Инструменты для поиска и фильтрации файлов

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Цель работы

Ознакомление с инструментами поиска файлов и фильтрации текстовых данных. Приобретение практических навыков: по управлению процессами (и заданиями), по проверке использования диска и обслуживанию файловых систем.

Выполнение лабораторной работы

Записываю в файл file.txt названия файлов, содержащихся в каталоге /etc. Дописываю в этот же файл названия файлов, содержащихся в домашнем каталоге.

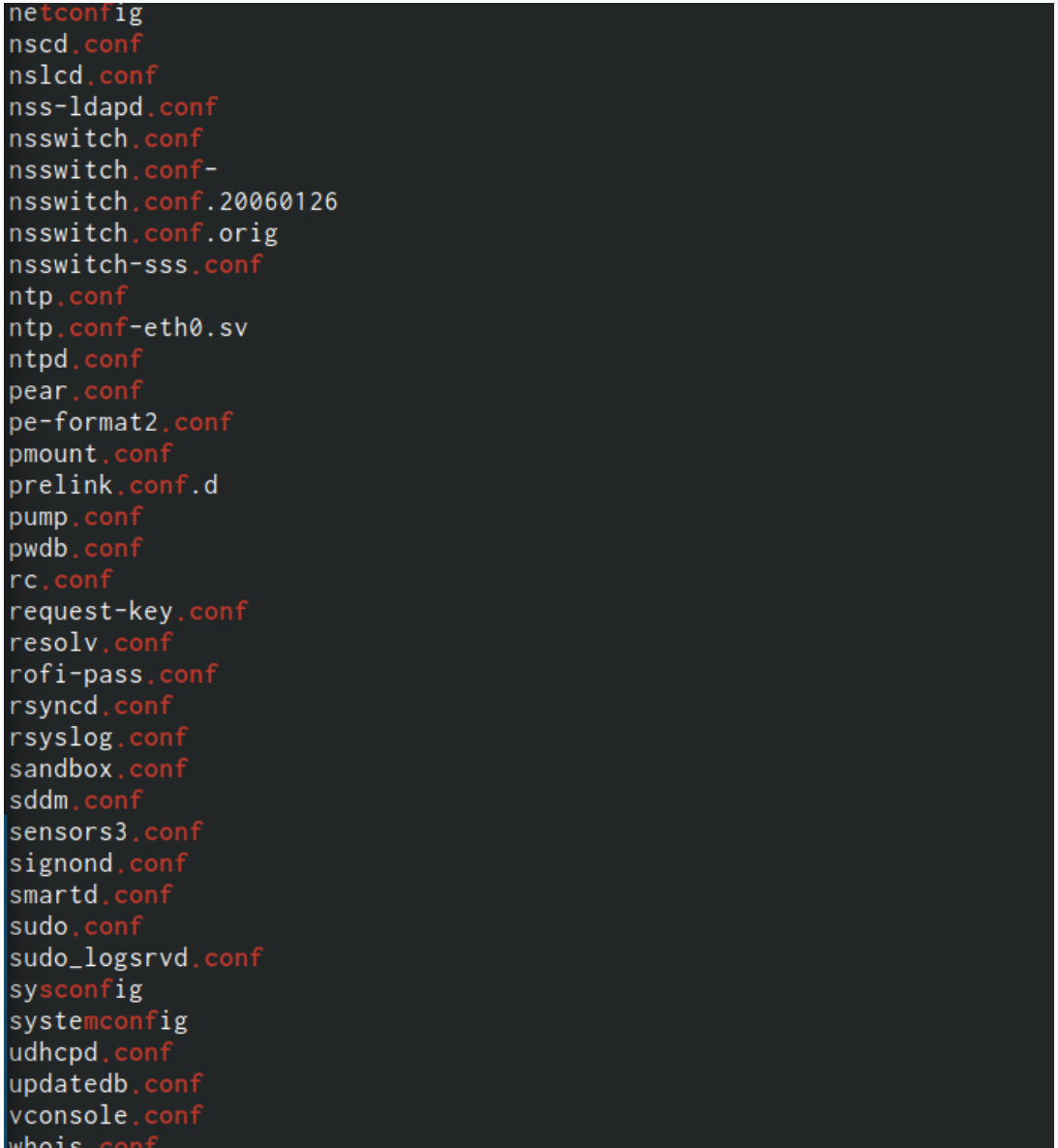
Рис. 1: Записал в файл названия файлов из каталога /etc

Вывожу имена всех файлов из file.txt, имеющих расширение .conf, после чего записал их в новых текстовый файл conf.txt

```
pmsvetovidova@dk8n73 ~ $ ls /etc > file.txt
pmsvetovidova@dk8n73 ~ $ ls ~ >>file.txt
pmsvetovidova@dk8n73 ~ $ grep .conf file.txt
appstream.conf
brltty.conf
ca-certificates.conf
cachefilesd.conf
cfg-update.conf
dconf
dhcpcd.conf
dispatch-conf.conf
dleyna-server-service.conf
dnsmasq.conf
e2fsck.conf
e2scrub.conf
etc-update.conf
fluidsynth.conf
fuse.conf
gai.conf
gconf
genkernel.conf
gssapi_mech.conf
host.conf
idmapd.conf
idn2.conf
idn2.conf.sample
idnalias.conf
idnalias.conf.sample
java-config-2
krb5.conf
krb5.conf.example
ldap.conf
ldap.conf.sudo
ld.so.conf
ld.so.conf.d
libaudit.conf
lightdm.conf
locale.conf
logrotate.conf
```

```
lightdm.conf
locale.conf
logrotate.conf
mailutils.conf
make.conf
man.conf
man_db.conf
metalog.conf
mke2fs.conf
mlocate-cron.conf
modprobe.conf.1100
modprobe.conf.old
modules.conf
modules.conf.old
mplayer.conf
netconfig
nscd.conf
nslcd.conf
nss-ldapd.conf
nsswitch.conf
nsswitch.conf-
nsswitch.conf.20060126
nsswitch.conf.orig
nsswitch-sss.conf
ntp.conf
ntp.conf-eth0.sv
ntpd.conf
pear.conf
pe-format2.conf
pmount.conf
prelink.conf.d
pump.conf
pwdb.conf
rc.conf
request-key.conf
resolv.conf
rofi-pass.conf
rsyncd.conf
rsyslog.conf
sandbox.conf
sddm.conf
```

Определила, какие файлы в домашнем каталоге имеют имена, которые начинаются с символа с.Привел несколько примеров, как это сделать.



Вывела на экран имена файлов из каталога /etc, начинающиеся с символа h.

