

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



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

Рис. 1: Путь к домашнему каталогу

Опции команды ls

```
madinadavletova@madinadavletova:~$ cd /tmp
madinadavletova@madinadavletova:/tmp$ ls
dbus-8a3Aex5N
dbus-i6L3igMg
systemd-private-1ccad64e222e4764a772d614ffb8da35-chronyd.service-Vo0eBS
systemd-private-1ccad64e222e4764a772d614ffb8da35-colord.service-CJlgNa
systemd-private-1ccad64e222e4764a772d614ffb8da35-dbus-broker.service-djfgLW
systemd-private-1ccad64e222e4764a772d614ffb8da35-fwupd.service-AbUc04
systemd-private-1ccad64e222e4764a772d614ffb8da35-low-memory-monitor.service-IDGHFX
systemd-private-1ccad64e222e4764a772d614ffb8da35-ModemManager.service-LTF2AK
systemd-private-1ccad64e222e4764a772d614ffb8da35-polkit.service-5yTEHV
systemd-private-1ccad64e222e4764a772d614ffb8da35-power-profiles-daemon.service-HtXIkr
systemd-private-1ccad64e222e4764a772d614ffb8da35-rtkit-daemon.service-9mudH4
systemd-private-1ccad64e222e4764a772d614ffb8da35-switcheroo-control.service-NQ53BD
systemd-private-1ccad64e222e4764a772d614ffb8da35-systemd-hostnamed.service-fuP9Nb
systemd-private-1ccad64e222e4764a772d614ffb8da35-systemd-logind.service-5kh7Dv
systemd-private-1ccad64e222e4764a772d614ffb8da35-systemd-oond.service-1N1NCS
systemd-private-1ccad64e222e4764a772d614ffb8da35-systemd-resolved.service-r5SYR
systemd-private-1ccad64e222e4764a772d614ffb8da35-upower.service-AiZtBW
vmware-root_870-2731086752
madinadavletova@madinadavletova:/tmp$
```

Рис. 2: Команда ls

Опции команды ls

```
madinadavletova@madinadavletova:/tmp$ ls -la
total 16
drwxr-xr-x  2 madinadavletova madinadavletova 4096 Aug 10 10:54 .
drwxr-xr-x  2 madinadavletova madinadavletova 4096 Aug 10 10:54 ..
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 dbus-8aJAex5N
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 dbus-iGL3lgHg
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .font-unix
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .ICE-unix
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-chronyd.service-Vo0eBS
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-colord.service-C3lgHa
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-dbus-broker.service-djfgLW
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-fwupd.service-AbUcD4
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-low-memory-monitor.service-IDGHFx
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-ModemManager.service-lTF2AK
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-polkit.service-SyTEMV
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-power-profiles-daemon.service-HtXIkr
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-rtkit-daemon.service-9mudH4
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-switcheroo-control.service-NQ538D
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-logind.service-5kh7Dv
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-oond.service-IN1NCS
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-resolved.service-r5S7YR
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 systemd-private-1ccad64e222e4764a772d614ffb0da35-upower.service-Aiztbw
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 vmware-root_870-2731086752
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .X0-lock
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .X1024-lock
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .X1025-lock
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .X11-unix
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .X1-lock
-rw-r--r--  1 madinadavletova madinadavletova  100 Aug 10 10:54 .XIM-unix
madinadavletova@madinadavletova:/tmp$
```

Рис. 3: Команда ls -la

Опции команды ls

```
madinadavletova@madinadavletova:~/tmp$ ls -l
итого 0
srwx-rw-rw-. 1 root root 0 map 7 10:56 dbus-8a3Aex5N
srwx-rw-rw-. 1 root root 0 map 7 10:56 dbus-1GL31gMg
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-chrond.service-Vo0eBS
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-colord.service-CJigRa
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-dbus-broker.service-djf
glW
drwx----- 3 root root 60 map 7 11:02 systemd-private-iccad64e222e4764a772d614ffb8da35-fwupd.service-AbUcO4
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-low-memory-monitor.serv
ice-ID6Hfx
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-ModemManager.service-1T
F2AK
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-polkit.service-SyTEMV
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-power-profiles-daemon.s
ervice-HEXIKr
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-rtkit-daemon.service-9w
uBHA
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-switcheroo-control.serv
ice-NQ53BD
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-systemd-logind.service-
5kh70v
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-systemd-oomd.service-1N
JNCS
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-systemd-resolved.servic
e-r557YR
drwx----- 3 root root 60 map 7 10:56 systemd-private-iccad64e222e4764a772d614ffb8da35-upower.service-Ai2tBW
drwx----- 2 root root 40 map 7 10:56 vmware-root_870-2731886752
madinadavletova@madinadavletova:~/tmp$
```

