ...>

[pid 4729] <... close resumed>) = 0

[pid 4728] <... pread64 resumed>"\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 4729] arch\_prctl(ARCH\_SET\_FS, 0x7f9f03ba0540 <unfinished ...>

[pid 4728] pread64(3, "\4\0\0\0\24\0\0\0\3\0\0\0GNU\0\t\233\222%\274\260\320\31\331\326\10\204\276X>\263"..., 68, 880) = 68

[pid 4728] mmap(NULL, 2036952, PROT\_READ, MAP\_PRIVATE|MAP\_DENYWRITE, 3, 0) = 0x7f8c0c478000

[pid 4728] mprotect(0x7f8c0c49d000, 1847296, PROT\_NONE) = 0

[pid 4729] <... arch\_prctl resumed>) = 0

[pid 4729] mprotect(0x7f9f03b95000, 12288, PROT\_READ <unfinished ...>

[pid 4728] mmap(0x7f8c0c49d000, 1540096, PROT\_READ|PROT\_EXEC, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x25000) = 0x7f8c0c49d000

[pid 4728] mmap(0x7f8c0c615000, 303104, PROT\_READ, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x19d000) = 0x7f8c0c615000

[pid 4728] mmap(0x7f8c0c660000, 24576, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_DENYWRITE, 3, 0x1e7000) = 0x7f8c0c660000

[pid 4728] mmap(0x7f8c0c666000, 13528, PROT\_READ|PROT\_WRITE, MAP\_PRIVATE|MAP\_FIXED|MAP\_ANONYMOUS, -1, 0) = 0x7f8c0c666000