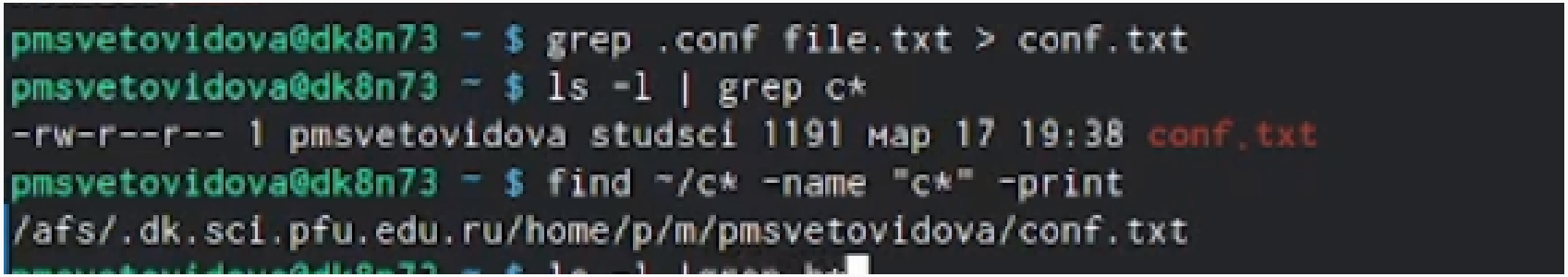
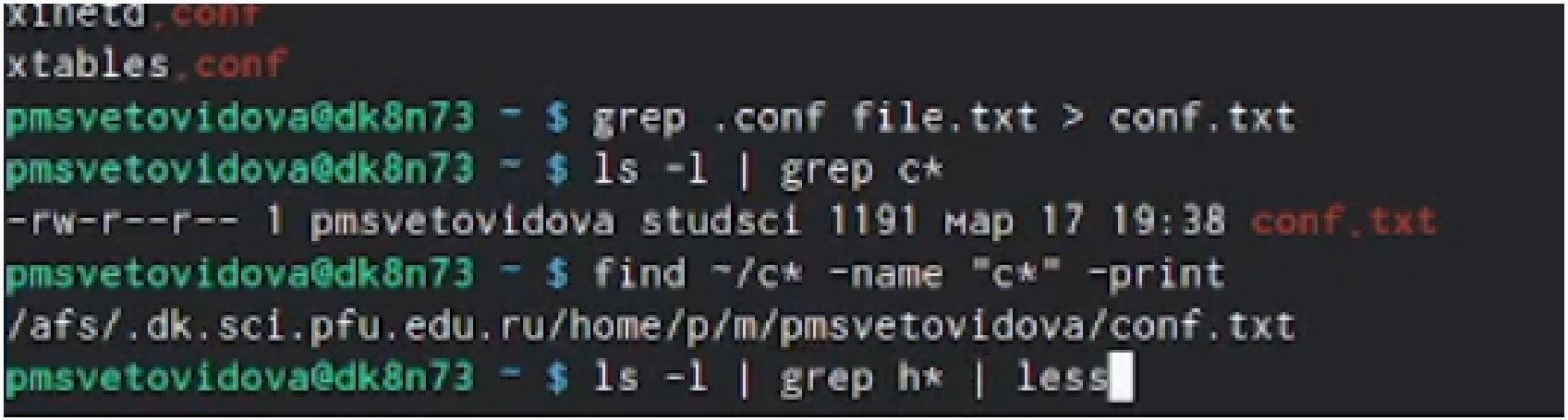
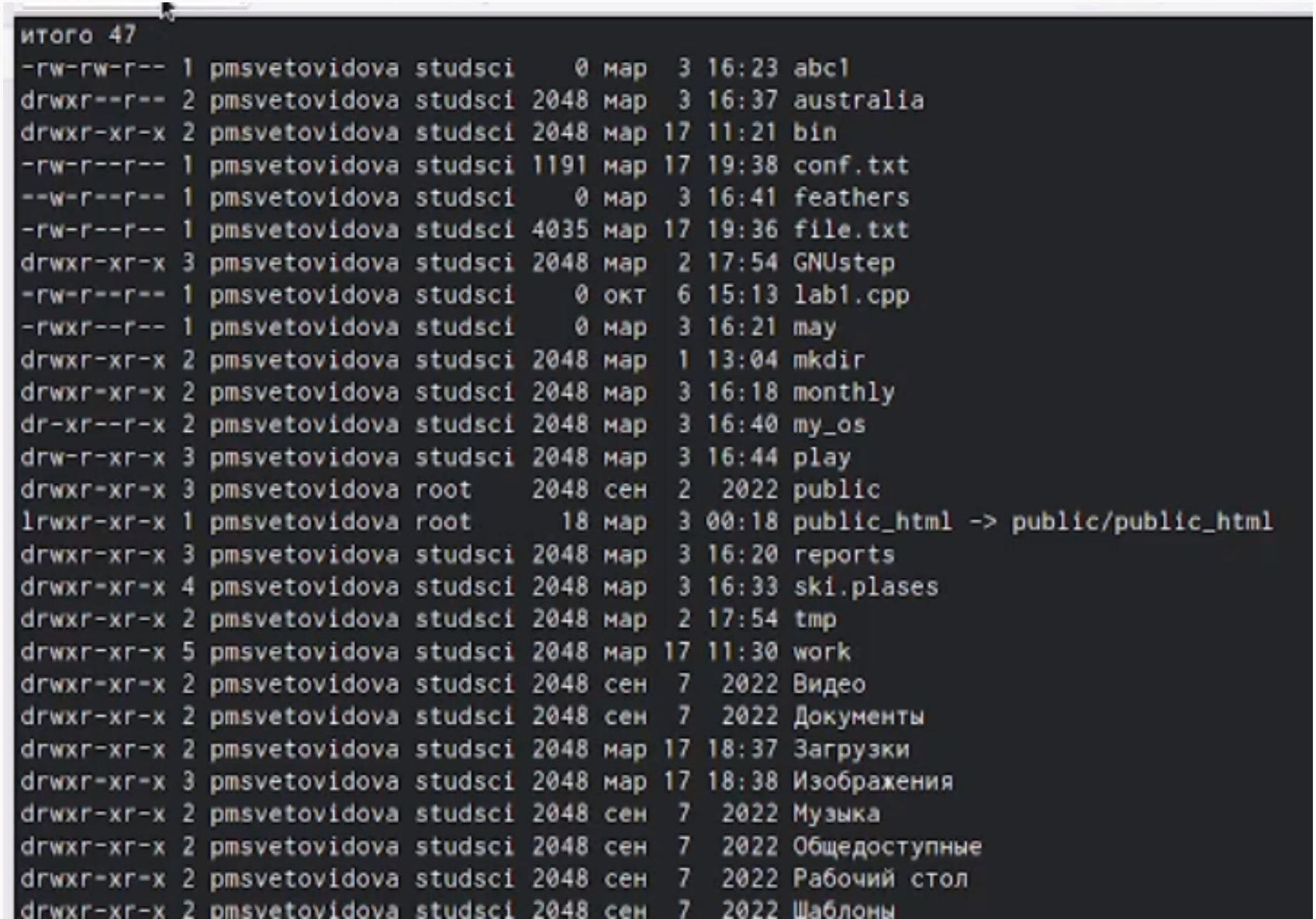


