

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

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Цели и задачи работы

Цель лабораторной работы

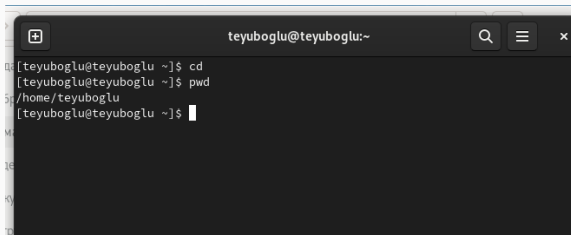
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

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

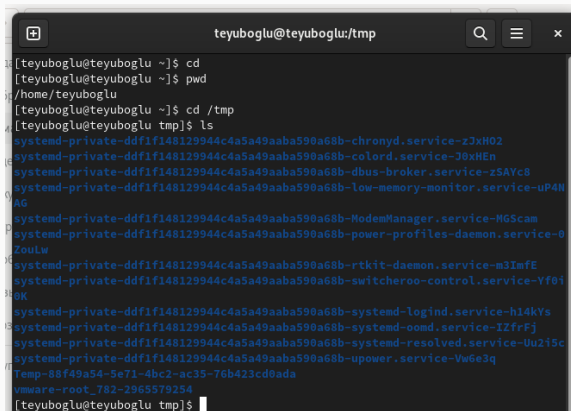
Имя и путь к домашнему каталогу



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

Рис. 1: Путь к домашнему каталогу

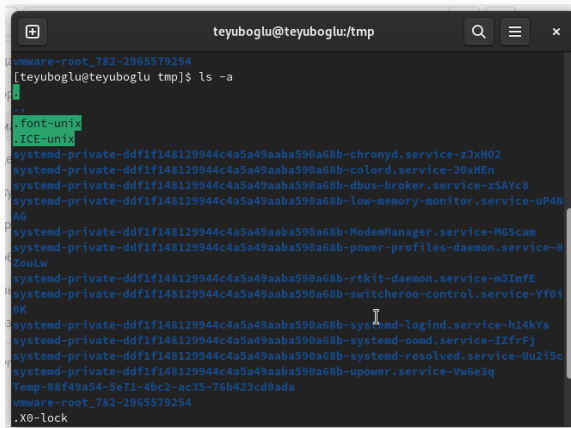
Опции команды ls



```
teyuboglu@teyuboglu:/tmp
[teyuboglu@teyuboglu ~]$ cd
[teyuboglu@teyuboglu ~]$ pwd
/home/teyuboglu
[teyuboglu@teyuboglu ~]$ cd /tmp
[teyuboglu@teyuboglu tmp]$ ls
systemd-private-ddf1f148129944c4a5a49aaba590a68b-chrond.service-zJxH02
systemd-private-ddf1f148129944c4a5a49aaba590a68b-colord.service-J6xHEn
systemd-private-ddf1f148129944c4a5a49aaba590a68b-dbus-broker.service-zSAYc8
systemd-private-ddf1f148129944c4a5a49aaba590a68b-low-memory-monitor.service-uP4H
AG
systemd-private-ddf1f148129944c4a5a49aaba590a68b-ModemManager.service-MGScam
systemd-private-ddf1f148129944c4a5a49aaba590a68b-power-profiles-daemon.service-0
Zoulw
systemd-private-ddf1f148129944c4a5a49aaba590a68b-rtkit-daemon.service-m3ImfE
systemd-private-ddf1f148129944c4a5a49aaba590a68b-switcheroo-control.service-Yf0i
6K
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-logind.service-h14kYs
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-oomd.service-IZfrFj
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-resolved.service-Uu2i5c
systemd-private-ddf1f148129944c4a5a49aaba590a68b-upower.service-Vw6e3q
Temp-88f49a54-5e71-4bc2-ac35-76b423cd0ada
vmware-root_782-2965579254
[teyuboglu@teyuboglu tmp]$
```

