

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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Цели и задачи работы

Цель лабораторной работы

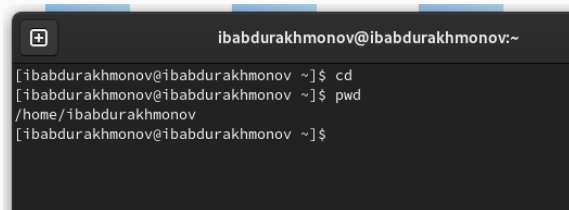
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

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

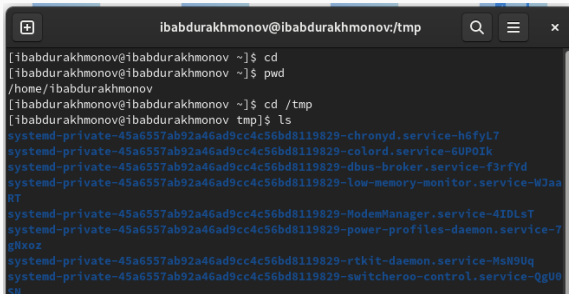
Имя и путь к домашнему каталогу



```
ibabdurakhmonov@ibabdurakhmonov:~  
[ibabdurakhmonov@ibabdurakhmonov ~]$ cd  
[ibabdurakhmonov@ibabdurakhmonov ~]$ pwd  
/home/ibabdurakhmonov  
[ibabdurakhmonov@ibabdurakhmonov ~]$
```

Рис. 1: Путь к домашнему каталогу

Опции команды ls



```
ibabdurakhmonov@ibabdurakhmonov:tmp
[ibabdurakhmonov@ibabdurakhmonov ~]$ cd
[ibabdurakhmonov@ibabdurakhmonov ~]$ pwd
/home/ibabdurakhmonov
[ibabdurakhmonov@ibabdurakhmonov ~]$ cd /tmp
[ibabdurakhmonov@ibabdurakhmonov tmp]$ ls
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-chrond.service-h6fyL7
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-colord.service-6UP0Ik
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-dbus-broker.service-f3rfYd
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-low-memory-monitor.service-WJaa
RT
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-ModemManager.service-4IDLsT
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-power-profiles-daemon.service-7
gHxoz
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-rtkit-daemon.service-MsN9Uq
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-switcheroo-control.service-QgU0
sh
```

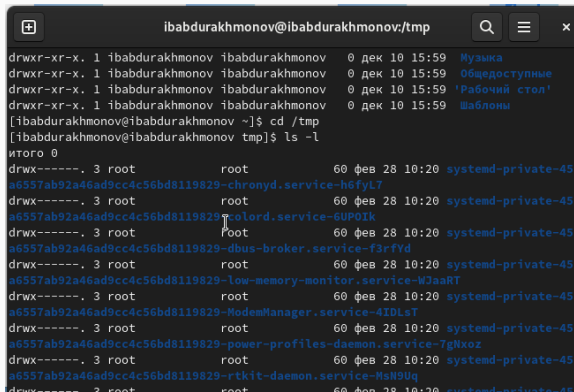
Рис. 2: Команда ls

Опции команды ls

```
[ibabdurakhmonov@ibabdurakhmonov tmp]$ ls -la
..
.font-unix
.ICE-unix
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-chronyd.service-h6fyL7
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-colord.service-6UP0Ik
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-dbus-broker.service-f3rfYd
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-low-memory-monitor.service-WJaa
RT
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-ModemManager.service-4IDLsT
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-power-profiles-daemon.service-7
gNxoz
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-rtkit-daemon.service-MsN9Uq
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-switcheroo-control.service-QgU0
```

