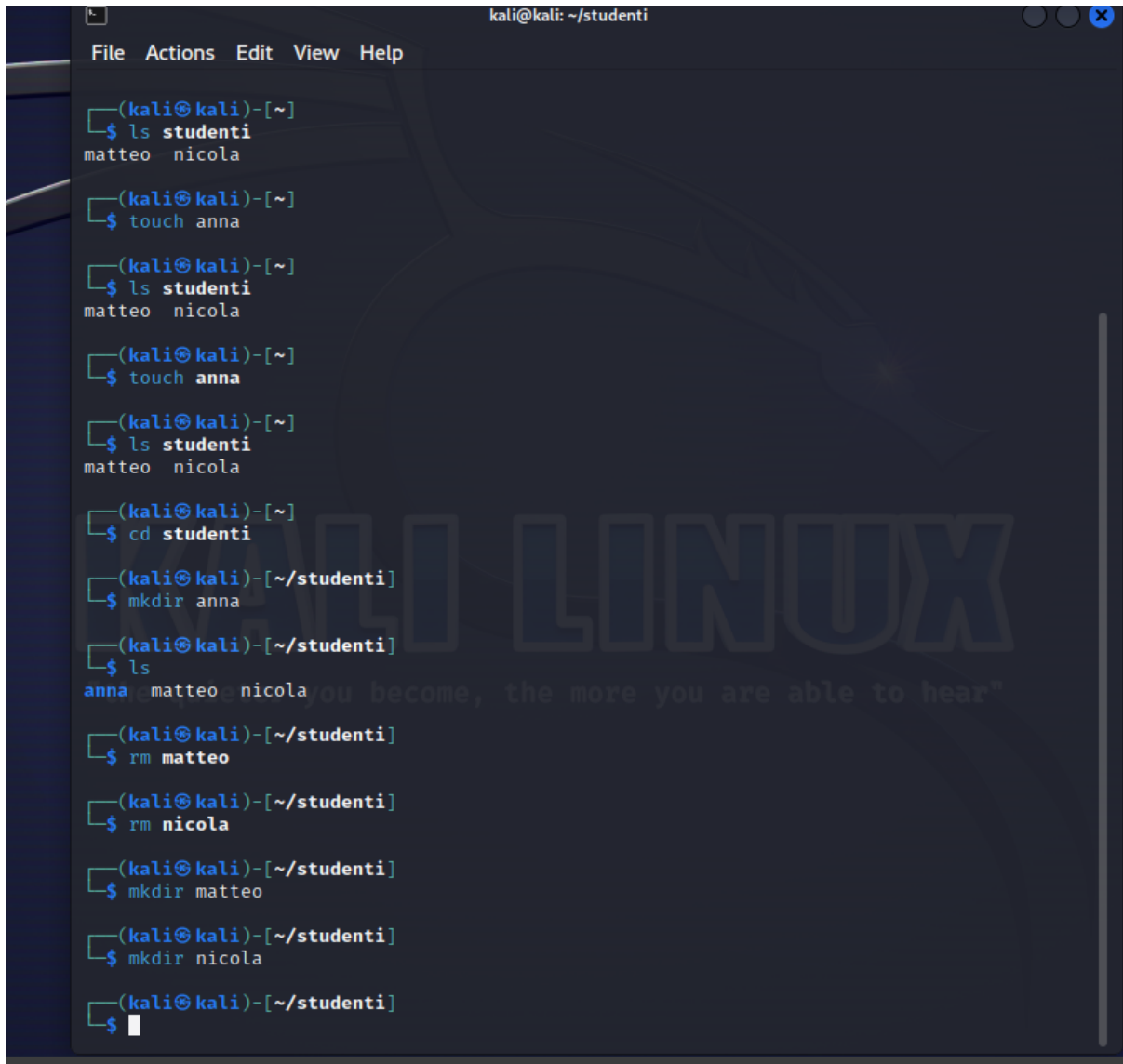


ESERCIZIO 1

a) creazione delle directory



```
kali@kali: ~/studenti
File Actions Edit View Help

(kali㉿kali)-[~]
$ ls studenti
matteo nicola

(kali㉿kali)-[~]
$ touch anna

(kali㉿kali)-[~]
$ ls studenti
matteo nicola

(kali㉿kali)-[~]
$ touch anna

(kali㉿kali)-[~]
$ ls studenti
matteo nicola

(kali㉿kali)-[~]
$ cd studenti

(kali㉿kali)-[~/studenti]
$ mkdir anna

(kali㉿kali)-[~/studenti]
$ ls
anna matteo nicola

(kali㉿kali)-[~/studenti]
$ rm matteo

(kali㉿kali)-[~/studenti]
$ rm nicola

(kali㉿kali)-[~/studenti]
$ mkdir matteo

(kali㉿kali)-[~/studenti]
$ mkdir nicola

(kali㉿kali)-[~/studenti]
$
```

