

# 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.

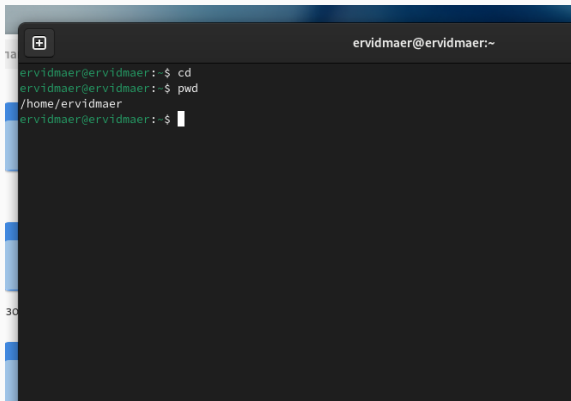
# Задачи лабораторной работы

- 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 titled "ervidmaer@ervidmaer:~" with a plus icon in a square button on the left. The terminal shows the following commands and output:

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

**Рис. 1:** Путь к домашнему каталогу

# Опции команды ls

```
ervidmaer@ervidmaer:~$ cd /tmp
ervidmaer@ervidmaer:/tmp$ ls
dbus-1mU33uSv
dbus-PLCCE3xX
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-chronyd.service-IpGn2b
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-colord.service-Ld08co
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-dbus-broker.service-Eyic3P
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-low-memory-monitor.service-d8wSji
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-ModemManager.service-PHIKxs
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-polkit.service-oxomQg
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-power-profiles-daemon.service-CC2ceq
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-rtkit-daemon.service-L3yXhE
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-switcheroo-control.service-GR7G5r
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-logind.service-d5lh80
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-oond.service-SCZpgR
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-resolved.service-KJG6lc
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-upower.service-XN0DDE
VMwareDnD
vmware-root_936-2697532681
ervidmaer@ervidmaer:/tmp$
```

Рис. 2: Команда ls

# Опции команды ls

```
eravidmaer@eravidmaer: /tmp$ ls -la
..
dbus-1mU33uSv
dbus-PLCCE3xx
.font-unix
.ICE-unix
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-chrond.service-IpGn2b
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-colord.service-Ld00co
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-dbus-broker.service-Eyic3P
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-low-memory-monitor.service-d8w5ji
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-ModemManager.service-PHIXxs
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-polkit.service-oxomQg
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-power-profiles-daemon.service-CCZceq
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-rtkit-daemon.service-LJyXhE
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-switcheroo-control.service-GR765r
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-logind.service-d5lh80
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-oom.service-5CZpgR
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-resolved.service-KJGe1c
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-upower.service-XN00DE
VMwareDnD
vmware-root_936-2697532681
.X0-lock
.X1024-lock
.X1025-lock
.X11-unix
.X1-lock
.XIM-unix
eravidmaer@eravidmaer: /tmp$
```

Рис. 3: Команда ls -a



# Опции команды ls

```
srvlduagervidaer:/tmp$
srvlduagervidaer:/tmp$ ls -l
total 0
srw-rw-rw-. 1 root    root      0  июн 21 08:58 dbus-lm333u3v
srw-rw-rw-. 1 root    root      0  июн 21 08:58 dbus-PLCEE3xx
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-chromyd.service-1p0n2b
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-caldred.service-Ld0nce
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-dbus-broker.service-tyf3JP
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-low-memory-monitor.service-dNe5jI
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-NodeManager.service-PHIXs
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-polkit.service-qx00dQ
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-power-profiles-daemon.service-CG2ceq
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-rsblt-daemon.service-L3yH2
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-switcheroo-control.service-GR765r
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-systemd-logind.service-d51h08
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-systemd-oomd.service-3CZpgk
drwx----- 3 root    root     60  июн 21 08:58 systemd-private-e134c78008aee471f9c8c5c3faf1dd0f-systemd-resolved.service-K3Galc
drwxrwxrwt. 2 srvlduagervidaer 240  июн 21 10:27 VMware-root_534-1627532041
drwx----- 2 root    root     40  июн 21 08:58 VMware-root_534-1627532041
srvlduagervidaer:/tmp$
```

Рис. 4: Команда ls -l

# Опции команды ls

```
ervidmaer@ervidmaer:/tmp$  
ervidmaer@ervidmaer:/tmp$ ls -f  
.  
..  
.X11-unix  
.ICE-unix  
.XIM-unix  
.font-unix  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-oomd.service-SCZpgR  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-resolved.service-KJGe1c  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-dbus-broker.service-Eyic3P  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-chronyd.service-IPGn2b  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-low-memory-monitor.service-d8wSji  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-polkit.service-oxomQg  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-power-profiles-daemon.service-CCZceq  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-rtkit-daemon.service-LJyXhE  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-switcheroo-control.service-GR7G5r  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-systemd-logind.service-dS1h80  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-upower.service-XN0DDE  
vmware-root_936-2697532681  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-ModemManager.service-PHIKxs  
dbus-1mU33uSv  
dbus-PLCCE3xx  
.X1024-lock  
.X1025-lock  
systemd-private-e134c78008ae471f9c8c5c3faf1d8d0f-colord.service-Ld00co  
.X0-lock  
.X1-lock  
VMwareDnD  
ervidmaer@ervidmaer:/tmp$
```

