

# Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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# Цели и задачи работы

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# Цель лабораторной работы

Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

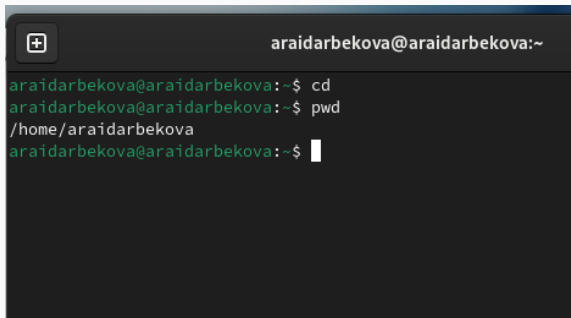
# Задачи лабораторной работы

- 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**

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# Имя и путь к домашнему каталогу

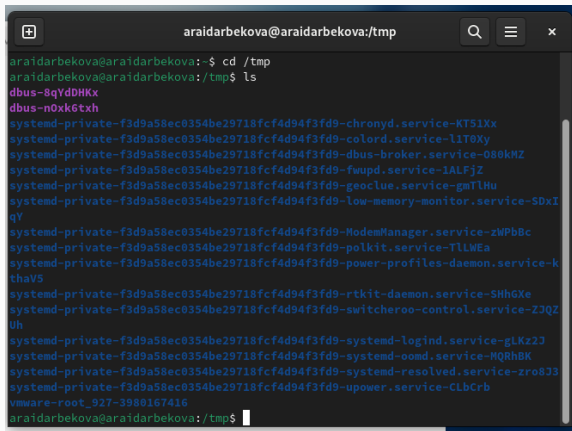


```
araidarbekova@araidarbekova:~$ cd
araidarbekova@araidarbekova:~$ pwd
/home/araidarbekova
araidarbekova@araidarbekova:~$
```

A terminal window with a dark background. The title bar shows a plus icon and the text 'araidarbekova@araidarbekova:~'. The terminal content shows a sequence of commands: 'cd' followed by 'pwd', which outputs '/home/araidarbekova'. The prompt 'araidarbekova@araidarbekova:~\$' is shown at the end of the last line with a white cursor.

Рис. 1: Путь к домашнему каталогу

# Опции команды ls



```
araïdarbekova@araïdarbekova:/tmp
araïdarbekova@araïdarbekova:~$ cd /tmp
araïdarbekova@araïdarbekova:/tmp$ ls
dbus-8qYdDHHx
dbus-n0Xk6txh
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-chronyd.service-KT51Xx
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-colord.service-l1T0Xy
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-dbus-broker.service-080kMZ
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-fwupd.service-1ALFjZ
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-geoclue.service-gmTlHu
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-low-memory-monitor.service-SDxI
qY
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-ModemManager.service-zWPbBc
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-polkit.service-TLLWEa
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-power-profiles-daemon.service-k
thaV5
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-rtkit-daemon.service-SHhGXe
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-switcheroo-control.service-ZJQZ
Uh
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-logind.service-gLKz2J
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-oomd.service-MQRhBK
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-resolved.service-zro8J3
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-upower.service-CLbCrb
vmware-root_927-3980167416
araïdarbekova@araïdarbekova:/tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
araidarbekova@araidarbekova:~/tmp$ ls -la
total 12
drwxr-xr-x 2 araidarbekova araidarbekova 4096 Aug 11 14:54 .
drwxr-xr-x 3 araidarbekova araidarbekova 4096 Aug 11 14:54 ..
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 dbus-8qYdDhKx
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 dbus-n0Xk6txh
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 .font-unix
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 .ICE-unix
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-chronyd.service-KT51Xx
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-colord.service-l1T0Xy
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-dbus-broker.service-080kNZ
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-fwupd.service-1ALFjZ
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-low-memory-monitor.service-SDxI
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 qY
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-ModemManager.service-zWPbBc
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-polkit.service-TLLWEa
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-power-profiles-daemon.service-k
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 thaVS
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-rtkit-daemon.service-5HhGXe
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-switcheroo-control.service-ZJQZ
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 Uh
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-logind.service-gLKz2J
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-oomd.service-MQRhBK
-rw-r--r-- 1 araidarbekova araidarbekova  100 Aug 11 14:54 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-resolved.service-zro8J3
```

