

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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Цели и задачи работы

Цель лабораторной работы

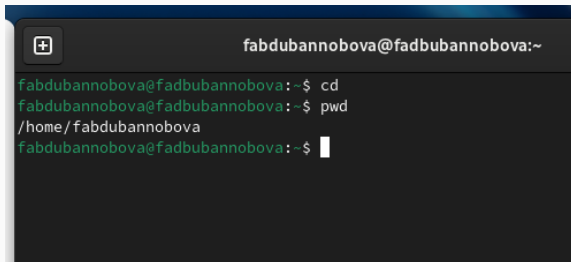
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

Задачи лабораторной работы

- 1 Определить имя и путь домашнего каталога
- 2 Изучить команду `ls`.
- 3 Выполнить действия с каталогами.
- 4 Получить дополнительные сведения при помощи справки по командам.
- 5 Изучить команду `history`.

Процесс выполнения лабораторной работы

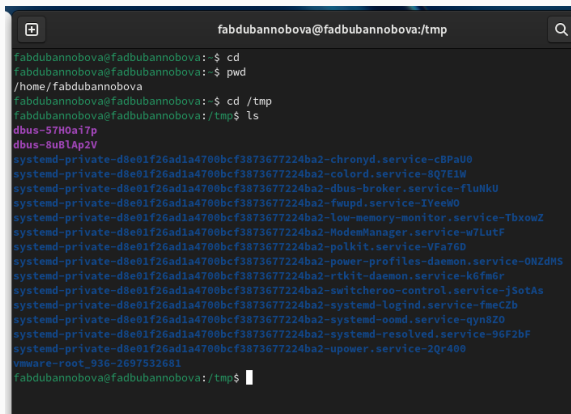
Имя и путь к домашнему каталогу



```
fabdubannobova@fadbubannobova:~  
fabdubannobova@fadbubannobova:~$ cd  
fabdubannobova@fadbubannobova:~$ pwd  
/home/fabdubannobova  
fabdubannobova@fadbubannobova:~$
```

Рис. 1: Путь к домашнему каталогу

Опции команды ls



```
fabdubannobova@fadubannobova:/tmp
fabdubannobova@fadubannobova:~$ cd
fabdubannobova@fadubannobova:~$ pwd
/home/fabdubannobova
fabdubannobova@fadubannobova:~$ cd /tmp
fabdubannobova@fadubannobova:/tmp$ ls
dbus-57H0ai7p
dbus-8uBLAp2V
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-chrond.service-c8PaU0
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-colord.service-8Q7E1W
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-dbus-broker.service-fluHkU
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-fwupd.service-IVeeW0
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-low-memory-monitor.service-TbxowZ
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-ModemManager.service-w7LutF
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-polkit.service-VFa76D
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-power-profiles-daemon.service-ONZdMS
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-rtkit-daemon.service-k6fm6r
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-switcheroo-control.service-jSotAs
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-logind.service-fmeCZb
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-oomd.service-qyn8Z0
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-resolved.service-96F2bF
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-upower.service-2Qr400
vmware-root_936-2697532681
fabdubannobova@fadubannobova:/tmp$
```

Рис. 2: Команда ls

Опции команды ls

```
fabdubannobova@fabdubannobova:~/tmp$ ls -a
.
..
dbus-57H0ai7p
dbus-8uB1Ap2V
.font-unix
.ICE-unix
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-chronyd.service-cBPau0
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-colord.service-8Q7E1W
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-dbus-broker.service-fluNkU
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-fwupd.service-IYeew0
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-low-memory-monitor.service-TbxowZ
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-ModemManager.service-w7LutF
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-polkit.service-VFa76D
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-power-profiles-daemon.service-ONZdMS
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-rtkit-daemon.service-k6fm6r
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-switcheroo-control.service-jSotAs
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-systemd-logind.service-fmeCZb
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-systemd-oomd.service-qyn8ZO
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-systemd-resolved.service-96F2bF
systemd-private-d8e01f26ad1a4708bcf3873677224ba2-upower.service-2Qr400
vmware-root_936-2697532681
.X0-lock
.X1024-lock
.X1025-lock
.X11-unix
.X1-lock
.XIM-unix
fabdubannobova@fabdubannobova:~/tmp$
```