Рис. 4: Команда ls -l

Опции команды ls

```
madinadavletova@madinadavletova:/tmp$ ls -f
.
..
systemd-private-1ccad64e222e4764a772d614ffb0da35-fwupd.service-AbUc04
.X1-lock
.X0-lock
systemd-private-1ccad64e222e4764a772d614ffb0da35-colord.service-CJ1gNa
.X1025-lock
.X1024-lock
dbus-iGL3lgMg
dbus-8aJAex5N
systemd-private-1ccad64e222e4764a772d614ffb0da35-ModemManager.service-LTF2AK
vmware-root_870-2731086752
systemd-private-1ccad64e222e4764a772d614ffb0da35-upower.service-Aiztbw
systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-logind.service-5kh7Dv
systemd-private-1ccad64e222e4764a772d614ffb0da35-switcheroo-control.service-NQ538D
systemd-private-1ccad64e222e4764a772d614ffb0da35-rtkit-daemon.service-9mudH4
systemd-private-1ccad64e222e4764a772d614ffb0da35-power-profiles-daemon.service-HtXIkr
systemd-private-1ccad64e222e4764a772d614ffb0da35-polkit.service-5yTEMV
systemd-private-1ccad64e222e4764a772d614ffb0da35-low-memory-monitor.service-IDGHFx
systemd-private-1ccad64e222e4764a772d614ffb0da35-chronyd.service-Vo0eBS
systemd-private-1ccad64e222e4764a772d614ffb0da35-dbus-broker.service-djfgLW
systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-resolved.service-r5S7YR
systemd-private-1ccad64e222e4764a772d614ffb0da35-systemd-oond.service-1N1NCS
.font-unix
.XIM-unix
.ICE-unix
.X11-unix
madinadavletova@madinadavletova:/tmp$
```

Рис. 5: Команда ls -f

```
madinadavletova@madinadavletova:/tmp$ cd /var/spool
madinadavletova@madinadavletova:/var/spool$ ls -l
итого 0
drwxr-x--x. 1 root abrt 1366 мар  7 10:09 abrt
drwx-----. 1 abrt abrt    0 июл 19 2023 abrt-upload
drwx--x---. 1 root lp    6 ноя  1 04:09 cups
drwxr-xr-x. 1 root root    0 июл 21 2023 lpd
drwxrwxr-x. 1 root mail 1178 мар  6 14:27 mail
drwxr-xr-x. 1 root root    0 июл 21 2023 plymouth
madinadavletova@madinadavletova:/var/spool$
```

Рис. 6: Каталог /var/spool

```
madinadavletova@madinadavletova:/var/spool$ cd
madinadavletova@madinadavletova:~$ ls
work  Видео  Документы  Загрузки  Изображения  Музыка  Общедоступные  'Рабочий стол'  Шаблоны
madinadavletova@madinadavletova:~$ ls -al
итого 20
drwx----- 1 madinadavletova madinadavletova 474 мар 1 15:34 .
drwxr-xr-x 1 root root 1172 мар 6 14:27 ..
-rw----- 1 madinadavletova madinadavletova 814 мар 1 15:51 .bash_history
-rw-r--r-- 1 madinadavletova madinadavletova 18 июл 19 2023 .bash_logout
-rw-r--r-- 1 madinadavletova madinadavletova 144 июл 19 2023 .bash_profile
-rw-r--r-- 1 madinadavletova madinadavletova 685 мар 1 15:37 .bashrc
drwx----- 1 madinadavletova madinadavletova 418 мар 1 15:40 .cache
drwx----- 1 madinadavletova madinadavletova 436 мар 1 15:40 .config
-rw-r--r-- 1 madinadavletova madinadavletova 239 мар 1 15:34 .gitconfig
drwx----- 1 madinadavletova madinadavletova 212 фев 19 15:59 .gnupg
drwx----- 1 madinadavletova madinadavletova 20 фев 12 10:42 .local
drwxr-xr-x 1 madinadavletova madinadavletova 48 фев 12 10:48 .mozilla
drwx----- 1 madinadavletova madinadavletova 132 фев 12 11:09 .ssh
drwxr-xr-x 1 madinadavletova madinadavletova 10 фев 12 11:08 work
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Видео
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Документы
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Загрузки
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Изображения
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Музыка
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Общедоступные
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 'Рабочий стол'
drwxr-xr-x 1 madinadavletova madinadavletova 0 фев 12 10:42 Шаблоны
madinadavletova@madinadavletova:~$
```