Рис. 5: Команда ls -f

```
ervidmaer@ervidmaer:/tmp$  
ervidmaer@ervidmaer:/tmp$ cd /var/spool/  
ervidmaer@ervidmaer:/var/spool$ ls  
abrt abrt-upload cups lpd mail plymouth  
ervidmaer@ervidmaer:/var/spool$ ls -al  
итого 0  
drwxr-xr-x. 1 root root 68 ноя 1 2023 .  
drwxr-xr-x. 1 root root 200 ноя 1 2023 ..  
drwxr-x--x. 1 root abrt 1510 июн 10 10:47 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 1298 июн 21 08:40 mail  
drwxr-xr-x. 1 root root 0 июл 21 2023 plymouth  
ervidmaer@ervidmaer:/var/spool$
```

Рис. 6: Каталог /var/spool

```
ervidnaer@ervidnaer:~/var/spool$ cd
ervidnaer@ervidnaer:~$ ls
git-extended  work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
ervidnaer@ervidnaer:~$ ls -al
итого 24
drwx-----, 1 ervidnaer ervidnaer 510 июн 21 10:14 .
drwxr-xr-x, 1 root      root      1292 июн 21 08:40 ..
-rw-----, 1 ervidnaer ervidnaer 1588 июн 21 10:34 .bash_history
-rw-r--r--, 1 ervidnaer ervidnaer 18 янв 22 03:00 .bash_logout
-rw-r--r--, 1 ervidnaer ervidnaer 144 янв 22 03:00 .bash_profile
-rw-r--r--, 1 ervidnaer ervidnaer 679 июн 21 10:13 .bashrc
drwx-----, 1 ervidnaer ervidnaer 452 июн 21 10:16 .cache
drwx-----, 1 ervidnaer ervidnaer 376 июн 21 10:16 .config
-rw-r--r--, 1 ervidnaer ervidnaer 334 мар 25 03:00 .emacs
-rw-r--r--, 1 ervidnaer ervidnaer 232 июн 21 09:21 .gitconfig
drwxr-xr-x, 1 ervidnaer ervidnaer 74 июн 21 10:21 git-extended
drwx-----, 1 ervidnaer ervidnaer 136 июн 21 09:20 .gnupg
drwx-----, 1 ervidnaer ervidnaer 28 июн 21 08:59 .local
drwxr-xr-x, 1 ervidnaer ervidnaer 48 июн 21 09:02 .mozilla
drwx-----, 1 ervidnaer ervidnaer 132 июн 21 09:24 .ssh
drwxr-xr-x, 1 ervidnaer ervidnaer 10 июн 21 09:23 work
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Видео
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Документы
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Загрузки
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Изображения
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Музыка
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Общедоступные
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 'Рабочий стол'
drwxr-xr-x, 1 ervidnaer ervidnaer 0 июн 21 08:59 Шаблоны
ervidnaer@ervidnaer:~$
```

Рис. 7: Файлы в домашнем каталоге

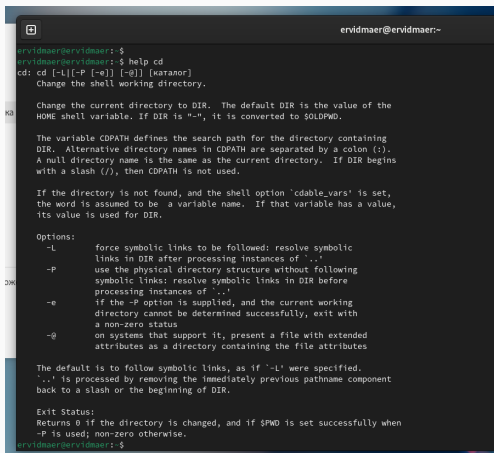
```
orvidea@orvidea:~$  
orvidea@orvidea:~$ mkdir newdir  
orvidea@orvidea:~$ mkdir newdir/morefun  
orvidea@orvidea:~$ mkdir letters memos msk  
orvidea@orvidea:~$ ls  
git-extended  letters  memos  msk  newdir  work  Видео  Документы  Загрузки  Избранное  Музыка  Общедоступно  "Рабочий стол"  Кабинет  
orvidea@orvidea:~$ rm letters/ memos/ msk/  
rm: невозможно удалить 'letters/': это каталог  
rm: невозможно удалить 'memos/': это каталог  
rm: невозможно удалить 'msk/': это каталог  
orvidea@orvidea:~$ rm -r letters/ memos/ msk/  
orvidea@orvidea:~$ rm -r newdir/  
orvidea@orvidea:~$ ls  
git-extended  work  Видео  Документы  Загрузки  Избранное  Музыка  Общедоступно  "Рабочий стол"  Кабинет  
orvidea@orvidea:~$
```