Рис. 3: Команда ls -a

Опции команды ls

```
ls -lme -nrl
fabdubannobova@fabdubannobova:/tmp$ ls -l
итого 0
srwx-rw-rw-. 1 root root 0 anp 4 16:08 dbus-57H0ai7p
srwx-rw-rw-. 1 root root 0 anp 4 16:08 dbus-8uB1ap2V
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-chromyd.service-c8PaUP
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-colored.service-8Q7E1W
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-dbus-broker.service-fluKKU
drwx----- 3 root root 60 anp 4 17:30 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-fwupd.service-lYeeW0
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-low-memory-monitor.service-TbxowZ
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-NodenManager.service-wLutF
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-polkit.service-VFa76D
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-power-profiles-daemon.service-0KZdMS
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-rtkit-daemon.service-k6FmR
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-switcheroo-control.service-j5otAs
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-logind.service-fec2b
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-nodm.service-qyn8Z0
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-resolved.service-96F2bF
drwx----- 3 root root 60 anp 4 16:08 systemd-private-d8e01f26ad1a4700bcf3873677224ba2-upower.service-2QR488
drwx----- 2 root root 40 anp 4 16:08 vmware-root_936-2697532481
fabdubannobova@fabdubannobova:/tmp$
```

Рис. 4: Команда ls -l

Опции команды ls

```
fadbubannobova@fadbubannobova: /tmp$  
fadbubannobova@fadbubannobova: /tmp$ ls -f  
.  
..  
.X11-unix  
.ICE-unix  
.XIM-unix  
.font-unix  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-oomd.service-qyn8Z0  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-resolved.service-96F2bF  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-dbus-broker.service-fluNkU  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-chronyd.service-cBPau0  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-low-memory-monitor.service-TbxowZ  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-polkit.service-VFa76D  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-power-profiles-daemon.service-ONZdMS  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-rtkit-daemon.service-k6fm6r  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-switcheroo-control.service-jSotAs  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-systemd-logind.service-fmECZb  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-upower.service-2Qr400  
vmware-root_936-2697532681  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-ModemManager.service-w7LutF  
dbus-57H0ai7p  
dbus-8uB1Ap2V  
.X1024-lock  
.X1025-lock  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-colord.service-8Q7E1W  
.X0-lock  
.X1-lock  
systemd-private-d8e01f26ad1a4700bcf3873677224ba2-fwupd.service-IYeeW0  
fadbubannobova@fadbubannobova: /tmp$
```

Рис. 5: Команда ls -f

```
fabdubannobova@fadbubannobova:/tmp$  
fabdubannobova@fadbubannobova:/tmp$ cd /var/spool/  
fabdubannobova@fadbubannobova:/var/spool$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 1438 мар 24 12:13 abrt  
drwx-----. 1 abrt abrt 0 июл 19 2023 abrt-upload  
drwx--x---. 1 root lp 6 фев 16 03:00 cups  
drwxr-xr-x. 1 root root 0 июл 21 2023 lpd  
drwxrwxr-x. 1 root mail 1450 мар 23 21:36 mail  
drwxr-xr-x. 1 root root 0 июл 21 2023 plymouth  
fabdubannobova@fadbubannobova:/var/spool$
```