Рис. 4: Файлы с буквы h

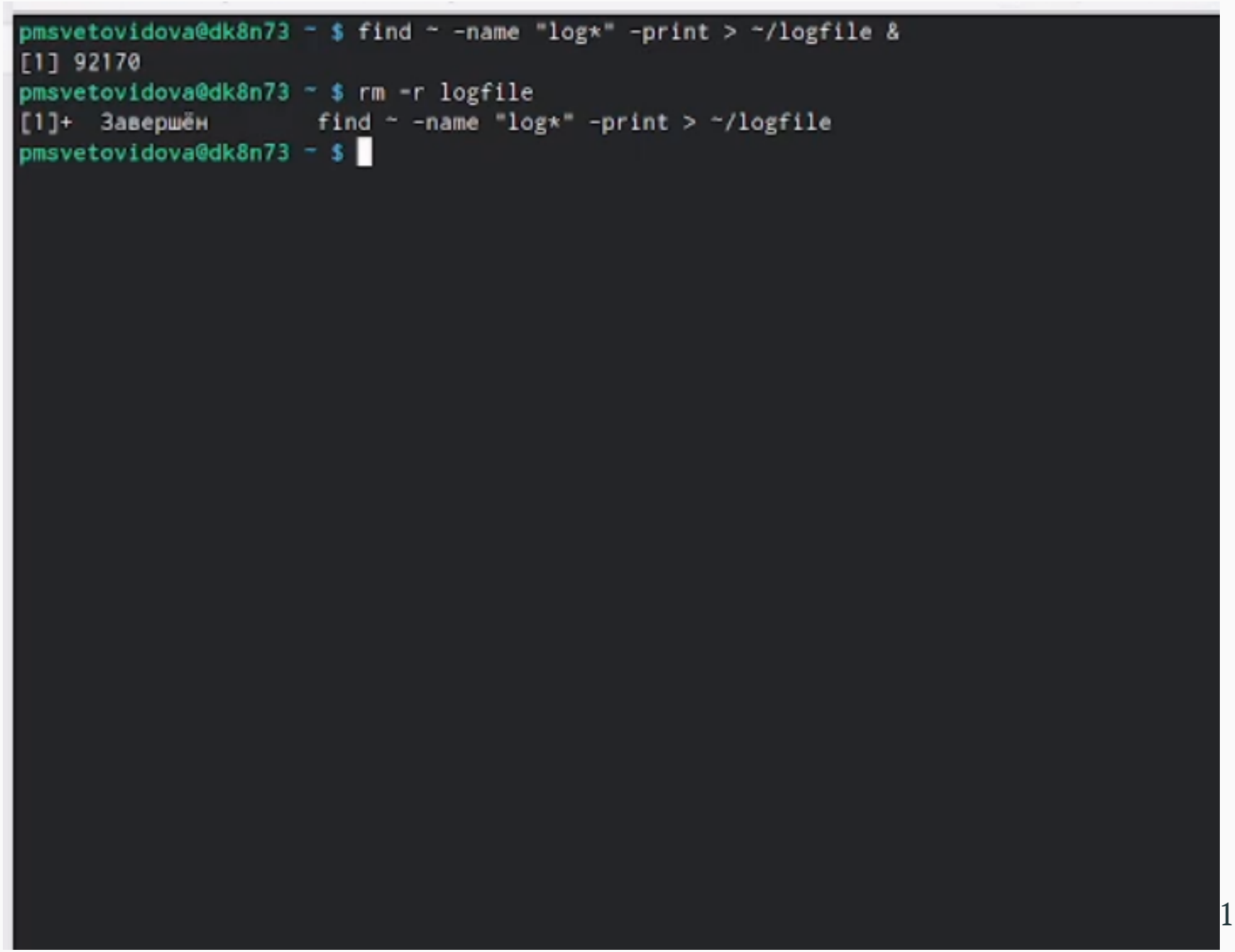

xinetd.conf
xtables.conf
pmsvetovidova@dk8n73 ~ $ grep .conf file.txt > conf.txt
pmsvetovidova@dk8n73 ~ $ ls -l | grep c*
-rw-r--r-- 1 pmsvetovidova studsci 1191 мар 17 19:38 conf.txt
pmsvetovidova@dk8n73 ~ $ find ~/c* -name "c*" -print
/afs/.dk.sci.pfu.edu.ru/home/p/m/pmsvetovidova/conf.txt
pmsvetovidova@dk8n73 ~ $ ls -l | grep h* | less

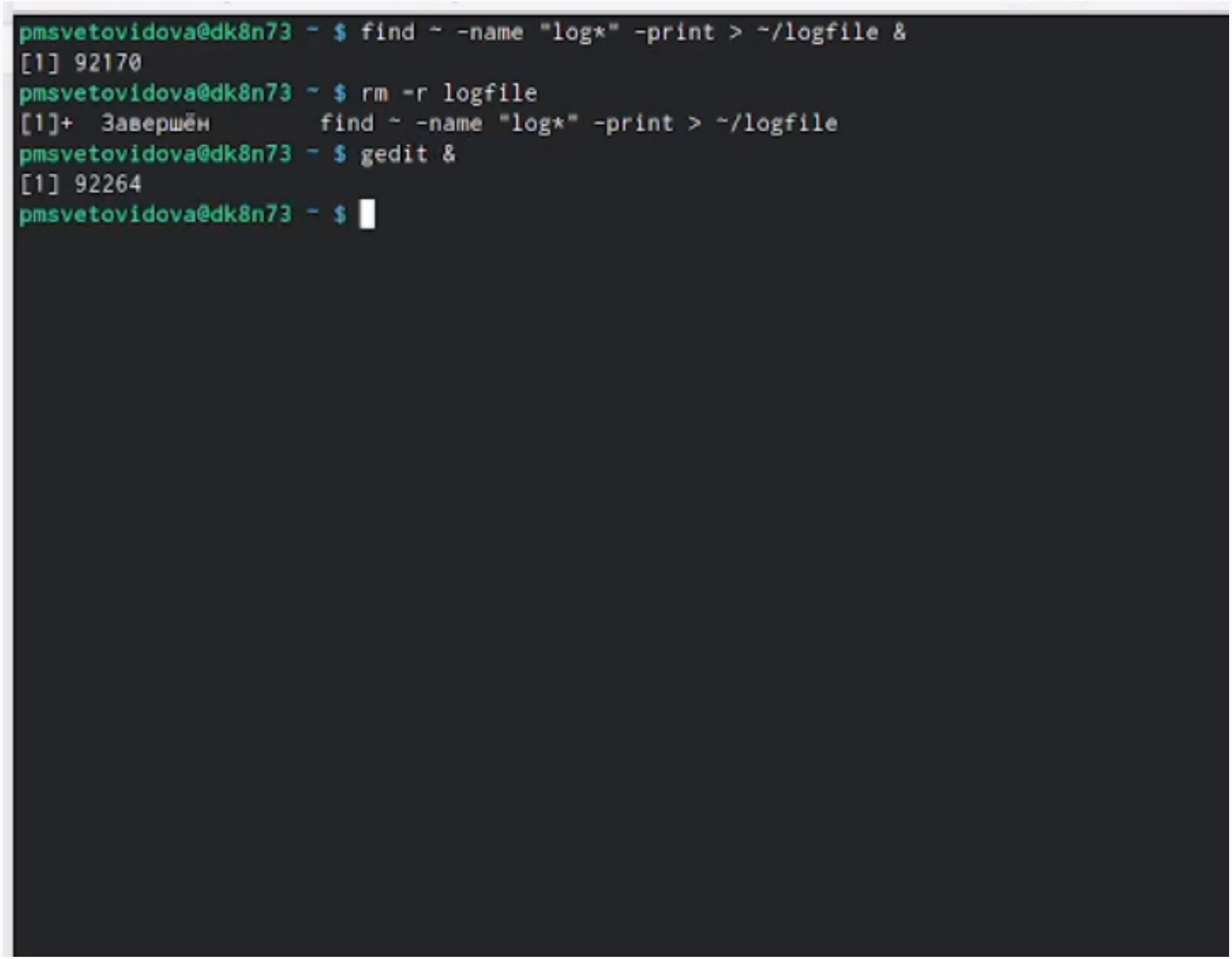
Запустила в фоновом режиме процесс, который будет записывать в файл ~/logfile файлы, имена которых начинаются с log. Удалила файл ~/logfile.



