

# 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.

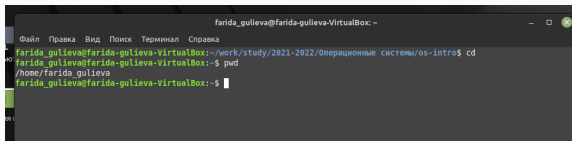
# Задачи лабораторной работы

- 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



The image shows a terminal window titled "farida\_gulieva@farida-gulieva-VirtualBox: ~". The window has a menu bar with "Файл", "Правка", "Вид", "Панель", "Терминал", and "Справка". The terminal content shows the following sequence of commands and output:

```
farida_gulieva@farida-gulieva-VirtualBox:~/work/study/2021-2022/Операционные системы/os-intro$ cd  
farida_gulieva@farida-gulieva-VirtualBox:~$ pwd  
/home/farida_gulieva  
farida_gulieva@farida-gulieva-VirtualBox:~$
```

**Figure 1:** Путь к домашнему каталогу

# Опции команды ls

```
farida_gulieva@farida-gulieva-VirtualBox:~$ cd /tmp/
farida_gulieva@farida-gulieva-VirtualBox:/tmp$ ls
config-err-C7IH6V
initrd.img
systemd-private-cd8faca763c043d09463ba9627013e2b-color.service-Vr3xDV
systemd-private-cd8faca763c043d09463ba9627013e2b-ModemManager.service-HnzTWW
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-logind.service-yrHo4R
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-resolved.service-2vh3Em
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-timesyncd.service-InvZA6C
systemd-private-cd8faca763c043d09463ba9627013e2b-upower.service-22LvYE
VMwareDnD
farida_gulieva@farida-gulieva-VirtualBox:/tmp$
```

Figure 2: Команда ls

# Опции команды ls

```
farida_gulieva@farida-gulieva-VirtualBox:/tmp$  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$ ls -la  
..                systemd-private-cd8faca763c043d09463ba9627013e2b-colord.service-Vr3x0V      Test-unit  
config-err-C7IH6V systemd-private-cd8faca763c043d09463ba9627013e2b-ModemManager.service-MnzTWW  VMwareBnD  
Tent-unit        systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-logind.service-yrHo4R   .X0-Lock  
ICE-unit         systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-resolved.service-2vh3En  .X11-unit  
libvirt-daemon   systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-timesyncd.service-1vzA6C  .XIM-unit  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$
```

Figure 3: Команда ls -la



# Опции команды ls

```
farida_gulieva@farida-gulieva-VirtualBox:/tmp$  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$ ls -l  
итого 32  
-rw-r----- 1 farida_gulieva farida_gulieva 0 сен 5 13:06 config-err-C7IH6V  
drwxrwxrwx 2 farida_gulieva farida_gulieva 4096 сен 5 13:07 sshfs  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-colord.  
service-Vr3xKV  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-ModemMa  
nager.service-MnzTmW  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-systemd  
-logind.service-yRHo4R  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-systemd  
-resolved.service-2vh3Em  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-systemd  
-timesyncd.service-IvzA6C  
drwx----- 3 root root 4096 сен 5 13:06 systemd-private-cd8faca763c043d09463ba9627013e2b-upower.  
service-22LVYE  
drwxrwxrwt 2 root root 4096 сен 5 13:06 tmpwareDir  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$
```

Figure 4: Команда ls -l

# Опции команды ls

```
farida_gulieva@farida-gulieva-VirtualBox:/tmp$  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$ ls -f  
systemd-private-cd8faca763c043d09463ba9627013e2b-colord.service-Vr3x0V  
systemd-private-cd8faca763c043d09463ba9627013e2b-upower.service-22LvYE  
VMwareDnD  
config-err-C7IH6V  
.font-unix  
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-resolved.service-2vh3Em  
.XIM-unix  
..  
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-logind.service-yrHo4R  
.ICE-unix  
.X0-lock  
systemd-private-cd8faca763c043d09463ba9627013e2b-systemd-timesyncd.service-IvzA6C  
mintUpdate  
.X11-unix  
.Test-unix  
.  
systemd-private-cd8faca763c043d09463ba9627013e2b-ModemManager.service-HnzTWW  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$
```

