

Основы интерфейса взаимодействия пользователя с системой Unix на уровне командной строки

Кеан Путхеаро НПИбд-01-20¹

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¹Российский Университет Дружбы Народов

Цели и задачи работы

Цель лабораторной работы

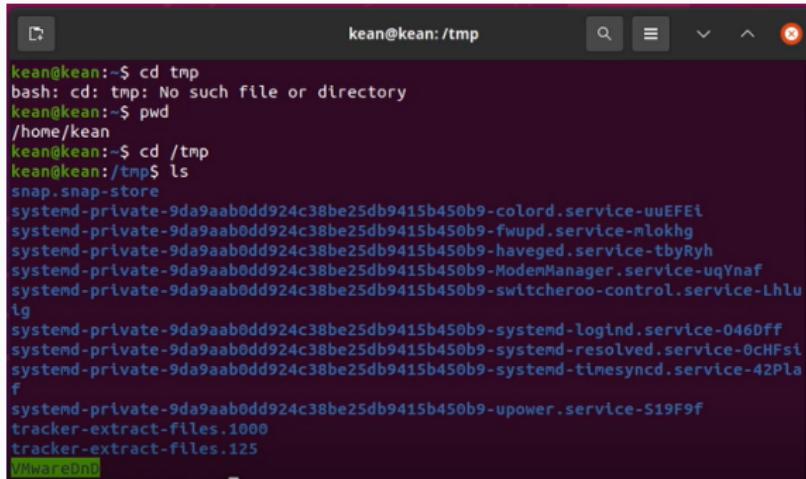
Приобретение практических навыков взаимодействия пользователя с системой посредством командной строки.

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



A screenshot of a terminal window titled "kean@kean: /tmp". The window shows a user's session with the following commands and output:

```
kean@kean:~$ cd tmp
bash: cd: tmp: No such file or directory
kean@kean:~$ pwd
/home/kean
kean@kean:~$ cd /tmp
kean@kean:/tmp$ ls
snap.snap-store
systemd-private-9da9aab0dd924c38be25db9415b450b9-colord.service-uuEFei
systemd-private-9da9aab0dd924c38be25db9415b450b9-fwupd.service-mlokhg
systemd-private-9da9aab0dd924c38be25db9415b450b9-haveged.service-tbyRyh
systemd-private-9da9aab0dd924c38be25db9415b450b9-ModemManager.service-uqVnaf
systemd-private-9da9aab0dd924c38be25db9415b450b9-switcheroo-control.service-Lhlu
ig
systemd-private-9da9aab0dd924c38be25db9415b450b9-systemd-logind.service-046Dff
systemd-private-9da9aab0dd924c38be25db9415b450b9-systemd-resolved.service-0cHFsi
systemd-private-9da9aab0dd924c38be25db9415b450b9-systemd-timesyncd.service-42Pla
f
systemd-private-9da9aab0dd924c38be25db9415b450b9-upower.service-S19F9f
tracker-extract-files.1000
tracker-extract-files.125
WhereBnp
```

Рис. 1: опция *a* для отображения скрытых файлов

Опции команды ls

```
kean@kean:/tmp$ ls -af
/
.-
.font-unix/
.ICE-unix/
snap.snap-store/
systemd-private_9da9aab0dd924c38be25db9415b450b9-colord.service-uuEFEi/
systemd-private_9da9aab0dd924c38be25db9415b450b9-fwupd.service-nlokhg/
systemd-private_9da9aab0dd924c38be25db9415b450b9-haveged.service-tbyRyh/
systemd-private_9da9aab0dd924c38be25db9415b450b9-ModemManager.service-uqYnaf/
systemd-private_9da9aab0dd924c38be25db9415b450b9-switcheroo-control.service-lhlu
ig/
systemd-private_9da9aab0dd924c38be25db9415b450b9-systemd-logind.service-046Dff/
systemd-private_9da9aab0dd924c38be25db9415b450b9-systemd-resolved.service-0cHFsi
/
systemd-private_9da9aab0dd924c38be25db9415b450b9-systemd-timesyncd.service-42Pla
f/
systemd-private_9da9aab0dd924c38be25db9415b450b9-upower.service-S19F9f/
.Test-unit/
tracker-extract-files.1000/
```

