Assignment - Linux System Programming

These are 20 basic commands commonly found on computers:

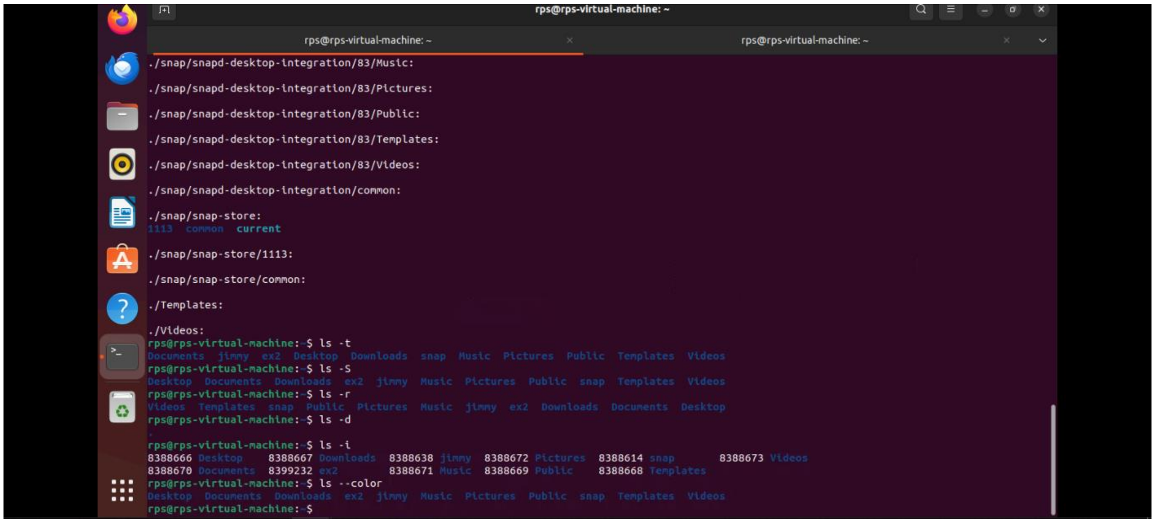
Time – 1 : 00 p.m

1. **dir (Windows) / ls (Linux/macOS):** Lists the contents of a directory.

Use Case: You want to see all the files and folders in your current location.

Exercise: Open a terminal window (Command Prompt on Windows, Terminal on macOS/Linux) and type dir (Windows) or ls (Linux/macOS). Press Enter.

Synatx : ls [options] [file(s) or directory]


rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~

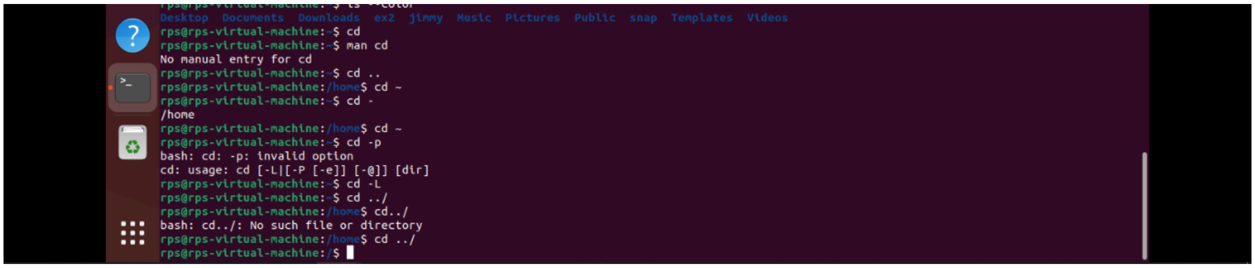
```
./snap/snapd-desktop-integration/83/Music:

./snap/snapd-desktop-integration/83/Pictures:

./snap/snapd-desktop-integration/83/Public:

./snap/snapd-desktop-integration/83/Templates:

./snap/snapd-desktop-integration/83/Videos:

./snap/snapd-desktop-integration/common:

./snap/snap-store:
1113  common  current

./snap/snap-store/1113:

./snap/snap-store/common:

./Templates:

./Videos:
rps@rps-virtual-machine:~$ ls -t
Documents  jimmy  ex2  Desktop  Downloads  snap  Music  Pictures  Public  Templates  Videos
rps@rps-virtual-machine:~$ ls -S
Desktop  Documents  Downloads  ex2  jimmy  Music  Pictures  Public  snap  Templates  Videos
rps@rps-virtual-machine:~$ ls -r
Videos  Templates  snap  Public  Pictures  Music  jimmy  ex2  Downloads  Documents  Desktop
rps@rps-virtual-machine:~$ ls -d
.
rps@rps-virtual-machine:~$ ls -i
8388666 Desktop    8388667 Downloads  8388638 jimmy  8388672 Pictures  8388614 snap       8388673 Videos
8388670 Documents  8399232 ex2        8388671 Music  8388669 Public    8388668 Templates
rps@rps-virtual-machine:~$ ls --color
Desktop  Documents  Downloads  ex2  jimmy  Music  Pictures  Public  snap  Templates  Videos
rps@rps-virtual-machine:~$
```

2. **cd (all): Changes the current directory.**

Use Case: You want to navigate to a different folder on your computer.

