

# 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.

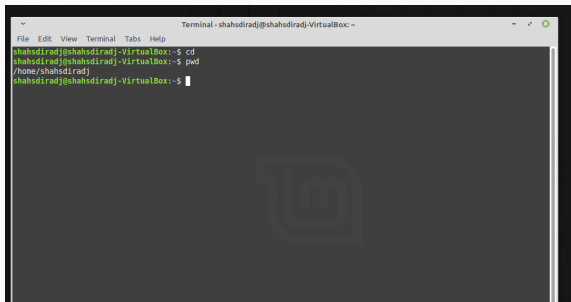
# Задачи лабораторной работы

- 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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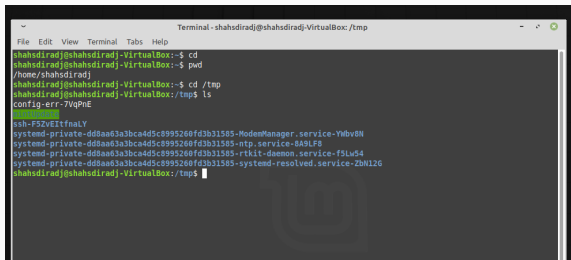
# Имя и путь к домашнему каталогу

A screenshot of a terminal window titled "Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~". The window has a menu bar with "File", "Edit", "View", "Terminal", "Tabs", and "Help". The terminal shows a sequence of commands: first, "cd" is entered, followed by "pwd", which outputs "/home/shahsdiradj". The prompt then returns to "shahsdiradj@shahsdiradj-VirtualBox:~\$".

```
shahsdiradj@shahsdiradj-VirtualBox:~$ cd
shahsdiradj@shahsdiradj-VirtualBox:~$ pwd
/home/shahsdiradj
shahsdiradj@shahsdiradj-VirtualBox:~$
```

**Figure 1:** Путь к домашнему каталогу

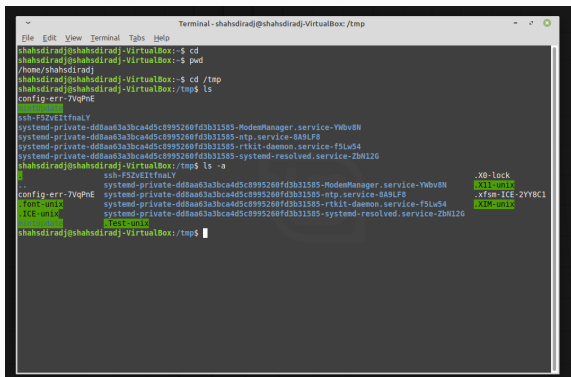
# Опции команды ls



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: /tmp
File Edit View Terminal Tabs Help
shahsdiradj@shahsdiradj-VirtualBox:~$ cd
shahsdiradj@shahsdiradj-VirtualBox:~$ pwd
/home/shahsdiradj
shahsdiradj@shahsdiradj-VirtualBox:~$ cd /tmp
shahsdiradj@shahsdiradj-VirtualBox:/tmp$ ls
config-err-7VqPnE
ls -ld /tmp$
ssh-F52VEitfnaLY
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.service-Ywbv8N
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A9LF8
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.service-f5Lw54
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN12G
shahsdiradj@shahsdiradj-VirtualBox:/tmp$
```

Figure 2: Команда ls

# Опции команды ls

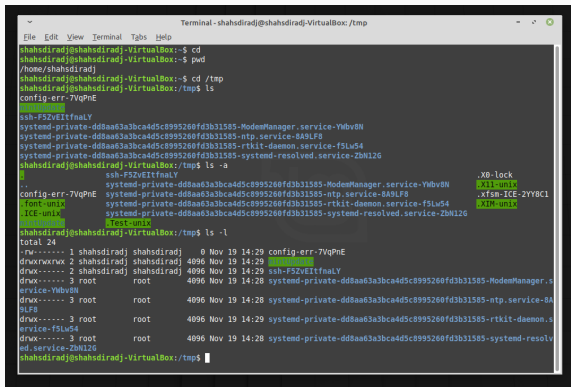