Рис. 3: Команда ls -la



# Опции команды ls

```
araidarbekov@araidarbekov:~/tmp$  
araidarbekov@araidarbekov:~/tmp$ ls -l  
Итого 0  
srwx-rw-rw-. 1 root root 0 map 10 15:48 dbus-8qYdDHKx  
srwx-rw-rw-. 1 root root 0 map 10 15:48 dbus-n0xk6txh  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-chrond.service-NT51Kx  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-colord.service-L1T0dy  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-dbus-broker.service-080kMZ  
drwx----- 3 root root 60 map 10 15:50 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-fwupd.service-1ALFJZ  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-low-memory-monitor.service-5DxIqY  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-ModemManager.service-zWPbBc  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-polkitt.service-TlLMtA  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-power-profiles-daemon.service-kthav3  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-rtkit-daemon.service-5n6G0e  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-switcheroo-control.service-2zQ2uh  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-logind.service-glK222  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-oomd.service-HQ8H8K  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-resolved.service-zro833  
drwx----- 3 root root 60 map 10 15:48 systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-upower.service-ClbCrb  
drwx----- 2 root root 40 map 10 15:48 vmware-root_927-3980167416  
araidarbekov@araidarbekov:~/tmp$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
araïdarbekova@araïdarbekova: /tmp$  
araïdarbekova@araïdarbekova: /tmp$ ls -f  
.  
..  
.X11-unix  
.ICE-unix  
.XIM-unix  
.font-unix  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-oomd.service-MQRhBK  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-resolved.service-zro8J3  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-dbus-broker.service-080kM2  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-chronyd.service-KT51Xx  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-low-memory-monitor.service-SDxIqY  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-polkit.service-TLLWEa  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-power-profiles-daemon.service-kthaV5  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-rtkit-daemon.service-SHhGxe  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-switcheroo-control.service-ZJQZUh  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-systemd-logind.service-gLKz2J  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-upower.service-CLbCrb  
vmware-root_927-3980167416  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-ModemManager.service-zWPbBc  
dbus-8qYdDHKx  
dbus-n0xk6txh  
.X1024-lock  
.X1025-lock  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-colord.service-l1T0Yx  
.X0-lock  
.X1-lock  
systemd-private-f3d9a58ec0354be29718fcf4d94f3fd9-fwupd.service-1ALFjZ  
araïdarbekova@araïdarbekova: /tmp$
```

Рис. 5: Команда ls -f

```
araidarbekova@araidarbekova:/tmp$  
araidarbekova@araidarbekova:/tmp$ cd /var/spool/  
araidarbekova@araidarbekova:/var/spool$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 1510 мар 10 12:45 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 1222 мар  8 17:40 mail  
drwxr-xr-x. 1 root root  0 июл 21 2023 plymouth  
araidarbekova@araidarbekova:/var/spool$
```

Рис. 6: Каталог /var/spool

```
araidarbekova@araidarbekova: /var/spool$ cd
araidarbekova@araidarbekova:~$ ls
git-extended  Видео      Загрузки   Музыка     'Рабочий стол'
work          Документы  Изображения  Общедоступные  Шаблоны
araidarbekova@araidarbekova:~$ ls -al
итого 20
drwx----- 1 araidarbekova araidarbekova 498 мар  4 15:35 .
drwxr-xr-x  1 root      root          1216 мар  8 17:40 ..
-rw----- 1 araidarbekova araidarbekova 279 мар  4 15:36 .bash_history
-rw-r--r--  1 araidarbekova araidarbekova 18 июл 19 2023 .bash_logout
-rw-r--r--  1 araidarbekova araidarbekova 144 июл 19 2023 .bash_profile
-rw-r--r--  1 araidarbekova araidarbekova 683 мар  4 15:23 .bashrc
drwx----- 1 araidarbekova araidarbekova 452 мар 10 15:50 .cache
drwx----- 1 araidarbekova araidarbekova 402 мар  4 15:25 .config
-rw-r--r--  1 araidarbekova araidarbekova 239 мар  4 15:35 .gitconfig
drwxr-xr-x  1 araidarbekova araidarbekova 74 мар  4 15:28 git-extended
drwx----- 1 araidarbekova araidarbekova 136 фев 28 12:17 .gnupg
drwx----- 1 araidarbekova araidarbekova 20 фев 28 12:09 .local
drwxr-xr-x  1 araidarbekova araidarbekova 48 фев 28 12:11 .mozilla
drwx----- 1 araidarbekova araidarbekova 132 фев 28 12:20 .ssh
drwxr-xr-x  1 araidarbekova araidarbekova 10 фев 28 12:20 work
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Видео
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Документы
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Загрузки
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Изображения
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Музыка
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Общедоступные
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 'Рабочий стол'
drwxr-xr-x  1 araidarbekova araidarbekova 0 фев 28 12:09 Шаблоны
araidarbekova@araidarbekova:~$
```