Рис. 2: Команда ls

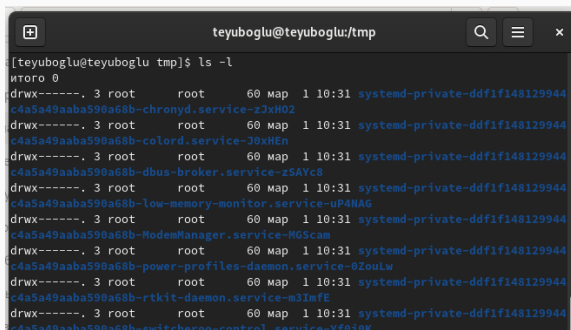
Опции команды ls



```
teyuboglu@teyuboglu:/tmp
vmware-root_782-2965579254
[teyuboglu@teyuboglu tmp]$ ls -a
.
..
.font-unix
.ICE-unix
systemd-private-ddf1f148129944c4a5a49aaba590a68b-chronyd.service-z3xH02
systemd-private-ddf1f148129944c4a5a49aaba590a68b-colord.service-J0xHEn
systemd-private-ddf1f148129944c4a5a49aaba590a68b-dbus-broker.service-zSAYc8
systemd-private-ddf1f148129944c4a5a49aaba590a68b-low-memory-monitor.service-uP4N
AG
systemd-private-ddf1f148129944c4a5a49aaba590a68b-ModemManager.service-MG5cam
systemd-private-ddf1f148129944c4a5a49aaba590a68b-power-profiles-daemon.service-0
ZouLw
systemd-private-ddf1f148129944c4a5a49aaba590a68b-rtkit-daemon.service-m3ImfE
systemd-private-ddf1f148129944c4a5a49aaba590a68b-switcheroo-control.service-Yf0i
0K
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-logind.service-h14kYs
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-oomd.service-IZfrFj
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-resolved.service-Uu2i5c
systemd-private-ddf1f148129944c4a5a49aaba590a68b-upower.service-Vw6e3q
Temp-88f49a54-5e71-4bc2-ac35-76b423cd0ada
vmware-root_782-2965579254
.X0-lock
```

Рис. 3: Команда ls -a

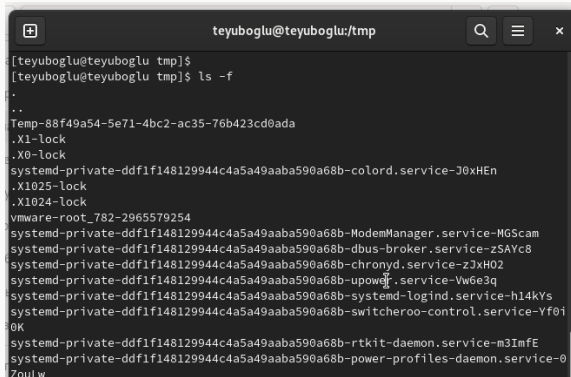
Опции команды ls



```
[teyuboglu@teyuboglu tmp]$ ls -l
итого 0
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-chronyd.service-zJxH02
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-colord.service-J0xHEN
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-dbus-broker.service-z5AYc8
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-low-memory-monitor.service-uP4NAG
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-ModemManager.service-MGScam
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-power-profiles-daemon.service-0ZoulW
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-rtkit-daemon.service-m3ImfE
drwx-----, 3 root    root    60 map  1 10:31 systemd-private-dddf148129944
c4a5a49aaba590a68b-switcheroo-control.service-Yf0i0K
```

Рис. 4: Команда ls -l

Опции команды ls

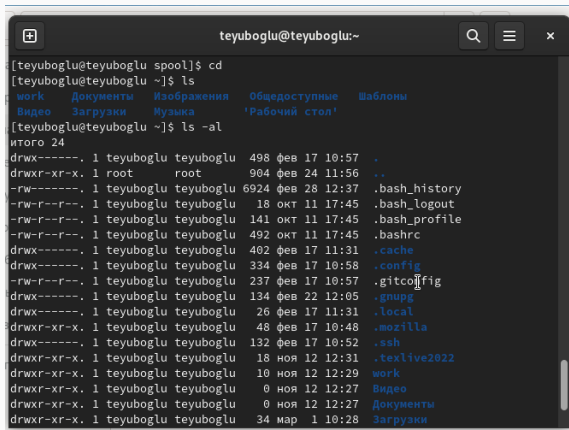
A terminal window with a dark background and light text. The title bar shows the user 'teyuboglu' and the directory 'teyuboglu/tmp'. The terminal displays the command '[teyuboglu@teyuboglu tmp]\$ ls -f' and its output, which lists various files and directories including symbolic links like '.X1-lock' and '.X0-lock', and system service files with long names like 'systemd-private-ddf1f148129944c4a5a49aaba590a68b-colord.service-J0xHEn'.

```
[teyuboglu@teyuboglu tmp]$  
[teyuboglu@teyuboglu tmp]$ ls -f  
.  
..  
Temp-88f49a54-5e71-4bc2-ac35-76b423cd0ada  
.X1-lock  
.X0-lock  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-colord.service-J0xHEn  
.X1025-lock  
.X1024-lock  
vmware-root_782-2965579254  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-ModemManager.service-MGScam  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-dbus-broker.service-zSAYc8  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-chronyd.service-zJxH02  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-upower.service-Vw6e3q  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-systemd-logind.service-h14kYs  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-switcheroo-control.service-Yf0i  
0K  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-rtkit-daemon.service-m3ImfE  
systemd-private-ddf1f148129944c4a5a49aaba590a68b-power-profiles-daemon.service-0  
Zoulw
```

