

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

Юсуф Абдулаев¹

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¹Российский Университет Дружбы Народов

Цели и задачи работы

Цель лабораторной работы

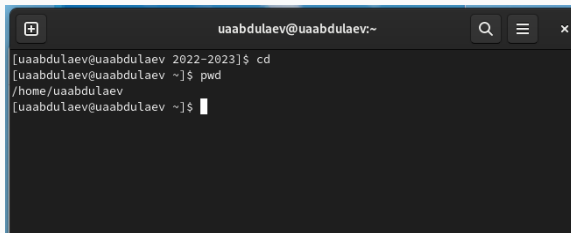
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

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

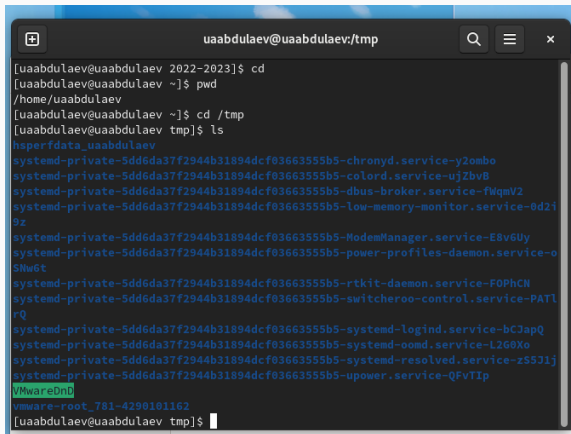
Имя и путь к домашнему каталогу



```
uaabdulaev@uaabdulaev:~  
[uaabdulaev@uaabdulaev 2022-2023]$ cd  
[uaabdulaev@uaabdulaev ~]$ pwd  
/home/uaabdulaev  
[uaabdulaev@uaabdulaev ~]$
```

Рис. 1: Путь к домашнему каталогу

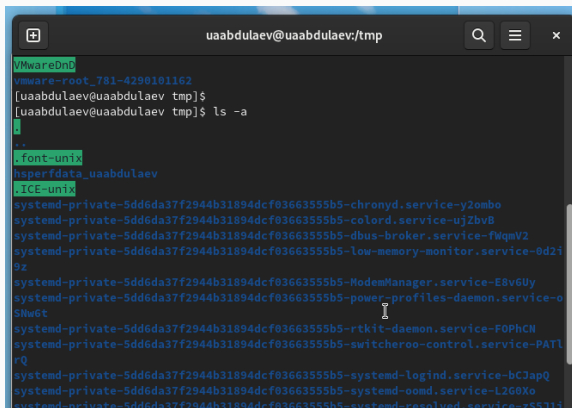
Опции команды ls



```
uaabdulaev@uaabdulaev/tmp
[uaabdulaev@uaabdulaev 2022-2023]$ cd
[uaabdulaev@uaabdulaev ~]$ pwd
/home/uaabdulaev
[uaabdulaev@uaabdulaev ~]$ cd /tmp
[uaabdulaev@uaabdulaev tmp]$ ls
hsperfdata_uaabdulaev
systemd-private-5dd6da37f2944b31894dcf03663555b5-chronyd.service-y2omBo
systemd-private-5dd6da37f2944b31894dcf03663555b5-colord.service-ujZbv8
systemd-private-5dd6da37f2944b31894dcf03663555b5-dbus-broker.service-fWqmV2
systemd-private-5dd6da37f2944b31894dcf03663555b5-low-memory-monitor.service-0d2i
9z
systemd-private-5dd6da37f2944b31894dcf03663555b5-ModemManager.service-E8v6Uy
systemd-private-5dd6da37f2944b31894dcf03663555b5-power-profiles-daemon.service-o
SNw6t
systemd-private-5dd6da37f2944b31894dcf03663555b5-rtkit-daemon.service-F0PhCN
systemd-private-5dd6da37f2944b31894dcf03663555b5-switcheroo-control.service-PATl
rQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-logind.service-bCJapQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-oomd.service-L2G0Xo
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-resolved.service-z55Jlj
systemd-private-5dd6da37f2944b31894dcf03663555b5-upower.service-QFvTIp
VMwareDnD
vmware-root_781-4290101162
[uaabdulaev@uaabdulaev tmp]$
```