Рис. 3: Команда ls -la

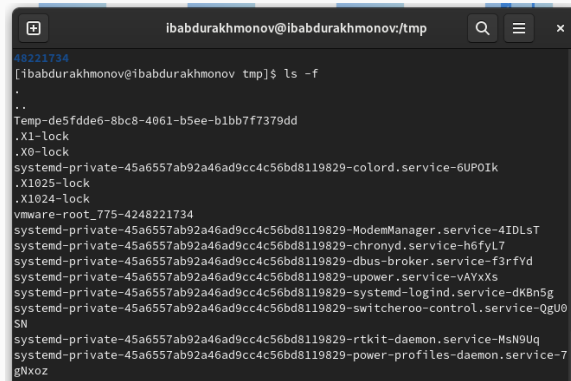
Опции команды ls



```
ibabdurakhmonov@ibabdurakhmonov:/tmp
drwxr-xr-x. 1 ibabdurakhmonov ibabdurakhmonov 0 дек 10 15:59 Музыка
drwxr-xr-x. 1 ibabdurakhmonov ibabdurakhmonov 0 дек 10 15:59 Общедоступные
drwxr-xr-x. 1 ibabdurakhmonov ibabdurakhmonov 0 дек 10 15:59 'Рабочий стол'
drwxr-xr-x. 1 ibabdurakhmonov ibabdurakhmonov 0 дек 10 15:59 Шаблоны
[ibabdurakhmonov@ibabdurakhmonov ~]$ cd /tmp
[ibabdurakhmonov@ibabdurakhmonov tmp]$ ls -l
итого 0
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-chronyd.service-h6fyL7
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-polord.service-6UP0Ik
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-dbus-broker.service-f3rfYd
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-low-memory-monitor.service-WJaaRT
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-ModemManager.service-4IDLsT
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-power-profiles-daemon.service-7gNxoZ
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
a6557ab92a46ad9cc4c56bd8119829-rtkit-daemon.service-MsN9Uq
drwx-----, 3 root root 60 фев 28 10:20 systemd-private-45
```

Рис. 4: Команда ls -l

Опции команды ls

A terminal window with a dark background and light text. The title bar shows the user 'ibabdurakhmonov' and the current directory 'tmp'. The command 'ls -f' has been executed, displaying a list of files and directories. The output includes standard entries like '.', '..', and '.X1-lock', as well as various system and user files with long names and permissions.

```
ibabdurakhmonov@ibabdurakhmonov:tmp
48221734
[ibabdurakhmonov@ibabdurakhmonov tmp]$ ls -f
.
..
Temp-de5fdde6-8bc8-4061-b5ee-b1bb7f7379dd
.X1-lock
.X0-lock
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-colord.service-6UP0Ik
.X1025-lock
.X1024-lock
vmware-root_775-4248221734
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-ModemManager.service-4IDLsT
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-chronyd.service-h6fyL7
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-dbus-broker.service-f3rfYd
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-upower.service-vAYxXs
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-systemd-logind.service-dKBn5g
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-switcheroo-control.service-QgU0
SN
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-rtkit-daemon.service-MsN9Uq
systemd-private-45a6557ab92a46ad9cc4c56bd8119829-power-profiles-daemon.service-7
gNxoz
```

Рис. 5: Команда ls -f

```
[ibabdurakhmonov@ibabdurakhmonov tmp]$  
[ibabdurakhmonov@ibabdurakhmonov tmp]$ cd /var/spool/  
[ibabdurakhmonov@ibabdurakhmonov spool]$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 578 фев 21 15:05 abrt  
drwx-----. 1 abrt abrt  0 мар 11 2022 abrt-upload  
drwx--x---. 1 root lp    6 окт  3 11:46 cups  
drwxr-xr-x. 1 root root  0 авг  9 2022 lpd  
drwxrwxr-x. 1 root mail 910 фев 24 11:56 mail  
drwxr-xr-x. 1 root root  0 мар  7 2022 plymouth  
[ibabdurakhmonov@ibabdurakhmonov spool]$
```