The image shows a terminal window titled 'kali@kali: ~/studenti'. The window has a menu bar with 'File', 'Actions', 'Edit', 'View', and 'Help'. The terminal output shows a series of commands and their results: 1. 'ls studenti' returns 'matteo nicola'. 2. 'touch anna' is executed. 3. 'ls studenti' returns 'matteo nicola'. 4. 'touch anna' is executed. 5. 'ls studenti' returns 'matteo nicola'. 6. 'cd studenti' changes the directory to '~/studenti'. 7. 'mkdir anna' creates a new directory 'anna'. 8. 'ls' returns 'anna matteo nicola'. 9. 'rm matteo' removes the directory 'matteo'. 10. 'rm nicola' removes the directory 'nicola'. 11. 'mkdir matteo' creates a new directory 'matteo'. 12. 'mkdir nicola' creates a new directory 'nicola'. The prompt '\$' is shown at the end of the last command.

File Actions Edit View Help

(kali㉿kali)-[~/studenti]

\$ rm matteo

(kali㉿kali)-[~/studenti]

\$ rm nicola

(kali㉿kali)-[~/studenti]

\$ mkdir matteo

(kali㉿kali)-[~/studenti]

\$ mkdir nicola

(kali㉿kali)-[~/studenti]

\$ ls studenti

ls: cannot access 'studenti': No such file or directory

(kali㉿kali)-[~/studenti]

\$ cd

(kali㉿kali)-[~]

\$ cd anna

cd: not a directory: anna

(kali㉿kali)-[~]

\$ cd ~/studenti/nicola

(kali㉿kali)-[~/studenti/nicola]

\$ mkdir scuola

(kali㉿kali)-[~/studenti/nicola]

\$ mkdir lavoro

(kali㉿kali)-[~/studenti/nicola]

\$ cd scuola

(kali㉿kali)-[~/studenti/nicola/scuola]

\$ touch relazione.doc

(kali㉿kali)-[~/studenti/nicola/scuola]

\$ touch compito.doc

(kali㉿kali)-[~/studenti/nicola/scuola]

\$

```
kali@kali: ~/studenti
File Actions Edit View Help
└─$ cd scuola

(kali@kali)-[~/studenti/nicola/scuola]
└─$ touch relazione.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ touch compito.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cd ~/studenti/anna

(kali@kali)-[~/studenti/anna]
└─$ mkdir casa

(kali@kali)-[~/studenti/anna]
└─$ cd ~/studenti/nicola/scuola

(kali@kali)-[~/studenti/nicola/scuola]
└─$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cp compito.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
└─$ mv relazione.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
└─$ ls
compito.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cd ~/studenti/anna/casa

(kali@kali)-[~/studenti/anna/casa]
└─$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/anna/casa]
└─$ cd ~/studenti

(kali@kali)-[~/studenti]
└─$
```

```
kali@kali: ~/studenti
File Actions Edit View Help
└─$ cd scuola

(kali@kali)-[~/studenti/nicola/scuola]
└─$ touch relazione.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ touch compito.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cd ~/studenti/anna

(kali@kali)-[~/studenti/anna]
└─$ mkdir casa

(kali@kali)-[~/studenti/anna]
└─$ cd ~/studenti/nicola/scuola

(kali@kali)-[~/studenti/nicola/scuola]
└─$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cp compito.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
└─$ mv relazione.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
└─$ ls
compito.doc

(kali@kali)-[~/studenti/nicola/scuola]
└─$ cd ~/studenti/anna/casa

(kali@kali)-[~/studenti/anna/casa]
└─$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/anna/casa]
└─$ cd ~/studenti

(kali@kali)-[~/studenti]
└─$
```

```
kali@kali: ~/studenti/matteo
File Actions Edit View Help
(kali@kali)-[~/studenti/anna]
$ cd ~/studenti/nicola/scuola

(kali@kali)-[~/studenti/nicola/scuola]
$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/nicola/scuola]
$ cp compito.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
$ mv relazione.doc ~/studenti/anna/casa

(kali@kali)-[~/studenti/nicola/scuola]
$ ls
compito.doc

(kali@kali)-[~/studenti/nicola/scuola]
$ cd ~/studenti/anna/casa

(kali@kali)-[~/studenti/anna/casa]
$ ls
compito.doc  relazione.doc

(kali@kali)-[~/studenti/anna/casa]
$ cd ~/studenti

(kali@kali)-[~/studenti] come, the more you are able to hear"
$ mkdir matteo
mkdir: cannot create directory 'matteo': File exists

(kali@kali)-[~/studenti]
$ cd matteo

(kali@kali)-[~/studenti/matteo]
$ mkdir amici

(kali@kali)-[~/studenti/matteo]
$ ls
amici

(kali@kali)-[~/studenti/matteo]
$
```

```
kali@kali: ~  
File Actions Edit View Help  
(kali@kali)-[~/tmp]  
$ cd studenti  
(kali@kali)-[~/tmp/studenti]  
$ ls  
anna matteo nicola  
(kali@kali)-[~/tmp/studenti]  
$ rm anna  
(kali@kali)-[~/tmp/studenti]  
$ rm matteo  
(kali@kali)-[~/tmp/studenti]  
$ rm nicola  
(kali@kali)-[~/tmp/studenti]  
$ cd ~/tmp  
(kali@kali)-[~/tmp]  
$ rmdir studenti  
(kali@kali)-[~/tmp]  
$ rmdir windows  
(kali@kali)-[~/tmp]  
$ rm risultati.com  
rm: command not found  
(kali@kali)-[~/tmp]  
$ rm risultati.com  
(kali@kali)-[~/tmp]  
$ rm risultati.doc  
(kali@kali)-[~/tmp]  
$ cd ~  
(kali@kali)-[~]  
$ rmdir tmp  
(kali@kali)-[~]  
$
```