```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: /tmp
File Edit View Terminal Tabs Help
shahsdiradj@shahsdiradj-VirtualBox:~$ cd
shahsdiradj@shahsdiradj-VirtualBox:~$ pwd
/home/shahsdiradj
shahsdiradj@shahsdiradj-VirtualBox:~$ cd /tmp
shahsdiradj@shahsdiradj-VirtualBox:~$ cd /tmp
shahsdiradj@shahsdiradj-VirtualBox:~$ ls
config-err-7VqPnE
.X0-lock
ssh-F52vEItfnaLY
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.service-YwBv8N
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A9LP8
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.service-f5Lw54
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN12G
shahsdiradj@shahsdiradj-VirtualBox:~$ tmp$ ls -a
.
.
config-err-7VqPnE
font-unix
ICE-unix
.X0-lock
Test-unix
shahsdiradj@shahsdiradj-VirtualBox:~$ tmp$
```

Figure 3: Команда ls -a



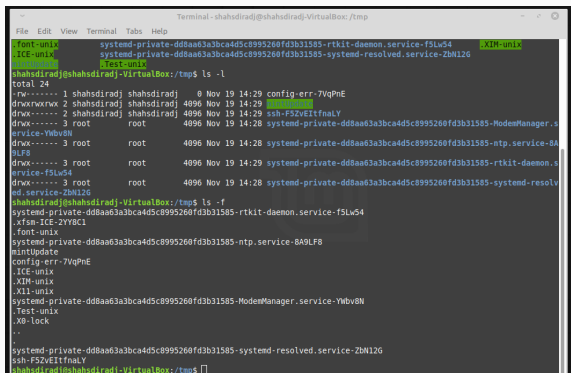
# Опции команды ls



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: /tmp
File Edit View Terminal Tabs Help
shahsdiradj@shahsdiradj-VirtualBox:~$ cd
shahsdiradj@shahsdiradj-VirtualBox:~$ pwd
/home/shahsdiradj
shahsdiradj@shahsdiradj-VirtualBox:~$ cd /tmp
shahsdiradj@shahsdiradj-VirtualBox:~/tmp$ ls
config-err-7VqPnE
font-unix
ssh-F5ZvEItfnaLY
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.service-Ymbv8N
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A9LF8
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.service-f5Lw54
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN126
shahsdiradj@shahsdiradj-VirtualBox:~/tmp$ ls -la
total 24
-rw-r--r-- 1 shahsdiradj shahsdiradj 0 Nov 19 14:29 config-err-7VqPnE
drwxrwxrwx 2 shahsdiradj shahsdiradj 4096 Nov 19 14:29 font-unix
drwx----- 2 shahsdiradj shahsdiradj 4096 Nov 19 14:29 ssh-F5ZvEItfnaLY
drux----- 3 root root 4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.s
service-Ymbv8N
drux----- 3 root root 4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A
9LF8
drux----- 3 root root 4096 Nov 19 14:29 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.s
ervice-f5Lw54
drux----- 3 root root 4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolv
ed.service-ZbN126
shahsdiradj@shahsdiradj-VirtualBox:~/tmp$
```

