

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

Горюнов Максим НБИбд-01-21¹

24 августа, 2022, Москва, Россия

¹Российский Университет Дружбы Народов

Цели и задачи работы

Цель лабораторной работы

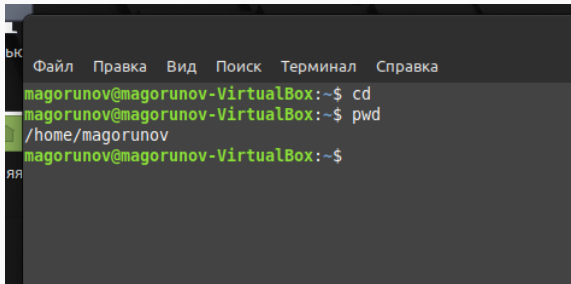
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

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

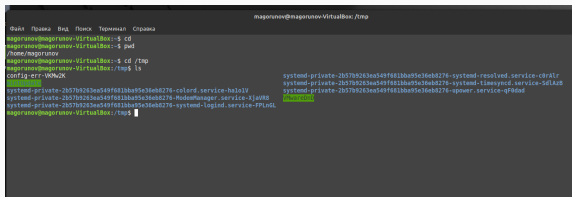


The image shows a terminal window with a dark background. At the top, there is a menu bar with the following items: "Файл", "Правка", "Вид", "Поиск", "Терминал", and "Справка". Below the menu bar, the terminal displays the following commands and their output:

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

Figure 1: Путь к домашнему каталогу

Опции команды ls



The screenshot shows a terminal window titled 'magorunov@magorunov-VirtualBox: /tmp'. The user has executed the following commands: `cd`, `pwd`, `cd /tmp`, and `ls`. The output of the `ls` command is displayed in two columns. The left column shows files: `config-err-V0W6ZK`, `systemd-private-2b57b9263ea549f681bba95e36eb0276-colord.service-haloIV`, `systemd-private-2b57b9263ea549f681bba95e36eb0276-ModemManager.service-xjAW8`, and `systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-logind.service-FPLnGL`. The right column shows files: `systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-resolved.service-c0RAtr`, `systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-timesyncd.service-5GLA28`, and `systemd-private-2b57b9263ea549f681bba95e36eb0276-spower.service-qf0ad`. The prompt `magorunov@magorunov-VirtualBox: /tmp$` is visible at the bottom.

```
magorunov@magorunov-VirtualBox: /tmp
magorunov@magorunov-VirtualBox:~$ cd
magorunov@magorunov-VirtualBox:~$ pwd
/home/magorunov
magorunov@magorunov-VirtualBox:~$ cd /tmp
magorunov@magorunov-VirtualBox:/tmp$ ls
config-err-V0W6ZK                                systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-resolved.service-c0RAtr
systemd-private-2b57b9263ea549f681bba95e36eb0276-colord.service-haloIV          systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-timesyncd.service-5GLA28
systemd-private-2b57b9263ea549f681bba95e36eb0276-ModemManager.service-xjAW8    systemd-private-2b57b9263ea549f681bba95e36eb0276-spower.service-qf0ad
systemd-private-2b57b9263ea549f681bba95e36eb0276-systemd-logind.service-FPLnGL
magorunov@magorunov-VirtualBox: /tmp$
```

Figure 2: Команда ls

Опции команды ls

```

magorunov@magorunov-VirtualBox: /tmp
$ sudo su
magorunov@magorunov-VirtualBox:~$ cd
magorunov@magorunov-VirtualBox:~$ pwd
/home/magorunov
magorunov@magorunov-VirtualBox:~$ cd /tmp
magorunov@magorunov-VirtualBox:~/tmp$ ls
config-err-WGNK
magorunov@magorunov-VirtualBox:~/tmp$ ls
systemd-private-2b579263ea549f681bb95e36eb276-cdord.service-cdrlr
systemd-private-2b579263ea549f681bb95e36eb276-system.service-halv
systemd-private-2b579263ea549f681bb95e36eb276-systemd.service-xjw8
systemd-private-2b579263ea549f681bb95e36eb276-systemd.service-PPndL
systemd-private-2b579263ea549f681bb95e36eb276-systemd-resolved.service-cdrlr
systemd-private-2b579263ea549f681bb95e36eb276-systemd-timedync.service-5dLk2
systemd-private-2b579263ea549f681bb95e36eb276-upower.service-qf6sd
magorunov@magorunov-VirtualBox:~/tmp$ ls -ls
total 12K
-rw-r--r-- 1 magorunov magorunov 4096 24 28:01 config-err-WGNK
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-cdord.service-halv
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-ModemManager.service-xjw8
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd.service-PPndL
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd-resolved.service-cdrlr
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd-timedync.service-5dLk2
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-upower.service-qf6sd
magorunov@magorunov-VirtualBox:~/tmp$
$ sudo su
magorunov@magorunov-VirtualBox:~$ cd
magorunov@magorunov-VirtualBox:~$ pwd
/home/magorunov
magorunov@magorunov-VirtualBox:~$ cd /tmp
magorunov@magorunov-VirtualBox:~/tmp$ ls
systemd-private-2b579263ea549f681bb95e36eb276-cdord.service-halv
systemd-private-2b579263ea549f681bb95e36eb276-system.service-xjw8
systemd-private-2b579263ea549f681bb95e36eb276-systemd.service-PPndL
systemd-private-2b579263ea549f681bb95e36eb276-systemd-resolved.service-cdrlr
systemd-private-2b579263ea549f681bb95e36eb276-systemd-timedync.service-5dLk2
systemd-private-2b579263ea549f681bb95e36eb276-upower.service-qf6sd
magorunov@magorunov-VirtualBox:~/tmp$ ls -ls
total 12K
-rw-r--r-- 1 magorunov magorunov 4096 24 28:01 config-err-WGNK
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-cdord.service-halv
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-ModemManager.service-xjw8
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd.service-PPndL
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd-resolved.service-cdrlr
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-systemd-timedync.service-5dLk2
drwxr-xr-x 2 magorunov magorunov 4096 24 28:01 systemd-private-2b579263ea549f681bb95e36eb276-upower.service-qf6sd
magorunov@magorunov-VirtualBox:~/tmp$