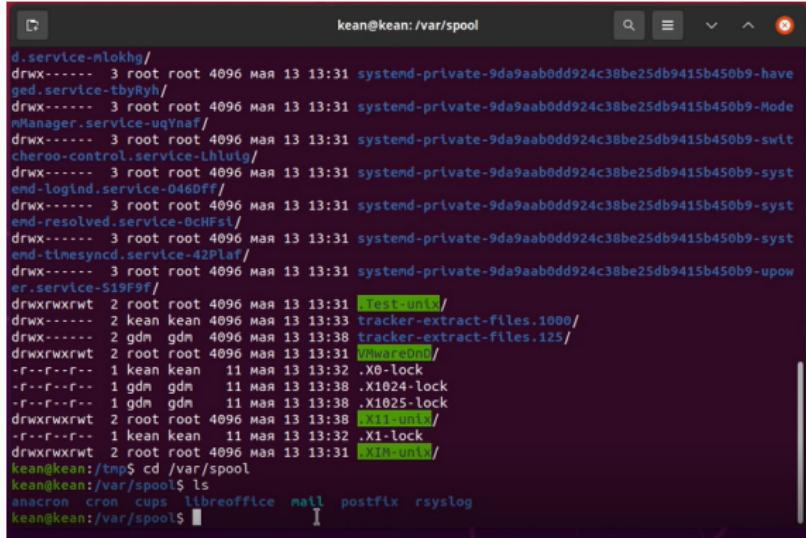
Рис. 2: опция F для отображения типа файла

Опции команды ls

```
kean@kean:/tmp$ ls -aFl
total 96
drwxrwxrwt 20 root root 4096 май 13 13:44 /
drwxr-xr-x 20 root root 4096 апр 29 00:11 ../
drwxrwxrwt 2 root root 4096 май 13 13:31 .font-unix/
drwxrwxrwt 2 root root 4096 май 13 13:38 .ICE-unix/
drwx----- 3 root root 4096 май 13 13:32 snap.snap-store/
drwx----- 3 root root 4096 май 13 13:32 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-colord.service-uuEFe1/
drwx----- 3 root root 4096 май 13 13:32 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-fwupd.service-nlokhg/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-haveged.service-tbyRyh/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-ModemManager.service-uqYnaf/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-swttcheroo-control.service-lhluiig/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-systemd-logind.service-0460ff/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-systemd-resolved.servlce-0chfsl/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-systemd-timesyncd.service-42Plaf/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25d
b9415b450b9-upower.service-S19F9f/
drwxrwxrwt 2 root root 4096 май 13 13:31 .Test-unix/
drwx----- 2 kean kean 4096 май 13 13:33 tracker-extract-files.1000/
```