Figure 4: Команда ls -l

# Опции команды ls

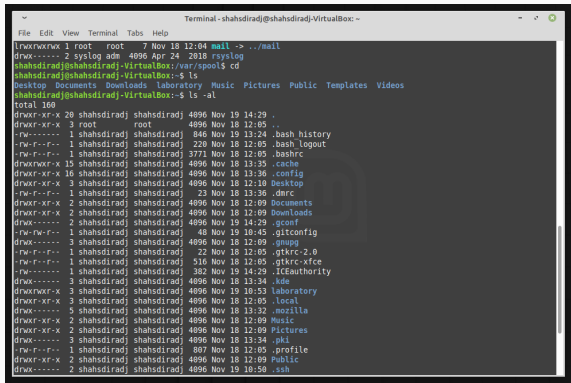


```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: /tmp
File Edit View Terminal Tabs Help
shahsdiradj@shahsdiradj-VirtualBox: /tmp$ ls -l
total 24
-rw-r----- 1 shahsdiradj shahsdiradj  0 Nov 19 14:29 config-err-7VqPnE
drwxrwxrwx 2 shahsdiradj shahsdiradj 4096 Nov 19 14:29 .X11-unix
drwx----- 2 shahsdiradj shahsdiradj 4096 Nov 19 14:29 ssh-F52vEitfnaLY
drwx----- 3 root      root      4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.service-Ymbv8N
drwx----- 3 root      root      4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A9LF8
drwx----- 3 root      root      4096 Nov 19 14:29 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.service-f5Lw54
drwx----- 3 root      root      4096 Nov 19 14:28 systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN12G
shahsdiradj@shahsdiradj-VirtualBox: /tmp$ ls -f
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-rtkit-daemon.service-f5Lw54
.Xfsn-ICE-2Yy8C1
.font-unix
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ntp.service-8A9LF8
mintUpdate
config-err-7VqPnE
.ICE-unix
.XIM-unix
.X11-unix
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-ModemManager.service-Ymbv8N
.Test-unix
.X0-lock
..
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN12G
ssh-F52vEitfnaLY
shahsdiradj@shahsdiradj-VirtualBox: /tmp$
```

Figure 5: Команда ls -f

```
systemd-private-dd8aa63a3bca4d5c8995260fd3b31585-systemd-resolved.service-ZbN12G
ssh-F5ZvE1IfnaLY
shahsdiradj@shahsdiradj-VirtualBox:/tmp$ cd /var/spool/
shahsdiradj@shahsdiradj-VirtualBox:/var/spool$ ls -l
total 20
drwxr-xr-x 2 root   root 4096 Nov 18 12:08 anacron
drwxr-xr-x 3 root   root 4096 Dec 13 2019 cron
drwx-x-x-- 3 root   lp    4096 Dec 13 2019 cups
drwxr-xr-x 3 root   root 4096 Dec 13 2019 libreoffice
lrwxrwxrwx 1 root   root   7 Nov 18 12:04 mail -> ../mail
drwx----- 2 syslog adm  4096 Apr 24 2018 rsyslog
shahsdiradj@shahsdiradj-VirtualBox:/var/spool$
```