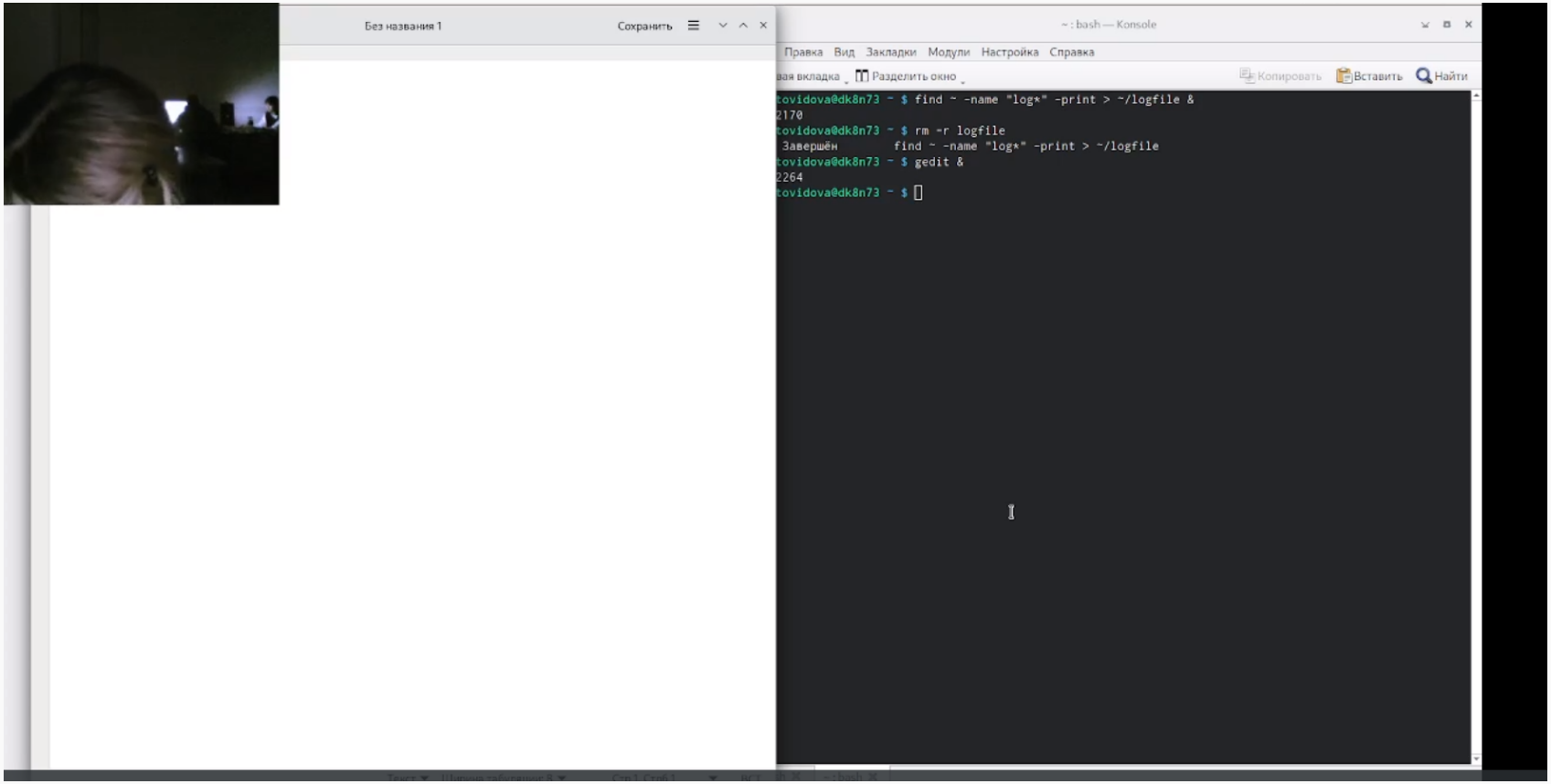
```
итого 47
-rw-rw-r-- 1 pmsvetovidova studsci    0 мар  3 16:23 abc1
drwxr--r-- 2 pmsvetovidova studsci 2048 мар  3 16:37 australia
drwxr-xr-x 2 pmsvetovidova studsci 2048 мар 17 11:21 bin
-rw-r--r-- 1 pmsvetovidova studsci 1191 мар 17 19:38 conf.txt
--w-r--r-- 1 pmsvetovidova studsci    0 мар  3 16:41 feathers
-rw-r--r-- 1 pmsvetovidova studsci 4035 мар 17 19:36 file.txt
drwxr-xr-x 3 pmsvetovidova studsci 2048 мар  2 17:54 GNUstep
-rw-r--r-- 1 pmsvetovidova studsci    0 окт  6 15:13 lab1.cpp
-rwxr--r-- 1 pmsvetovidova studsci    0 мар  3 16:21 may
drwxr-xr-x 2 pmsvetovidova studsci 2048 мар  1 13:04 mkdir
drwxr-xr-x 2 pmsvetovidova studsci 2048 мар  3 16:18 monthly
dr-xr--r-x 2 pmsvetovidova studsci 2048 мар  3 16:40 my_os
drw-r-xr-x 3 pmsvetovidova studsci 2048 мар  3 16:44 play
drwxr-xr-x 3 pmsvetovidova root    2048 сен  2  2022 public
lrwxr-xr-x 1 pmsvetovidova root      18 мар  3 00:18 public_html -> public/public_html
drwxr-xr-x 3 pmsvetovidova studsci 2048 мар  3 16:20 reports
drwxr-xr-x 4 pmsvetovidova studsci 2048 мар  3 16:33 ski.plases
drwxr-xr-x 2 pmsvetovidova studsci 2048 мар  2 17:54 tmp
drwxr-xr-x 5 pmsvetovidova studsci 2048 мар 17 11:30 work
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Видео
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Документы
drwxr-xr-x 2 pmsvetovidova studsci 2048 мар 17 18:37 Загрузки
drwxr-xr-x 3 pmsvetovidova studsci 2048 мар 17 18:38 Изображения
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Музыка
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Общедоступные
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Рабочий стол
drwxr-xr-x 2 pmsvetovidova studsci 2048 сен  7  2022 Шаблоны
```