Рис. 3: опция 1 для отображения полной информации

Опции команды ls

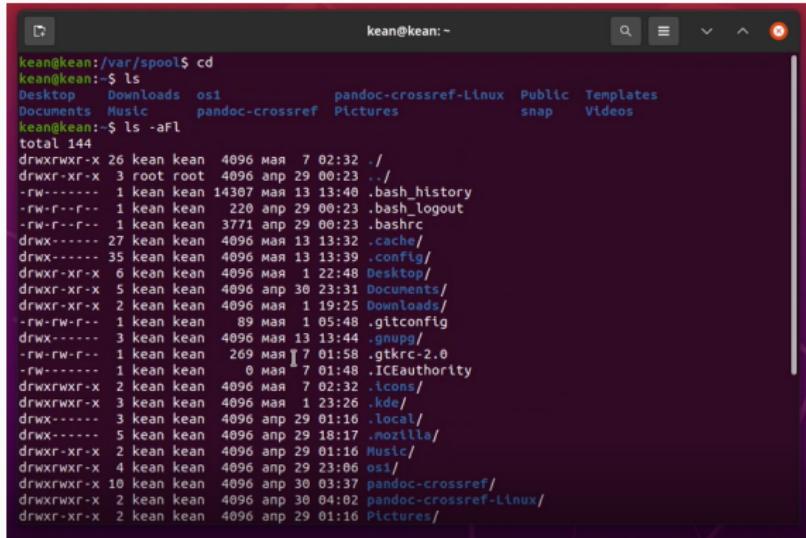


The screenshot shows a terminal window titled "kean@kean: /var/spool". The window displays a list of files and directories in the /var/spool directory. The output is as follows:

```
d.service-mlokhg/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-have
ged.service-tbyRyh/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-Mode
mManager.service-uqYnaf/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-swit
cheroo-control.service-lhlutg/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-syst
end-logind.service-046dff/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-syst
end-resolved.service-0cHFsi/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-syst
end-timesyncd.service-42Plaf/
drwx----- 3 root root 4096 май 13 13:31 systemd-private-9da9aab0dd924c38be25db9415b450b9-upow
er.service-S19F9f/
drwxrwxrwt 2 root root 4096 май 13 13:31 .Test-unix/
drwx----- 2 kean kean 4096 май 13 13:33 tracker-extract-files.1000/
drwx----- 2 gdm gdm 4096 май 13 13:38 tracker-extract-files.125/
drwxrwxrwt 2 root root 4096 май 13 13:31 VMwareOnb/
-r--r--r-- 1 kean kean 11 май 13 13:32 .X0-lock
-r--r--r-- 1 gdm gdm 11 май 13 13:38 .X1024-lock
-r--r--r-- 1 gdm gdm 11 май 13 13:38 .X1025-lock
drwxrwxrwt 2 root root 4096 май 13 13:38 .X11-unix/
-r--r--r-- 1 kean kean 11 май 13 13:32 .X1-lock
drwxrwxrwt 2 root root 4096 май 13 13:31 .XIM-unix/
kean@kean:/tmp$ cd /var/spool
kean@kean:/var/spool$ ls
anacron cron cups libreoffice mail postfix rsyslog
kean@kean:/var/spool$
```

