

# 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.

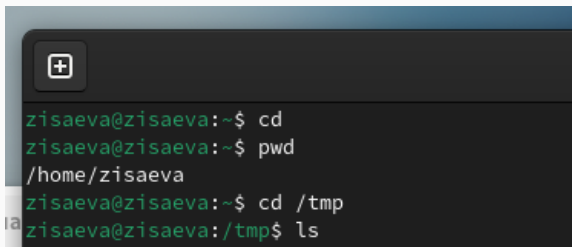
# Задачи лабораторной работы

- 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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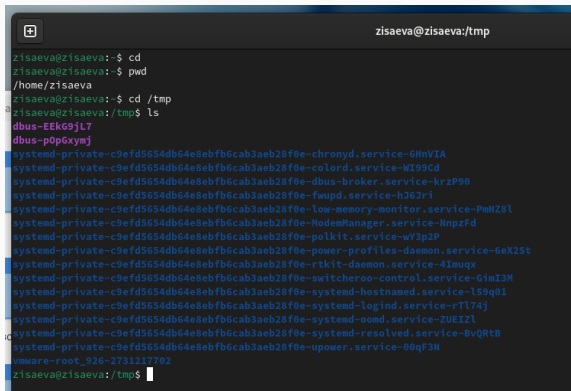
# Имя и путь к домашнему каталогу

A terminal window with a dark background and a title bar. The terminal shows a series of commands and their outputs. The prompt is 'zisaeva@zisaeva:~\$'. The first command is 'cd', which changes the directory to the home directory. The second command is 'pwd', which outputs '/home/zisaeva'. The third command is 'cd /tmp', which changes the directory to '/tmp'. The fourth command is 'ls', which lists the contents of the current directory. The terminal window has a small icon in the top-left corner of the title bar.

```
zisaeva@zisaeva:~$ cd
zisaeva@zisaeva:~$ pwd
/home/zisaeva
zisaeva@zisaeva:~$ cd /tmp
zisaeva@zisaeva:/tmp$ ls
```

Рис. 1: Путь к домашнему каталогу

# Опции команды ls



```
zisaeva@zisaeva:tmp

zisaeva@zisaeva:~$ cd
zisaeva@zisaeva:~$ pwd
/home/zisaeva
zisaeva@zisaeva:~$ cd /tmp
zisaeva@zisaeva:~$ cd /tmp
zisaeva@zisaeva:~$ ls
dbus-EEkG9jL7
dbus-p0p6xymj
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-chrond.service-6HnVIA
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-colord.service-WI99Cd
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-dbus-broker.service-krzP90
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-fwupd.service-hJ6JrI
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-low-memory-monitor.service-PmNZ81
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-ModemManager.service-NnpzFd
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-polkit.service-wY3p2P
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-power-profiles-daemon.service-6eX2St
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-rtkit-daemon.service-4Imuqx
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-switcheroo-control.service-GimI3M
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-hostnamed.service-lS9q0l
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-logind.service-rTL74j
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-oemd.service-ZUEI2l
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-resolved.service-BvQRTB
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-upower.service-00qF3N
vmware-root_926-2731217702
zisaeva@zisaeva:~$ cd /tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
ztsaevag@ztsaeva:~$  
ztsaevag@ztsaeva:~$ cd /tmp  
ztsaevag@ztsaeva:/tmp$ ls -l  
итого 8  
srwxrwxrwx. 1 root root 0 map 9 13:14 dbus-ES6GjLT  
srwxrwxrwx. 1 root root 0 map 9 13:14 dbus-p0p6xvj  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-chronyd.service-6HwVZA  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-colord.service-MI99Cd  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-dbus-broker.service-kypP98  
drwx-----. 3 root root 60 map 9 13:17 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-fwupd.service-h3G3rI  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-low-memory-monitor.service-PwK2aI  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-moderneuuq.service-mpzfd  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-polkitt.service-w7p2P  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-power-profiles-daemon.service-6eK2St  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-rtkit-daemon.service-4Imux  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-switcheroo-control.service-6mI3H  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-systemd-logind.service-rTl7gJ  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-systemd-suspend.service-2DElZL  
drwx-----. 3 root root 60 map 9 13:14 system-private-cfe9d5654db04e8ebfb0cab3aeb28f8e-system-resolved.service-6vQ0t8  
drwx-----. 2 root root 40 map 9 13:14 vmware-root_926-2731217702  
ztsaevag@ztsaeva:/tmp$
```