Рис. 2: Команда ls

Опции команды ls

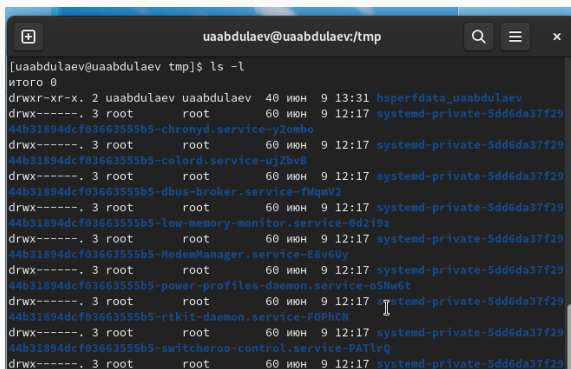


The screenshot shows a terminal window with the title bar 'uaabdulaev@uaabdulaev:/tmp'. The prompt is '[uaabdulaev@uaabdulaev tmp]\$'. The command 'ls -a' has been entered and executed. The output lists hidden files and directories, including '.font-unix', '.ICE-unix', and various systemd-private directories. The terminal has a dark background with light-colored text.

```
VMwareDnD
vmware-root_781-4290101162
[uaabdulaev@uaabdulaev tmp]$
[uaabdulaev@uaabdulaev tmp]$ ls -a
.
..
.font-unix
hsperfdata_uaabdulaev
.ICE-unix
systemd-private-5dd6da37f2944b31894dcf03663555b5-chronyd.service-y2omBo
systemd-private-5dd6da37f2944b31894dcf03663555b5-colord.service-ujZbvB
systemd-private-5dd6da37f2944b31894dcf03663555b5-dbus-broker.service-fWqmV2
systemd-private-5dd6da37f2944b31894dcf03663555b5-low-memory-monitor.service-0d2i
9z
systemd-private-5dd6da37f2944b31894dcf03663555b5-ModemManager.service-E8v6Uy
systemd-private-5dd6da37f2944b31894dcf03663555b5-power-profiles-daemon.service-o
SNwGt
systemd-private-5dd6da37f2944b31894dcf03663555b5-rtkit-daemon.service-F0PhCN
systemd-private-5dd6da37f2944b31894dcf03663555b5-switcheroo-control.service-PATl
rQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-logind.service-bCJapQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-oomd.service-L2G0Xo
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-resolved.service-z557ii
```

Рис. 3: Команда ls -a

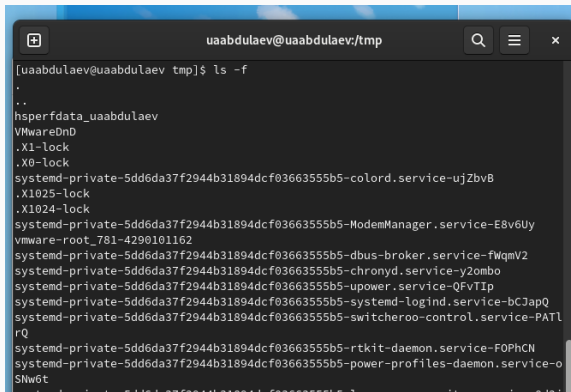
Опции команды ls



```
[uaabdulaev@uaabdulaev tmp]$ ls -l
итого 0
drwxr-xr-x. 2 uaabdulaev uaabdulaev 40 июн  9 13:31 hsperfdata_uaabdulaev
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-chronyd.service-y2ombo
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-colord.service-ujZbv8
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-dbus-broker.service-fWqmV2
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-low-memory-monitor.service-0d2i9z
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-ModemManager.service-E8v6Uy
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-power-profiles-daemon.service-o5Nw6t
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-rtkit-daemon.service-FOPhCN
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
44b31894dcf03663555b5-switcheroo-control.service-PATlrQ
drwx-----, 3 root      root      60 июн  9 12:17 systemd-private-5dd6da37f29
```

