

Поиск файлов. Перенаправление ввода-вывода. Просмотр запущенных процессов

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Цели и задачи работы

Цель лабораторной работы

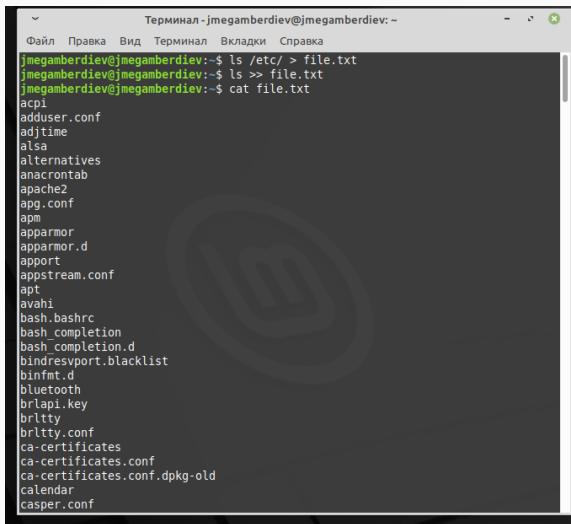
Ознакомление с файловой системой Linux, её структурой, именами и содержанием каталогов. Приобретение практических навыков по применению команд для работы с файлами и каталогами, по управлению процессами, по проверке использования диска и обслуживанию файловой системы.

Задачи лабораторной работы

- 1 Изучить перенаправление ввода-вывода
- 2 Изучить работу фильтров
- 3 Изучить команду поиска
- 4 Ознакомиться с управлением процессами
- 5 Ознакомиться с командами `df` `du`

Процесс выполнения лабораторной работы

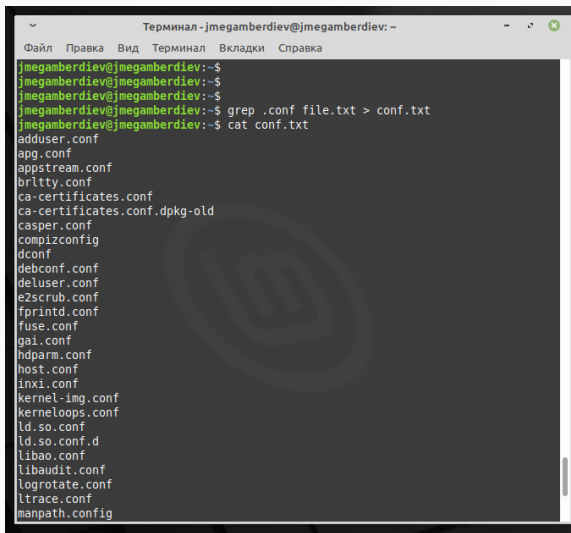
Перенаправление ввода-вывода

A terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~" with a menu bar containing "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a sequence of commands: "ls /etc/ > file.txt", "ls >> file.txt", and "cat file.txt". The output of the cat command is a list of files from the /etc directory, including acpi, adduser.conf, adjtime, alsa, alternatives, anacrontab, apache2, apg.conf, apm, apparmor, apparmor.d, appport, appstream.conf, apt, avahi, bash.bashrc, bash_completion, bash_completion.d, bindresvport.blacklist, binfmt.d, bluetooth, brlapi.key, brltty, brltty.conf, ca-certificates, ca-certificates.conf, ca-certificates.conf.dpkg-old, calendar, and casper.conf.

```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
jmegamberdiev@jmegamberdiev:~$ ls /etc/ > file.txt
jmegamberdiev@jmegamberdiev:~$ ls >> file.txt
jmegamberdiev@jmegamberdiev:~$ cat file.txt
acpi
adduser.conf
adjtime
alsa
alternatives
anacrontab
apache2
apg.conf
apm
apparmor
apparmor.d
appport
appstream.conf
apt
avahi
bash.bashrc
bash_completion
bash_completion.d
bindresvport.blacklist
binfmt.d
bluetooth
brlapi.key
brltty
brltty.conf
ca-certificates
ca-certificates.conf
ca-certificates.conf.dpkg-old
calendar
casper.conf
```