Запустила из консоли в фоновом режиме редактор gedit.




pmsvetovidova@dk8n73 ~ $ find ~ -name "log*" -print > ~/logfile &
[1] 92170
pmsvetovidova@dk8n73 ~ $ rm -r logfile
[1]+ Завершён find ~ -name "log*" -print > ~/logfile
pmsvetovidova@dk8n73 ~ $ gedit &
[1] 92264
pmsvetovidova@dk8n73 ~ $

Определила идентификатор процесса gedit Используя команду ps, конвейер и фильтр grep. Более простым способом определить этот идентификатор не получилось.



Прочла справку (man) команды kill, после чего использовала её для завершения процесса gedit.

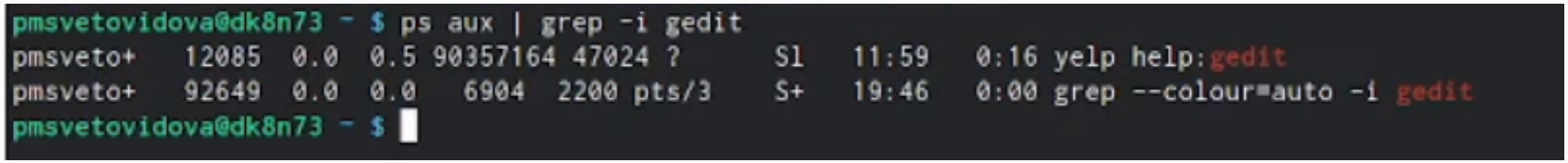
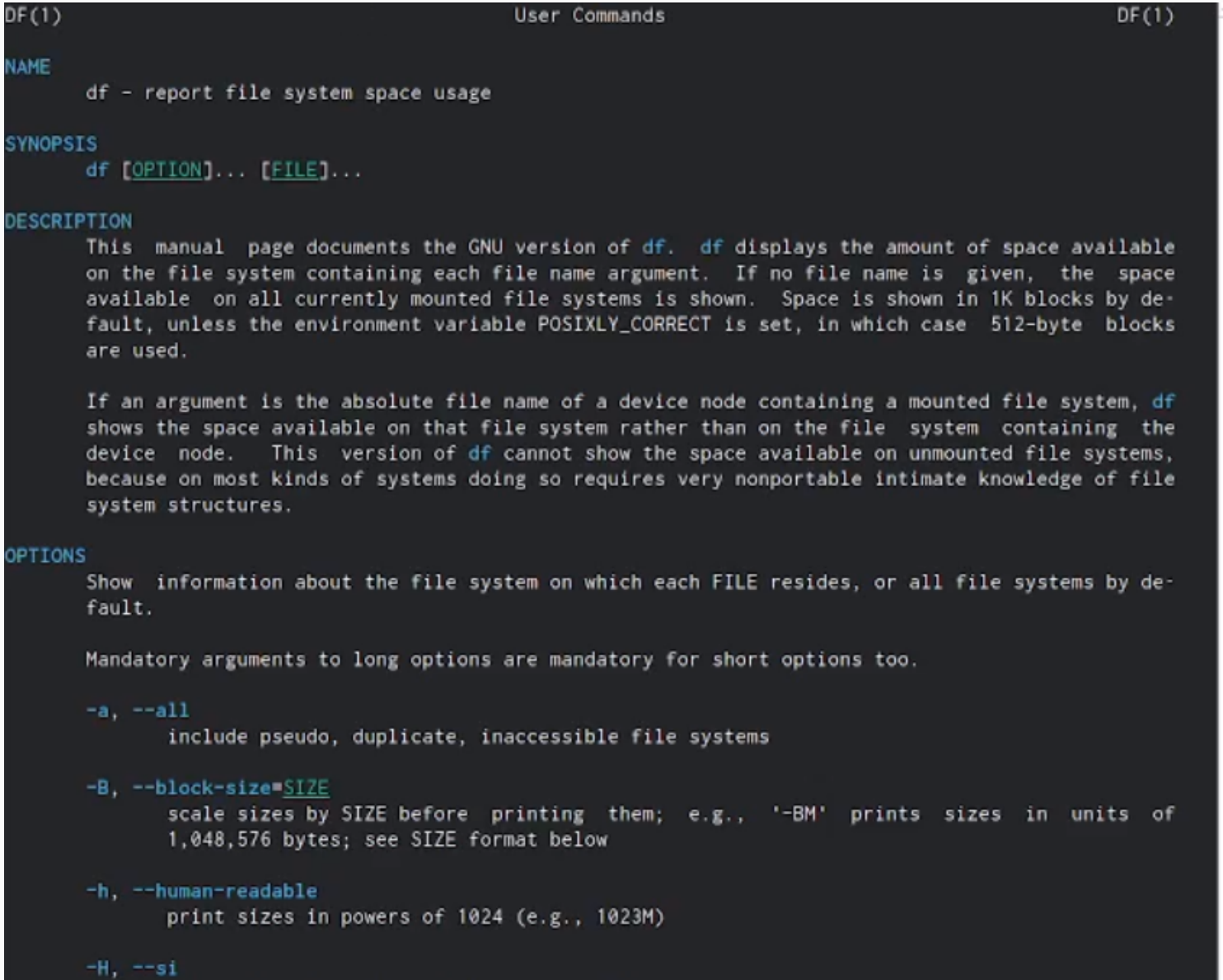