b) creazione file pippo

```
kali@kali: ~  
File Actions Edit View Help  
└─$ rm pippo.txt  
rm: cannot remove 'pippo.txt': No such file or directory  
  
└─(kali@kali)-[~/studenti/nicola]  
└─$ ls  
lavoro  
  
└─(kali@kali)-[~/studenti/nicola]  
└─$ cd ~/studenti/nicola/lavoro  
  
└─(kali@kali)-[~/studenti/nicola/lavoro]  
└─$ rm pippo.txt  
  
└─(kali@kali)-[~/studenti/nicola/lavoro]  
└─$ cd ~/studenti/nicola  
  
└─(kali@kali)-[~/studenti/nicola]  
└─$ rmdir lavoro  
  
└─(kali@kali)-[~/studenti/nicola]  
└─$ rmdir lavoro  
rmdir: failed to remove 'lavoro': No such file or directory  
  
└─(kali@kali)-[~/studenti/nicola]  
└─$ cd ~/studenti  
  
└─(kali@kali)-[~/studenti]  
└─$ rmdir nicola  
  
└─(kali@kali)-[~/studenti]  
└─$ cd ~  
  
└─(kali@kali)-[~]  
└─$ rmdir studenti  
rmdir: failed to remove 'studenti': Directory not empty  
  
└─(kali@kali)-[~]  
└─$ ls  
anna      doc      Downloads  Music      Pictures  studenti  Videos  
Desktop   Documents kali      nano.65921.save Public     Templates windows  
  
└─(kali@kali)-[~]  
└─$
```

```
kali@kali: ~/studenti/anna/casa
File Actions Edit View Help
└─$ cd ~/studenti/anna/casa
cd: no such file or directory: /home/kali/studenti/anna/casa

(kali@kali)-[~/studenti/anna]
└─$ cd ~/studenti/anna

(kali@kali)-[~/studenti/anna]
└─$ rmdir casa
rmdir: failed to remove 'casa': No such file or directory

(kali@kali)-[~/studenti/anna]
└─$ cd ~/studenti/anna/casa
cd: no such file or directory: /home/kali/studenti/anna/casa

(kali@kali)-[~/studenti/anna]
└─$ ~

(kali@kali)-[~]
└─$ ls
anna  doc  Downloads  Music  Pictures  studenti  Videos
Desktop  Documents  kali  nano.65921.save  Public  Templates  windows

(kali@kali)-[~]
└─$ cd a
cd: no such file or directory: a

(kali@kali)-[~]
└─$ cd ~/studenti/anna

(kali@kali)-[~/studenti/anna]
└─$ mv .casa casa

(kali@kali)-[~/studenti/anna]
└─$ cd ~/studenti/anna/casa

(kali@kali)-[~/studenti/anna/casa]
└─$ rm compito.doc

(kali@kali)-[~/studenti/anna/casa]
└─$ rm relazione.doc

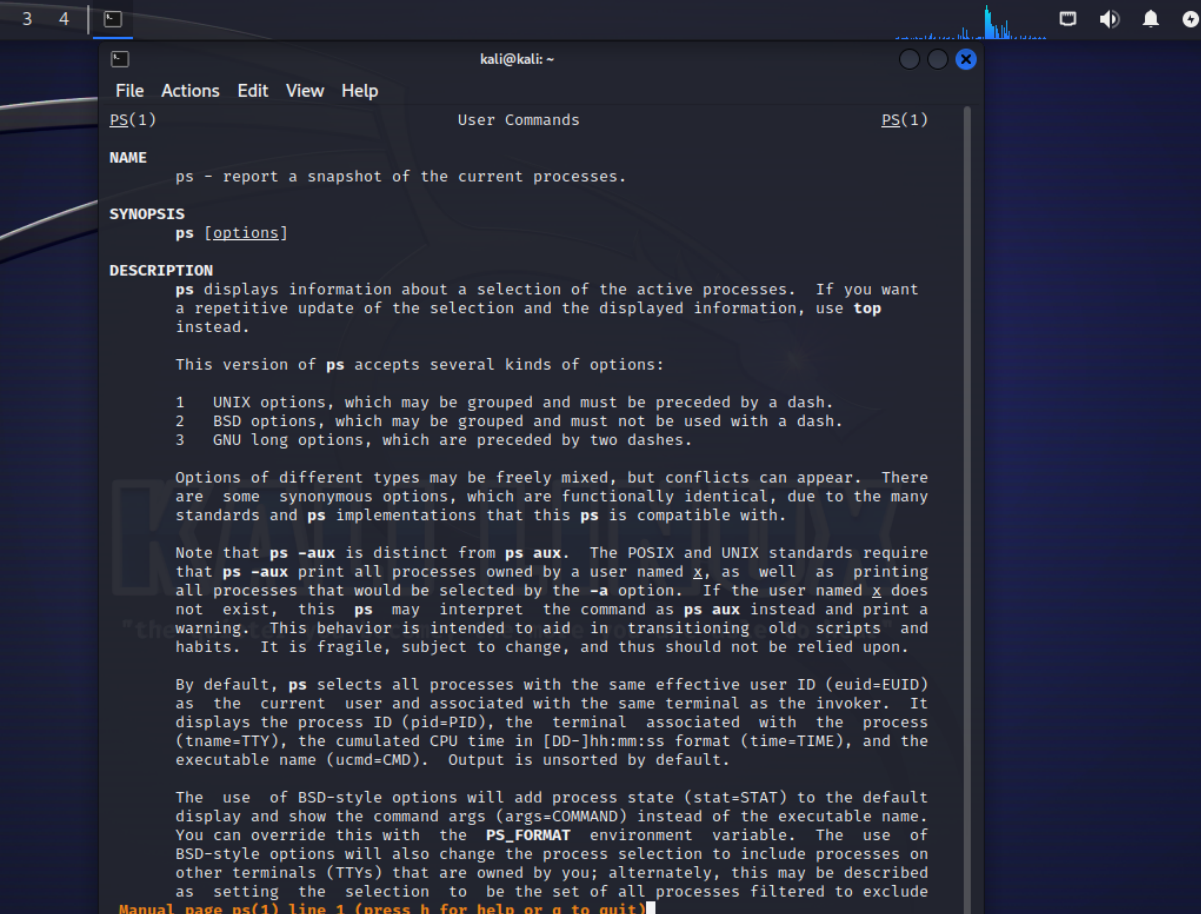
(kali@kali)-[~/studenti/anna/casa]
└─$
```