Figure 1: Запись в файл

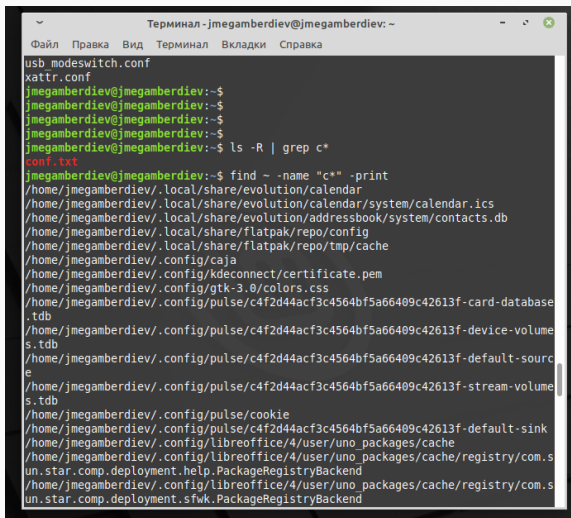
Работа фильтра

A terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~" with a menu bar containing "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a series of commands and their outputs. The command "grep .conf file.txt > conf.txt" is executed, followed by "cat conf.txt", which displays a list of files with the .conf extension. The files listed are: adduser.conf, apg.conf, appstream.conf, brltty.conf, ca-certificates.conf, ca-certificates.conf.dpkg-old, casper.conf, compizconfig, dconf, debconf.conf, deluser.conf, e2scrub.conf, fprintd.conf, fuse.conf, gai.conf, hdparm.conf, host.conf, inxi.conf, kernel-img.conf, kerneloops.conf, ld.so.conf, ld.so.conf.d, libao.conf, libaudit.conf, logrotate.conf, ltrace.conf, and manpath.config.

```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$ grep .conf file.txt > conf.txt
jmegamberdiev@jmegamberdiev:~$ cat conf.txt
adduser.conf
apg.conf
appstream.conf
brltty.conf
ca-certificates.conf
ca-certificates.conf.dpkg-old
casper.conf
compizconfig
dconf
debconf.conf
deluser.conf
e2scrub.conf
fprintd.conf
fuse.conf
gai.conf
hdparm.conf
host.conf
inxi.conf
kernel-img.conf
kerneloops.conf
ld.so.conf
ld.so.conf.d
libao.conf
libaudit.conf
logrotate.conf
ltrace.conf
manpath.config
```

Figure 2: Поиск расширения .conf

Команда поиска

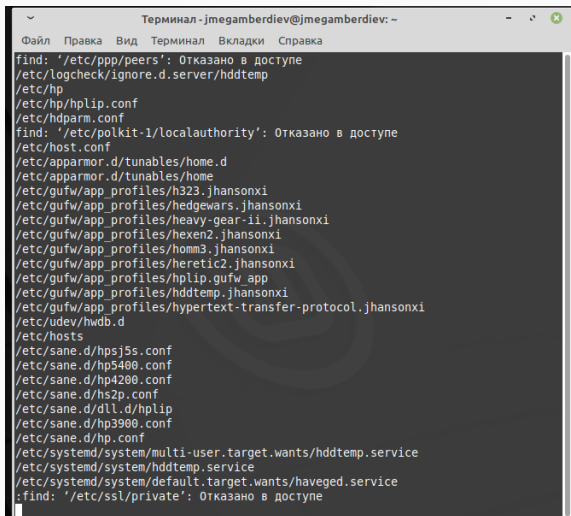
A screenshot of a terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a series of commands and their outputs. First, it lists files "usb_modeswitch.conf" and "xattr.conf". Then, it runs "ls -R | grep c*" which shows "conf.txt". Finally, it runs "find ~ -name 'c*' -print", which lists a large number of files and directories starting with 'c' in the user's home directory and its subdirectories.

```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка

usb_modeswitch.conf
xattr.conf
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$ ls -R | grep c*
conf.txt
jmegamberdiev@jmegamberdiev:~$ find ~ -name "c*" -print
/home/jmegamberdiev/.local/share/evolution/calendar
/home/jmegamberdiev/.local/share/evolution/calendar/system/calendar.ics
/home/jmegamberdiev/.local/share/evolution/addressbook/system/contacts.db
/home/jmegamberdiev/.local/share/flatpak/repo/config
/home/jmegamberdiev/.local/share/flatpak/repo/tmp/cache
/home/jmegamberdiev/.config/caja
/home/jmegamberdiev/.config/kdeconnect/certificate.pem
/home/jmegamberdiev/.config/gtk-3.0/colors.css
/home/jmegamberdiev/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-card-database
.tdb
/home/jmegamberdiev/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-device-volume
s.tdb
/home/jmegamberdiev/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sourc
e
/home/jmegamberdiev/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-stream-volume
s.tdb
/home/jmegamberdiev/.config/pulse/cookie
/home/jmegamberdiev/.config/pulse/c4f2d44acf3c4564bf5a66409c42613f-default-sink
/home/jmegamberdiev/.config/libreoffice/4/user/uno_packages/cache
/home/jmegamberdiev/.config/libreoffice/4/user/uno_packages/cache/registry/com.s
un.star.comp.deployment.help.PackageRegistryBackend
/home/jmegamberdiev/.config/libreoffice/4/user/uno_packages/cache/registry/com.s
un.star.comp.deployment.sfwk.PackageRegistryBackend
```