Рис. 5: Команда ls -f

```
[teyuboglu@teyuboglu tmp]$  
[teyuboglu@teyuboglu tmp]$ cd /var/spool/  
[teyuboglu@teyuboglu spool]$ ls  
abrt abrt-upload cups lpd mail plymouth  
[teyuboglu@teyuboglu spool]$  
[teyuboglu@teyuboglu spool]$ ls -al  
итого 0  
drwxr-xr-x. 1 root root 68 авг 9 2022 .  
drwxr-xr-x. 1 root root 200 окт 1 11:36 ..  
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  
[teyuboglu@teyuboglu spool]$
```

Рис. 6: Каталог /var/spool



A terminal window titled 'teyuboglu@teyuboglu:~-' showing the execution of 'ls' and 'ls -al' commands. The 'ls' command output shows a directory listing with icons for 'work', 'Документы', 'Изображения', 'Общедоступные', 'Шаблоны', 'Видео', 'Загрузки', 'Музыка', and 'Рабочий стол'. The 'ls -al' command output shows a detailed listing of files and directories in the home directory, including hidden files like '.bash_history', '.bash_logout', '.bash_profile', '.bashrc', '.cache', '.config', '.gitconfig', '.gnupg', '.local', '.mozilla', '.ssh', '.texlive2022', 'work', 'Видео', 'Документы', and 'Загрузки'.

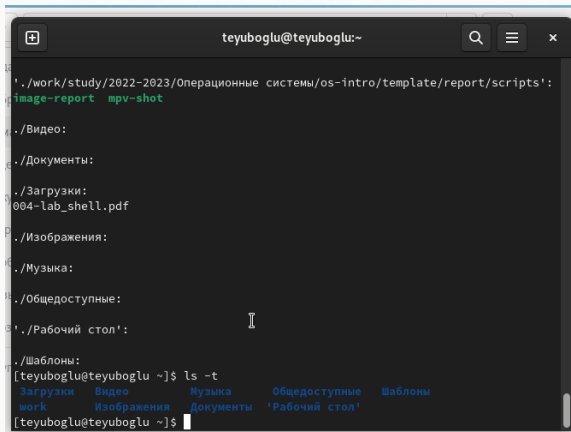
```
[teyuboglu@teyuboglu spool]$ cd
[teyuboglu@teyuboglu ~]$ ls
work  Документы  Изображения  Общедоступные  Шаблоны
Видео  Загрузки  Музыка  'Рабочий стол'
[teyuboglu@teyuboglu ~]$ ls -al
итого 24
drwx----- 1 teyuboglu teyuboglu 498 фев 17 10:57 .
drwxr-xr-x 1 root root 904 фев 24 11:56 ..
-rw----- 1 teyuboglu teyuboglu 6924 фев 28 12:37 .bash_history
-rw-r--r-- 1 teyuboglu teyuboglu 18 окт 11 17:45 .bash_logout
-rw-r--r-- 1 teyuboglu teyuboglu 141 окт 11 17:45 .bash_profile
-rw-r--r-- 1 teyuboglu teyuboglu 492 окт 11 17:45 .bashrc
drwx----- 1 teyuboglu teyuboglu 402 фев 17 11:31 .cache
drwx----- 1 teyuboglu teyuboglu 334 фев 17 10:58 .config
-rw-r--r-- 1 teyuboglu teyuboglu 237 фев 17 10:57 .gitconfig
drwx----- 1 teyuboglu teyuboglu 134 фев 22 12:05 .gnupg
drwx----- 1 teyuboglu teyuboglu 26 фев 17 11:31 .local
drwxr-xr-x 1 teyuboglu teyuboglu 48 фев 17 10:48 .mozilla
drwx----- 1 teyuboglu teyuboglu 132 фев 17 10:52 .ssh
drwxr-xr-x 1 teyuboglu teyuboglu 18 ноя 12 12:31 .texlive2022
drwxr-xr-x 1 teyuboglu teyuboglu 10 ноя 12 12:29 work
drwxr-xr-x 1 teyuboglu teyuboglu 0 ноя 12 12:27 Видео
drwxr-xr-x 1 teyuboglu teyuboglu 0 ноя 12 12:27 Документы
drwxr-xr-x 1 teyuboglu teyuboglu 34 мар 1 10:28 Загрузки
```