Figure 6: Каталог cron



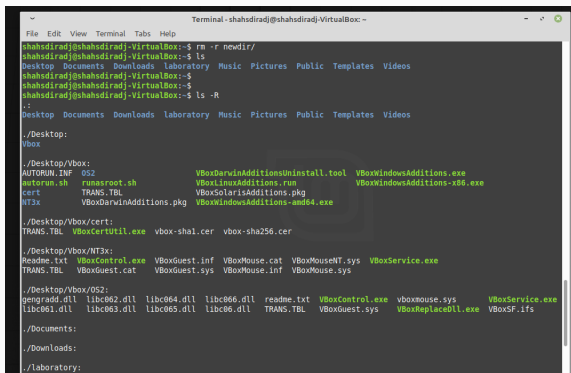
```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help
lnwxrwxrwx 1 root root 7 Nov 18 12:04 mail -> ../mail
drwx----- 2 syslog adm 4096 Apr 24 2018 rsyslog
shahsdiradj@shahsdiradj-VirtualBox:/var/spool$ cd
shahsdiradj@shahsdiradj-VirtualBox:~$ ls
Desktop Documents Downloads laboratory Music Pictures Public Templates Videos
shahsdiradj@shahsdiradj-VirtualBox:~$ ls -al
total 160
drwxr-xr-x 20 shahsdiradj shahsdiradj 4096 Nov 19 14:29 .
drwxr-xr-x 3 root root 4096 Nov 18 12:05 ..
-rw----- 1 shahsdiradj shahsdiradj 846 Nov 19 13:24 .bash_history
-rw-r--r-- 1 shahsdiradj shahsdiradj 220 Nov 18 12:05 .bash_logout
-rw-r--r-- 1 shahsdiradj shahsdiradj 3771 Nov 18 12:05 .bashrc
drwxrwxr-x 15 shahsdiradj shahsdiradj 4096 Nov 18 13:35 .cache
drwxr-xr-x 16 shahsdiradj shahsdiradj 4096 Nov 18 13:36 .config
drwxr-xr-x 3 shahsdiradj shahsdiradj 4096 Nov 18 12:10 Desktop
-rw-r--r-- 1 shahsdiradj shahsdiradj 23 Nov 18 13:36 .dmrc
drwxr-xr-x 2 shahsdiradj shahsdiradj 4096 Nov 18 12:09 Documents
drwxr-xr-x 2 shahsdiradj shahsdiradj 4096 Nov 18 12:09 Downloads
drwx----- 2 shahsdiradj shahsdiradj 4096 Nov 19 14:29 .gconf
-rw-rw-r-- 1 shahsdiradj shahsdiradj 48 Nov 19 10:45 .gitconfig
drwx----- 3 shahsdiradj shahsdiradj 4096 Nov 18 12:09 .gnupg
-rw-r--r-- 1 shahsdiradj shahsdiradj 22 Nov 18 12:05 .gtkrc-2.0
-rw-r--r-- 1 shahsdiradj shahsdiradj 510 Nov 18 12:05 .gtkrc-xfce
-rw----- 1 shahsdiradj shahsdiradj 382 Nov 19 14:29 .ICEauthority
drwx----- 3 shahsdiradj shahsdiradj 4096 Nov 18 13:34 .kde
drwxrwxr-x 3 shahsdiradj shahsdiradj 4096 Nov 19 10:53 laboratory
drwxr-xr-x 3 shahsdiradj shahsdiradj 4096 Nov 18 12:05 .local
drwx----- 5 shahsdiradj shahsdiradj 4096 Nov 18 13:32 .mozilla
drwxr-xr-x 2 shahsdiradj shahsdiradj 4096 Nov 18 12:09 Music
drwxr-xr-x 2 shahsdiradj shahsdiradj 4096 Nov 18 12:09 Pictures
drwx----- 3 shahsdiradj shahsdiradj 4096 Nov 18 13:34 .pki
-rw-r--r-- 1 shahsdiradj shahsdiradj 807 Nov 18 12:05 .profile
drwxr-xr-x 2 shahsdiradj shahsdiradj 4096 Nov 18 12:09 Public
drwx----- 2 shahsdiradj shahsdiradj 4096 Nov 19 10:50 .ssh
```

Figure 7: Файлы в домашнем каталоге

```
shahsdiradj@shahsdiradj-VirtualBox:~$  
shahsdiradj@shahsdiradj-VirtualBox:~$  
shahsdiradj@shahsdiradj-VirtualBox:~$ mkdir newdir  
shahsdiradj@shahsdiradj-VirtualBox:~$ mkdir newdir/morefun  
shahsdiradj@shahsdiradj-VirtualBox:~$ mkdir letters memos misk  
shahsdiradj@shahsdiradj-VirtualBox:~$ ls  
Desktop Documents Downloads Laboratory letters memos misk Music newdir Pictures Public Templates Videos  
shahsdiradj@shahsdiradj-VirtualBox:~$ rm letters/ memos/ misk/  
rm: cannot remove 'letters/': Is a directory  
rm: cannot remove 'memos/': Is a directory  
rm: cannot remove 'misk/': Is a directory  
shahsdiradj@shahsdiradj-VirtualBox:~$ rm -r letters/ memos/ misk/  
shahsdiradj@shahsdiradj-VirtualBox:~$ rm -r newdir/  
shahsdiradj@shahsdiradj-VirtualBox:~$ ls  
Desktop Documents Downloads Laboratory Music Pictures Public Templates Videos  
shahsdiradj@shahsdiradj-VirtualBox:~$
```