Figure 3: Поиск файлов

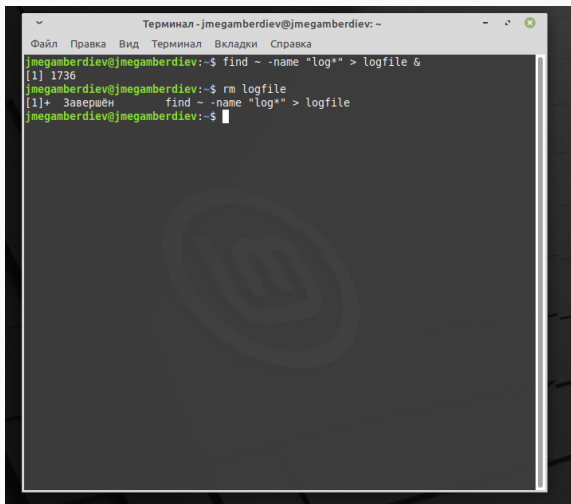
Команда поиска

A screenshot of a terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal displays the output of a "find" command, listing various system files and directories. The output is as follows:

```
find: '/etc/ppp/peers': Отказано в доступе
/etc/logcheck/ignore.d.server/hddtemp
/etc/hp
/etc/hp/hplip.conf
/etc/hdparm.conf
find: '/etc/polkit-1/localauthority': Отказано в доступе
/etc/host.conf
/etc/apparmor.d/tunables/home.d
/etc/apparmor.d/tunables/home
/etc/gufw/app_profiles/h323.jhansonxi
/etc/gufw/app_profiles/hedgewars.jhansonxi
/etc/gufw/app_profiles/heavy-gear-ii.jhansonxi
/etc/gufw/app_profiles/hexen2.jhansonxi
/etc/gufw/app_profiles/homm3.jhansonxi
/etc/gufw/app_profiles/heretic2.jhansonxi
/etc/gufw/app_profiles/hplip.gufw_app
/etc/gufw/app_profiles/hddtemp.jhansonxi
/etc/gufw/app_profiles/hypertext-transfer-protocol.jhansonxi
/etc/udev/hwdb.d
/etc/hosts
/etc/sane.d/hpsj5s.conf
/etc/sane.d/hp5400.conf
/etc/sane.d/hp4200.conf
/etc/sane.d/hs2p.conf
/etc/sane.d/dll.d/hplip
/etc/sane.d/hp3900.conf
/etc/sane.d/hp.conf
/etc/systemd/system/multi-user.target.wants/hddtemp.service
/etc/systemd/system/hddtemp.service
/etc/systemd/system/default.target.wants/haveged.service
:find: '/etc/ssl/private': Отказано в доступе
```

Figure 4: Поиск файлов

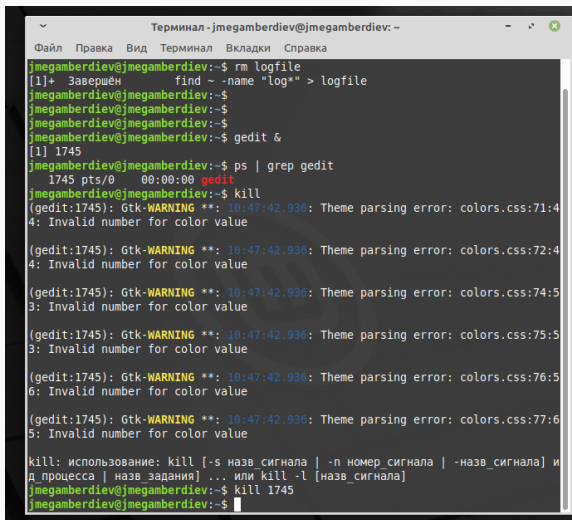
Управление процессами

A terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~" with a menu bar containing "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows a sequence of commands: a background find command, its PID, removal of the logfile, and a confirmation message.

```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
jmegamberdiev@jmegamberdiev:~$ find ~ -name "log*" > logfile &
[1] 1736
jmegamberdiev@jmegamberdiev:~$ rm logfile
[1]+  Завершён      find ~ -name "log*" > logfile
jmegamberdiev@jmegamberdiev:~$
```