Рис. 4: Команда ls -l

Опции команды ls

A terminal window with a dark background and light text. The title bar shows the user 'uaabdulaev' and the directory '/tmp'. The prompt is '[uaabdulaev@uaabdulaev tmp]\$'. The command 'ls -f' has been entered, and the output is a list of files and directories. The output includes: '.', '..', 'hsperfdata_uaabdulaev', 'VMwareDnD', '.X1-lock', '.X0-lock', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-colord.service-ujZbvB', '.X1025-lock', '.X1024-lock', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-ModemManager.service-E8v6Uy', 'vmware-root_781-4290101162', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-dbus-broker.service-fwqmV2', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-chronyd.service-y2ombo', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-upower.service-QFvTip', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-logind.service-bCJapQ', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-switcheroo-control.service-PATLRQ', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-rtkit-daemon.service-FOPhCN', 'systemd-private-5dd6da37f2944b31894dcf03663555b5-power-profiles-daemon.service-OSNw6t', and 'systemd-private-5dd6da37f2944b31894dcf03663555b5-low-memory-monitor.service-9d3i'.

```
[uaabdulaev@uaabdulaev tmp]$ ls -f
.
..
hsperfdata_uaabdulaev
VMwareDnD
.X1-lock
.X0-lock
systemd-private-5dd6da37f2944b31894dcf03663555b5-colord.service-ujZbvB
.X1025-lock
.X1024-lock
systemd-private-5dd6da37f2944b31894dcf03663555b5-ModemManager.service-E8v6Uy
vmware-root_781-4290101162
systemd-private-5dd6da37f2944b31894dcf03663555b5-dbus-broker.service-fwqmV2
systemd-private-5dd6da37f2944b31894dcf03663555b5-chronyd.service-y2ombo
systemd-private-5dd6da37f2944b31894dcf03663555b5-upower.service-QFvTip
systemd-private-5dd6da37f2944b31894dcf03663555b5-systemd-logind.service-bCJapQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-switcheroo-control.service-PATLRQ
systemd-private-5dd6da37f2944b31894dcf03663555b5-rtkit-daemon.service-FOPhCN
systemd-private-5dd6da37f2944b31894dcf03663555b5-power-profiles-daemon.service-OSNw6t
systemd-private-5dd6da37f2944b31894dcf03663555b5-low-memory-monitor.service-9d3i
```

Рис. 5: Команда ls -f

```
[uaabdulaev@uaabdulaev tmp]$  
[uaabdulaev@uaabdulaev tmp]$ cd /var/spool  
[uaabdulaev@uaabdulaev spool]$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 650 мая 8 11:54 abrt  
drwx-----. 1 abrt abrt 0 мар 11 2022 abrt-upload  
drwx--x---. 1 root lp 6 окт 3 2022 cups  
drwxr-xr-x. 1 root root 0 авг 9 2022 lpd  
drwxrwxr-x. 1 root mail 806 мая 19 10:09 mail  
drwxr-xr-x. 1 root root 0 мар 7 2022 plymouth  
[uaabdulaev@uaabdulaev spool]$
```

Рис. 6: Каталог /var/spool

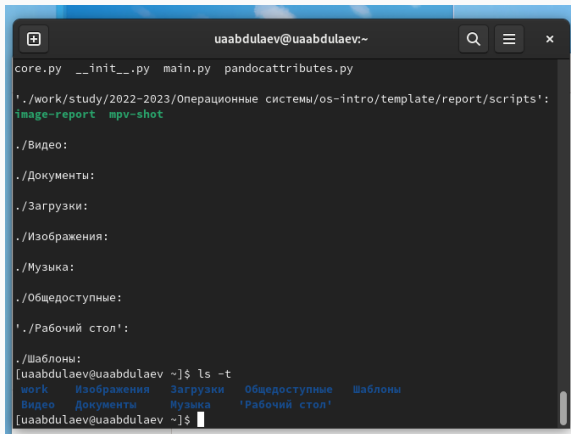
```
[uaabdulaev@uaabdulaev spool]$  
[uaabdulaev@uaabdulaev spool]$ cd  
[uaabdulaev@uaabdulaev ~]$ ls  
work  Документы  Изображения  Общедоступные  Шаблоны  
Видео  Загрузки  Музыка  'Рабочий стол'  
[uaabdulaev@uaabdulaev ~]$ ls -al  
итого 24  
drwx----- 1 uaabdulaev uaabdulaev 498 июн  9 13:14 .  
drwxr-xr-x. 1 root      root      800 мая 19 10:09 ..  
-rw----- 1 uaabdulaev uaabdulaev 6568 июн  9 13:55 .bash_history  
-rw-r--r-- 1 uaabdulaev uaabdulaev  18 окт 11 2022 .bash_logout  
-rw-r--r-- 1 uaabdulaev uaabdulaev 141 окт 11 2022 .bash_profile  
-rw-r--r-- 1 uaabdulaev uaabdulaev 492 окт 11 2022 .bashrc  
drwx----- 1 uaabdulaev uaabdulaev 412 июн  9 12:20 .cache  
drwx----- 1 uaabdulaev uaabdulaev 334 июн  9 13:14 .config  
-rw-r--r-- 1 uaabdulaev uaabdulaev 233 июн  9 13:14 .gitconfig  
drwx----- 1 uaabdulaev uaabdulaev 134 июн  9 13:39 .gnupg  
drwx----- 1 uaabdulaev uaabdulaev  20 ноя 18 2022 .local  
drwxr-xr-x. 1 uaabdulaev uaabdulaev  48 июн  9 12:20 .mozilla  
drwx----- 1 uaabdulaev uaabdulaev 132 июн  9 13:15 .ssh  
drwxr-xr-x. 1 uaabdulaev uaabdulaev  18 ноя 18 2022 .texlive2022  
drwxr-xr-x. 1 uaabdulaev uaabdulaev  10 ноя 18 2022 work
```

