

# 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.

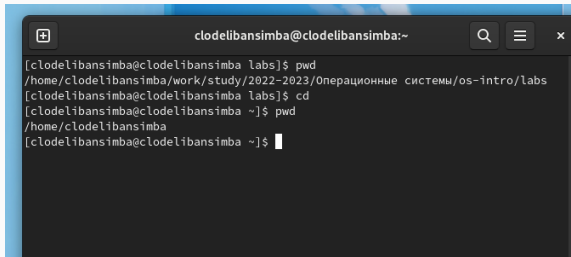
# Задачи лабораторной работы

- 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



```
clodelibansimba@clodelibansimba:~  
[clodelibansimba@clodelibansimba labs]$ pwd  
/home/clodelibansimba/work/study/2022-2023/Операционные системы/os-intro/labs  
[clodelibansimba@clodelibansimba labs]$ cd  
[clodelibansimba@clodelibansimba ~]$ pwd  
/home/clodelibansimba  
[clodelibansimba@clodelibansimba ~]$
```

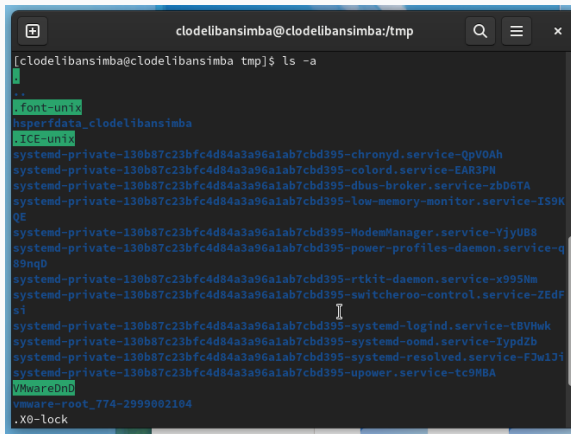
Рис. 1: Путь к домашнему каталогу

# Опции команды ls

```
[c@clodelibansimba ~]$ cd /tmp
[c@clodelibansimba tmp]$ ls
hsperfdata_clodelibansimba
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-chrond.service-QpVOAh
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-colord.service-EAR3PN
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-dbus-broker.service-zbD6TA
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-low-memory-monitor.service-IS9K
QE
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-ModemManager.service-YjyUB8
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-power-profiles-daemon.service-q
89nqD
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-rtkit-daemon.service-x995Nm
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-switcheroo-control.service-ZEDF
si
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-logind.service-tBVHwk
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-oomd.service-IypdZb
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-resolved.service-FJw13i
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-upower.service-tc9MBA
VMwareDnD
vmware-root_774~2999002104
[c@clodelibansimba tmp]$
```

Рис. 2: Команда ls

# Опции команды ls

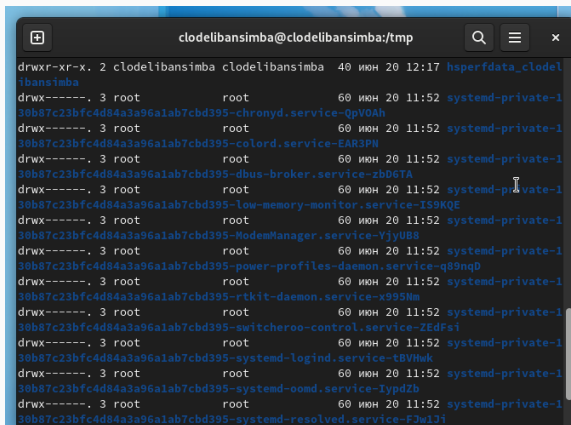
A terminal window with a dark background and light blue text. The title bar shows the user 'clodelibansimba' and the current directory 'tmp'. The command prompt is '[clodelibansimba@clodelibansimba tmp]\$' followed by 'ls -a'. The output lists various files and directories, including hidden ones like '.font-unix', '.ICE-unix', and '.X0-lock'. The list is truncated on the right side, indicated by a vertical scrollbar.

```
clodelibansimba@clodelibansimba:tmp
[clodelibansimba@clodelibansimba tmp]$ ls -a
.
..
.font-unix
hsperfdata_clodelibansimba
.ICE-unix
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-chrond.service-QpVOAh
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-colord.service-EAR3PN
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-dbus-broker.service-zbD6TA
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-low-memory-monitor.service-IS9K
QE
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-ModemManager.service-YjyUB8
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-power-profiles-daemon.service-q
89nqD
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-rtkit-daemon.service-x995Nm
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-switcheroo-control.service-ZEdF
si
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-logind.service-tBVHwk
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-oomd.service-IypdZb
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-resolved.service-FJw1Ji
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-upower.service-tc9MBA
VMwareDnD
vmware-root_774-2999002104
.X0-lock
```