Рис. 6: Каталог /var/spool

Домашний каталог

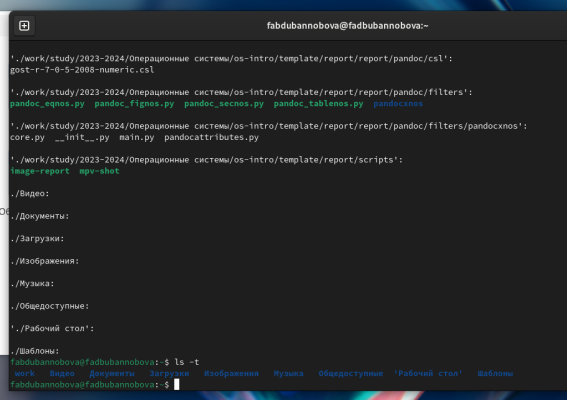
```
fabdubannobova@fabdubannobova: /var/spool$ cd
fabdubannobova@fabdubannobova: $ ls
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны
fabdubannobova@fabdubannobova: $ ls -al
итого 20
drwx----- 1 fabdubannobova fabdubannobova 474 мар 22 17:24 .
drwxr-xr-x 1 root root 1444 мар 23 21:36 ..
-rw----- 1 fabdubannobova fabdubannobova 1176 мар 22 17:32 .bash_history
-rw-r--r-- 1 fabdubannobova fabdubannobova 18 янв 22 03:00 .bash_logout
-rw-r--r-- 1 fabdubannobova fabdubannobova 144 янв 22 03:00 .bash_profile
-rw-r--r-- 1 fabdubannobova fabdubannobova 522 янв 22 03:00 .bashrc
drwx----- 1 fabdubannobova fabdubannobova 424 мар 22 17:01 .cache
drwx----- 1 fabdubannobova fabdubannobova 414 мар 22 17:32 .config
-rw-r--r-- 1 fabdubannobova fabdubannobova 238 мар 22 17:24 .gitconfig
drwx----- 1 fabdubannobova fabdubannobova 136 мар 22 16:57 .gnupg
drwx----- 1 fabdubannobova fabdubannobova 20 мар 22 16:42 .local
drwxr-xr-x 1 fabdubannobova fabdubannobova 48 мар 22 16:45 .mozilla
drwx----- 1 fabdubannobova fabdubannobova 132 мар 22 17:00 .ssh
drwxr-xr-x 1 fabdubannobova fabdubannobova 10 мар 22 17:00 work
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Видео
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Документы
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Загрузки
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Изображения
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Музыка
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Общедоступные
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 'Рабочий стол'
drwxr-xr-x 1 fabdubannobova fabdubannobova 0 мар 22 16:42 Шаблоны
fabdubannobova@fabdubannobova: $
```

Рис. 7: Файлы в домашнем каталоге

```
fabdubannobova@fabdubannobova:~$  
fabdubannobova@fabdubannobova:~$ mkdir newdir  
fabdubannobova@fabdubannobova:~$ mkdir newdir/morefun  
fabdubannobova@fabdubannobova:~$ mkdir letters memos misk  
fabdubannobova@fabdubannobova:~$ ls  
letters  misk  work  Документы  Изображения  Общедоступные  Шаблоны  
memos   newdir  Видео  Загрузки  Музыка  'Рабочий стол'  
fabdubannobova@fabdubannobova:~$ rm letters/ memos/ misk/  
rm: невозможно удалить 'letters/': Это каталог  
rm: невозможно удалить 'memos/': Это каталог  
rm: невозможно удалить 'misk/': Это каталог  
fabdubannobova@fabdubannobova:~$ rm -r letters/ memos/ misk/  
fabdubannobova@fabdubannobova:~$ rm -r newdir/  
fabdubannobova@fabdubannobova:~$ ls  
work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны  
fabdubannobova@fabdubannobova:~$
```