Рис. 3: Команда ls -a



# Опции команды ls

```
zisaeva@zisaeva: /tmp$  
zisaeva@zisaeva: /tmp$ ls -la  
.  
..  
dbus-EEkG9jL7  
dbus-pOpGxymj  
.font-unix  
.ICE-unix  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-chrondy.service-6HnVIA  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-colord.service-WI99Cd  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-dbus-broker.service-krzP90  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-fwupd.service-hJ6Jri  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-low-memory-monitor.service-PmNZ8l  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-ModemManager.service-NnpzFd  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-polkit.service-wY3p2P  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-power-profiles-daemon.service-6eX2l  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-rtkit-daemon.service-4Imuqx  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-switcheroo-control.service-6imI3M  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-logind.service-rTL74j  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-oomd.service-ZUEI2l  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-resolved.service-BvQRTB  
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-upower.service-00qF3N  
vmware-root_926-2731217702  
.X0-lock  
.X1024-lock  
.X1025-lock  
.X11-unix  
.X1-lock  
.XIM-unix  
zisaeva@zisaeva: /tmp$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
zisaeva@zisaeva:/tmp$ ls -f
..
.X11-unix
.ICE-unix
.XIM-unix
.font-unix
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-oomd.service-ZUEI2l
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-resolved.service-BvQRTB
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-dbus-broker.service-krzP90
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-chronyd.service-6HnVIA
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-low-memory-monitor.service-PmNZ8l
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-polkit.service-wY3p2P
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-power-profiles-daemon.service-6eX2St
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-rtkit-daemon.service-4Imuqx
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-switcheroo-control.service-GimI3M
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-systemd-logind.service-rTL74j
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-upower.service-00qF3N
vmware-root_926-2731217702
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-ModemManager.service-NnpzFd
dbus-p0pGxymj
dbus-EEkG9jL7
.X1024-lock
.X1025-lock
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-colord.service-WI99Cd
.X0-lock
.X1-lock
systemd-private-c9efd5654db64e8ebfb6cab3aeb28f0e-fwupd.service-hJ3Jri
zisaeva@zisaeva:/tmp$
```

Рис. 5: Команда ls -f

# Каталог /var/spool

```
zisaeva@zisaeva:/tmp$  
zisaeva@zisaeva:/tmp$ cd /var/spool/  
zisaeva@zisaeva:/var/spool$ ls -al  
итого 0  
drwxr-xr-x. 1 root root  68 ноя  1 04:09 .  
drwxr-xr-x. 1 root root 200 ноя  1 04:15 ..  
drwxr-x--x. 1 root abrt 1510 мар  8 19:18 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  
zisaeva@zisaeva:/var/spool$
```

Рис. 6: Каталог /var/spool

```
zisaeva@zisaeva:~/gitconfig$ cd
zisaeva@zisaeva:~$ ls
git-extended  work  video  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
zisaeva@zisaeva:~$ ls -al
итого 20
drwx----- 1 zisaeva zisaeva 498 мар 3 12:21 .
drwxr-xr-x. 1 root   root   1216 мар 8 17:40 ..
-rw----- 1 zisaeva zisaeva 117 мар 3 12:32 .bash_history
-rw-r--r-- 1 zisaeva zisaeva 18 июл 19 2023 .bash_logout
-rw-r--r-- 1 zisaeva zisaeva 144 июл 19 2023 .bash_profile
-rw-r--r-- 1 zisaeva zisaeva 677 мар 3 12:21 .bashrc
drwx----- 1 zisaeva zisaeva 452 мар 9 13:17 .cache
drwx----- 1 zisaeva zisaeva 424 мар 3 12:23 .config
-rw-r--r-- 1 zisaeva zisaeva 231 мар 3 12:19 .gitconfig
drwxr-xr-x. 1 zisaeva zisaeva 74 мар 3 12:26 git-extended
drwx----- 1 zisaeva zisaeva 136 фев 23 13:02 group
drwx----- 1 zisaeva zisaeva 20 фев 23 12:46 local
drwxr-xr-x. 1 zisaeva zisaeva 48 фев 23 12:54 mozilla
drwx----- 1 zisaeva zisaeva 132 фев 23 13:13 .ssh
drwxr-xr-x. 1 zisaeva zisaeva 10 фев 23 13:06 work
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 video
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Документы
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Загрузки
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Изображения
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Музыка
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Общедоступные
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 'Рабочий стол'
drwxr-xr-x. 1 zisaeva zisaeva 0 фев 23 12:46 Шаблоны
zisaeva@zisaeva:~$
```

Рис. 7: Файлы в домашнем каталоге

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

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:  
zisaeva@zisaeva:~$ ls -t  
git-extended work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны  
zisaeva@zisaeva:~$
```

Рис. 9: Команда ls -R и ls -t

# Справка по командам

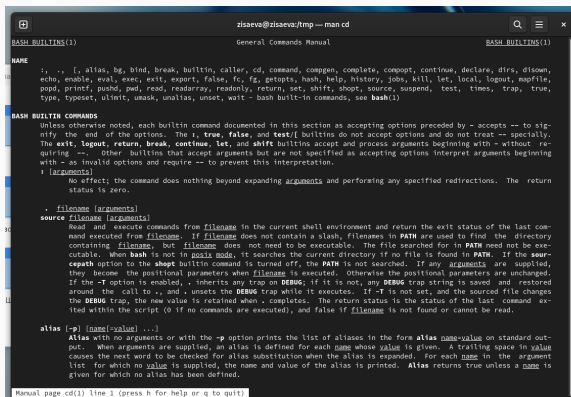
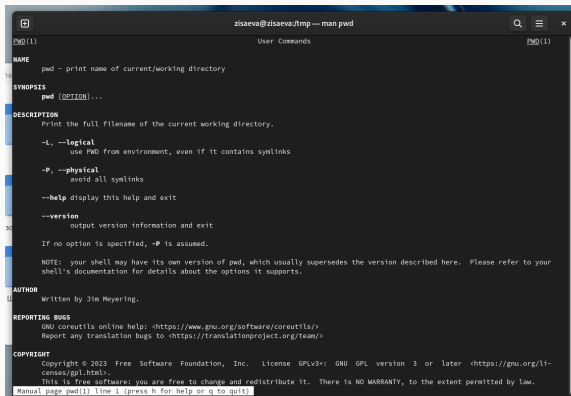


Рис. 10: Справка по команде `cd`

# Справка по командам



The screenshot shows a terminal window titled 'zisaeva@zisaeva/tmp — man pwd'. The terminal displays the manual page for the 'pwd' command. The window has a dark background with light-colored text. The terminal content is as follows:

```
pwd(1) User Commands
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

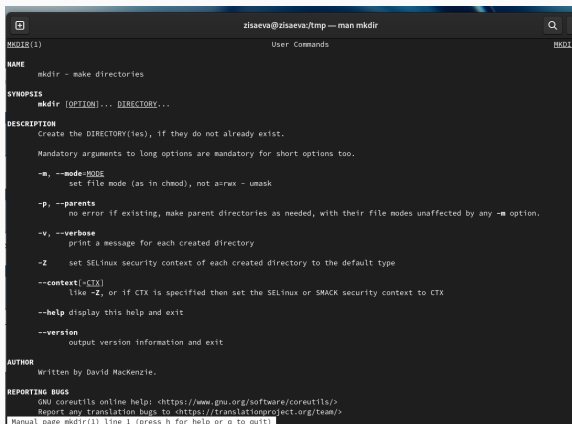
  If no option is specified, -P is assumed.

  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/>
COPYRIGHT
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  This is free software: you are free to change and redistribute it. There is NO WARRANTY, to the extent permitted by law.
Manual page pwd(1) line 1 (press h for help or q to quit)
```

Рис. 11: Справка по команде pwd



# Справка по командам



```
zisaeva@zisaeva/tmp — man mkdir
MKDIR(1)                                User Commands                                MKDIR

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

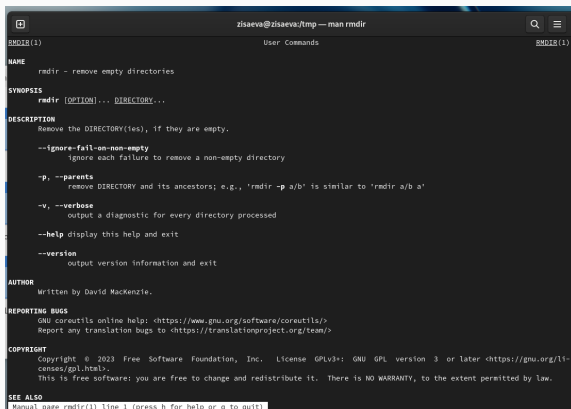
  --help
      display this help and exit

  --version
      output version information and exit

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

Рис. 12: Справка по команде mkdir



```
zisaeva@zisaeva/tmp — 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

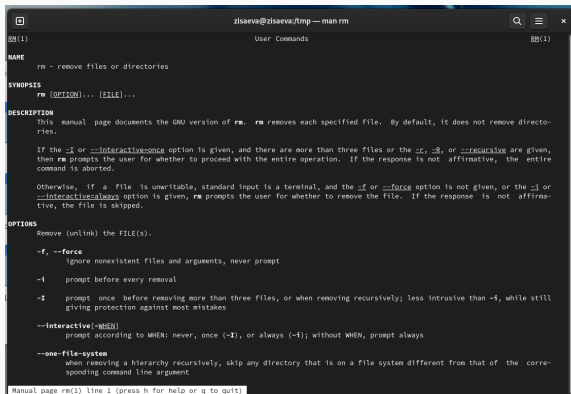
AUTHOR
    Written by David MacKenzie.

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

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    This is free software: you are free to change and redistribute it. There is NO WARRANTY, to the extent permitted by law.

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

Рис. 13: Справка по команде rmdir



```
zlsaeva@zlsaeva/tmp — 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 -r, -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

--interactive=[WHEN]
    prompt according to WHEN: never, once (-I), or always (-i); without WHEN, prompt always

--one-file-system
    when removing a hierarchy recursively, skip any directory that is on a file system different from that of the corresponding command line argument

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

Рис. 14: Справка по команде rm

# История командной строки

```
22 ls -al
23 mkdir newdir
24 mkdir newdir/morefun
25 mkdir letters memos misk
26 ls
27 rm letters/ memos/ misk/
28 rm -r letters/ memos/ misk/
29 rm -r newdir/
30 ls
31 ls -r
32 ls -R
33 ls -t
34 cd /tmp
35 ls -l
36 man cd
37 man pwd
38 man mkdir
39 man rmdir
40 man rm
41 history
zisaeva@zisaeva:/tmp$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

---

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