Figure 8: Действия с каталогами

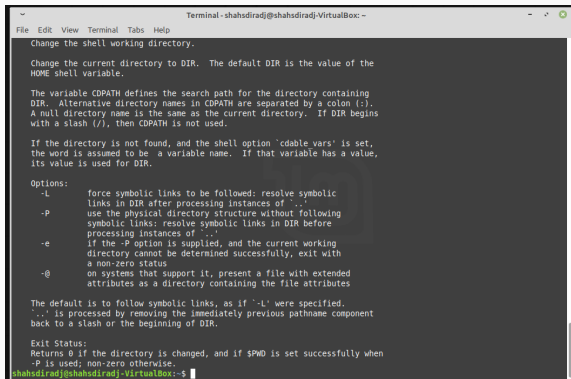
# Опции команды ls



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: -
File Edit View Terminal Tabs Help
shahsdiradj@shahsdiradj-VirtualBox:~$ rm -r newdir/
shahsdiradj@shahsdiradj-VirtualBox:~$ ls
Desktop Documents Downloads laboratory Music Pictures Public Templates Videos
shahsdiradj@shahsdiradj-VirtualBox:~$ 
shahsdiradj@shahsdiradj-VirtualBox:~$ 
shahsdiradj@shahsdiradj-VirtualBox:~$ ls -R
.:
Desktop Documents Downloads laboratory Music Pictures Public Templates Videos
./Desktop:
VBox
./Desktop/VBox:
AUTORUN.INFO 052 VBoxDarwinAdditionsUninstall.tool VBoxWindowsAdditions.exe
autorun.sh runasroot.sh VBoxLinuxAdditions.run VBoxWindowsAdditions-x86.exe
cert TRANS.TBL VBoxSolarisAdditions.pkg VBoxWindowsAdditions-amd64.exe
NT3x VBoxDarwinAdditions.pkg VBoxWindowsAdditions-amd64.exe
./Desktop/VBox/cert:
TRANS.TBL VBoxCertUtil.exe vbox-shal.cer vbox-sha256.cer
./Desktop/VBox/NT3x:
Readme.txt VBoxControl.exe VBoxGuest.inf VBoxMouse.cat VBoxMouseNT.sys VBoxService.exe
TRANS.TBL VBoxGuest.cat VBoxGuest.sys VBoxMouse.inf VBoxMouse.sys
./Desktop/VBox/052:
gengradd.dll libc062.dll libc064.dll libc066.dll readme.txt VBoxControl.exe vboxmouse.sys VBoxService.exe
libc061.dll libc063.dll libc065.dll libc066.dll TRANS.TBL VBoxGuest.sys VBoxReplaceDll.exe VBoxSF.ifs
./Documents:
./Downloads:
./laboratory:
```

Figure 9: Команда ls -R и ls -t

# Справка по командам



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help

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.

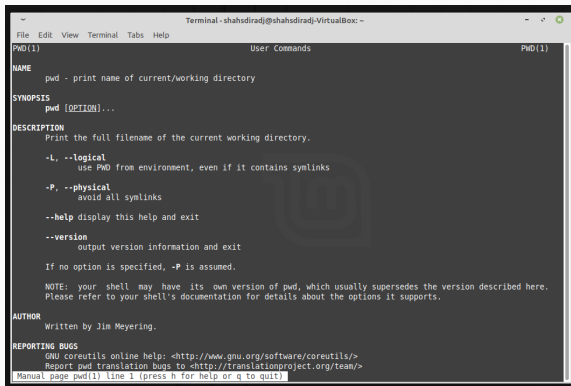
Options:
-L      force symbolic links to be followed: resolve symbolic
        links in DIR after processing instances of '..'
-P      use the physical directory structure without following
        symbolic links: resolve symbolic links in DIR before
        processing instances of '..'
-e      if the -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

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 $PWD is set successfully when
-P is used; non-zero otherwise.
shahsdiradj@shahsdiradj-VirtualBox:~$
```

Figure 10: Справка по команде cd

# Справка по командам



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help
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.