Figure 5: Команда ls -f

```
farida_gulieva@farida-gulieva-VirtualBox:/tmp$  
farida_gulieva@farida-gulieva-VirtualBox:/tmp$ cd /var/spool/  
farida_gulieva@farida-gulieva-VirtualBox:/var/spool$ ls -l  
итого 20  
drwxr-xr-x 2 root root 4096 сен 5 13:04 anacron  
drwxr-xr-x 3 root root 4096 июл 26 17:32 cron  
drwx--x--- 3 root lp 4096 июл 26 17:48 cups  
drwxr-xr-x 3 root root 4096 июл 26 17:50 libreoffice  
lrwxrwxrwx 1 root root 7 сен 5 12:57 mail -> ../mail  
drwx----- 2 syslog adm 4096 дек 30 2021 rsyslog  
farida_gulieva@farida-gulieva-VirtualBox:/var/spool$
```

Figure 6: Каталог cron

# Домашний каталог

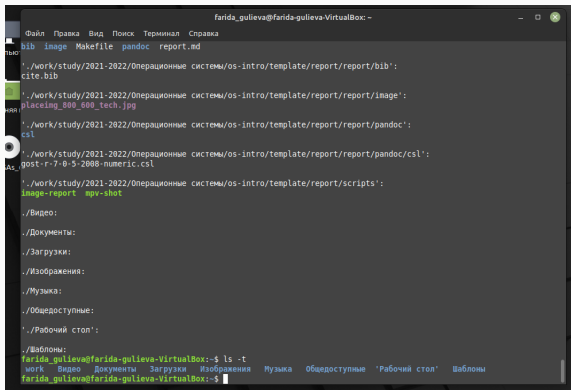
```
farida_gulieva@farida-gulieva-VirtualBox:/var/spool$  
farida_gulieva@farida-gulieva-VirtualBox:/var/spool$  
farida_gulieva@farida-gulieva-VirtualBox:/var/spool$ cd  
farida_gulieva@farida-gulieva-VirtualBox:~$ ls  
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны  
farida_gulieva@farida-gulieva-VirtualBox:~$ ls -al  
итого 156  
drwxr-xr-x 20 farida_gulieva farida_gulieva 4096 сен 5 14:31 .  
drwxr-xr-x 3 root root 4096 сен 5 12:58 ..  
-rw-r--r-- 1 farida_gulieva farida_gulieva 220 сен 5 12:58 .bash_logout  
-rw-r--r-- 1 farida_gulieva farida_gulieva 3771 сен 5 12:58 .bashrc  
drwx----- 9 farida_gulieva farida_gulieva 4096 сен 5 14:30 .cache  
drwxrwxr-x 4 farida_gulieva farida_gulieva 4096 сен 5 13:05 .cinnamon  
drwxr-xr-x 15 farida_gulieva farida_gulieva 4096 сен 5 14:31 .config  
-rw-rw-r-- 1 farida_gulieva farida_gulieva 205 сен 5 14:28 .gitconfig  
drwx----- 4 farida_gulieva farida_gulieva 4096 сен 5 14:32 .gnupg  
-rw-rw-r-- 1 farida_gulieva farida_gulieva 22 сен 5 12:58 .gtkrc-2.0  
-rw-r--r-- 1 farida_gulieva farida_gulieva 516 сен 5 12:58 .gtkrc-xfce  
drwxrwxr-x 4 farida_gulieva farida_gulieva 4096 сен 5 14:12 .linuxmint  
drwxrwxr-x 3 farida_gulieva farida_gulieva 4096 сен 5 13:04 .local  
drwx----- 4 farida_gulieva farida_gulieva 4096 сен 5 14:30 .mozilla  
-rw-r--r-- 1 farida_gulieva farida_gulieva 807 сен 5 12:58 .profile  
drwx----- 2 farida_gulieva farida_gulieva 4096 сен 5 14:31 .ssh  
-rw-r--r-- 1 farida_gulieva farida_gulieva 0 сен 5 14:23 .sudo_as_admin_successful  
drwxr-xr-x 2 farida_gulieva farida_gulieva 4096 сен 5 13:05 .themes  
-rw-r----- 1 farida_gulieva farida_gulieva 5 сен 5 13:06 .vboxclient-clipboard.pid  
-rw-r----- 1 farida_gulieva farida_gulieva 5 сен 5 13:06 .vboxclient-display-svga-x11.pid  
-rw-r----- 1 farida_gulieva farida_gulieva 5 сен 5 13:06 .vboxclient-draganddrop.pid  
-rw-r----- 1 farida_gulieva farida_gulieva 5 сен 5 13:06 .vboxclient-seamless.pid  
drwxrwxr-x 3 farida_gulieva farida_gulieva 4096 сен 5 14:31 work  
-rw----- 1 farida_gulieva farida_gulieva 70 сен 5 13:06 .Xauthority
```