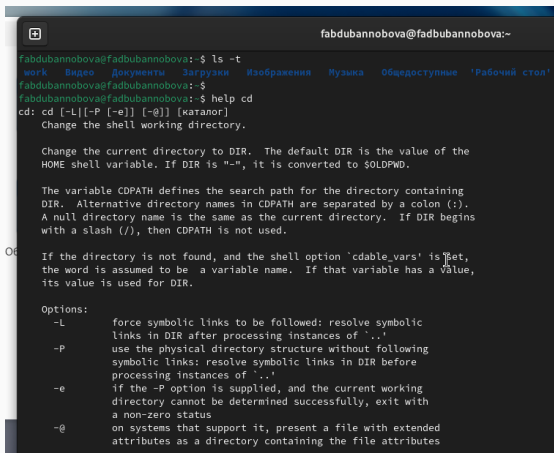
Рис. 8: Действия с каталогами

Опции команды ls



```
fabdubannobova@fadubannobova:~  
  
'./work/study/2023-2024/Операционные системы/os-intro/template/report/report/pandoc/csl':  
gost-r-7-0-5-2008-numeric.csl  
  
'./work/study/2023-2024/Операционные системы/os-intro/template/report/report/pandoc/filters':  
pandoc_eqnos.py pandoc_fignos.py pandoc_secnos.py pandoc_tablenos.py pandocxnos  
  
'./work/study/2023-2024/Операционные системы/os-intro/template/report/report/pandoc/filters/pandocxnos':  
core.py __init__.py main.py pandocattributes.py  
  
'./work/study/2023-2024/Операционные системы/os-intro/template/report/scripts':  
image-report mpv-shot  
  
./Видео:  
./Документы:  
./Загрузки:  
./Изображения:  
./Музыка:  
./Общедоступные:  
./Рабочий стол':  
./Шаблоны:  
fabdubannobova@fadubannobova:~$ ls -R  
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны  
fabdubannobova@fadubannobova:~$
```

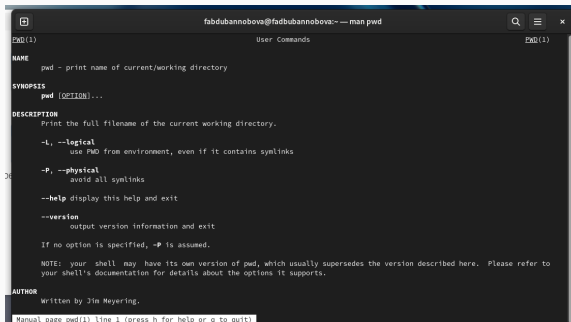
Рис. 9: Команда ls -R и ls -t



```
fabdubannobova@fadubannobova:~  
fabdubannobova@fadubannobova:~$ ls -t  
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол'  
fabdubannobova@fadubannobova:~$  
fabdubannobova@fadubannobova:~$ help cd  
cd: cd [-L|[-P [-e]] [-@]] [каталог]  
    Change the shell working directory.  
  
Change the current directory to DIR.  The default DIR is the value of the  
HOME shell variable.  If DIR is "-", it is converted to $OLDPWD.  
  
The variable CDPATH defines the search path for the directory containing  
DIR.  Alternative directory names in CDPATH are separated by a colon (:).  
A null directory name is the same as the current directory.  If DIR begins  
with a slash (/), then CDPATH is not used.  
  
If the directory is not found, and the shell option 'cdable_vars' is set,  
the word is assumed to be a variable name.  If that variable has a value,  
its value is used for DIR.  
  
Options:  
-L      force symbolic links to be followed: resolve symbolic  
        links in DIR after processing instances of '..'  
-P      use the physical directory structure without following  
        symbolic links: resolve symbolic links in DIR before  
        processing instances of '..'  
-e      if the -P option is supplied, and the current working  
        directory cannot be determined successfully, exit with  
        a non-zero status  
-@      on systems that support it, present a file with extended  
        attributes as a directory containing the file attributes
```