Exercise: Try cd Desktop (Windows/Linux/macOS) to navigate to your Desktop folder. Then use dir (Windows) or ls (Linux/macOS) to see the contents.

Synatx : cd [directory]



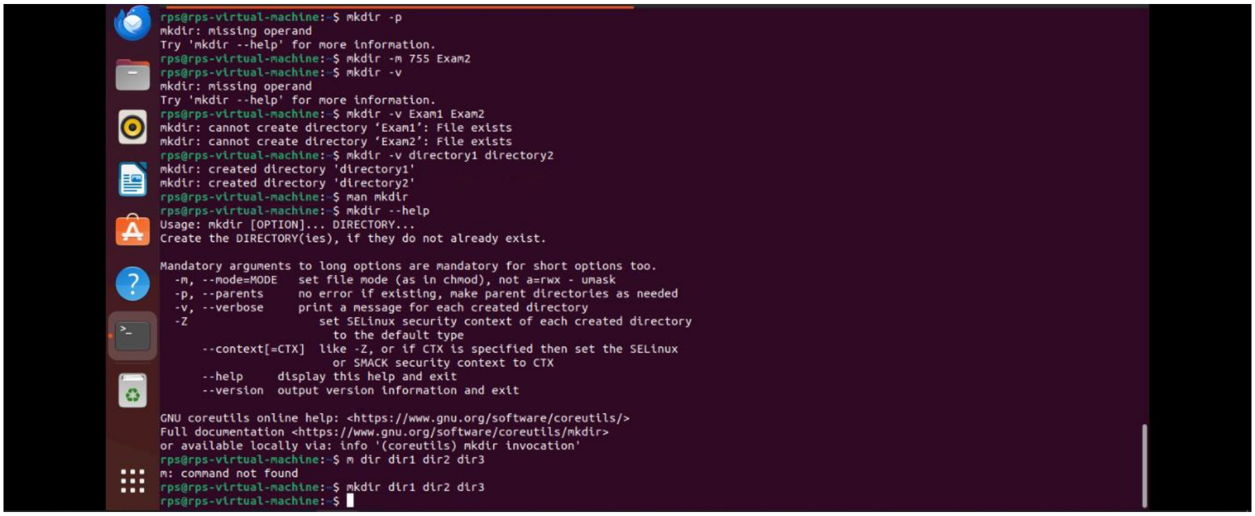
```
rps@rps-virtual-machine:~$ ls --color
Desktop  Documents  Downloads  ex2  jimmy  Music  Pictures  Public  snap  Templates  Videos
rps@rps-virtual-machine:~$ cd
rps@rps-virtual-machine:~$ man cd
No manual entry for cd
rps@rps-virtual-machine:~$ cd ..
rps@rps-virtual-machine:/home$ cd ~
rps@rps-virtual-machine:~$ cd -
/home
rps@rps-virtual-machine:/home$ cd ~
rps@rps-virtual-machine:~$ cd -p
bash: cd: -p: invalid option
cd: usage: cd [-L|[-P [-e]] [-@]] [dir]
rps@rps-virtual-machine:~$ cd -L
rps@rps-virtual-machine:~$ cd ../
rps@rps-virtual-machine:/home$ cd../
bash: cd../: No such file or directory
rps@rps-virtual-machine:/home$ cd ../
rps@rps-virtual-machine:/$ 
```

3. **mkdir (all):** Creates a new directory.

Use Case: You want to organize your files by creating a new folder.

Exercise: Use mkdir Documents (Windows/Linux/macOS) to create a new folder named "Documents". Then use dir (Windows) or ls (Linux/macOS) to see if it's there.