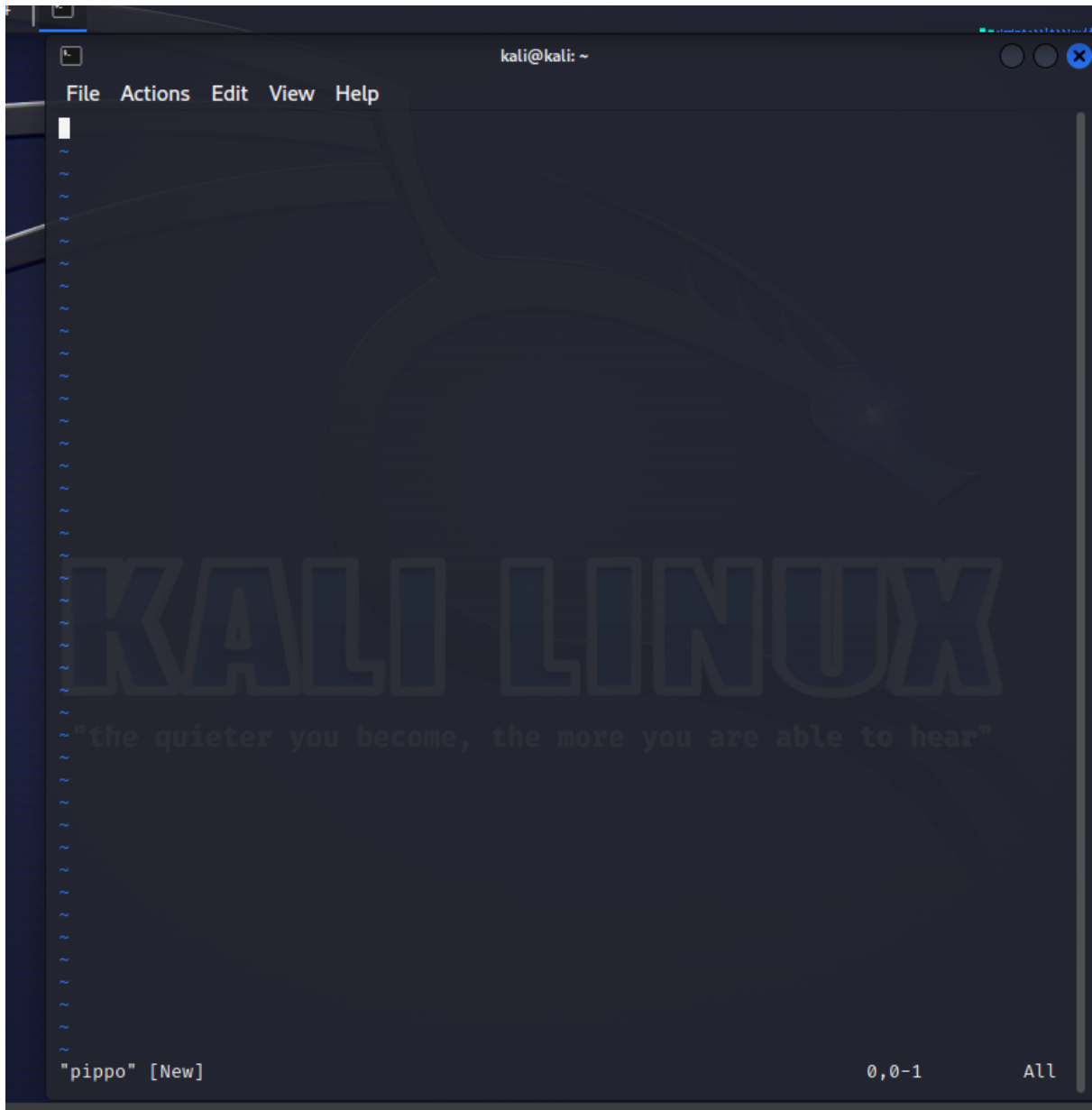
```
kali@kali: ~  
File Actions Edit View Help  
(kali@kali)-[~/tmp]  
$ cd studenti  
(kali@kali)-[~/tmp/studenti]  
$ ls  
anna matteo nicola  
(kali@kali)-[~/tmp/studenti]  
$ rm anna  
(kali@kali)-[~/tmp/studenti]  
$ rm matteo  
(kali@kali)-[~/tmp/studenti]  
$ rm nicola  
(kali@kali)-[~/tmp/studenti]  
$ cd ~/tmp  
(kali@kali)-[~/tmp]  
$ rmdir studenti  
(kali@kali)-[~/tmp]  
$ rmdir windows  
(kali@kali)-[~/tmp]  
$ rm risultati.com  
rm: command not found  
(kali@kali)-[~/tmp]  
$ rm risultati.com  
(kali@kali)-[~/tmp]  
$ rm risultati.doc  
(kali@kali)-[~/tmp]  
$ cd ~  
(kali@kali)-[~]  
$ rmdir tmp  
(kali@kali)-[~]  
$
```