Рис. 6: Каталог /var/spool

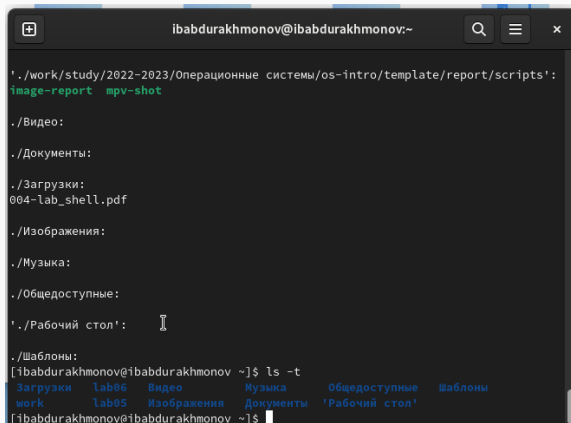
```
[ibabdurakhmonov@ibabdurakhmonov spool]$  
[ibabdurakhmonov@ibabdurakhmonov spool]$ cd  
[ibabdurakhmonov@ibabdurakhmonov ~]$ ld  
ld: отсутствуют входные файлы  
[ibabdurakhmonov@ibabdurakhmonov ~]$ ls  
lab05  work  Документы  Изображения  Общедоступные  Шаблоны  
lab06  Видео  Загрузки  Музыка      'Рабочий стол'  
[ibabdurakhmonov@ibabdurakhmonov ~]$ ls -al  
итого 20  
drwx-----, 1 ibabdurakhmonov ibabdurakhmonov 518 фев 16 11:10 .  
drwxr-xr-x, 1 root root 904 фев 24 11:56 ..  
-rw-----, 1 ibabdurakhmonov ibabdurakhmonov 2897 фев 28 10:20 .bash_history  
-rw-r--r--, 1 ibabdurakhmonov ibabdurakhmonov 18 окт 11 17:45 .bash_logout  
-rw-r--r--, 1 ibabdurakhmonov ibabdurakhmonov 141 окт 11 17:45 .bash_profile  
-rw-r--r--, 1 ibabdurakhmonov ibabdurakhmonov 492 окт 11 17:45 .bashrc  
drwx-----, 1 ibabdurakhmonov ibabdurakhmonov 418 фев 16 11:47 .cache  
drwx-----, 1 ibabdurakhmonov ibabdurakhmonov 334 фев 21 18:22 .config  
-rw-r--r--, 1 ibabdurakhmonov ibabdurakhmonov 235 фев 16 11:08 .gitconfig  
drwx-----, 1 ibabdurakhmonov ibabdurakhmonov 134 фев 21 18:37 .gnupg  
drwxr-xr-x, 1 ibabdurakhmonov ibabdurakhmonov 322 дек 10 16:13 lab05
```

Рис. 7: Файлы в домашнем каталоге

```
[ibabdurakhmonov@ibabdurakhmonov ~]$  
[ibabdurakhmonov@ibabdurakhmonov ~]$  
[ibabdurakhmonov@ibabdurakhmonov ~]$ mkdir newdir  
[ibabdurakhmonov@ibabdurakhmonov ~]$ mkdir newdir/morefun  
[ibabdurakhmonov@ibabdurakhmonov ~]$ mkdir letters memos misk  
[ibabdurakhmonov@ibabdurakhmonov ~]$ ls  
lab05  memos  work      Загрузки      Общедоступные  
lab06  misk   Видео     Изображения   'Рабочий стол'  
letters newdir  Документы Музыка         Шаблоны  
[ibabdurakhmonov@ibabdurakhmonov ~]$ rm letters/ memos/ misk/  
rm: невозможно удалить 'letters/': Это каталог  
rm: невозможно удалить 'memos/': Это каталог  
rm: невозможно удалить 'misk/': Это каталог  
[ibabdurakhmonov@ibabdurakhmonov ~]$ rm -r letters/ memos/ misk/  
[ibabdurakhmonov@ibabdurakhmonov ~]$ rm -r newdir/  
[ibabdurakhmonov@ibabdurakhmonov ~]$ ls  
lab05  work  Документы  Изображения  Общедоступные  Шаблоны  
lab06  Видео  Загрузки   Музыка       'Рабочий стол'  
[ibabdurakhmonov@ibabdurakhmonov ~]$  
[ibabdurakhmonov@ibabdurakhmonov ~]$
```