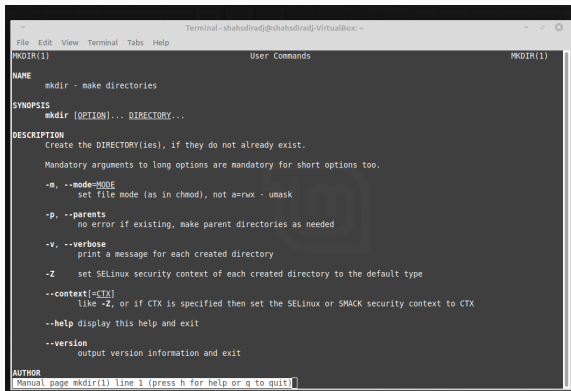
AUTHOR
    Written by Jim Meyering.

REPORTING BUGS
    GNU coreutils online help: <http://www.gnu.org/software/coreutils/>
    Report pwd translation bugs to <http://translationproject.org/team/>
    Manual page pwd(1) line 1 (press h for help or q to quit)
```

Figure 11: Справка по команде pwd



# Справка по командам



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: -
File Edit View Terminal Tabs Help
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

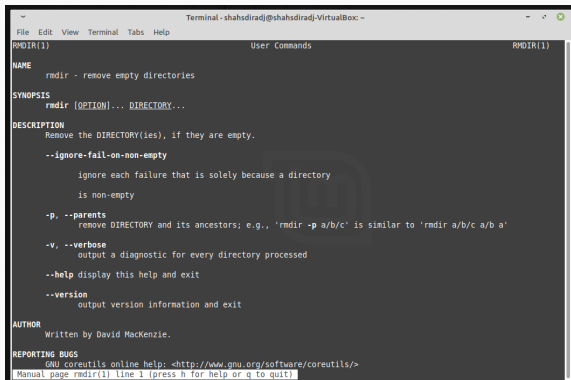
  --context[=CTX]
        like -Z, or if CTX is specified then set the SELinux or SMACK security context to CTX

  --help
        display this help and exit

  --version
        output version information and exit

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

Figure 12: Справка по команде mkdir



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help
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: <http://www.gnu.org/software/coreutils/>
  Manual page rmdir(1) line 1 (press h for help or q to quit)
```

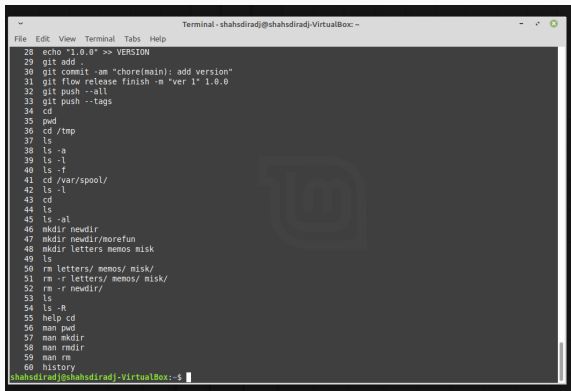
Figure 13: Справка по команде rmdir

# Справка по командам

```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help
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, -B, 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)
```

Figure 14: Справка по команде rm

# История командной строки



```
Terminal - shahsdiradj@shahsdiradj-VirtualBox: ~
File Edit View Terminal Tabs Help
28 echo "1.0.0" >> VERSION
29 git add .
30 git commit -am "chore(main): add version"
31 git flow release finish -m "ver 1" 1.0.0
32 git push --all
33 git push --tags
34 cd
35 pwd
36 cd /tmp
37 ls
38 ls -a
39 ls -l
40 ls -f
41 cd /var/spool/
42 ls -l
43 cd
44 ls
45 ls -al
46 mkdir newdir
47 mkdir newdir/morefun
48 mkdir letters memos misk
49 ls
50 rm letters/ memos/ misk/
51 rm -r letters/ memos/ misk/
52 rm -r newdir/
53 ls
54 ls -R
55 help cd
56 man pwd
57 man mkdir
58 man rmdir
59 man rm
60 history
shahsdiradj@shahsdiradj-VirtualBox:~$
```

Figure 15: Команда history

## **Выводы по проделанной работе**

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