Figure 7: Файлы в домашнем каталоге

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

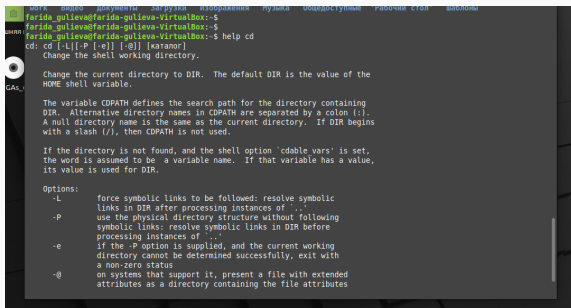
Figure 8: Действия с каталогами

# Опции команды ls



```
farida_gulieva@farida-gulieva-VirtualBox: ~  
Файл Правка Вид Поиск Терминал Справка  
bib image Makefile pandoc report.md  
./work/study/2021-2022/Операционные системы/os-intro/template/report/report/bib':  
cite.bib  
./work/study/2021-2022/Операционные системы/os-intro/template/report/report/image':  
placing_800_800_tech.jpg  
./work/study/2021-2022/Операционные системы/os-intro/template/report/report/pandoc':  
csl  
./work/study/2021-2022/Операционные системы/os-intro/template/report/report/pandoc/csl':  
gost-r-7-0-5-2008-numeric.csl  
./work/study/2021-2022/Операционные системы/os-intro/template/report/scripts':  
image-report mpv-shot  
./Видео:  
./Документы:  
./Загрузки:  
./Изображения:  
./Музыка:  
./Общедоступные:  
./Рабочий стол:  
./Шаблоны:  
farida_gulieva@farida-gulieva-VirtualBox:~$ ls -t  
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны  
farida_gulieva@farida-gulieva-VirtualBox:~$
```

Figure 9: Команда ls -R и ls -t



```
farida_gulieva@farida-gulieva-VirtualBox:~$ cd
cd: cd [-L|[-P [-e]] [-@]] [varname]
    Change the shell working directory.

    Change the current directory to DIR.  The default DIR is the value of the
    HOME shell variable.

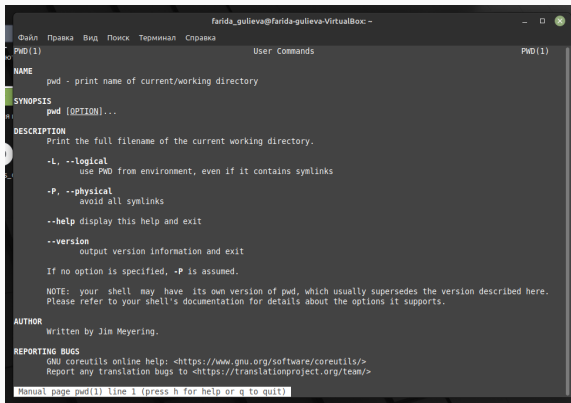
    The variable CDPATH defines the search path for the directory containing
    DIR.  Alternative directory names in CDPATH are separated by a colon (:).
    A null directory name is the same as the current directory.  If DIR begins
    with a slash (/), then CDPATH is not used.

    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
```

Figure 10: Справка по команде cd

# Справка по командам



```
farida_gulieva@farida-gulieva-VirtualBox: ~
Файл  Правка  Вид  Поиск  Терминал  Справка
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.

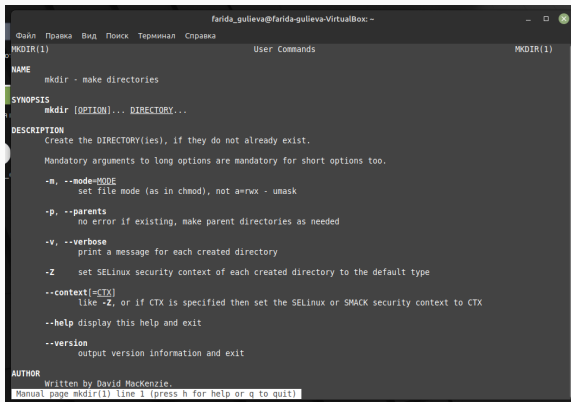
AUTHOR
    Written by Jim Meyering.

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

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

Figure 11: Справка по команде pwd