Figure 5: Фоновый запуск процесса

Управление процессами



```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка

jmegamberdiev@jmegamberdiev:~$ rm logfile
[1]+  Завершён      find ~ -name "log*" > logfile
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$
jmegamberdiev@jmegamberdiev:~$ gedit &
[1] 1745
jmegamberdiev@jmegamberdiev:~$ ps | grep gedit
  1745 pts/0    00:00:00 gedit
jmegamberdiev@jmegamberdiev:~$ kill
(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:71:4
4: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:72:4
4: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:74:5
3: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:75:5
3: Invalid number for color value

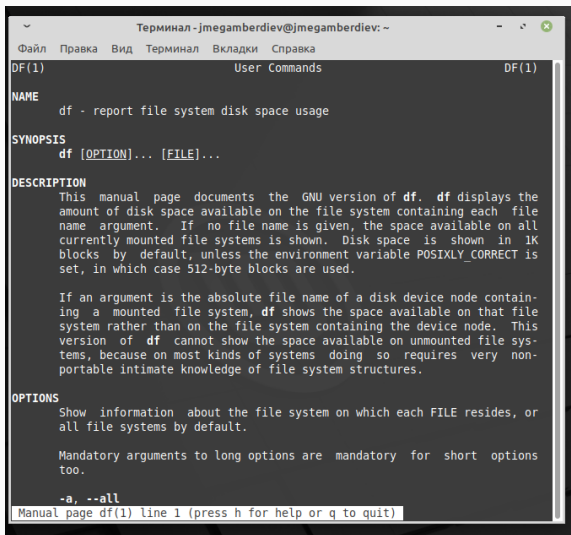
(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:76:5
6: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:77:6
5: Invalid number for color value

kill: использование: kill [-s назв_сигнала | -n номер_сигнала | -назв_сигнала] и
д_процесса | назв_задания] ... или kill -l [назв_сигнала]
jmegamberdiev@jmegamberdiev:~$ kill 1745
jmegamberdiev@jmegamberdiev:~$
```

Figure 6: Фоновый запуск и завершение процесса

Команды df и du



```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
DF(1)                                     User Commands                                     DF(1)

NAME
    df - report file system disk space usage

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

DESCRIPTION
    This manual page documents the GNU version of df. df displays the
    amount of disk 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.  Disk space is shown in 1K
    blocks by default, 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 disk device node contain-
    ing 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 sys-
    tems, because on most kinds of systems doing so requires very non-
    portable intimate knowledge of file system structures.

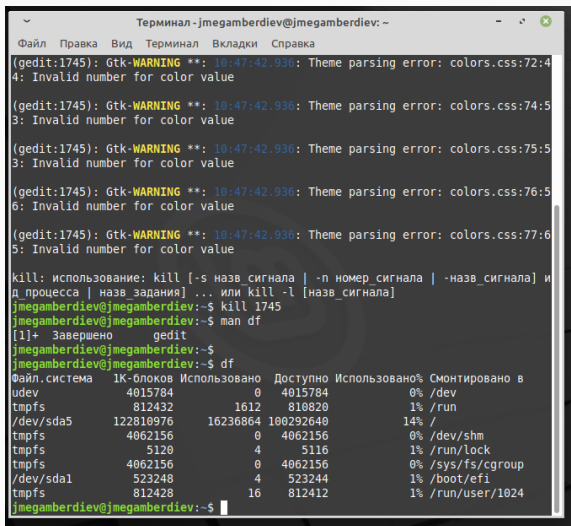
OPTIONS
    Show information about the file system on which each FILE resides, or
    all file systems by default.

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

    -a, --all
Manual page df(1) line 1 (press h for help or q to quit)
```