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

Рис. 9: Команда ls -R и ls -t



```
ervidmaer@ervidmaer:~$
ervidmaer@ervidmaer:~$ help cd
cd: cd [-L|[-P [-e]] [-@]] [katanor]
    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.

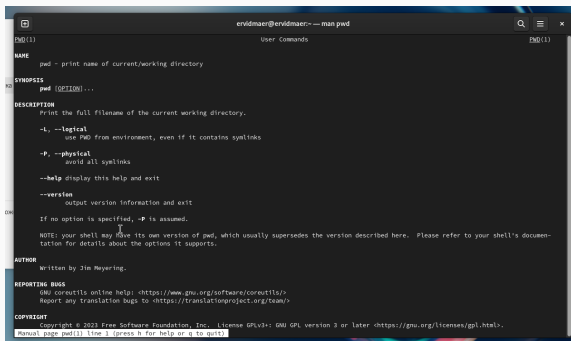
    Options:
    -L      force symbolic links to be followed: resolve symbolic
            links in DIR after processing instances of '..'
    -P      use the physical directory structure without following
            symbolic links: resolve symbolic links in DIR before
            processing instances of '..'
    -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

    The default is to follow symbolic links, as if '-L' were specified.
    '..' is processed by removing the immediately previous pathname component
    back to a slash or the beginning of DIR.

    Exit Status:
    Returns 0 if the directory is changed, and if $PWD is set successfully when
    -P is used; non-zero otherwise.
ervidmaer@ervidmaer:~$
```

Рис. 10: Справка по команде cd

# Справка по командам



```
eridmaer@eridmaer:~ -- 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.

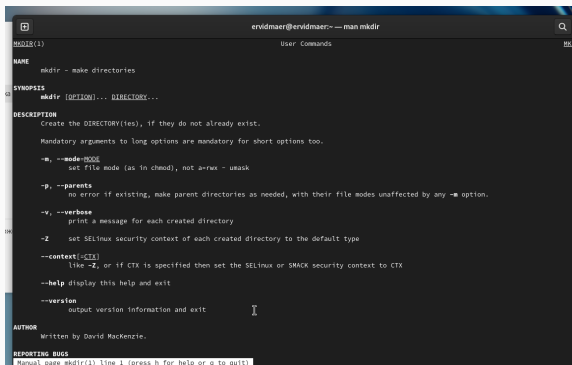
AUTHOR
   Written by Jim Meyering.

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

COPYRIGHT
   Copyright © 2023 Free Software Foundation, Inc. License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
   Manual page pwd(1) line 1 (press h for help or q to quit)
```

Рис. 11: Справка по команде pwd





```
ervidmaer@ervidmaer:~ -- man 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 - uask

  -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

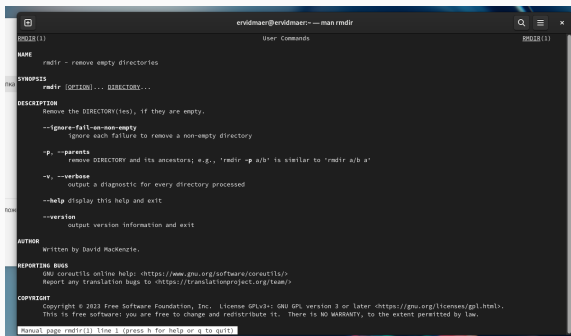
  --version
      output version information and exit

AUTHOR
  Written by David Mackenzie.

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

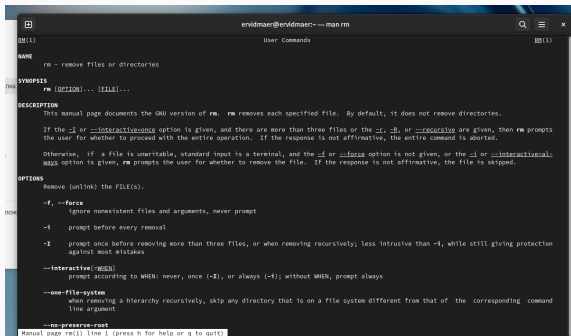
Рис. 12: Справка по команде mkdir

# Справка по командам



```
erivdmaer@erivdmaer:~$ man rmdir
rmdir(1)                                User Commands
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
  Copyright © 2023 Free Software Foundation, Inc. License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
  This is free software; you are free to change and redistribute it. There is NO WARRANTY, to the extent permitted by law.
Manual page rmdir(1) line 1 (press h for help or q to quit)
```

Рис. 13: Справка по команде rmdir



```
ervidmaer@ervidmaer:~$ 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-ways
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

--no-preserve-root
    Manual page rm(1) line 1 (press h for help or q to quit)
```

Рис. 14: Справка по команде rm

# История командной строки

```
69 ls -al
70 mkdir newdir
71 cd
72 ls
73 ls -al
74 mkdir newdir
75 mkdir newdir/morefun
76 mkdir letters memos misk
77 ls
78 rm letters/ memos/ misk/
79 rm -r letters/ memos/ misk/
80 rm -r newdir/
81 ls
82 ls -R
83 ls -t
84 help cd
85 man pwd
86 man mkdir
87 man rmdir
88 man rm
89 history
ervidmaer@ervidmaer:~$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

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