Syntax: mkdir [options] directory_name



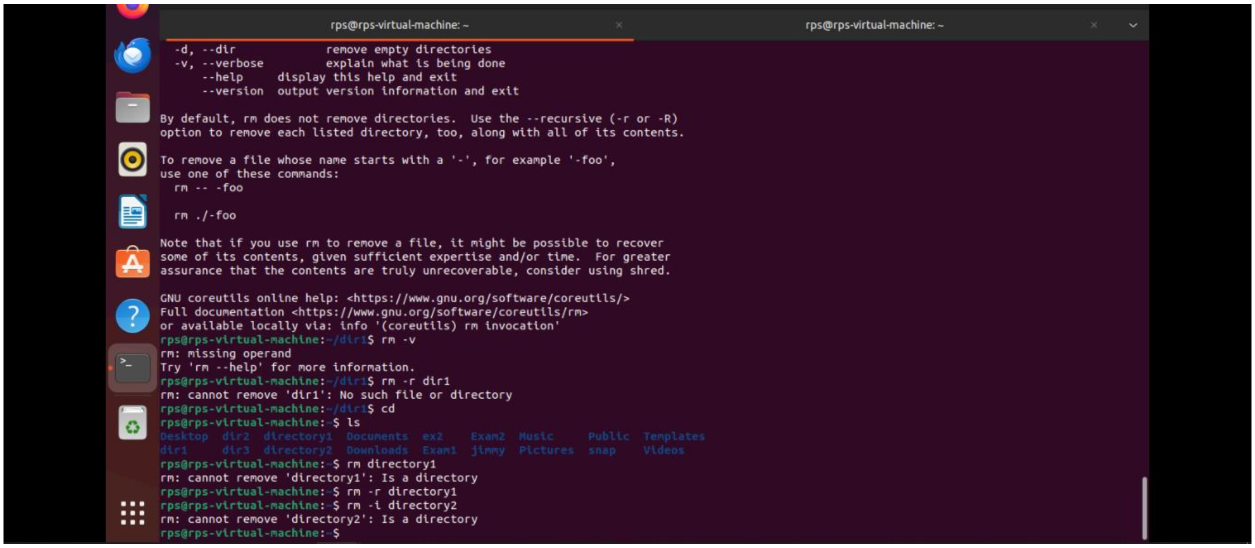
```
rps@rps-virtual-machine:~$ mkdir -p
mkdir: missing operand
Try 'mkdir --help' for more information.
rps@rps-virtual-machine:~$ mkdir -m 755 Exam2
rps@rps-virtual-machine:~$ mkdir -v
mkdir: missing operand
Try 'mkdir --help' for more information.
rps@rps-virtual-machine:~$ mkdir -v Exam1 Exam2
mkdir: cannot create directory ‘Exam1’: File exists
mkdir: cannot create directory ‘Exam2’: File exists
rps@rps-virtual-machine:~$ mkdir -v directory1 directory2
mkdir: created directory 'directory1'
mkdir: created directory 'directory2'
rps@rps-virtual-machine:~$ man mkdir
rps@rps-virtual-machine:~$ mkdir --help
Usage: mkdir [OPTION]... DIRECTORY...
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

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation <https://www.gnu.org/software/coreutils/mkdir>
or available locally via: info '(coreutils) mkdir invocation'
rps@rps-virtual-machine:~$ m dir dir1 dir2 dir3
m: command not found
rps@rps-virtual-machine:~$ mkdir dir1 dir2 dir3
rps@rps-virtual-machine:~$ 
```

4. **rm (Linux/macOS) / del (Windows):** Deletes a file or directory (use with caution!).

Use Case: You want to remove an unwanted file or folder.

Exercise: Important: Never delete anything critical! In a safe space (like a temporary folder), create a text file named "test.txt" and then use rm test.txt (Linux/macOS) or del test.txt (Windows) to delete it.