Рис. 3: Команда ls -a



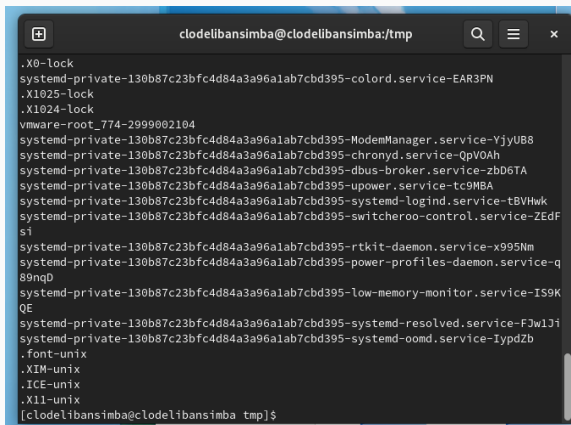
# Опции команды ls



```
clodelibansimba@clodelibansimba:/tmp
drwxr-xr-x. 2 clodelibansimba clodelibansimba 40 июн 20 12:17 hspcrdata_clodelibansimba
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-chronyd.service-QpV0Ah
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-colord.service-EAR3PN
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-dbus-broker.service-zbD6TA
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-low-memory-monitor.service-IS9KQE
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-ModemManager.service-YjyU88
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-power-profiles-daemon.service-q89nqD
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-rtkit-daemon.service-x995Nm
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-switcheroo-control.service-ZEdFsi
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-logind.service-tBVHwk
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-oomd.service-IypdZb
drwx-----, 3 root root 60 июн 20 11:52 systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-resolved.service-FJwI3i
```

Рис. 4: Команда ls -l

# Опции команды ls

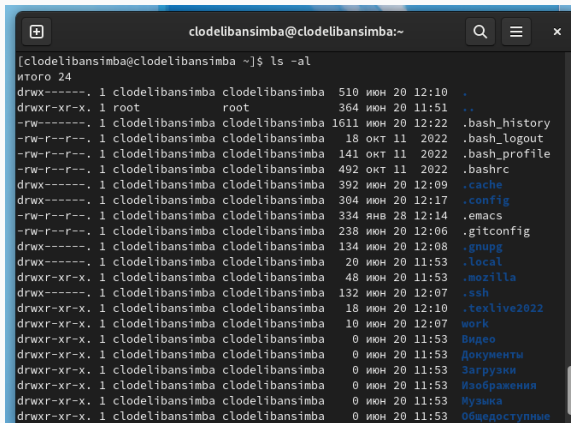
A terminal window with a dark background and light text. The title bar shows the user 'clodelibansimba' and the current directory 'clodelibansimba:/tmp'. The terminal displays the output of the 'ls -f' command, listing various files and directories in the /tmp directory. The files include systemd-private units, vmware-root, and various lock files. The prompt at the bottom is '[clodelibansimba@clodelibansimba tmp]\$'.

```
clodelibansimba@clodelibansimba:/tmp
.X0-lock
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-colord.service-EAR3PN
.X1025-lock
.X1024-lock
vmware-root_774-2999002104
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-ModemManager.service-YjyUB8
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-chrond.service-QpVOAh
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-dbus-broker.service-zbD6TA
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-upower.service-tc9MBA
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-logind.service-tBVHwk
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-switcheroo-control.service-ZEdF
si
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-rtkit-daemon.service-x995Nm
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-power-profiles-daemon.service-q
89nqD
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-low-memory-monitor.service-IS9K
QE
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-resolved.service-FJw1ji
systemd-private-130b87c23bfc4d84a3a96a1ab7cbd395-systemd-oomd.service-IypdZb
.font-unix
.XIM-unix
.ICE-unix
.X11-unix
[clodelibansimba@clodelibansimba tmp]$
```