ESERCIZIO 2

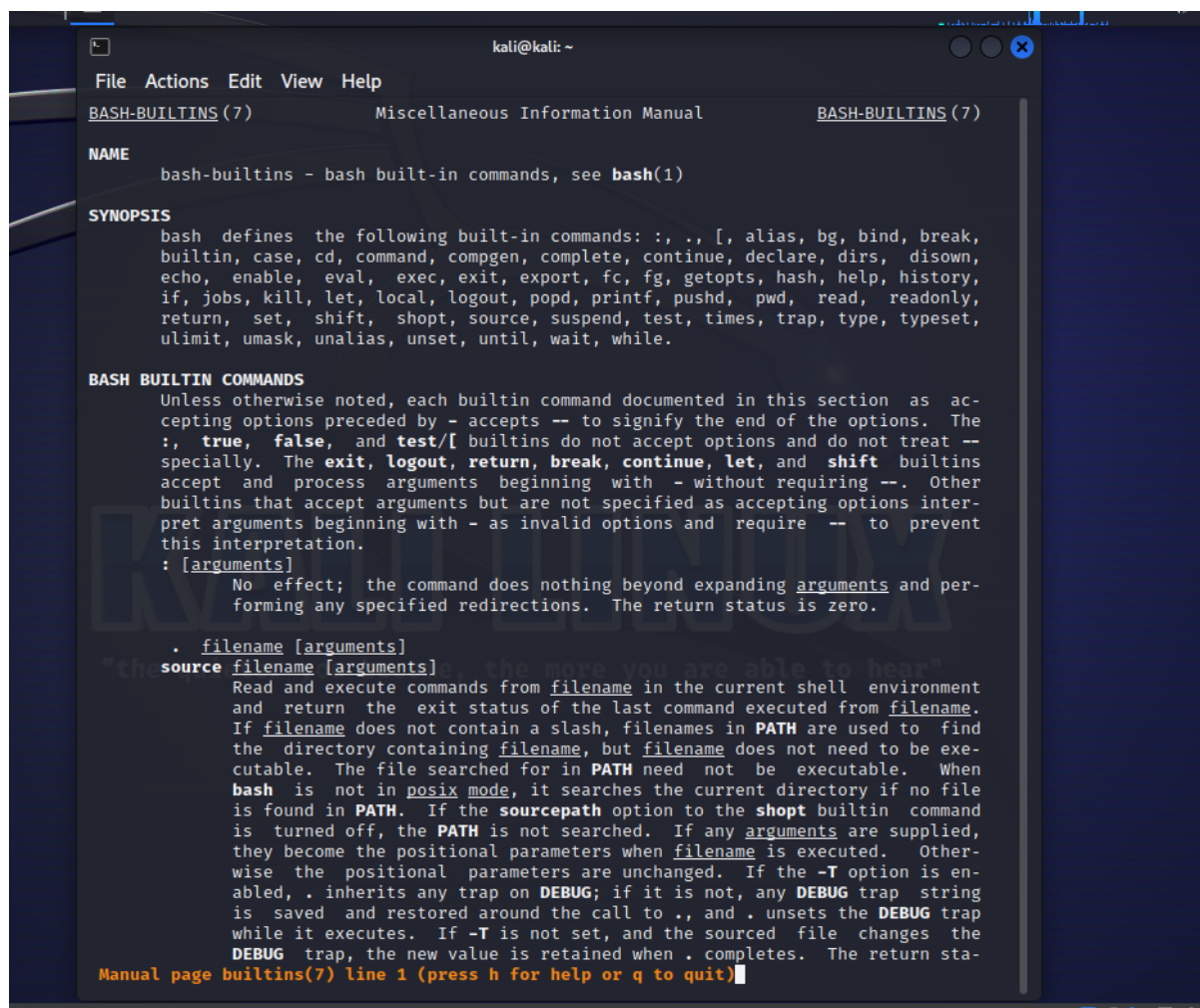
Comandi ps, job e kill eseguiti:



```
3 4 |  
kali@kali: ~  
File Actions Edit View Help  
PS(1) User Commands PS(1)  
NAME  
ps - report a snapshot of the current processes.  
SYNOPSIS  
ps [options]  
DESCRIPTION  
ps displays information about a selection of the active processes. If you want  
a repetitive update of the selection and the displayed information, use top  
instead.  
  
This version of ps accepts several kinds of options:  
  
1  UNIX options, which may be grouped and must be preceded by a dash.  
2  BSD options, which may be grouped and must not be used with a dash.  
3  GNU long options, which are preceded by two dashes.  
  
Options of different types may be freely mixed, but conflicts can appear. There  
are some synonymous options, which are functionally identical, due to the many  
standards and ps implementations that this ps is compatible with.  
  
Note that ps -aux is distinct from ps aux. The POSIX and UNIX standards require  
that ps -aux print all processes owned by a user named x, as well as printing  
all processes that would be selected by the -a option. If the user named x does  
not exist, this ps may interpret the command as ps aux instead and print a  
warning. This behavior is intended to aid in transitioning old scripts and  
habits. It is fragile, subject to change, and thus should not be relied upon.  
  
By default, ps selects all processes with the same effective user ID (euid=EUID)  
as the current user and associated with the same terminal as the invoker. It  
displays the process ID (pid=PID), the terminal associated with the process  
(tname=TTY), the cumulated CPU time in [DD-]hh:mm:ss format (time=TIME), and the  
executable name (ucmd=CMD). Output is unsorted by default.  
  
The use of BSD-style options will add process state (stat=STAT) to the default  
display and show the command args (args=COMMAND) instead of the executable name.  