Рис. 7: Файлы в домашнем каталоге

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

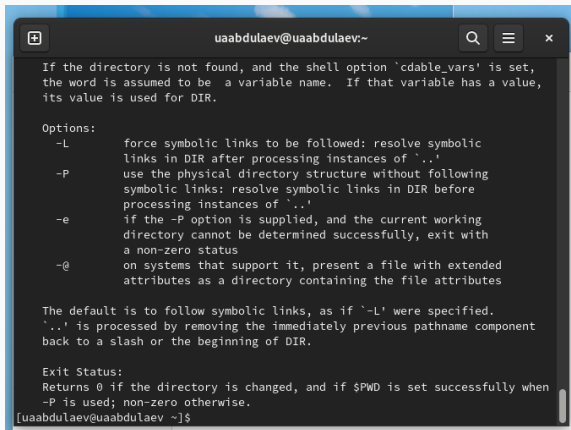
Рис. 8: Действия с каталогами

Опции команды ls



```
uaabdulaev@uaabdulaev:~  
core.py __init__.py main.py pandocattributes.py  
'./work/study/2022-2023/Операционные системы/os-intro/template/report/scripts':  
image-report mpv-shot  
  
./Видео:  
./Документы:  
./Загрузки:  
./Изображения:  
./Музыка:  
./Общедоступные:  
'./Рабочий стол':  
./Шаблоны:  
[uaabdulaev@uaabdulaev ~]$ ls -t  
work      Изображения  Загрузки    Общедоступные  Шаблоны  
Видео     Документы    Музыка      'Рабочий стол'  
[uaabdulaev@uaabdulaev ~]$
```

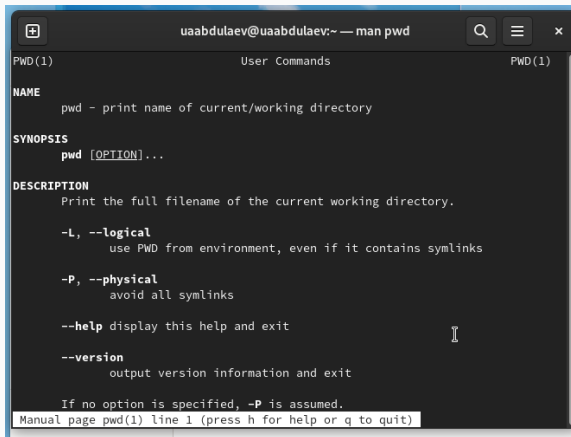
Рис. 9: Команда ls -R и ls -t



```
uaabdulaev@uaabdulaev:~  
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 $PWD is set successfully when  
-P is used; non-zero otherwise.  
[uaabdulaev@uaabdulaev ~]$
```

Рис. 10: Справка по команде cd

Справка по командам



A terminal window titled "uaabdulaev@uaabdulaev:~ — man pwd" displays the manual page for the `pwd` command. The window has a dark background and a light blue title bar. The terminal content is as follows:

```
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

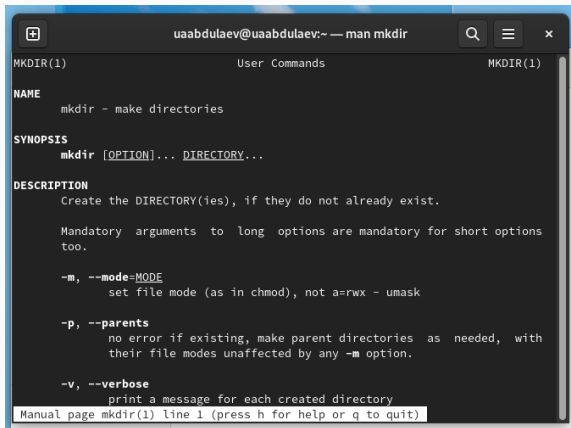
    --help display this help and exit

    --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



A terminal window titled "uaabdulaev@uaabdulaev:~ — man mkdir" displays the manual page for the "mkdir" command. The window has a dark background with light text. The terminal content is as follows:

```
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.