Figure 7: Справка по команде df

Команды df и du



```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:72:4
4: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:74:5
3: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:75:5
3: Invalid number for color value

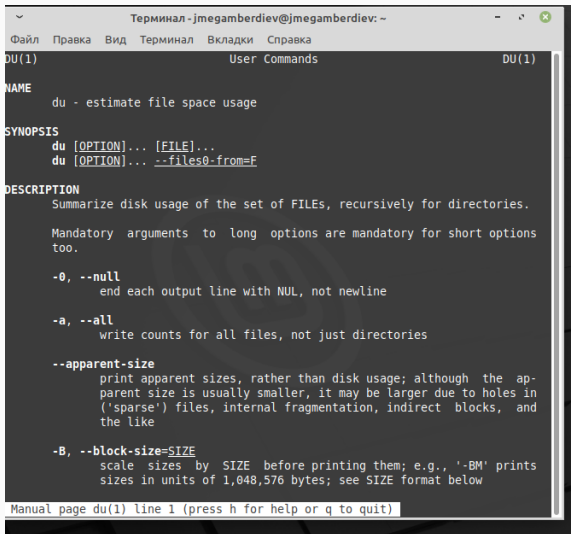
(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:76:5
6: Invalid number for color value

(gedit:1745): Gtk-WARNING **: 10:47:42.936: Theme parsing error: colors.css:77:6
5: Invalid number for color value

kill: использование: kill [-s назв_сигнала | -n номер_сигнала | -назв_сигнала] и
д процесса | назв_задания] ... или kill -l [назв_сигнала]
jmegamberdiev@jmegamberdiev:~$ kill 1745
jmegamberdiev@jmegamberdiev:~$ man df
[1]+  Завершено      gedit
jmegamberdiev@jmegamberdiev:~$ 
jmegamberdiev@jmegamberdiev:~$ df
Файл.система  1K-блоков  Использовано  Доступно  Использовано%  Смонтировано в
udev          4015784      0             4015784      0% /dev
tmpfs         812432       1612          810820      1% /run
/dev/sda5     122810976   16236864      100292640   14% /
tmpfs         4062156      0             4062156      0% /dev/shm
tmpfs         5120         4             5116         1% /run/lock
tmpfs         4062156      0             4062156      0% /sys/fs/cgroup
/dev/sda1     523248       4             523244      1% /boot/efi
tmpfs         812428       16            812412      1% /run/user/1024
jmegamberdiev@jmegamberdiev:~$
```

Figure 8: Запуск команды df

Команды df и du



```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
DU(1)                                     User Commands                                     DU(1)

NAME
    du - estimate file space usage

SYNOPSIS
    du [OPTION]... [FILE]...
    du [OPTION]... --files0-from=F

DESCRIPTION
    Summarize disk 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

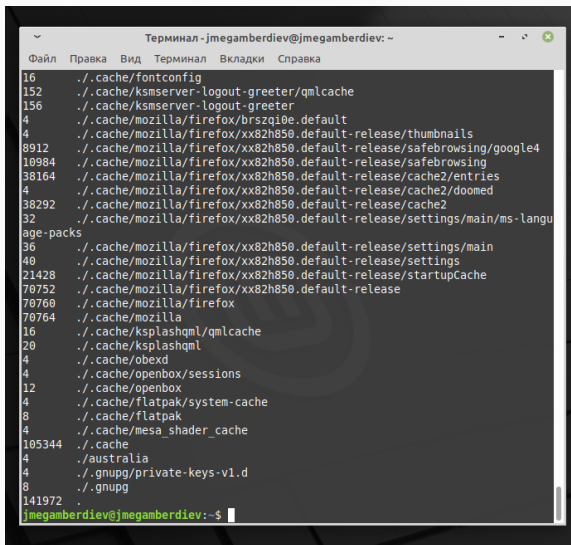
    --apparent-size
        print apparent sizes, rather than disk usage; although the ap-
        parent size is usually smaller, it may be larger due to holes in
        ('sparse') files, internal fragmentation, indirect blocks, and
        the like

    -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

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

Figure 9: Справка по команде du

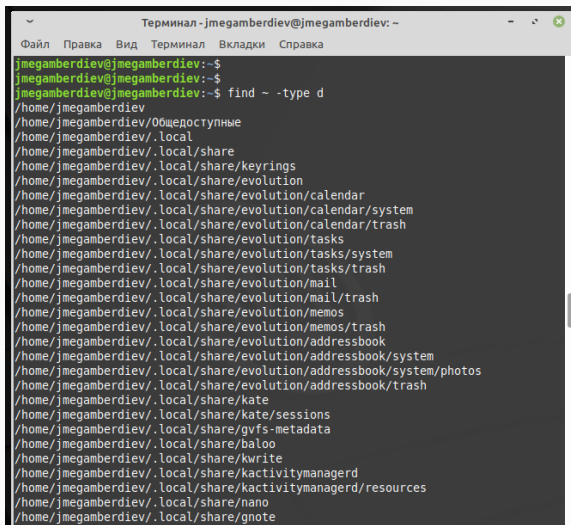
Команды df и du