```

Figure 4: Команда ls -l

Опции команды ls

```
majorunov@majorunov-VirtualBox: /tmp
ls -l
-rwxr-xr-x 1 majorunov majorunov 0 apr 24 20:01 config-err-W0WzK
drwxr-xr-x 2 majorunov majorunov 4096 apr 24 20:01 .
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-colorad.service-haloIV
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-ModemManager.service-KjAw8
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-logind.service-FPLdGL
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-resolved.service-cBrAlr
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-timesyncd.service-SdLAzB
drwxr-xr-x 2 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-upower.service-qF6d4d
majorunov@majorunov-VirtualBox: /tmp$ ls -l
total 32
-rwxr-xr-x 1 majorunov majorunov 0 apr 24 20:01 config-err-W0WzK
drwxr-xr-x 2 majorunov majorunov 4096 apr 24 20:01 .
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-colorad.service-haloIV
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-ModemManager.service-KjAw8
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-logind.service-FPLdGL
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-resolved.service-cBrAlr
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-timesyncd.service-SdLAzB
drwxr-xr-x 2 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-upower.service-qF6d4d
majorunov@majorunov-VirtualBox: /tmp$ ls -l
total 32
-rwxr-xr-x 1 majorunov majorunov 0 apr 24 20:01 config-err-W0WzK
drwxr-xr-x 2 majorunov majorunov 4096 apr 24 20:01 .
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-colorad.service-haloIV
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-ModemManager.service-KjAw8
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-logind.service-FPLdGL
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-resolved.service-cBrAlr
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-timesyncd.service-SdLAzB
drwxr-xr-x 2 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-upower.service-qF6d4d
majorunov@majorunov-VirtualBox: /tmp$ ls -l
total 32
-rwxr-xr-x 1 majorunov majorunov 0 apr 24 20:01 config-err-W0WzK
drwxr-xr-x 2 majorunov majorunov 4096 apr 24 20:01 .
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-colorad.service-haloIV
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-ModemManager.service-KjAw8
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-logind.service-FPLdGL
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-resolved.service-cBrAlr
drwxr-xr-x 3 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-system-timesyncd.service-SdLAzB
drwxr-xr-x 2 root root 4096 apr 24 20:01 system-private-2b57b9263ea549f681bba95e36eb276-upower.service-qF6d4d
majorunov@majorunov-VirtualBox: /tmp$
```

Figure 5: Команда ls -l

```
magorunov@magorunov-VirtualBox:/tmp$  
magorunov@magorunov-VirtualBox:/tmp$  
magorunov@magorunov-VirtualBox:/tmp$ cd /var/spool/  
magorunov@magorunov-VirtualBox:/var/spool$ ls -l  
итого 20  
drwxr-xr-x 2 root   root 4096 авг 24 19:58 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 авг 24 19:51 mail -> ../mail  
drwx----- 2 syslog adm  4096 дек 30 2021 rsyslog  
magorunov@magorunov-VirtualBox:/var/spool$
```