Рис. 8: Действия с каталогами

Опции команды ls



A terminal window titled 'ibabdurakhmonov@ibabdurakhmonov:~' showing a directory listing. The user has run the command 'ls -t' in the directory '/work/study/2022-2023/Операционные системы/os-intro/template/report/scripts'. The output shows a list of directories and files sorted by modification time. The terminal text is as follows:

```
'./work/study/2022-2023/Операционные системы/os-intro/template/report/scripts':
image-report mpv-shot

./Видео:

./Документы:

./Загрузки:
004-lab_shell.pdf

./Изображения:

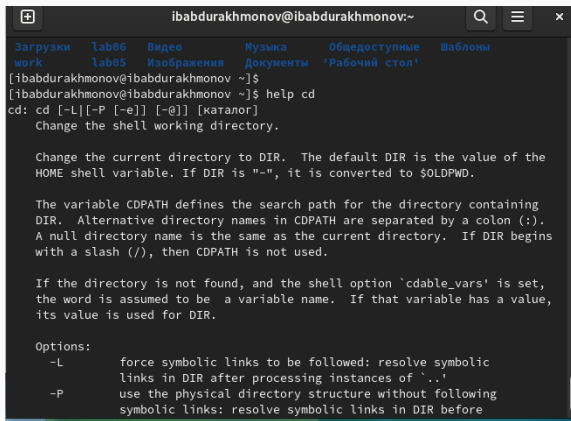
./Музыка:

./Общедоступные:

'./Рабочий стол':

./Шаблоны:
[ibabdurakhmonov@ibabdurakhmonov ~]$ ls -t
Загрузки  lab06  Видео  Музыка  Общедоступные  Шаблоны
work      lab05  Изображения  Документы  'Рабочий стол'
```

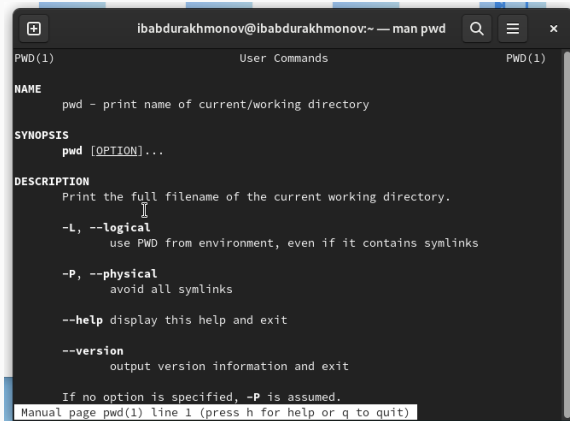
Рис. 9: Команда ls -R и ls -t



```
ibabdurakhmonov@ibabdurakhmonov:~  
Загрузки lab06 Видео Музыка Общедоступные Шаблоны  
work lab05 Изображения Документы 'Рабочий стол'  
[ibabdurakhmonov@ibabdurakhmonov ~]$  
[ibabdurakhmonov@ibabdurakhmonov ~]$ 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
```

Рис. 10: Справка по команде cd

Справка по командам



```
ibabdurakhmonov@ibabdurakhmonov:~ — 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

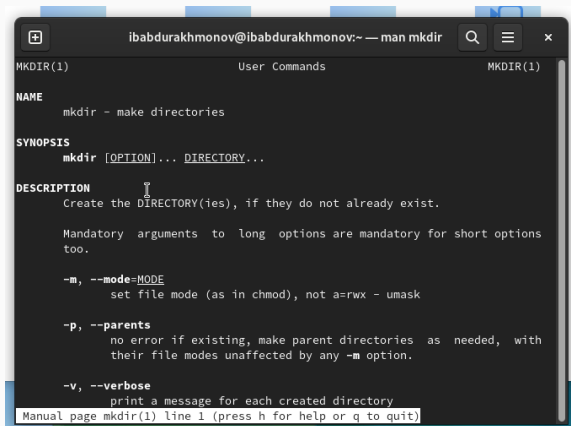
    --version
        output version information and exit

    If no option is specified, -P is assumed.

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

Рис. 11: Справка по команде pwd

Справка по командам



```
ibabdurakhmonov@ibabdurakhmonov:~ — 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.