```
Farida_gulieva@farida-gulieva-VirtualBox: ~
Файл Правка Вид Поиск Терминал Справка
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

  -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

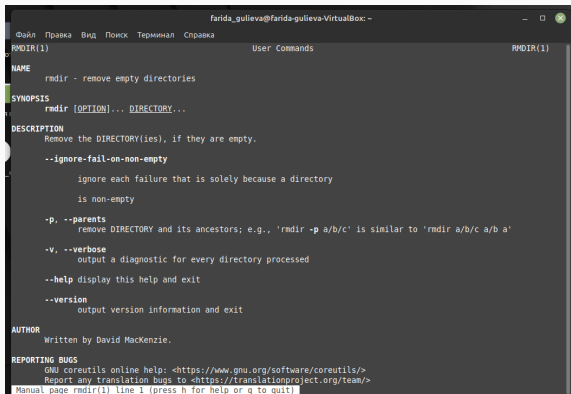
  --version
      output version information and exit

AUTHOR
  Written by David MacKenzie.

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

Figure 12: Справка по команде mkdir

# Справка по командам



```
farida_gulieva@farida-gulieva-VirtualBox: ~
Файл  Правка  Вид  Поиск  Терминал  Справка
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

  --help
      display this help and exit

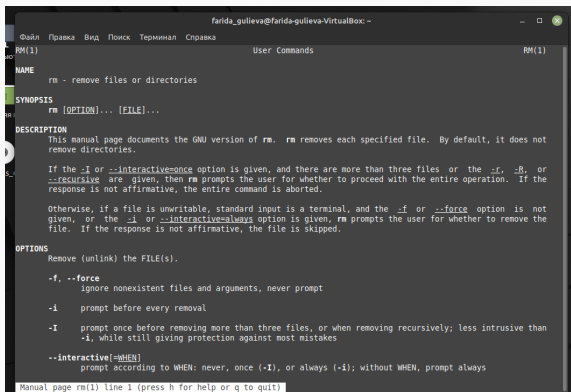
  --version
      output version information and exit

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

Figure 13: Справка по команде rmdir

# Справка по командам



```
farida_gulieva@farida-gulieva-VirtualBox: ~
Файл  Правка  Вид  Поиск  Терминал  Справка
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 -f, -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 (un)link the FILE(s).

  -f, --force
    ignore nonexistent files and arguments, never prompt

  -i
    prompt before every removal

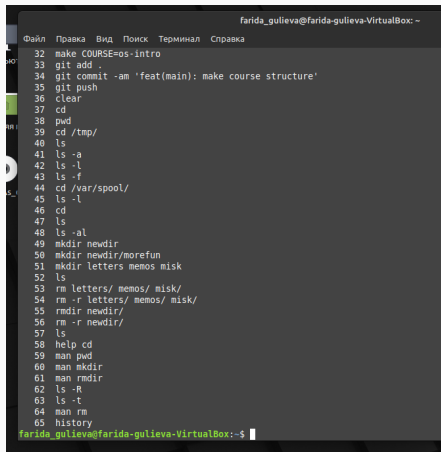
  -I
    prompt once before removing more than three files, or when removing recursively; less intrusive than
    -i, while still giving protection against most mistakes

  --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)
```

Figure 14: Справка по команде rm

# История командной строки



```
farida_gulieva@farida-gulieva-VirtualBox: ~
Файл  Правка  Вид  Поиск  Терминал  Справка
32 make COURSE=os-intro
33 git add .
34 git commit -am 'feat(main): make course structure'
35 git push
36 clear
37 cd
38 pwd
39 cd /tmp/
40 ls
41 ls -a
42 ls -l
43 ls -f
44 cd /var/spool/
45 ls -l
46 cd
47 ls
48 ls -al
49 mkdir newdir
50 mkdir newdir/morefun
51 mkdir letters memos misk
52 ls
53 rm letters/ memos/ misk/
54 rm -r letters/ memos/ misk/
55 rmdir newdir/
56 rm -r newdir/
57 ls
58 help cd
59 man pwd
60 man mkdir
61 man rmdir
62 ls -R
63 ls -t
64 man rm
65 history
farida_gulieva@farida-gulieva-VirtualBox:~$
```

Figure 15: Команда history

## **Выводы по проделанной работе**

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