```
Терминал - jmegamberdiev@jmegamberdiev: ~
Файл  Правка  Вид  Терминал  Вкладки  Справка
16     ./cache/fontconfig
152    ./cache/ksmsserver-logout-greeter/qmlcache
156    ./cache/ksmsserver-logout-greeter
4      ./cache/mozilla/firefox/brszqi0e.default
4      ./cache/mozilla/firefox/xx82h850.default-release/thumbnails
8912   ./cache/mozilla/firefox/xx82h850.default-release/safebrowsing/google4
10984  ./cache/mozilla/firefox/xx82h850.default-release/safebrowsing
38164  ./cache/mozilla/firefox/xx82h850.default-release/cache2/entries
4      ./cache/mozilla/firefox/xx82h850.default-release/cache2/doomed
38292  ./cache/mozilla/firefox/xx82h850.default-release/cache2
32     ./cache/mozilla/firefox/xx82h850.default-release/settings/main/ms-langu
age-packs
36     ./cache/mozilla/firefox/xx82h850.default-release/settings/main
40     ./cache/mozilla/firefox/xx82h850.default-release/settings
21428  ./cache/mozilla/firefox/xx82h850.default-release/startupCache
70752  ./cache/mozilla/firefox/xx82h850.default-release
70760  ./cache/mozilla/firefox
70764  ./cache/mozilla
16     ./cache/ksplashqml/qmlcache
20     ./cache/ksplashqml
4      ./cache/obexd
4      ./cache/openbox/sessions
12     ./cache/openbox
4      ./cache/flatpak/system-cache
8      ./cache/flatpak
4      ./cache/mesa_shader_cache
105344 ./cache
4      ./australia
4      ./gnupg/private-keys-v1.d
8      ./gnupg
141972 .
jmegamberdiev@jmegamberdiev:~$
```

Figure 10: Запуск команды du

Команда поиска

A screenshot of a terminal window titled "Терминал - jmegamberdiev@jmegamberdiev: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Терминал", "Вкладки", and "Справка". The terminal shows the user running the command "find ~ -type d". The output lists various directories in the user's home directory and its subdirectories, including ".local/share/evolution" and ".local/share/evolution/tasks/system".

```
jmegamberdiev@jmegamberdiev:~$  
jmegamberdiev@jmegamberdiev:~$  
jmegamberdiev@jmegamberdiev:~$ find ~ -type d  
/home/jmegamberdiev  
/home/jmegamberdiev/Общедоступные  
/home/jmegamberdiev/.local  
/home/jmegamberdiev/.local/share  
/home/jmegamberdiev/.local/share/keyrings  
/home/jmegamberdiev/.local/share/evolution  
/home/jmegamberdiev/.local/share/evolution/calendar  
/home/jmegamberdiev/.local/share/evolution/calendar/system  
/home/jmegamberdiev/.local/share/evolution/calendar/trash  
/home/jmegamberdiev/.local/share/evolution/tasks  
/home/jmegamberdiev/.local/share/evolution/tasks/system  
/home/jmegamberdiev/.local/share/evolution/tasks/trash  
/home/jmegamberdiev/.local/share/evolution/mail  
/home/jmegamberdiev/.local/share/evolution/mail/trash  
/home/jmegamberdiev/.local/share/evolution/memos  
/home/jmegamberdiev/.local/share/evolution/memos/trash  
/home/jmegamberdiev/.local/share/evolution/addressbook  
/home/jmegamberdiev/.local/share/evolution/addressbook/system  
/home/jmegamberdiev/.local/share/evolution/addressbook/system/photos  
/home/jmegamberdiev/.local/share/evolution/addressbook/trash  
/home/jmegamberdiev/.local/share/kate  
/home/jmegamberdiev/.local/share/kate/sessions  
/home/jmegamberdiev/.local/share/gvfs-metadata  
/home/jmegamberdiev/.local/share/baloo  
/home/jmegamberdiev/.local/share/kwrite  
/home/jmegamberdiev/.local/share/kactivitymanagerd  
/home/jmegamberdiev/.local/share/kactivitymanagerd/resources  
/home/jmegamberdiev/.local/share/nano  
/home/jmegamberdiev/.local/share/gnote
```

Figure 11: Поиск директорий

Выводы по проделанной работе

В данной работе мы ознакомились с инструментами поиска файлов и фильтрации текстовых данных. А также приобрели практические навыки по управлению процессами.