Рис. 7: Файлы в домашнем каталоге

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

Рис. 8: Действия с каталогами

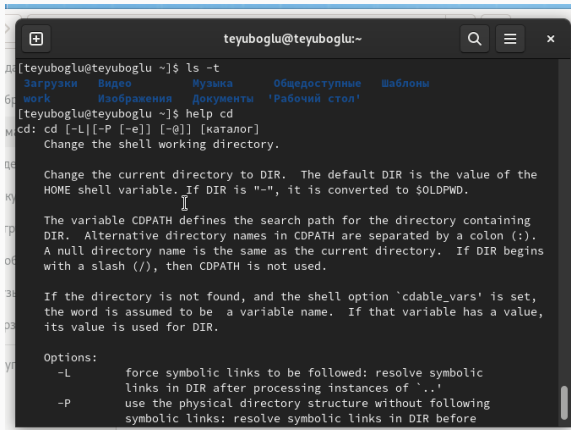
Опции команды ls



A terminal window titled 'teyuboglu@teyuboglu:~' with search, menu, and close icons in the title bar. The terminal shows the following output:

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

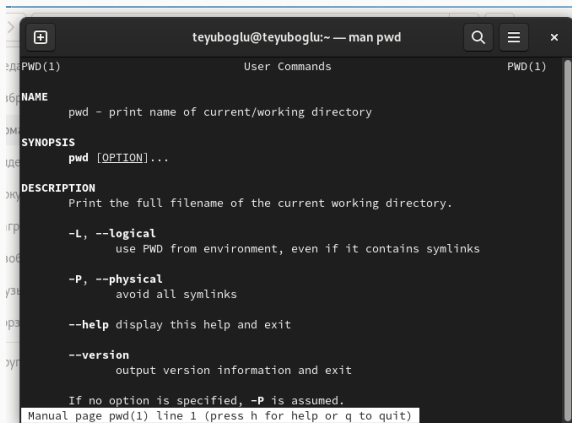
Рис. 9: Команда ls -R и ls -t



```
teyuboglu@teyuboglu:~  
[teyuboglu@teyuboglu ~]$ ls -lt  
Загрузки Видео Музыка Общедоступные Шаблоны  
work Изображения Документы 'Рабочий стол'  
[teyuboglu@teyuboglu ~]$ 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



The screenshot shows a terminal window titled "teyuboglu@teyuboglu:~ — man pwd". The window displays the manual page for the `pwd` command. The 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

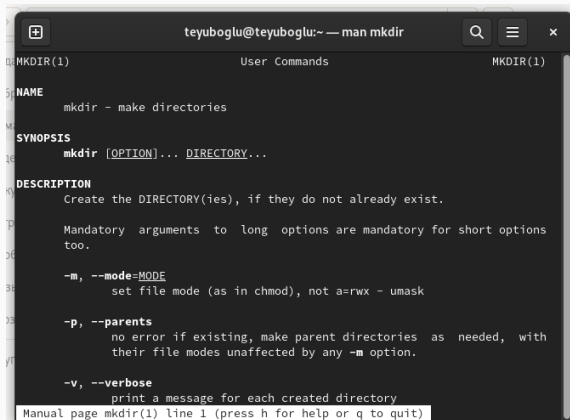
  --help
      display this help and exit

  --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



The screenshot shows a terminal window titled "teyuboglu@teyuboglu:~ — man mkdir". The window displays the manual page for the "mkdir" command. The 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

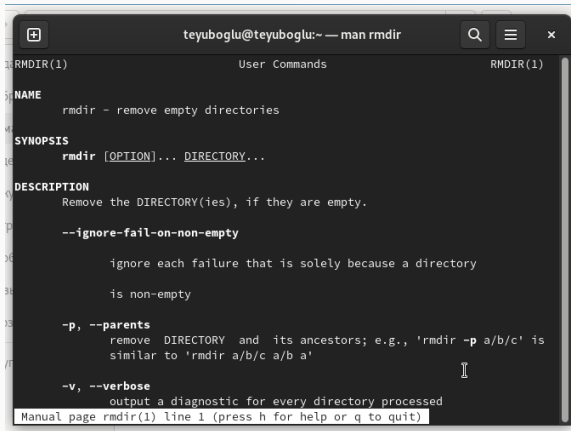
    -p, --parents
        no error if existing, make parent directories as needed, with
        their file modes unaffected by any -m option.

    -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