Рис. 5: Команда ls -f

```
[clodelibansimba@clodelibansimba tmp]$  
[clodelibansimba@clodelibansimba tmp]$ cd /var/spool/  
[clodelibansimba@clodelibansimba spool]$ ls -l  
итого 0  
drwxr-x--x. 1 root abrt 650 мая  8 11:54 abrt  
drwx-----. 1 abrt abrt  0 мар 11 2022 abrt-upload  
drwx--x---. 1 root lp    6 окт  3 2022 cups  
drwxr-xr-x. 1 root root  0 авг  9 2022 lpd  
drwxrwxr-x. 1 root mail 370 июн 20 11:51 mail  
drwxr-xr-x. 1 root root  0 мар  7 2022 plymouth  
[clodelibansimba@clodelibansimba spool]$
```

Рис. 6: Каталог /var/spool



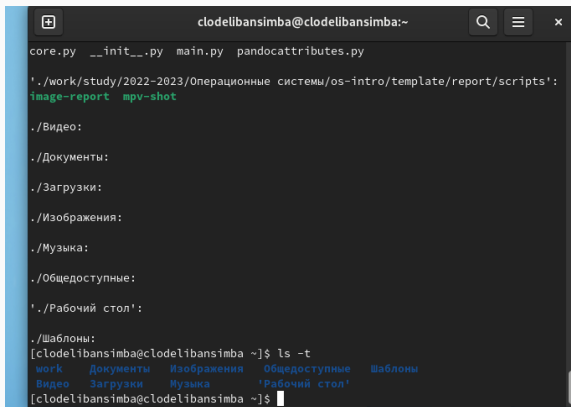
```
clodelibansimba@clodelibansimba:~  
[clodelibansimba@clodelibansimba ~]$ ls -al  
итого 24  
drwx----- 1 clodelibansimba clodelibansimba 510 июн 20 12:10 .  
drwxr-xr-x 1 root root 364 июн 20 11:51 ..  
-rw----- 1 clodelibansimba clodelibansimba 1611 июн 20 12:22 .bash_history  
-rw-r--r-- 1 clodelibansimba clodelibansimba 18 окт 11 2022 .bash_logout  
-rw-r--r-- 1 clodelibansimba clodelibansimba 141 окт 11 2022 .bash_profile  
-rw-r--r-- 1 clodelibansimba clodelibansimba 492 окт 11 2022 .bashrc  
drwx----- 1 clodelibansimba clodelibansimba 392 июн 20 12:09 .cache  
drwx----- 1 clodelibansimba clodelibansimba 304 июн 20 12:17 .config  
-rw-r--r-- 1 clodelibansimba clodelibansimba 334 янв 28 12:14 .emacs  
-rw-r--r-- 1 clodelibansimba clodelibansimba 238 июн 20 12:06 .gitconfig  
drwx----- 1 clodelibansimba clodelibansimba 134 июн 20 12:08 .gnupg  
drwx----- 1 clodelibansimba clodelibansimba 20 июн 20 11:53 .local  
drwxr-xr-x 1 clodelibansimba clodelibansimba 48 июн 20 11:53 .mozilla  
drwxr-xr-x 1 clodelibansimba clodelibansimba 132 июн 20 12:07 .ssh  
drwxr-xr-x 1 clodelibansimba clodelibansimba 18 июн 20 12:10 .texlive2022  
drwxr-xr-x 1 clodelibansimba clodelibansimba 10 июн 20 12:07 work  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Видео  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Документы  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Загрузки  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Изображения  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Музыка  
drwxr-xr-x 1 clodelibansimba clodelibansimba 0 июн 20 11:53 Общедоступные
```