Рис. 10: Справка по команде cd

Справка по командам



The image shows a terminal window with a dark background. The title bar at the top reads 'fabdubannobova@fabdubannobova:~ — man pwd'. The terminal content displays the manual page for the 'pwd' command, organized into sections: NAME, SYNOPSIS, DESCRIPTION, and AUTHOR. The DESCRIPTION section includes details about the command's function and various options like -L, -P, --help, and --version. A NOTE at the bottom of the description section mentions that the shell may have its own version of pwd. The AUTHOR section states it was written by Jin Meyerling. At the very bottom of the terminal, a status bar indicates 'Manual page pwd(1) line 1 (press h for help or q to quit)'.

```
fabdubannobova@fabdubannobova:~ — man pwd
pwd(1)                                User Commands                                pwd(1)

NAME
  pwd - print name of current/working directory

SYNOPSIS
  pwd [OPTION]...

DESCRIPTION
  Print the full filename of the current working directory.

  -L, --logical
      use PWD from environment, even if it contains symlinks

  -P, --physical
      avoid all symlinks

  --help
      display this help and exit

  --version
      output version information and exit

  If no option is specified, -P is assumed.

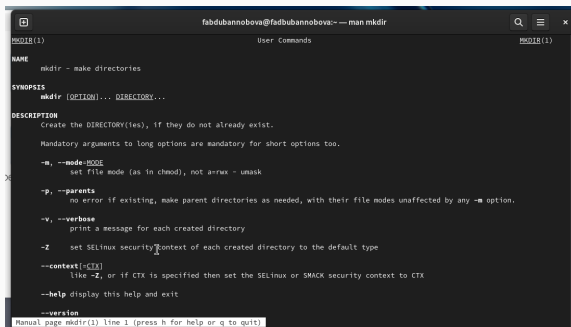
  NOTE: your shell may have its own version of pwd, which usually supersedes the version described here. Please refer to
  your shell's documentation for details about the options it supports.

AUTHOR
  Written by Jin Meyerling.

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

Рис. 11: Справка по команде pwd

Справка по командам



```
fabdubannobova@fabdubannobova:~ — man mkdir
mkdir(1)                                User Commands                                mkdir(1)

NAME
  mkdir - make directories

SYNOPSIS
  mkdir [OPTION]... DIRECTORY...

DESCRIPTION
  Create the DIRECTORY(ies), if they do not already exist.

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

  -m, --mode=MODE
      set file mode (as in chmod), not a-rwx - umask

  -p, --parents
      no error if existing, make parent directories as needed, with their file modes unaffected by any -m option.

  -v, --verbose
      print a message for each created directory

  -Z
      set SELinux security context of each created directory to the default type

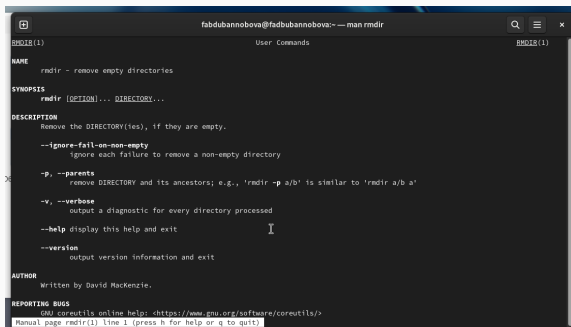
  --context[=CTX]
      like -Z, or if CTX is specified then set the SELinux or SMACK security context to CTX

  --help
      display this help and exit

  --version
      display the version number and exit

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

Рис. 12: Справка по команде mkdir



```
fabubannobova@fabubannobova:~$ man rmdir
rmdir(1)                                User Commands                                rmdir(1)

NAME
  rmdir - remove empty directories

SYNOPSIS
  rmdir [OPTION]... DIRECTORY...

DESCRIPTION
  Remove the DIRECTORY(ies), if they are empty.

  --ignore-fail-on-non-empty
    ignore each failure to remove a non-empty directory

  -p, --parents
    remove DIRECTORY and its ancestors; e.g., 'rmdir -p a/b' is similar to 'rmdir a/b a'

  -v, --verbose
    output a diagnostic for every directory processed

  --help
    display this help and exit

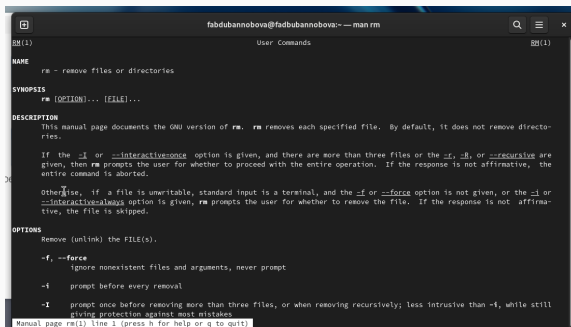
  --version
    output version information and exit

AUTHOR
  Written by David MacKenzie.

REPORTING BUGS
  GNU coreutils online help: https://www.gnu.org/software/coreutils/
  Manual page rmdir(1) line 1 (press h for help or q to quit)
```