Рис. 7: Файлы в домашнем каталоге

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

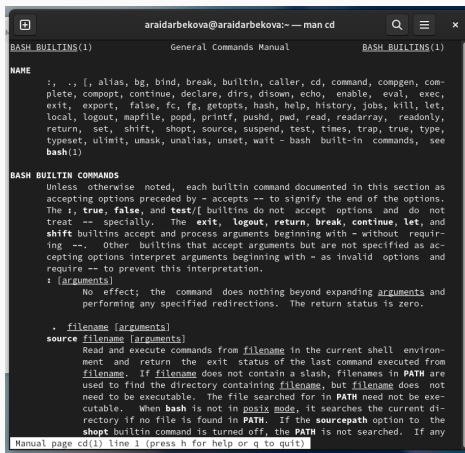
Рис. 8: Действия с каталогами

# Опции команды ls

```
'./work/study/2023-2024/Операционные системы/os-intro/template/report/scripts':  
image-report mpv-shot  
  
./Видео:  
  
./Документы:  
  
./Загрузки:  
  
./Изображения:  
  
./Музыка:  
  
./Общедоступные:  
  
'./Рабочий стол':  
  
./Шаблоны:  
araidarbekova@araidarbekova:~$ ls -t  
git-extended Видео Загрузки Музыка Шаблоны  
work Документы Изображения Общедоступные 'Рабочий стол'  
araidarbekova@araidarbekova:~$
```

Рис. 9: Команда ls -R и ls -t

# Справка по командам



```
araïdarbekova@araïdarbekova:~ — man cd
BASH_BUILTINS(1)      General Commands Manual      BASH_BUILTINS(1)

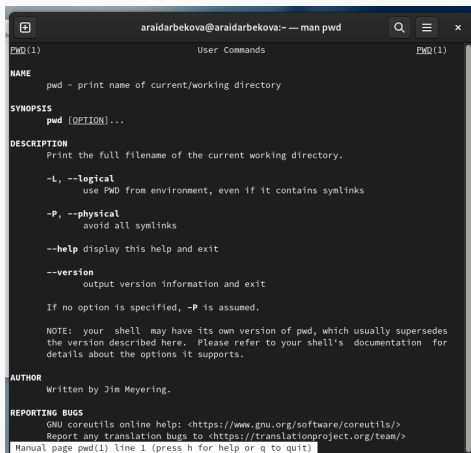
NAME
:, ., [, alias, bg, bind, break, builtin, caller, cd, command, compgen, complete, compopt, continue, declare, dirs, disown, echo, enable, eval, exec, exit, export, false, fc, fg, getopts, hash, help, history, jobs, kill, let, local, logout, mapfile, popd, printf, pushd, pwd, read, readarray, readonly, set, shift, shopt, source, suspend, test, times, trap, true, type, typeset, ulimit, umask, unalias, unset, wait - bash built-in commands, see bash(1)

BASH BUILTIN COMMANDS
Unless otherwise noted, each builtin command documented in this section as accepting options preceded by - accepts -- to signify the end of the options. The :, true, false, and test/[ builtins do not accept options and do not treat -- specially. The exit, logout, return, break, continue, let, and shift builtins accept and process arguments beginning with - without requiring --. Other builtins that accept arguments but are not specified as accepting options interpret arguments beginning with - as invalid options and require -- to prevent this interpretation.
: [arguments]
    No effect; the command does nothing beyond expanding arguments and performing any specified redirections. The return status is zero.

. filename [arguments]
source filename [arguments]
    Read and execute commands from filename in the current shell environment and return the exit status of the last command executed from filename. If filename does not contain a slash, filenames in PATH are used to find the directory containing filename, but filename does not need to be executable. The file searched for in PATH need not be executable. When bash is not in posix mode, it searches the current directory if no file is found in PATH. If the sourcepath option to the shopt builtin command is turned off, the PATH is not searched. If any
```