Рис. 4: каталог /var/spool

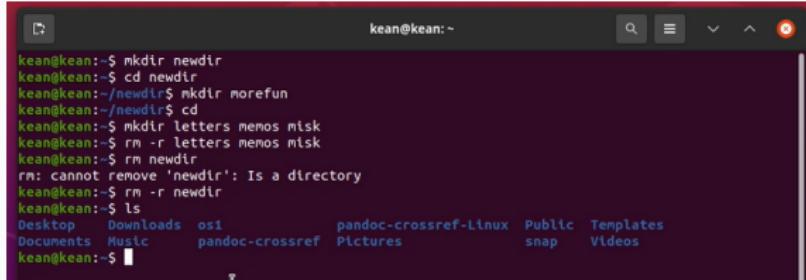
Каталог cron



```
kean@kean:/var/spool$ cd
kean@kean:~$ ls
Desktop  Downloads  os1          pandoc-crossref-Linux  Public  Templates
Documents  Music      pandoc-crossref  Pictures           snap    Videos
kean@kean:~$ ls -aFl
total 144
drwxrwxr-x 26 kean kean  4096 май  7 02:32 .
drwxr-xr-x  3 root root  4096 апр 29 00:23 ..
-rw-----  1 kean kean 14307 май 13 13:40 .bash_history
-rw-r--r--  1 kean kean   220 апр 29 00:23 .bash_logout
-rw-r--r--  1 kean kean  3771 апр 29 00:23 .bashrc
drwx----- 27 kean kean  4096 май 13 13:32 .cache/
drwx----- 35 kean kean  4096 май 13 13:39 .config/
drwxr-xr-x  6 kean kean  4096 май  1 22:48 Desktop/
drwxr-xr-x  5 kean kean  4096 апр 30 23:31 Documents/
drwxr-xr-x  2 kean kean  4096 май  1 19:25 Downloads/
-rw-rw-r--  1 kean kean    89 май  1 05:48 .gitconfig
drwx-----  3 kean kean  4096 май 13 13:44 .gnupg/
-rw-rw-r--  1 kean kean  269 май  7 01:58 .gtkrc-2.0
-rw-----  1 kean kean     0 май  7 01:48 .ICEauthority
drwxrwxr-x  2 kean kean  4096 май  7 02:32 .icons/
drwxrwxr-x  3 kean kean  4096 май  1 23:26 .kde/
drwx-----  3 kean kean  4096 апр 29 01:16 .local/
drwx-----  5 kean kean  4096 апр 29 18:17 .mozilla/
drwxr-xr-x  2 kean kean  4096 апр 29 01:16 Music/
drwxrwxr-x  4 kean kean  4096 апр 29 23:06 os1/
drwxrwxr-x 10 kean kean  4096 апр 30 03:37 pandoc-crossref/
drwxrwxr-x  2 kean kean  4096 апр 30 04:02 pandoc-crossref-Linux/
drwxr-xr-x  2 kean kean  4096 апр 29 01:16 Pictures/
```

Рис. 5: содержимое домашнего каталога

Домашний каталог



A screenshot of a terminal window titled "kean@kean:~". The terminal shows the following command sequence:

```
kean@kean:~$ mkdir newdir
kean@kean:~$ cd newdir
kean@kean:~/newdir$ mkdir morefun
kean@kean:~/newdir$ cd
kean@kean:~$ mkdir letters nemos misk
kean@kean:~$ rm -r letters nemos misk
kean@kean:~$ rm newdir
rm: cannot remove 'newdir': Is a directory
kean@kean:~$ rm -r newdir
kean@kean:~$ ls
Desktop  Downloads  os1          pandoc-crossref-Linux  Public  Templates
Documents  Music      pandoc-crossref  Pictures        snap    Videos
kean@kean:~$
```

The terminal window has a dark background with light-colored text. It includes standard Linux terminal icons at the top: a window icon, a search icon, a maximize/minimize icon, and a close icon.

Рис. 6: Выполните следующие действия

Работа с каталогами

```
kean@kean:~  
-N, --literal  
    print entry names without quoting  
-o      like -l, but do not list group information  
-p, --indicator-style=slash  
    append / indicator to directories  
-q, --hide-control-chars  
    print ? instead of nongraphic characters  
--show-control-chars  
    show nongraphic characters as-is (the default, unless program is 'ls' and out-  
    put is a terminal)  
-Q, --quote-name  
    enclose entry names in double quotes  
--quoting-style=WORD  
    use quoting style WORD for entry names: literal, locale, shell, shell-always,  
    shell-escape, shell-escape-always, c, escape (overrides QUOTING_STYLE environ-  
    ment variable)  
-r, --reverse  
    reverse order while sorting  
-R, --recursive  
    list subdirectories recursively  
Manual page ls(1) line 121 (press h for help or q to quit)
```