Figure 6: Каталог cron

Домашний каталог

```
magorunov@magorunov-VirtualBox: /var/spool$  
magorunov@magorunov-VirtualBox: /var/spool$  
magorunov@magorunov-VirtualBox: /var/spool$ cd  
magorunov@magorunov-VirtualBox:~$ ls  
work Видео Документы Загрузки Изображения Музыка Общедоступные 'Рабочий стол' Шаблоны  
magorunov@magorunov-VirtualBox:~$ ls -al  
итого 160  
drwxr-xr-x 20 magorunov magorunov 4096 авг 24 20:31 .  
drwxr-xr-x 3 root root 4096 авг 24 19:51 ..  
-rw-r----- 1 magorunov magorunov 1836 авг 24 20:33 .bash_history  
-rw-r--r-- 1 magorunov magorunov 220 авг 24 19:51 .bash_logout  
-rw-r--r-- 1 magorunov magorunov 3771 авг 24 19:51 .bashrc  
drwx----- 9 magorunov magorunov 4096 авг 24 20:30 .cache  
drwxrwxr-x 4 magorunov magorunov 4096 авг 24 19:58 .cinnamon  
drwxr-xr-x 15 magorunov magorunov 4096 авг 24 20:31 .config  
-rw-rw-r-- 1 magorunov magorunov 201 авг 24 20:30 gitconfig  
drwx----- 4 magorunov magorunov 4096 авг 24 20:32 .gnupg  
-rw-r--r-- 1 magorunov magorunov 22 авг 24 19:51 .gtkrc-2.0  
-rw-r--r-- 1 magorunov magorunov 516 авг 24 19:51 .gtkrc-xfce  
drwxrwxr-x 3 magorunov magorunov 4096 авг 24 19:58 .linuxmint  
drwxrwxr-x 4 magorunov magorunov 4096 авг 24 20:30 .local  
drwx----- 4 magorunov magorunov 4096 авг 24 20:30 .mozilla  
-rw-r--r-- 1 magorunov magorunov 807 авг 24 19:51 .profile  
drwx----- 2 magorunov magorunov 4096 авг 24 20:31 .ssh  
-rw-r--r-- 1 magorunov magorunov 0 авг 24 20:21 .sudo_as_admin_successful  
drwxr-xr-x 2 magorunov magorunov 4096 авг 24 19:58 .themes  
-rw-r----- 1 magorunov magorunov 5 авг 24 20:01 .vboxclient-clipboard.pid  
-rw-r----- 1 magorunov magorunov 5 авг 24 20:01 .vboxclient-display-svga-x11.pid  
-rw-r----- 1 magorunov magorunov 5 авг 24 20:01 .vboxclient-draganddrop.pid  
-rw-r----- 1 magorunov magorunov 5 авг 24 20:01 .vboxclient-seamless.pid  
drwxr-xr-x 3 magorunov magorunov 4096 авг 24 20:31 work
```

Figure 7: Файлы в домашнем каталоге

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

Figure 8: Действия с каталогами

Опции команды ls

```
CHANGELOG.md LICENSE package.json README.git-flow.md README.md README.ru.md report scripts
./work/study/2021-2022/Операционные системы/os-intro/template/report/report':
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_600_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:
magorunov@magorunov-VirtualBox:~$ ls -t
work Видео Изображения Музыка Документы Загрузки Общедоступные 'Рабочий стол' Шаблоны
magorunov@magorunov-VirtualBox:~$
```

Figure 9: Команда ls -R и ls -t

Справка по командам

```
magorunov@magorunov-VirtualBox:~$ help cd
cd: cd [-L|[-P [-e]] [-@]] [pathname]
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.

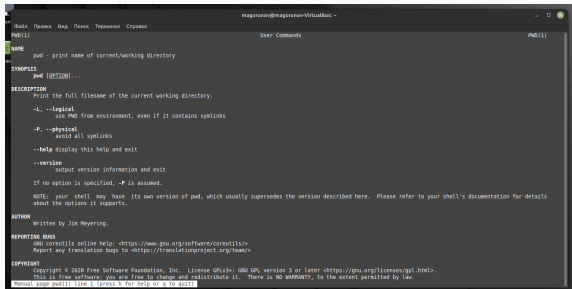
If the directory is not found, and the shell option 'cdable vars' is set,
the word is assumed to be a variable name. If that variable has a value,
its value is used for DIR.

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

Figure 10: Справка по команде cd



```
magersnow@magersnow-VirtualBox -
Date  Понед  Янв  Понед  Тетисон  Среда
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.

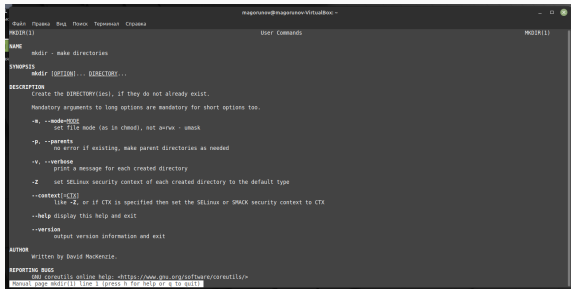
AUTHOR
  Written by Jim Meyering.