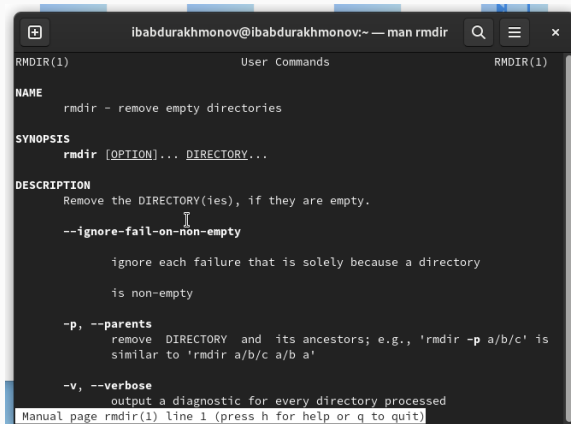
    -m, --mode=MODE
        set file mode (as in chmod), not a=rwx - umask

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

Рис. 12: Справка по команде mkdir

Справка по командам



```
ibabdurakhmonov@ibabdurakhmonov:~ — 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.

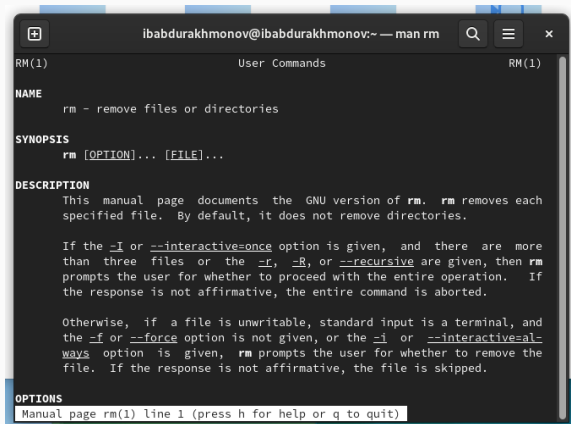
    --ignore-fail-on-non-empty
        ignore each failure that is solely because a directory
        is non-empty

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

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

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

Рис. 13: Справка по команде rmdir



```
ibabdurakhmonov@ibabdurakhmonov:~ — 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.

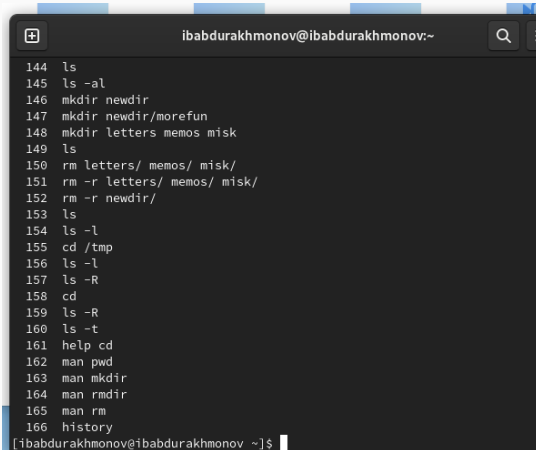
    If the -I or --interactive=once option is given, and there are more
    than three files or the -r, -R, or --recursive are given, then rm
    prompts the user for whether to proceed with the entire operation. If
    the response is not affirmative, the entire command is aborted.

    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=al-
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
    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 titled 'ibabdurakhmonov@ibabdurakhmonov:~' with a search icon and a menu icon in the top right. The terminal displays a list of 16 commands, each preceded by a line number from 144 to 166. The commands are: 144 ls, 145 ls -al, 146 mkdir newdir, 147 mkdir newdir/morefun, 148 mkdir letters memos misk, 149 ls, 150 rm letters/ memos/ misk/, 151 rm -r letters/ memos/ misk/, 152 rm -r newdir/, 153 ls, 154 ls -l, 155 cd /tmp, 156 ls -l, 157 ls -R, 158 cd, 159 ls -R, 160 ls -t, 161 help cd, 162 man pwd, 163 man mkdir, 164 man rmdir, 165 man rm, and 166 history. The prompt '[ibabdurakhmonov@ibabdurakhmonov ~]\$' is visible at the bottom with a cursor.

```
144 ls
145 ls -al
146 mkdir newdir
147 mkdir newdir/morefun
148 mkdir letters memos misk
149 ls
150 rm letters/ memos/ misk/
151 rm -r letters/ memos/ misk/
152 rm -r newdir/
153 ls
154 ls -l
155 cd /tmp
156 ls -l
157 ls -R
158 cd
159 ls -R
160 ls -t
161 help cd
162 man pwd
163 man mkdir
164 man rmdir
165 man rm
166 history
[ibabdurakhmonov@ibabdurakhmonov ~]$
```

Рис. 15: Команда history

Выводы по проделанной работе

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