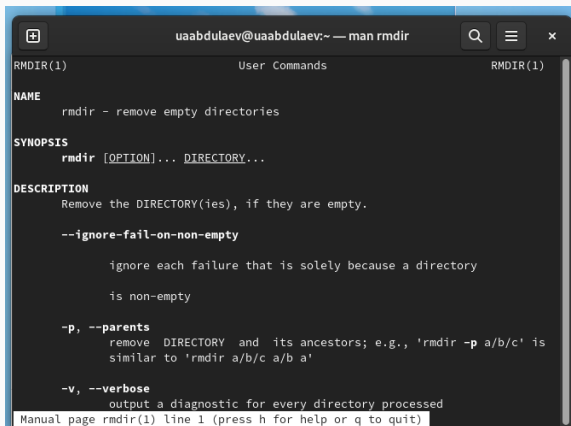
    -m, --mode=MODE
        set file mode (as in chmod), not a=rwx - umask

    -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



```
uaabdulaev@uaabdulaev:~ — 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.

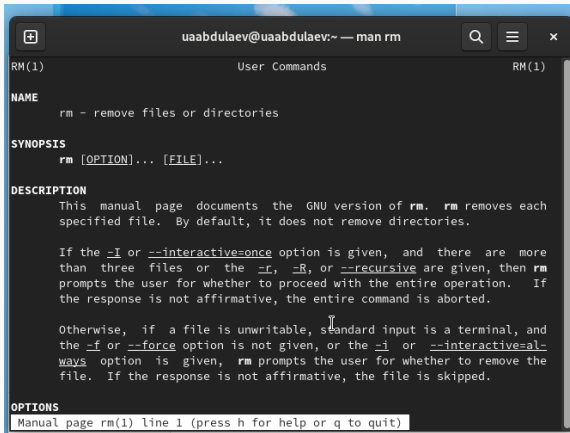
    --ignore-fail-on-non-empty
        ignore each failure that is solely because a directory
        is non-empty

    -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



```
uaabdulaev@uaabdulaev:~ — 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.

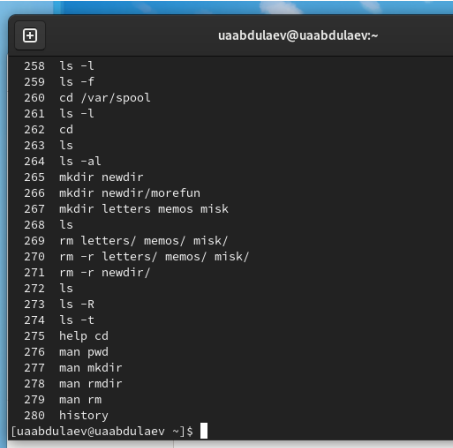
  If the -I or --interactive=once option is given, and there are more
  than three files or the -r, -R, or --recursive are given, then rm
  prompts the user for whether to proceed with the entire operation. If
  the response is not affirmative, the entire command is aborted.

  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 with a dark background and light text. The title bar at the top shows a window icon and the text 'uaabdulaev@uaabdulaev:~'. The terminal displays a list of 28 commands, each preceded by a line number from 258 to 280. The commands are: 'ls -l', 'ls -f', 'cd /var/spool', 'ls -l', 'cd', 'ls', 'ls -al', 'mkdir newdir', 'mkdir newdir/morefun', 'mkdir letters memos misk', 'ls', 'rm letters/ memos/ misk/', 'rm -r letters/ memos/ misk/', 'rm -r newdir/', 'ls', 'ls -R', 'ls -t', 'help cd', 'man pwd', 'man mkdir', 'man rmdir', 'man rm', and 'history'. The prompt '[uaabdulaev@uaabdulaev ~]\$' is visible at the bottom, followed by a cursor.

```
uaabdulaev@uaabdulaev:~  
258 ls -l  
259 ls -f  
260 cd /var/spool  
261 ls -l  
262 cd  
263 ls  
264 ls -al  
265 mkdir newdir  
266 mkdir newdir/morefun  
267 mkdir letters memos misk  
268 ls  
269 rm letters/ memos/ misk/  
270 rm -r letters/ memos/ misk/  
271 rm -r newdir/  
272 ls  
273 ls -R  
274 ls -t  
275 help cd  
276 man pwd  
277 man mkdir  
278 man rmdir  
279 man rm  
280 history  
[uaabdulaev@uaabdulaev ~]$
```

Рис. 15: Команда history

Выводы по проделанной работе

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