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

Рис. 10: Справка по команде cd



```
araidarbekova@araidarbekova:~ — 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.

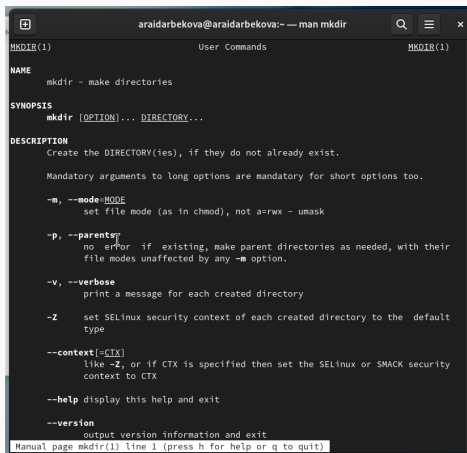
    NOTE: your shell may have its own version of pwd, which usually supersedes
    the version described here. Please refer to your shell's documentation for
    details about the options it supports.

AUTHOR
    Written by Jim Meyering.

REPORTING BUGS
    GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
    Report any translation bugs to <https://translationproject.org/team/>
    Manual page pwd(1) line 1 (press h for help or q to quit)
```

Рис. 11: Справка по команде pwd





```
araidarbekova@araidarbekova:~$ 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

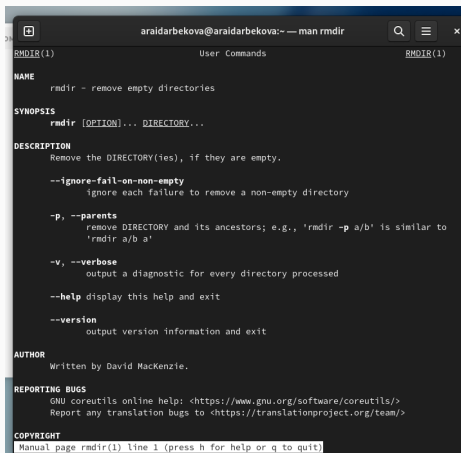
--context[=CTX]
    like -Z, or if CTX is specified then set the SELinux or SMACK security
    context to CTX

--help
    display this help and exit

--version
    output version information and exit

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

Рис. 12: Справка по команде mkdir



```
araidarbekova@araidarbekova:~ — 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

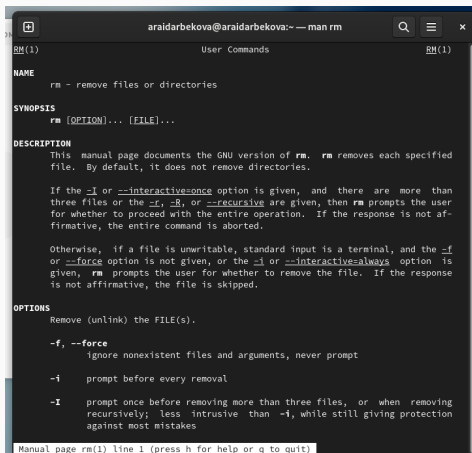
  --version
      output version information and exit

AUTHOR
  Written by David MacKenzie.

REPORTING BUGS
  GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
  Report any translation bugs to <https://translationproject.org/team/>

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

Рис. 13: Справка по команде rmdir



```
araidarbekova@araidarbekova:~ -- 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 af-
firmative, 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

```
30 ls -al
31 mkdir newdir
32 mkdir newdir/morefun
33 mkdir letters memos misk
34 ls
35 rm letters/ memos/ misk/
36 rm -r letters/ memos/ misk/
37 rm -r newdir/
38 ls
39 ls -R
40 ls -t
41 man cd
42 man pwd
43 man mkdir
44 man rmdir
45 man rm
46 history
araidarbekova@araidarbekova:~$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

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