You can override this with the PS_FORMAT environment variable. The use of  
BSD-style options will also change the process selection to include processes on  
other terminals (TTys) that are owned by you; alternately, this may be described  
as setting the selection to be the set of all processes filtered to exclude  
Manual page ps(1) line 1 (press h for help or q to quit)
```



```
3 4 | [X]
kali@kali: ~
File Actions Edit View Help
KILL(1) User Commands KILL(1)
NAME
kill - send a signal to a process
SYNOPSIS
kill [options] <pid> [ ... ]
DESCRIPTION
The default signal for kill is TERM. Use -l or -L to list available signals.
Particularly useful signals include HUP, INT, KILL, STOP, CONT, and 0. Alter-
nate signals may be specified in three ways: -9, -SIGKILL or -KILL. Negative
PID values may be used to choose whole process groups; see the PGID column in ps
command output. A PID of -1 is special; it indicates all processes except the
kill process itself and init.
OPTIONS
<pid> [ ... ]
    Send signal to every <pid> listed.
    -<signal>
    -s <signal>
    --signal <signal>
        Specify the signal to be sent. The signal can be specified by using name
        or number. The behavior of signals is explained in signal(7) manual
        page.
    -q, --queue value
        Use sigqueue(3) rather than kill(2) and the value argument is used to
        specify an integer to be sent with the signal. If the receiving process
        has installed a handler for this signal using the SA_SIGINFO flag to
        sigaction(2), then it can obtain this data via the si_value field of the
        siginfo_t structure.
    -l, --list [signal]
        List signal names. This option has optional argument, which will convert
        signal number to signal name, or other way round.
    -L, --table
        List signal names in a nice table.
NOTES Your shell (command line interpreter) may have a built-in kill command.
Manual page kill(1) line 1 (press h for help or q to quit)
```