```
teyuboglu@teyuboglu:~ — man rmdir
NAME
    rmdir - remove empty directories
SYNOPSIS
    rmdir [OPTION]... DIRECTORY...
DESCRIPTION
    Remove the DIRECTORY(ies), if they are empty.

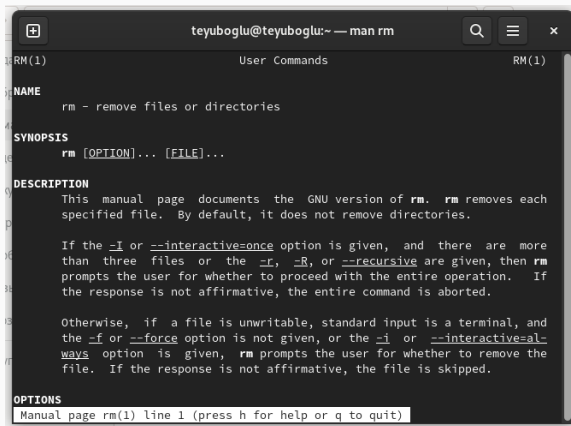
    --ignore-fail-on-non-empty
        ignore each failure that is solely because a directory
        is non-empty

    -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

Справка по командам



```
teyuboglu@teyuboglu:~ — 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.

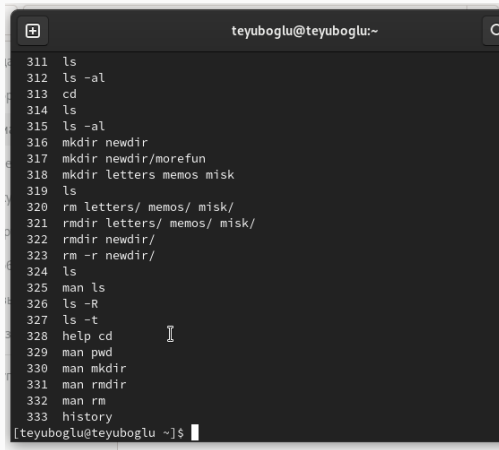
    If the -i or --interactive=once option is given, and there are more
    than three files or the -r, -R, or --recursive are given, then rm
    prompts the user for whether to proceed with the entire operation. If
    the response is not affirmative, the entire command is aborted.

    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 shows 'teyuboglu@teyuboglu:~'. The terminal displays a list of 23 commands, each preceded by a line number from 311 to 333. The commands are: ls, ls -al, cd, ls, ls -al, mkdir newdir, mkdir newdir/morefun, mkdir letters memos misk, ls, rm letters/ memos/ misk/, rmdir letters/ memos/ misk/, rmdir newdir/, rm -r newdir/, ls, man ls, ls -R, ls -t, help cd, man pwd, man mkdir, man rmdir, man rm, and history. The prompt '[teyuboglu@teyuboglu ~]\$' is visible at the bottom.

```
teyuboglu@teyuboglu:~
311 ls
312 ls -al
313 cd
314 ls
315 ls -al
316 mkdir newdir
317 mkdir newdir/morefun
318 mkdir letters memos misk
319 ls
320 rm letters/ memos/ misk/
321 rmdir letters/ memos/ misk/
322 rmdir newdir/
323 rm -r newdir/
324 ls
325 man ls
326 ls -R
327 ls -t
328 help cd
329 man pwd
330 man mkdir
331 man rmdir
332 man rm
333 history
[teyuboglu@teyuboglu ~]$
```

Рис. 15: Команда history

Выводы по проделанной работе

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