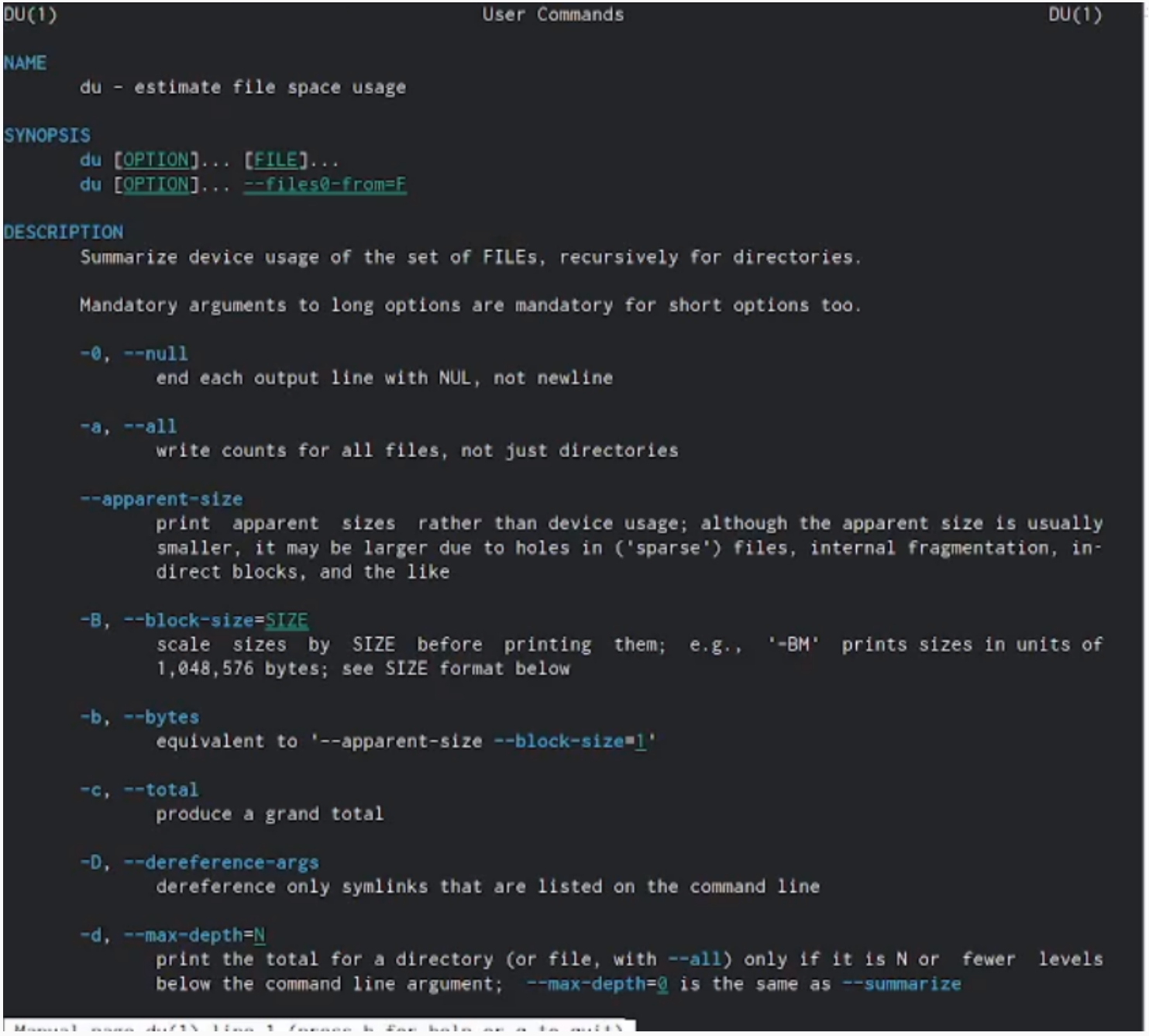
Рис. 6: команда kill

```
KILL(1)                          User Commands                          KILL(1)

NAME
       kill - send a signal to a process

SYNOPSIS
       kill [options] <pid> [...]

DESCRIPTION
       The  default  signal  for kill is TERM.  Use -l or -L to list available signals.  Particularly
       useful signals include HUP, INT, KILL, STOP, CONT, and 0.  Alternate signals may be  specified
       in three ways: -9, -SIGKILL or -KILL.  Negative PID values may be used to choose whole process
       groups; see the PGID column in ps command output.  A PID of -1 is special;  it  indicates  all
       processes except the kill process itself and init.

OPTIONS
       <pid> [...]
              Send signal to every <pid> listed.

       -<signal>
       -s <signal>
       --signal <signal>
              Specify  the  signal  to be sent.  The signal can be specified by using name or number.
              The behavior of signals is explained in signal(7) manual page.

       -q, --queue value
              Use sigqueue(3) rather than kill(2) and the value argument is used to specify an  inte-
              ger  to  be  sent with the signal. If the receiving process has installed a handler for
              this signal using the SA_SIGINFO flag to sigaction(2) , then it can  obtain  this  data
              via the si_value field of the siginfo_t structure.

       -l, --list [signal]
              List signal names.  This option has optional argument, which will convert signal number
              to signal name, or other way round.

       -L, --table
              List signal names in a nice table.

       NOTES  Your shell (command line interpreter) may have a built-in kill command.  You  may  need
              to run the command described here as /bin/kill to solve the conflict.

EXAMPLES
Manual page kill(1) line 1 (press h for help or q to quit)
```

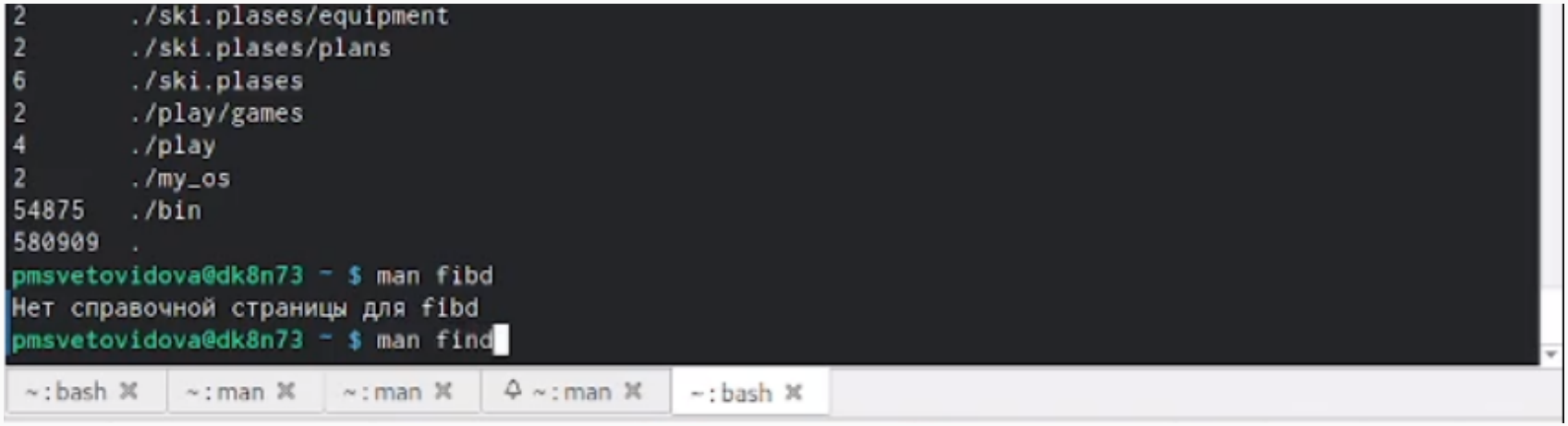
Выполнила команды df и du Предварительно получив более подробную информацию об этих командах, с помощью команды man.