The image shows a terminal window titled 'kali@kali: ~'. The window displays the manual page for 'BASH-BUILTINS (7)'. The page is divided into sections: NAME, SYNOPSIS, and BASH BUILTIN COMMANDS. The NAME section states 'bash-builtins - bash built-in commands, see **bash(1)**'. The SYNOPSIS section lists various built-in commands: :, ., [, alias, bg, bind, break, builtin, case, cd, command, compgen, complete, continue, declare, dirs, disown, echo, enable, eval, exec, exit, export, fc, fg, getopts, hash, help, history, if, jobs, kill, let, local, logout, popd, printf, pushd, pwd, read, readonly, return, set, shift, shopt, source, suspend, test, times, trap, type, typeset, ulimit, umask, unalias, unset, until, wait, while. The BASH BUILTIN COMMANDS section explains that unless otherwise noted, each builtin command documented in this section as accepting options preceded by - accepts -- to signify the end of the options. It then details the : command (no effect), the . command (read and execute commands from filename), and the source command (read and execute commands from filename, with detailed explanation of PATH and shopt options).

```
kali@kali: ~
File Actions Edit View Help
BASH-BUILTINS (7)      Miscellaneous Information Manual      BASH-BUILTINS (7)

NAME
  bash-builtins - bash built-in commands, see bash(1)

SYNOPSIS
  bash defines the following built-in commands: :, ., [, alias, bg, bind, break,
  builtin, case, cd, command, compgen, complete, continue, declare, dirs, disown,
  echo, enable, eval, exec, exit, export, fc, fg, getopts, hash, help, history,
  if, jobs, kill, let, local, logout, popd, printf, pushd, pwd, read, readonly,
  return, set, shift, shopt, source, suspend, test, times, trap, type, typeset,
  ulimit, umask, unalias, unset, until, wait, while.

BASH BUILTIN COMMANDS
  Unless otherwise noted, each builtin command documented in this section as ac-
  cepting options preceded by - accepts -- to signify the end of the options. The
  :, true, false, and test/[ builtins do not accept options and do not treat --
  specially. The exit, logout, return, break, continue, let, and shift builtins
  accept and process arguments beginning with - without requiring --. Other
  builtins that accept arguments but are not specified as accepting options inter-
  pret arguments beginning with - as invalid options and require -- to prevent
  this interpretation.
  : [arguments]
    No effect; the command does nothing beyond expanding arguments and per-
    forming any specified redirections. The return status is zero.

  . filename [arguments]
  source filename [arguments]
    Read and execute commands from filename in the current shell environment
    and return the exit status of the last command executed from filename.
    If filename does not contain a slash, filenames in PATH are used to find
    the directory containing filename, but filename does not need to be exe-
    cutable. The file searched for in PATH need not be executable. When
    bash is not in posix mode, it searches the current directory if no file
    is found in PATH. If the sourcepath option to the shopt builtin command
    is turned off, the PATH is not searched. If any arguments are supplied,
    they become the positional parameters when filename is executed. Other-
    wise the positional parameters are unchanged. If the -T option is en-
    abled, . inherits any trap on DEBUG; if it is not, any DEBUG trap string
    is saved and restored around the call to ., and . unsets the DEBUG trap
    while it executes. If -T is not set, and the sourced file changes the
    DEBUG trap, the new value is retained when . completes. The return sta-
    Manual page builtins(7) line 1 (press h for help or q to quit)
```

Usiamo il comando vi pippo da terminale per creare uno spazio di editing testuale. Fatto ciò, lanciamo in una seconda finestra del terminale il comando ps -all che ci consentirà di visualizzare tutti i processi in corso. Digitando kill PID il processo scelto verrà interrotto. In questo caso intendiamo bloccare il processo iniziato digitando vi pippo. Se tutto sarà stato svolto correttamente, avremo in risposta la finestra di stop da parte del terminale.

```
File Actions Edit View Help
kali@kali: ~ x kali@kali: ~ x
(kali@kali)-[~]
$ ps -all
F S  UID      PID      PPID  C  PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
0 S   1000     79973    76483  0   80    0 -  3729 do_sel pts/0      00:00:00 vi
0 R   1000     81079    80935  99   80    0 -  2824 -      pts/1      00:00:00 ps

(kali@kali)-[~]
$ kill 79973

(kali@kali)-[~]
$ ps -all
F S  UID      PID      PPID  C  PRI  NI ADDR SZ WCHAN  TTY          TIME CMD
4 S   1000     82812    76483  4   85    5 - 707698 do_sys pts/0      00:00:15 firefox-esr
4 S   1000     82949    82812  0   85    5 - 54364 do_sys pts/0      00:00:00 Socket Process
4 S   1000     83039    82812  0   85    5 - 609999 do_sys pts/0      00:00:02 Privileged Cont
4 S   1000     83093    82812  0   85    5 - 610732 do_sys pts/0      00:00:02 file:// Content
4 S   1000     83134    82812  0   85    5 - 608079 do_sys pts/0      00:00:01 WebExtensions
4 R   1000     85910    80935  99   80    0 -  2824 -      pts/1      00:00:00 ps

(kali@kali)-[~]
$ kill 82812

(kali@kali)-[~]
$
```