Рис. 7: Файлы в домашнем каталоге

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

Рис. 8: Действия с каталогами

# Опции команды ls



A terminal window titled 'clodelibansimba@clodelibansimba:~' with search, menu, and close icons. The window shows the output of a directory listing command. At the top, it lists files: core.py, \_\_init\_\_.py, main.py, and pandocattributes.py. Below that, it shows the current directory path: './work/study/2022-2023/Операционные системы/os-intro/template/report/scripts/'. Then, it lists subdirectories: image-report, mpv-shot, Видео, Документы, Загрузки, Изображения, Музыка, Общедоступные, Рабочий стол, and Шаблоны. Finally, it shows the output of the command 'ls -t', which lists the same subdirectories in reverse chronological order: work, Документы, Изображения, Общедоступные, Шаблоны, Видео, Загрузки, Музыка, 'Рабочий стол', and the current directory '~'.

```
core.py __init__.py main.py pandocattributes.py

'./work/study/2022-2023/Операционные системы/os-intro/template/report/scripts':
image-report mpv-shot

./Видео:

./Документы:

./Загрузки:

./Изображения:

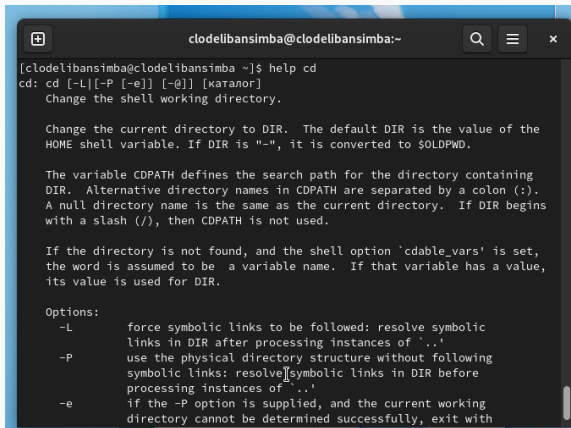
./Музыка:

./Общедоступные:

'./Рабочий стол':

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

Рис. 9: Команда ls -R и ls -t



```
clodelibansimba@clodelibansimba:~$ 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.

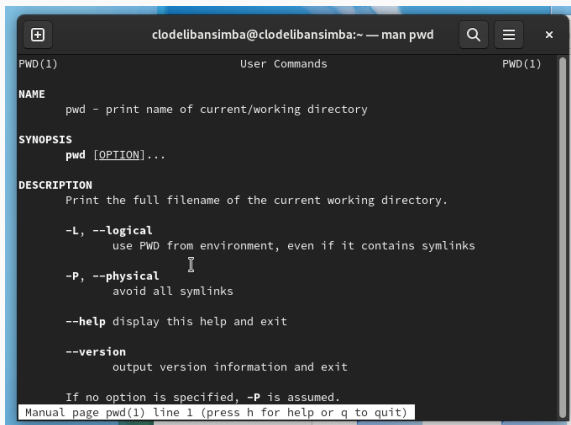
    The variable CDPATH defines the search path for the directory containing
    DIR.  Alternative directory names in CDPATH are separated by a colon (:).
    A null directory name is the same as the current directory.  If DIR begins
    with a slash (/), then CDPATH is not used.

    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
          processing instances of `..'
  -e      if the -P option is supplied, and the current working
          directory cannot be determined successfully, exit with
```

Рис. 10: Справка по команде cd

# Справка по командам



```
clodelibansimba@clodelibansimba:~ — man pwd
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