Рис. 13: Справка по команде rmdir

Справка по командам



```
fabdubannobova@fabdubannobova:~ -- man rm
rm(1)                                User Commands                                rm(1)

NAME
rm - remove files or directories

SYNOPSIS
rm [OPTION]... [FILE]...

DESCRIPTION
This manual page documents the GNU version of rm. rm removes each specified file. By default, it does not remove directories.

If the -i or --interactive=once option is given, and there are more than three files or the -f, -R, or --recursive are given, then rm prompts the user for whether to proceed with the entire operation. If the response is not affirmative, the entire command is aborted.

Otherwise, if a file is unwritable, standard input is a terminal, and the -f or --force option is not given, or the -i or --interactive=always option is given, rm prompts the user for whether to remove the file. If the response is not affirmative, the file is skipped.

OPTIONS
Remove (unlink) the FILE(s).

-f, --force
    ignore nonexistent files and arguments, never prompt

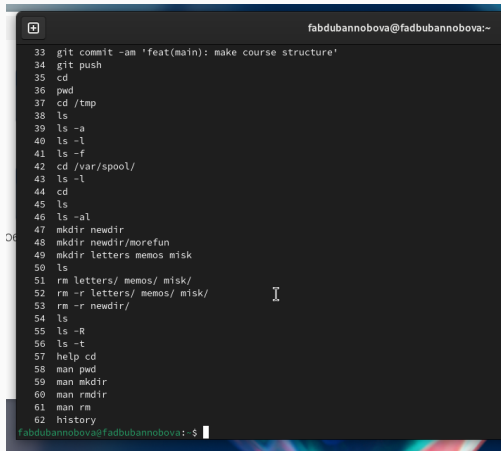
-i
    prompt before every removal

-I
    prompt once before removing more than three files, or when removing recursively; less intrusive than -i, while still giving protection against most mistakes

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

Рис. 14: Справка по команде rm

История командной строки

A terminal window with a dark background and light-colored text. The title bar at the top shows a window icon and the text 'fabdubannobova@fadubannobova:~'. The terminal displays a list of 33 commands, numbered 33 to 62, which are the contents of the system's command history. The commands include 'git commit', 'git push', 'cd', 'pwd', 'ls', 'mkdir', 'rm', 'man', and 'history'. The 'history' command at the bottom has triggered the display of the previous commands. A cursor is visible at the end of the prompt 'fabdubannobova@fadubannobova:~\$' on line 62.

```
fabdubannobova@fadubannobova:~
33 git commit -am 'feat(main): make course structure'
34 git push
35 cd
36 pwd
37 cd /tmp
38 ls
39 ls -a
40 ls -l
41 ls -f
42 cd /var/spool/
43 ls -l
44 cd
45 ls
46 ls -al
47 mkdir newdir
48 mkdir newdir/morefun
49 mkdir letters memos msk
50 ls
51 rm letters/ memos/ msk/
52 rm -r letters/ memos/ msk/
53 rm -r newdir/
54 ls
55 ls -R
56 ls -t
57 help cd
58 man pwd
59 man mkdir
60 man rmdir
61 man rm
62 history
fabdubannobova@fadubannobova:~$
```

Рис. 15: Команда history

Выводы по проделанной работе

Мы приобрели практические навыки взаимодействия пользователя с системой посредством командной строки.