"the quieter you become, the more you are able to hear"

```
File Actions Edit View Help
kali@kali: ~ x kali@kali: ~ x

0 85 5 - 54368 do_sys pts/0 00:00:00 Socket Process 4 S 1000 82949 82812
5 - 609158 do_sys pts/0 00:00:02 Privileged Cont 4 S 1000 83039 82812 1 85
- 610736 do_sys pts/0 00:00:02 file:// Content 4 S 1000 83093 82812 1 85 5
083 do_sys pts/0 00:00:01 WebExtensions 4 S 1000 83134 82812 0 85 5 - 608
pts/0 00:00:00 ps 4 R 1000 84503 76483 99 80 0 - 2824 -

(kali@kali)-[~]
$ ps -all
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD
4 S 1000 82812 76483 6 85 5 -
707686 do_sys pts/0 00:00:14 firefox-esr 4 S 1000 82949 82812 0 85 5 - 54368 do_sys pts/0 00:00:00
Socket Process 4 S 1000 83039 82812 0 85 5 - 609158 do_sys pts/0 00:00:02 Privileged Cont 4 S 1000 8
3093 82812 0 85 5 - 610736 do_sys pts/0 00:00:02 file:// Content 4 S 1000 83134 82812 0 85 5 - 6
08083 do_sys pts/0 00:00:01 WebExtensions 4 R 1000 85125 76483 0 80 0 - 2824 - pts/0 00:00:00
ps

(kali@kali)-[~]
$ kill 707686
kill: kill 707686 failed: no such process

(kali@kali)-[~]
$ Exiting due to channel error.
Exiting due to channel error.
Exiting due to channel error.

[1] + terminated firefox
(kali@kali)-[~]
$
```

```
File Actions Edit View Help
kali@kali: ~ x kali@kali: ~ x

(kali@kali)-[~]
$ ps -all
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD
0 S 1000 79973 76483 0 80 0 - 3729 do_sel pts/0 00:00:00 vi
0 R 1000 81079 80935 99 80 0 - 2824 - pts/1 00:00:00 ps

(kali@kali)-[~]
$ kill 79973

(kali@kali)-[~]
$ ps -all
F S UID PID PPID C PRI NI ADDR SZ WCHAN TTY TIME CMD
4 S 1000 82812 76483 4 85 5 - 707698 do_sys pts/0 00:00:15 firefox-esr
4 S 1000 82949 82812 0 85 5 - 54364 do_sys pts/0 00:00:00 Socket Process
4 S 1000 83039 82812 0 85 5 - 609999 do_sys pts/0 00:00:02 Privileged Cont
4 S 1000 83093 82812 0 85 5 - 610732 do_sys pts/0 00:00:02 file:// Content
4 S 1000 83134 82812 0 85 5 - 608079 do_sys pts/0 00:00:01 WebExtensions
4 R 1000 85910 80935 99 80 0 - 2824 - pts/1 00:00:00 ps

(kali@kali)-[~]
$ kill 82812

(kali@kali)-[~]
$ df -h
Filesystem Size Used Avail Use% Mounted on
udev 275M 0 275M 0% /dev
tmpfs 63M 956K 62M 2% /run
/dev/sda1 79G 15G 61G 20% /
tmpfs 315M 0 315M 0% /dev/shm
tmpfs 5.0M 0 5.0M 0% /run/lock
tmpfs 63M 112K 63M 1% /run/user/1000

(kali@kali)-[~]
$
```

Il comando `df-h` mi permette di vedere lo spazio disponibile e quanto occupano i vari processi attivi. Un esempio è il comando `df -h`, questo comando mostra una panoramica delle partizioni del disco nel tuo sistema, inclusi dettagli come lo spazio totale, lo spazio utilizzato, lo spazio libero e il punto di montaggio.

Il comando `df` sta per disk free.

L'opzione `-h` indica di visualizzare i risultati in un formato più leggibile per l'utente, utilizzando unità di misura come KB, MB, GB, ecc.