Рис. 7: man ls

Опции команды ls

```
extension (-X)

--time=WORD
    with -l, show time as WORD instead of default modification time: atime or ac-
    cess or use (-u); ctime or status (-c); also use specified time as sort key if
    --sort=time (newest first)

--time-style=TIME_STYLE
    time/date format with -l; see TIME_STYLE below

-t      sort by modification time, newest first

-T, --tabsize=COLS
    assume tab stops at each COLS instead of 8
    [A vertical ellipsis symbol is shown here]

-u      with -lt: sort by, and show, access time; with -l: show access time and sort
        by name; otherwise: sort by access time, newest first

-U      do not sort; list entries in directory order

-v      natural sort of (version) numbers within text

-w, --width=COLS
    set output width to COLS.  0 means no limit

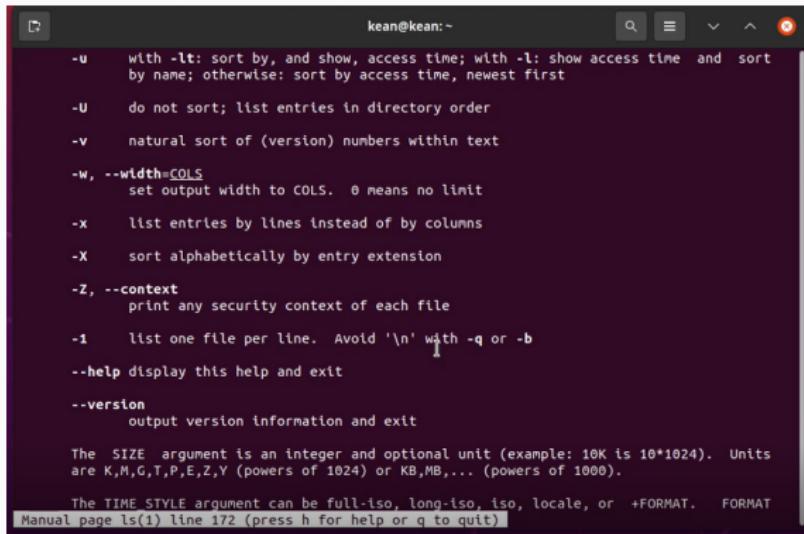
-x      list entries by lines instead of by columns

-X      sort alphabetically by entry extension

Manual page ls(1) line 157 (press h for help or q to quit)
```

Рис. 8: man ls

Справка по командам



kean@kean:~

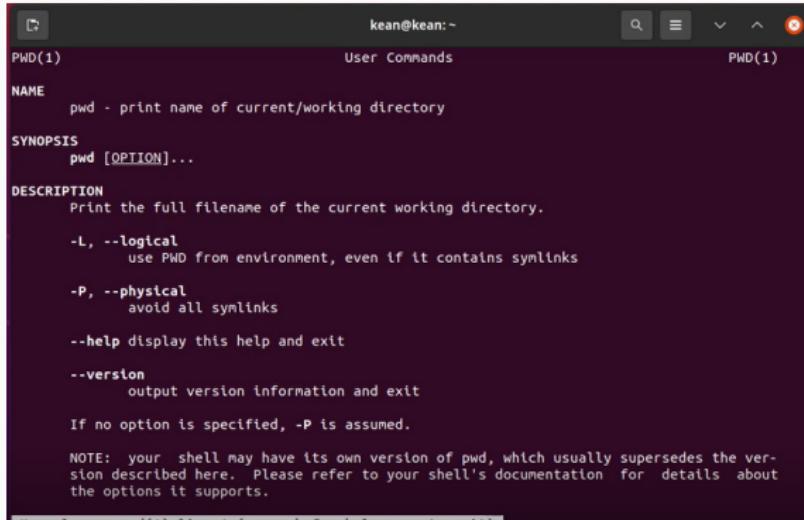
```
-u      with -lt: sort by, and show, access time; with -l: show access time and sort by name; otherwise: sort by access time, newest first
-U      do not sort; list entries in directory order
-v      natural sort of (version) numbers within text
-w, --width=COLS
        set output width to COLS.  0 means no limit
-x      list entries by lines instead of by columns
-X      sort alphabetically by entry extension
-Z, --context
        print any security context of each file
-1      list one file per line.  Avoid '\n' with -q or -b
--help display this help and exit
--version
        output version information and exit

The SIZE argument is an integer and optional unit (example: 10K is 10*1024).  Units
are K,M,G,T,P,E,Z,Y (powers of 1024) or KB,MB,... (powers of 1000).

The TIME STYLE argument can be full-iso, long-iso, iso, locale, or +FORMAT.  FORMAT
Manual page ls(1) line 172 (press h for help or q to quit)
```