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

COPYRIGHT
  Copyright © 2020 Free Software Foundation, Inc. License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
  This is free software: you are free to change and redistribute it. There is NO WARRANTY, to the extent permitted by law.

GNU's GENERAL PUBLIC LICENSE: <http://www.gnu.org/licenses/gpl.html>
```

Figure 11: Справка по команде pwd



```
root@kali: ~# 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

    -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

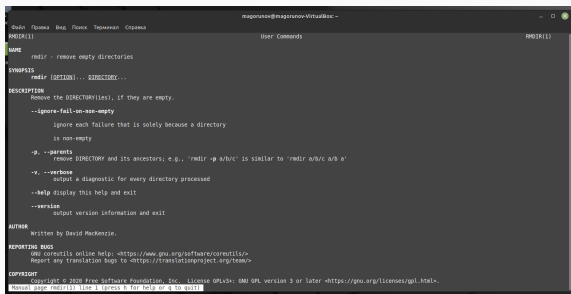
    --help
        display this help and exit

    --version
        output version information and exit

AUTHOR
    Written by David Mackenzie.

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

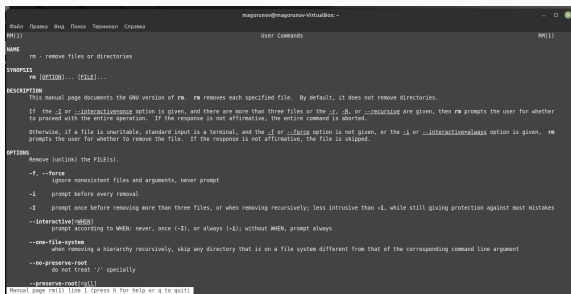
Figure 12: Справка по команде mkdir



```
magerus@magerus-VirtualBox: ~  
rmdir --help  
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/>  
COPYRIGHT  
  Copyright © 2020 Free Software Foundation, Inc.  License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.  
  See https://www.gnu.org/licenses/gpl-3.0-standalone.html for details.
```

Figure 13: Справка по команде rmdir

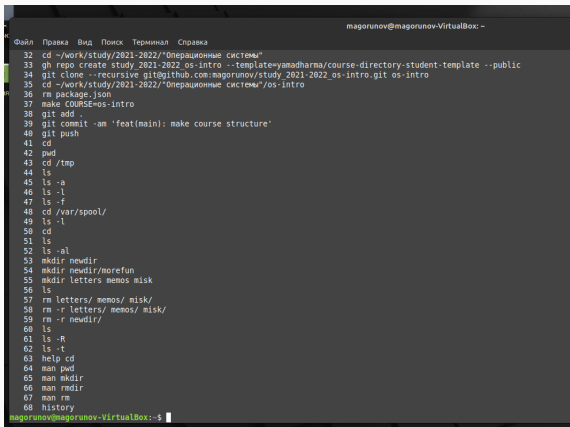
Справка по командам



```
magnus@magnus-VirtualBox: ~  
Bash: Пульт Вид Поиск Терминал Справка  
magnus@magnus-VirtualBox: ~  
rm --help  
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 option is given, and there are more than three files or the -r, -R, or --recursive option is 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 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  
--one-file-system  
when removing a hierarchy recursively, skip any directory that is on a file system different from that of the corresponding command line argument  
--no-preserve-root  
do not treat '/' specially  
--preserve-root[=no]  
Manual page (all) line 1 (press h for help or q to quit)
```

Figure 14: Справка по команде rm

История командной строки



```
magorunov@magorunov-VirtualBox: ~  
Файл Правка Вид Поиск Терминал Справка  
32 cd ~/work/study/2021-2022/"Операционные системы"  
33 gh repo create study_2021-2022_os-intro --template=yamadharma/course-directory-student-template --public  
34 git clone --recursive git@github.com:magorunov/study_2021-2022_os-intro.git os-intro  
35 cd ~/work/study/2021-2022/"Операционные системы"/os-intro  
36 rm package.json  
37 make course=ps-intro  
38 git add .  
39 git commit -am 'feat(main): make course structure'  
40 git push  
41 cd  
42 pwd  
43 cd /tmp  
44 ls  
45 ls -a  
46 ls -l  
47 ls -f  
48 cd /var/spool/  
49 ls -l  
50 cd  
51 ls  
52 ls -al  
53 mkdir newdir  
54 mkdir newdir/morefun  
55 mkdir letters memos misk  
56 ls  
57 rm letters/ memos/ misk/  
58 rm -r letters/ memos/ misk/  
59 rm -r newdir/  
60 ls  
61 ls -R  
62 ls -t  
63 help cd  
64 man pwd  
65 man mkdir  
66 man rm  
67 man rm  
68 history  
magorunov@magorunov-VirtualBox:~$
```

Figure 15: Команда history

Выводы по проделанной работе

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