[pid 4728] close(3) = 0

[pid 4728] arch\_prctl(ARCH\_SET\_FS, 0x7f8c0c66b540 <unfinished ...>

[pid 4729] <... mprotect resumed>) = 0

[pid 4728] <... arch\_prctl resumed>) = 0

[pid 4728] mprotect(0x7f8c0c660000, 12288, PROT\_READ <unfinished ...>

[pid 4729] mprotect(0x55884dfa5000, 4096, PROT\_READ) = 0

[pid 4729] mprotect(0x7f9f03be1000, 4096, PROT\_READ) = 0

[pid 4729] munmap(0x7f9f03ba1000, 73833) = 0

[pid 4728] <... mprotect resumed>) = 0

[pid 4728] mprotect(0x55b32d937000, 4096, PROT\_READ <unfinished ...>

[pid 4729] read(0, <unfinished ...>

[pid 4728] <... mprotect resumed>) = 0

[pid 4728] mprotect(0x7f8c0c6ac000, 4096, PROT\_READ) = 0

[pid 4728] munmap(0x7f8c0c66c000, 73833) = 0

[pid 4728] read(0, 123456789123456789123456789

<unfinished ...>

[pid 4726] <... read resumed>"1", 1) = 1

[pid 4726] read(0, "2", 1) = 1

[pid 4726] read(0, "3", 1) = 1

[pid 4726] read(0, "4", 1) = 1

[pid 4726] read(0, "5", 1) = 1

[pid 4726] read(0, "6", 1) = 1

[pid 4726] read(0, "7", 1) = 1

[pid 4726] read(0, "8", 1) = 1

[pid 4726] read(0, "9", 1) = 1

[pid 4726] read(0, "1", 1) = 1

[pid 4726] read(0, "2", 1) = 1

[pid 4726] read(0, "3", 1) = 1

[pid 4726] read(0, "4", 1) = 1

[pid 4726] read(0, "5", 1) = 1

[pid 4726] read(0, "6", 1) = 1

[pid 4726] read(0, "7", 1) = 1

[pid 4726] read(0, "8", 1) = 1

[pid 4726] read(0, "9", 1) = 1

[pid 4726] read(0, "1", 1) = 1

[pid 4726] read(0, "2", 1) = 1

[pid 4726] read(0, "3", 1) = 1

[pid 4726] read(0, "4", 1) = 1

[pid 4726] read(0, "5", 1) = 1

[pid 4726] read(0, "6", 1) = 1

[pid 4726] read(0, "7", 1) = 1

[pid 4726] read(0, "8", 1) = 1

[pid 4726] read(0, "9", 1) = 1

[pid 4726] read(0, "\n", 1) = 1

[pid 4726] write(8, "\33\0\0\0", 4) = 4

[pid 4726] write(8, "123456789123456789123456789", 27) = 27

[pid 4726] read(0, <unfinished ...>

[pid 4729] <... read resumed>"\33\0\0\0", 4) = 4

[pid 4729] read(0, "123456789123456789123456789", 27) = 27

[pid 4729] fstat(1, {st\_mode=S\_IFREG|0664, st\_size=0, ...}) = 0

[pid 4729] brk(NULL) = 0x55884ee36000

[pid 4729] brk(0x55884ee57000) = 0x55884ee57000

[pid 4729] write(1, "987654321987654321987654321\n", 28) = 28

[pid 4729] read(0, okay

<unfinished ...>

[pid 4726] <... read resumed>"o", 1) = 1

[pid 4726] read(0, "k", 1) = 1

[pid 4726] read(0, "a", 1) = 1

[pid 4726] read(0, "y", 1) = 1

[pid 4726] read(0, "\n", 1) = 1

[pid 4726] write(8, "\4\0\0\0", 4) = 4

[pid 4726] write(8, "okay", 4) = 4

[pid 4726] read(0, <unfinished ...>

[pid 4729] <... read resumed>"\4\0\0\0", 4) = 4

[pid 4729] read(0, "okay", 4) = 4

[pid 4729] write(1, "yako\n", 5) = 5

[pid 4729] read(0, fedor

<unfinished ...>

[pid 4726] <... read resumed>"f", 1) = 1

[pid 4726] read(0, "e", 1) = 1

[pid 4726] read(0, "d", 1) = 1

[pid 4726] read(0, "o", 1) = 1

[pid 4726] read(0, "r", 1) = 1

[pid 4726] read(0, "\n", 1) = 1

[pid 4726] write(6, "\5\0\0\0", 4) = 4

[pid 4726] write(6, "fedor", 5) = 5

[pid 4726] read(0, <unfinished ...>

[pid 4728] <... read resumed>"\5\0\0\0", 4) = 4

[pid 4728] read(0, "fedor", 5) = 5

[pid 4728] fstat(1, {st\_mode=S\_IFREG|0664, st\_size=0, ...}) = 0

[pid 4728] brk(NULL) = 0x55b32f123000

[pid 4728] brk(0x55b32f144000) = 0x55b32f144000

[pid 4728] write(1, "rodef\n", 6) = 6

[pid 4728] read(0, rodeo

<unfinished ...>

[pid 4726] <... read resumed>"r", 1) = 1

[pid 4726] read(0, "o", 1) = 1

[pid 4726] read(0, "d", 1) = 1

[pid 4726] read(0, "e", 1) = 1

[pid 4726] read(0, "o", 1) = 1

[pid 4726] read(0, "\n", 1) = 1

[pid 4726] write(6, "\5\0\0\0", 4) = 4

[pid 4726] write(6, "rodeo", 5) = 5

[pid 4726] read(0, <unfinished ...>

[pid 4728] <... read resumed>"\5\0\0\0", 4) = 4

[pid 4728] read(0, "rodeo", 5) = 5

[pid 4728] write(1, "oedor\n", 6) = 6

[pid 4728] read(0, hihihi

<unfinished ...>

[pid 4726] <... read resumed>"h", 1) = 1

[pid 4726] read(0, "i", 1) = 1

[pid 4726] read(0, "h", 1) = 1

[pid 4726] read(0, "i", 1) = 1

[pid 4726] read(0, "h", 1) = 1

[pid 4726] read(0, "i", 1) = 1

[pid 4726] read(0, "\n", 1) = 1

[pid 4726] write(8, "\6\0\0\0", 4) = 4

[pid 4726] write(8, "hihihi", 6) = 6

[pid 4726] read(0, <unfinished ...>

[pid 4729] <... read resumed>"\6\0\0\0", 4) = 4

[pid 4729] read(0, "hihihi", 6) = 6

[pid 4729] write(1, "ihihih\n", 7) = 7

[pid 4729] read(0, <unfinished ...>

[pid 4726] <... read resumed>"", 1) = 0

[pid 4726] close(6) = 0

[pid 4726] close(8) = 0

[pid 4726] exit\_group(0) = ?

[pid 4726] +++ exited with 0 +++

[pid 4728] <... read resumed>"", 4) = 0

[pid 4728] exit\_group(0) = ?

[pid 4728] +++ exited with 0 +++

<... read resumed>"", 4) = 0

exit\_group(0) = ?

+++ exited with 0 +++

**Вывод**

**Вывод 3-4 предложения. Также опишите проблемы, с которыми столкнулись при выполнении лабораторной работы (если они были), пожелания и т.д.**