Рис. 7: Файлы в домашнем каталоге

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

Рис. 8: Действия с каталогами

Опции команды ls

```
./work/study/2023-2024/Операционные системы/os-intro/template/report/report/pandoc/filters':
pandoc_eqnos.py pandoc_fignos.py pandoc_secnos.py pandoc_tablenos.py pandocxnos

./work/study/2023-2024/Операционные системы/os-intro/template/report/report/pandoc/filters/pandocxnos':
core.py __init__.py main.py pandocattributes.py

./work/study/2023-2024/Операционные системы/os-intro/template/report/scripts':
image-report mpv-shot

./Видео:

./Документы:

./Загрузки:

./Изображения:

./Музыка:

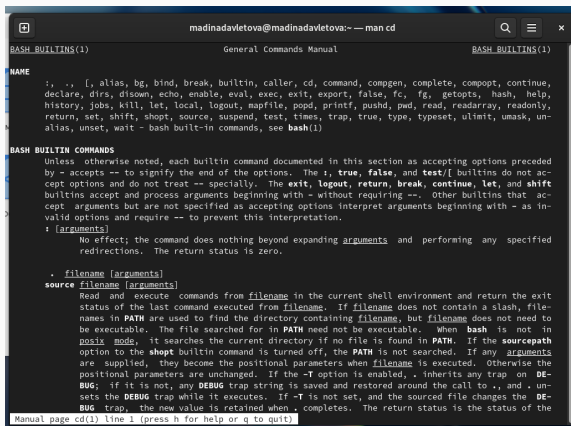
./Общедоступные:

./Рабочий стол':

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

Рис. 9: Команда ls -R и ls -t

Справка по командам



```
madinadavletova@madinadavletova:~ — man cd
BASH_BUILTINS(1)          General Commands Manual          BASH_BUILTINS(1)

NAME
.;, [, alias, bg, bind, break, builtin, caller, cd, command, compgen, complete, compopt, continue,
declare, dirs, disown, echo, enable, eval, exec, exit, export, false, fc, fg, getopts, hash, help,
history, jobs, kill, let, local, logout, mapfile, popd, printf, pushd, pwd, read, readarray, readonly,
return, set, shift, shopt, source, suspend, test, times, trap, true, type, typeset, ulimit, umask, un-
alias, unset, wait - bash built-in commands, see bash(1)

BASH BUILTIN COMMANDS
Unless otherwise noted, each builtin command documented in this section as accepting options preceded
by - accepts -- to signify the end of the options. The set, true, false, and test builtins do not ac-
cept options and do not treat -- specially. The exit, logout, return, break, continue, let, and shift
builtins accept and process arguments beginning with - without requiring --. Other builtins that ac-
cept arguments but are not specified as accepting options interpret arguments beginning with - as in-
valid options and require -- to prevent this interpretation.

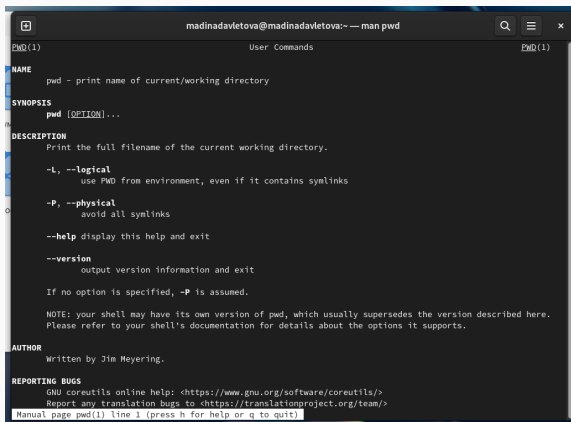
: [arguments]
    No effect; the command does nothing beyond expanding arguments and performing any specified
    redirections. The return status is zero.

. filename [arguments]
source filename [arguments]
    Read and execute commands from filename in the current shell environment and return the exit
    status of the last command executed from filename. If filename does not contain a slash, file-
names in PATH are used to find the directory containing filename, but filename does not need to be
    executable. The file searched for in PATH need not be executable. When bash is not in
    posix mode, it searches the current directory if no file is found in PATH. If the sourcepath
    option to the shopt builtin command is turned off, the PATH is not searched. If any arguments
    are supplied, they become the positional parameters when filename is executed. Otherwise the
    positional parameters are unchanged. If the -T option is enabled, . inherits any trap on DE-
BUG; if it is not, any DEBUG trap string is saved and restored around the call to ., and . un-
    sets the DEBUG trap while it executes. If -T is not set, and the sourced file changes the DE-
BUG trap, the new value is retained when . completes. The return status is the status of the