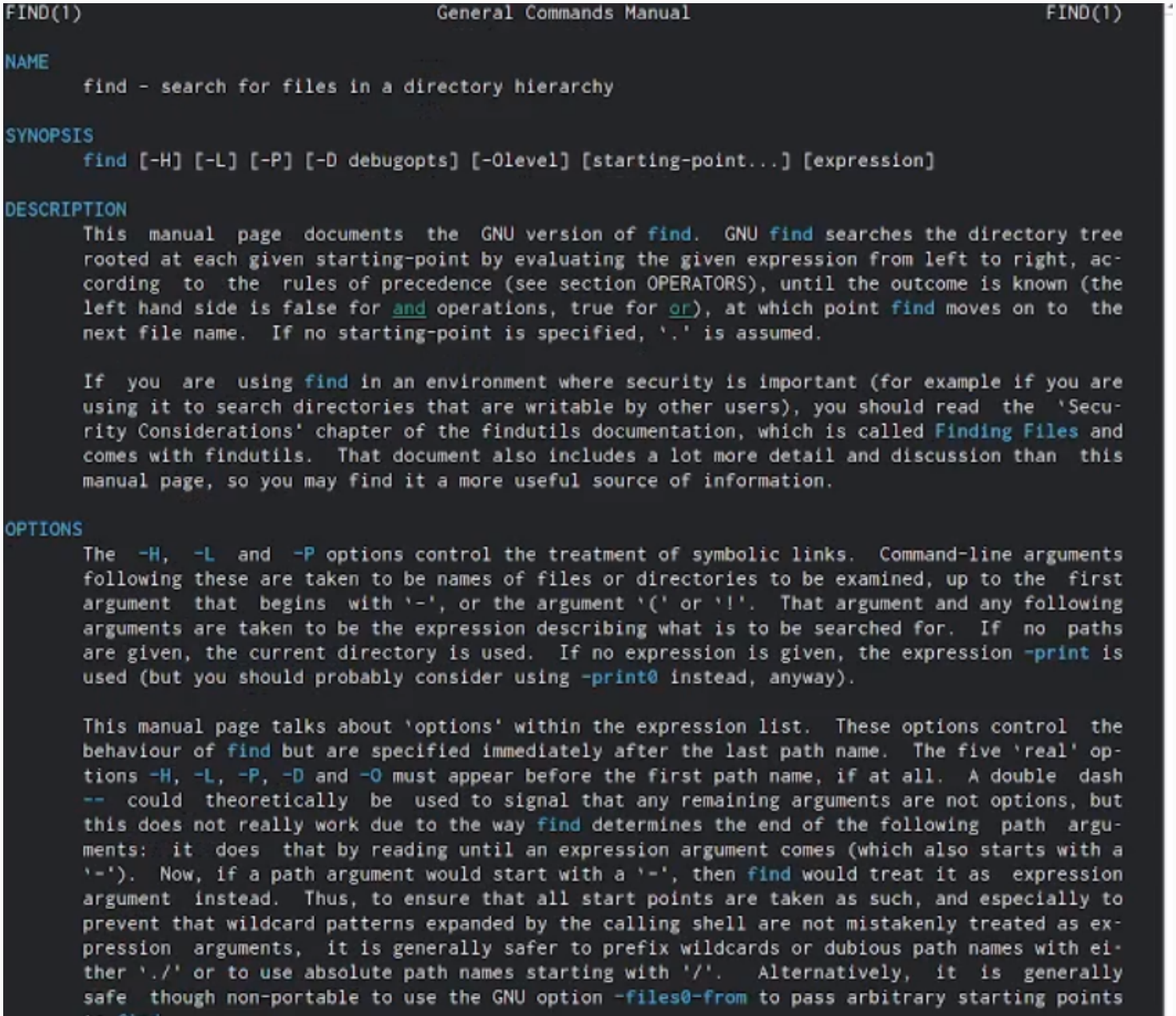
```
DF(1)                                User Commands                                DF(1)

NAME
       df - report file system space usage

SYNOPSIS
       df [OPTION]... [FILE]...

DESCRIPTION
       This  manual  page documents the GNU version of df.  df displays the amount of space available
       on the file system containing each file name argument.  If no file name is  given,  the  space
       available  on all currently mounted file systems is shown.  Space is shown in 1K blocks by de-
       fault, unless the environment variable POSIXLY_CORRECT is set, in which case  512-byte  blocks
       are used.

       If an argument is the absolute file name of a device node containing a mounted file system, df
       shows the space available on that file system rather than on the file  system  containing  the
       device  node.   This  version of df cannot show the space available on unmounted file systems,
       because on most kinds of systems doing so requires very nonportable intimate knowledge of file
       system structures.

OPTIONS
       Show  information about the file system on which each FILE resides, or all file systems by de-
       fault.

       Mandatory arguments to long options are mandatory for short options too.

       -a, --all
              include pseudo, duplicate, inaccessible file systems

       -B, --block-size=SIZE
              scale sizes by SIZE before  printing  them;  e.g.,  '-BM'  prints  sizes  in  units  of
              1,048,576 bytes; see SIZE format below

       -h, --human-readable
              print sizes in powers of 1024 (e.g., 1023M)

       -H, --si
```


DU(1) User Commands DU(1)
NAME
du - estimate file space usage
SYNOPSIS
du [OPTION]... [FILE]...
du [OPTION]... --files0-from=F
DESCRIPTION
Summarize device usage of the set of FILEs, recursively for directories.
Mandatory arguments to long options are mandatory for short options too.
-0, --null
end each output line with NUL, not newline
-a, --all
write counts for all files, not just directories
--apparent-size
print apparent sizes rather than device usage; although the apparent size is usually smaller, it may be larger due to holes in ('sparse') files, internal fragmentation, indirect blocks, and the like
-B, --block-size=SIZE
scale sizes by SIZE before printing them; e.g., '-BM' prints sizes in units of 1,048,576 bytes; see SIZE format below
-b, --bytes
equivalent to '--apparent-size --block-size=1'
-c, --total
produce a grand total
-D, --dereference-args
dereference only symlinks that are listed on the command line
-d, --max-depth=N
print the total for a directory (or file, with --all) only if it is N or fewer levels below the command line argument; --max-depth=0 is the same as --summarize

```
pmsvetovidova@dk8n73 ~ $ df
Файловая система  1K-блоков Использовано   Доступно Использовано% Смонтировано в
none                3999704        65984    3933720              2% /run
udev                  10240            0      10240              0% /dev
tmpfs               3999704            0    3999704              0% /dev/shm
/dev/sda8         484939832     75839044  384393732             17% /
tmpfs               3999708       838356    3161352             21% /tmp
/dev/sda6          50090536        11560   47502080              1% /var/cache/openafs
AFS              2147483647            0 2147483647              0% /afs
tmpfs               799940          216     799724              1% /run/user/4955
pmsvetovidova@dk8n73 ~ $ du
```


2 ./ski.plases/equipment
2 ./ski.plases/plans
6 ./ski.plases
2 ./play/games
4 ./play
2 ./my_os
54875 ./bin
580909 .
pmsvetovidova@dk8n73 ~ $ man fibd
Нет справочной страницы для fibd
pmsvetovidova@dk8n73 ~ $ man find
~:bash
~:man
~:man
~:man
~:bash

Воспользовавшись справкой команды find, вывела имена всех директорий, имеющихся в домашнем каталоге.