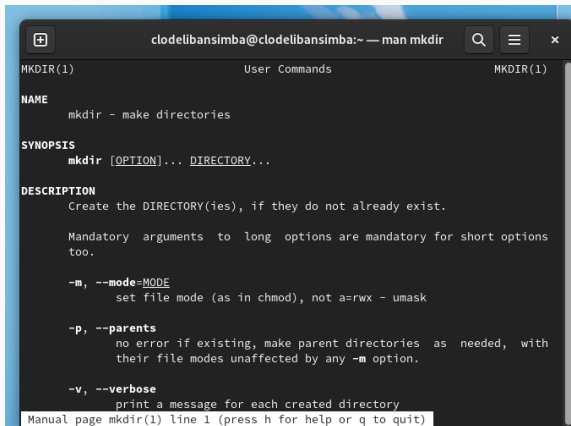
    --help display this help and exit

    --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





```
clodelibansimba@clodelibansimba:~ — 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.

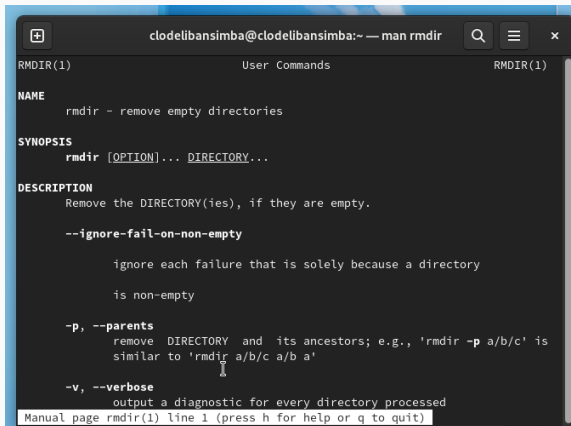
  -m, --mode=MODE
      set file mode (as in chmod), not a=rwx - umask

  -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

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

Рис. 12: Справка по команде mkdir



```
clodelibansimba@clodelibansimba:~ — 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 that is solely because a directory
        is non-empty

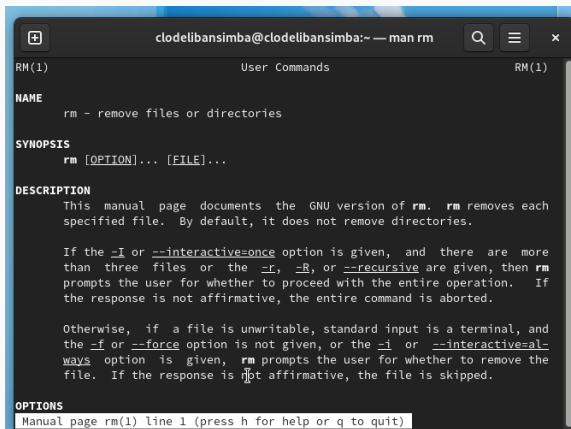
    -p, --parents
        remove DIRECTORY and its ancestors; e.g., 'rmdir -p a/b/c' is
        similar to 'rmdir a/b/c a/b a'

    -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



```
clodelibansimba@clodelibansimba:~ — 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.

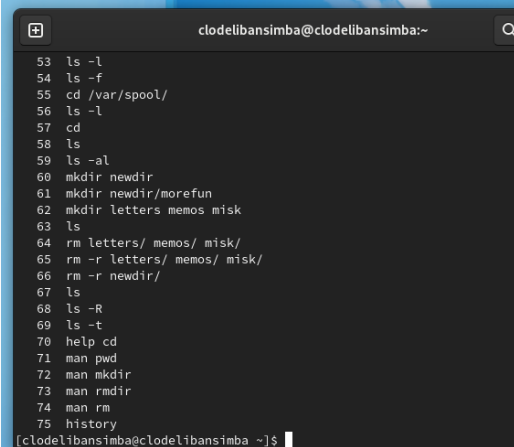
  If the -I or --interactive=once option is given, and there are more
  than three files or the -r, -R, or --recursive are given, then rm
  prompts the user for whether to proceed with the entire operation. If
  the response is not affirmative, the entire command is aborted.

  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 at the top shows a window icon, the username 'clodelibansimba@clodelibansimba:~', and a search icon. The terminal content displays a list of 25 commands, each preceded by a line number from 53 to 75. The commands include file listing, directory navigation, directory creation, file removal, and help commands. The final line shows the prompt '[clodelibansimba@clodelibansimba ~]\$' followed by a cursor.

```
53 ls -l
54 ls -f
55 cd /var/spool/
56 ls -l
57 cd
58 ls
59 ls -al
60 mkdir newdir
61 mkdir newdir/morefun
62 mkdir letters memos misk
63 ls
64 rm letters/ memos/ misk/
65 rm -r letters/ memos/ misk/
66 rm -r newdir/
67 ls
68 ls -R
69 ls -t
70 help cd
71 man pwd
72 man mkdir
73 man rmdir
74 man rm
75 history
[clodelibansimba@clodelibansimba ~]$
```

Рис. 15: Команда history

## **Выводы по проделанной работе**

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