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

Рис. 10: Справка по команде cd

Справка по командам



```
madinadavletova@madinadavletova:~ — man pwd
PMD(1)                                User Commands                                PMD(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.

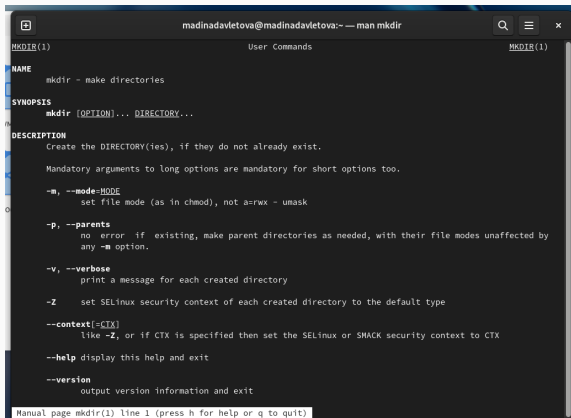
AUTHOR
  Written by Jim Meyering.

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

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

Рис. 11: Справка по команде pwd

Справка по командам



```
madinadavletova@madinadavletova:~ -- 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

  -Z
      set SELinux security context of each created directory to the default type

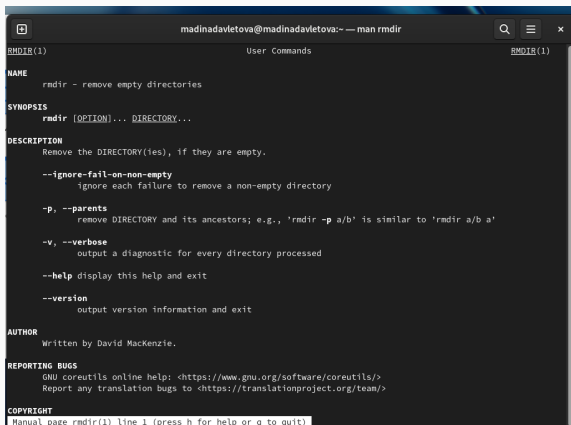
  --context[=CTX]
      like -Z, or if CTX is specified then set the SELinux or SMACK security context to CTX

  --help display this help and exit

  --version
      output version information and exit

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

Рис. 12: Справка по команде mkdir



```
madinadavletova@madinadavletova:~ — 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

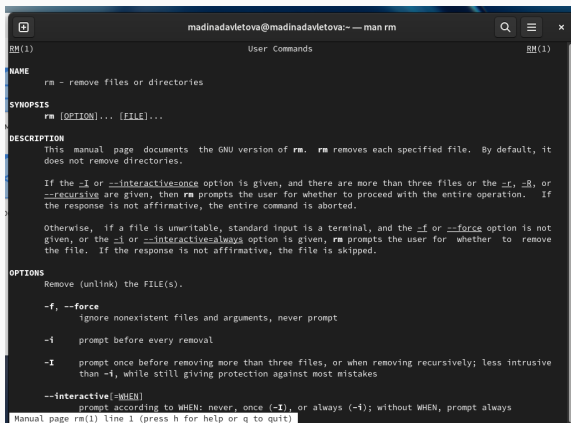
AUTHOR
    Written by David MacKenzie.

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

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

Рис. 13: Справка по команде rmdir

Справка по командам



```
madinadavletova@madinadavletova:~ — man rm
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

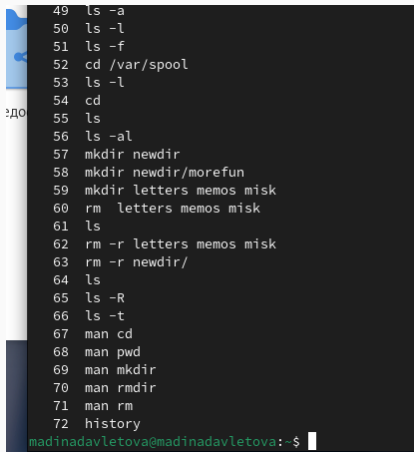
-I
    prompt once before removing more than three files, or when removing recursively; less intrusive than -i, while still giving protection against most mistakes

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

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-colored text. It displays a list of 24 commands, each preceded by a line number from 49 to 72. The commands include file listing, directory navigation, directory creation, file removal, and manual page viewing. The final command is 'history', which has triggered the display of the previous 24 commands in reverse chronological order. The prompt at the bottom is 'madinadavletova@madinadavletova:~\$' followed by a cursor.

```
49 ls -a
50 ls -l
51 ls -f
52 cd /var/spool
53 ls -l
54 cd
55 ls
56 ls -al
57 mkdir newdir
58 mkdir newdir/morefun
59 mkdir letters memos misk
60 rm letters memos misk
61 ls
62 rm -r letters memos misk
63 rm -r newdir/
64 ls
65 ls -R
66 ls -t
67 man cd
68 man pwd
69 man mkdir
70 man rmdir
71 man rm
72 history
madinadavletova@madinadavletova:~$
```

Рис. 15: Команда history

Выводы по проделанной работе

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