FIND(1) General Commands Manual FIND(1)

NAME

find - search for files in a directory hierarchy

SYNOPSIS

find [-H] [-L] [-P] [-D debugopts] [-Olevel] [starting-point...] [expression]

DESCRIPTION

This manual page documents the GNU version of find. GNU find searches the directory tree rooted at each given starting-point by evaluating the given expression from left to right, according to the rules of precedence (see section OPERATORS), until the outcome is known (the left hand side is false for and operations, true for or), at which point find moves on to the next file name. If no starting-point is specified, '.' is assumed.

If you are using find in an environment where security is important (for example if you are using it to search directories that are writable by other users), you should read the 'Security Considerations' chapter of the findutils documentation, which is called Finding Files and comes with findutils. That document also includes a lot more detail and discussion than this manual page, so you may find it a more useful source of information.

OPTIONS

The -H, -L and -P options control the treatment of symbolic links. Command-line arguments following these are taken to be names of files or directories to be examined, up to the first argument that begins with '-', or the argument '(' or '!'. That argument and any following arguments are taken to be the expression describing what is to be searched for. If no paths are given, the current directory is used. If no expression is given, the expression -print is used (but you should probably consider using -print0 instead, anyway).

This manual page talks about 'options' within the expression list. These options control the behaviour of find but are specified immediately after the last path name. The five 'real' options -H, -L, -P, -D and -O must appear before the first path name, if at all. A double dash -- could theoretically be used to signal that any remaining arguments are not options, but this does not really work due to the way find determines the end of the following path arguments: it does that by reading until an expression argument comes (which also starts with a '-'). Now, if a path argument would start with a '-', then find would treat it as expression argument instead. Thus, to ensure that all start points are taken as such, and especially to prevent that wildcard patterns expanded by the calling shell are not mistakenly treated as expression arguments, it is generally safer to prefix wildcards or dubious path names with either './' or to use absolute path names starting with '/'. Alternatively, it is generally safe though non-portable to use the GNU option -files0-from to pass arbitrary starting points

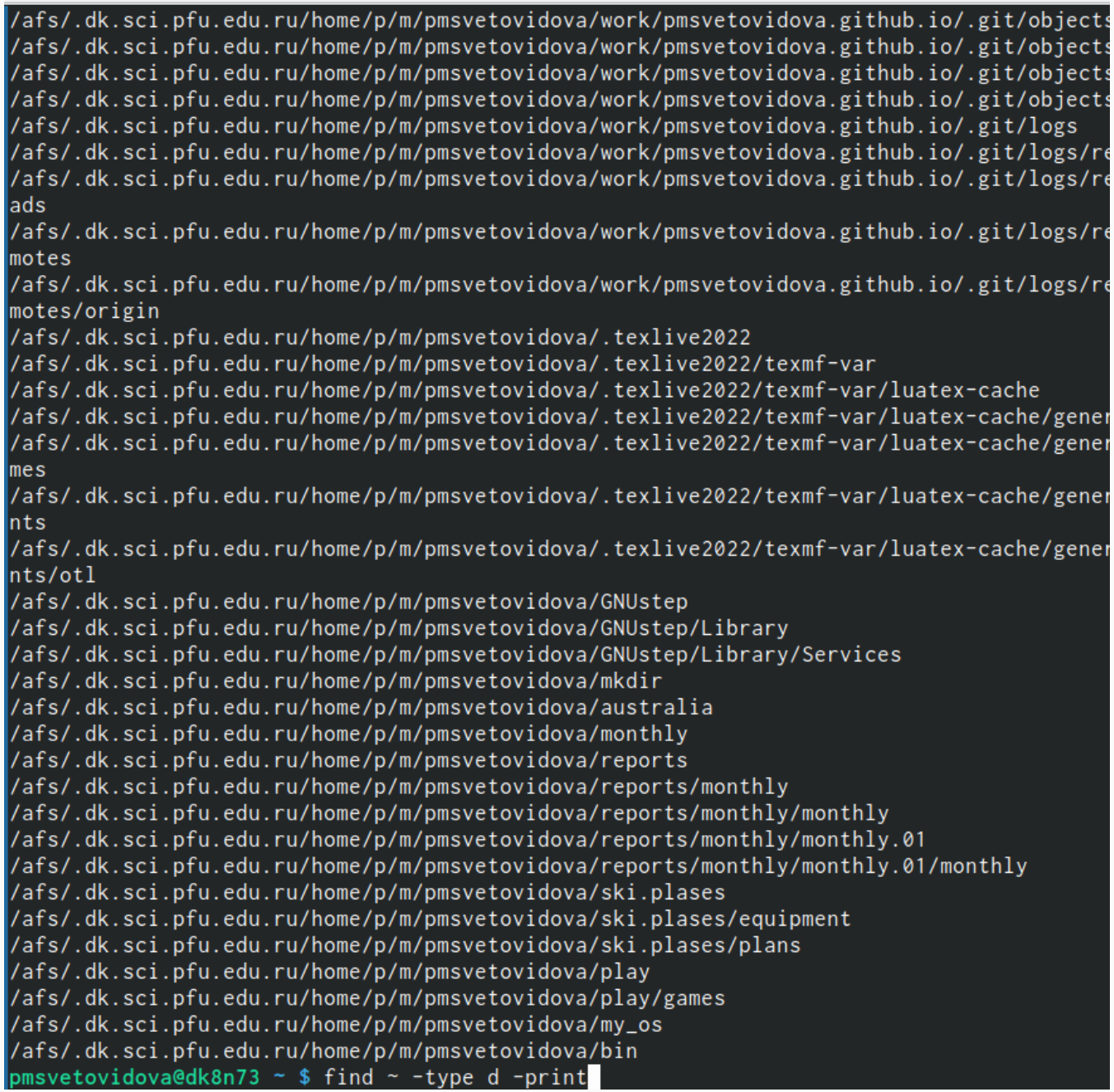


Рис. 9: команда find

Выводы

Ознакомилась с инструментами поиска файлов и фильтрацией текстовых данных, приобрела практические навыки, как по управлению процессами, так и по проверке использования диска и обслуживанию файловых систем.