Рис. 9: man в действии

Справка по командам



The screenshot shows a terminal window with a dark background and light-colored text. At the top, it says "kean@kean:~". Below that, the title "User Commands" is followed by "PWD(1)". The man page for the "pwd" command is displayed, starting with the "NAME" section, which defines "pwd - print name of current/working directory". The "SYNOPSIS" section shows the command as "pwd [OPTION]...". The "DESCRIPTION" section explains that it prints the full filename of the current working directory. It then lists several options: "-L, --logical" (use PWD from environment, even if it contains symlinks), "-P, --physical" (avoid all symlinks), "--help" (display this help and exit), and "--version" (output version information and exit). A note at the bottom states: "If no option is specified, -P is assumed." and "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." A small status bar at the bottom of the terminal window shows "Manpage: /usr/bin/pwd(1) Line 1 (source h for help or q to quit)".

Рис. 10: man в действии pwd

Справка по командам

```
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

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

Рис. 11: man в действии mkdir

Справка по командам

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

Рис. 12: man в действии rmdir

Справка по командам

```
kean@kean:~ 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, 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.

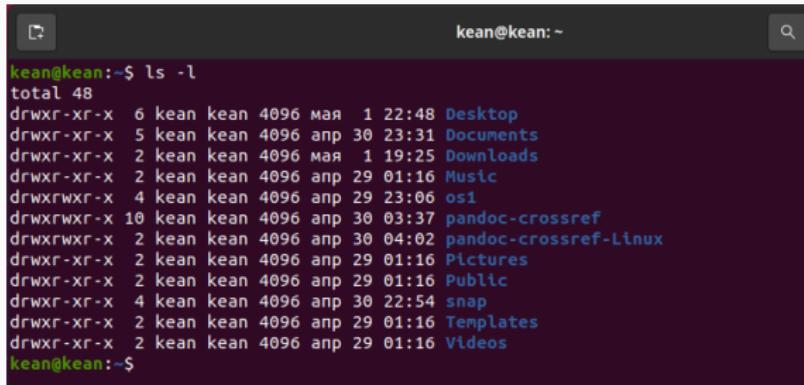
OPTIONS
    Remove (unlink) the FILE(s).

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

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

Рис. 13: man в действии rm

История командной строки



```
kean@kean:~$ ls -l
total 48
drwxr-xr-x  6 kean kean 4096 май  1 22:48 Desktop
drwxr-xr-x  5 kean kean 4096 апр 30 23:31 Documents
drwxr-xr-x  2 kean kean 4096 май  1 19:25 Downloads
drwxr-xr-x  2 kean kean 4096 апр 29 01:16 Music
drwxrwxr-x  4 kean kean 4096 апр 29 23:06 os1
drwxrwxr-x 10 kean kean 4096 апр 30 03:37 pandoc-crossref
drwxrwxr-x  2 kean kean 4096 апр 30 04:02 pandoc-crossref-Linux
drwxr-xr-x  2 kean kean 4096 апр 29 01:16 Pictures
drwxr-xr-x  2 kean kean 4096 апр 29 01:16 Public
drwxr-xr-x  4 kean kean 4096 апр 30 22:54 snap
drwxr-xr-x  2 kean kean 4096 апр 29 01:16 Templates
drwxr-xr-x  2 kean kean 4096 апр 29 01:16 Videos
kean@kean:~$
```

Рис. 14: history

Выводы по проделанной работе

Вывод

Приобретены практические навыки поведения пользователей с системой через струнную систему. Исправлено использование наиболее распространенных команд.