Syntax: rm [options] file(s) or directory



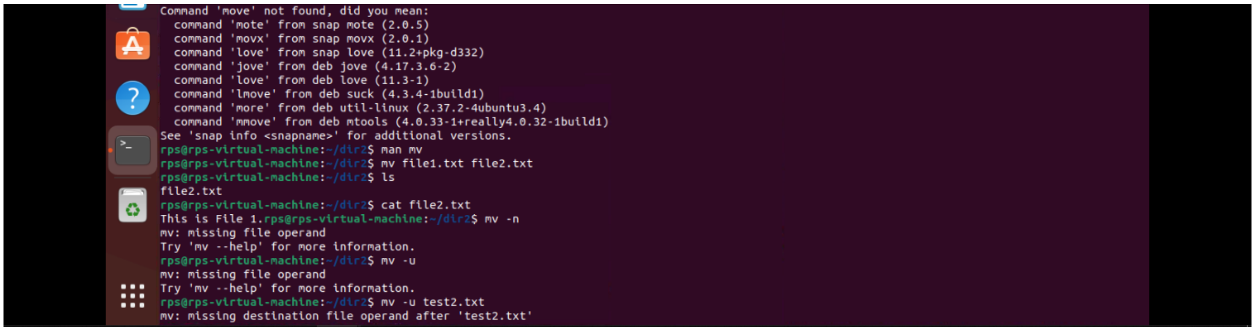
```
  -d, --dir            remove empty directories
  -v, --verbose        explain what is being done
      --help     display this help and exit
      --version  output version information and exit

By default, rm does not remove directories.  Use the --recursive (-r or -R)
option to remove each listed directory, too, along with all of its contents.

To remove a file whose name starts with a '-', for example '-foo',
use one of these commands:
  rm -- -foo

  rm ./-foo

Note that if you use rm to remove a file, it might be possible to recover
some of its contents, given sufficient expertise and/or time.  For greater
assurance that the contents are truly unrecoverable, consider using shred.

GNU coreutils online help: <https://www.gnu.org/software/coreutils/>
Full documentation <https://www.gnu.org/software/coreutils/rm>
or available locally via: info '(coreutils) rm invocation'
rps@rps-virtual-machine:~/dir1$ rm -v
rm: missing operand
Try 'rm --help' for more information.
rps@rps-virtual-machine:~/dir1$ rm -r dir1
rm: cannot remove 'dir1': No such file or directory
rps@rps-virtual-machine:~/dir1$ cd
rps@rps-virtual-machine:~$ ls
Desktop  dir2  directory1  Documents  ex2    Exam2  Music     Public  Templates
dir1     dir3  directory2  Downloads  Exam1  jimmy  Pictures  snap    Videos
rps@rps-virtual-machine:~$ rm directory1
rm: cannot remove 'directory1': Is a directory
rps@rps-virtual-machine:~$ rm -r directory1
rps@rps-virtual-machine:~$ rm -i directory2
rm: cannot remove 'directory2': Is a directory
rps@rps-virtual-machine:~$
```

5. **copy (Windows) / cp (Linux/macOS):** Copies a file.

Use Case: You want to duplicate a file to another location.

Exercise: Create another text file named "test2.txt". Use copy test.txt test2.txt (Windows) or cp test.txt test2.txt (Linux/macOS) to copy "test.txt" as "test2.txt".

Syntax: cp [options] source destination



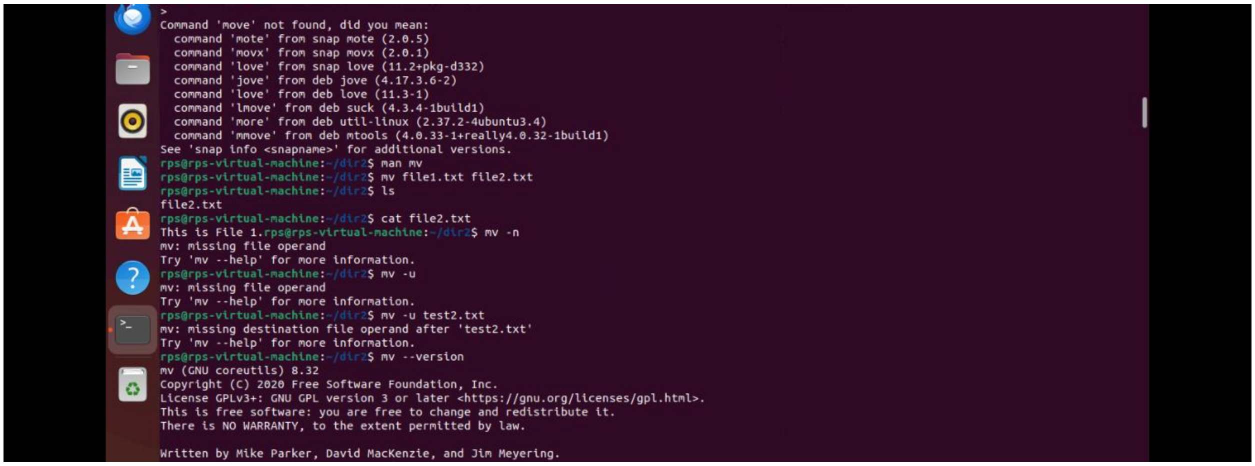
```
Command 'move' not found, did you mean:
  command 'mote' from snap mote (2.0.5)
  command 'movx' from snap movx (2.0.1)
  command 'love' from snap love (11.2+pkg-d332)
  command 'jove' from deb jove (4.17.3.6-2)
  command 'love' from deb love (11.3-1)
  command 'lmove' from deb suck (4.3.4-1build1)
  command 'more' from deb util-linux (2.37.2-4ubuntu3.4)
  command 'mmove' from deb mtools (4.0.33-1+really4.0.32-1build1)
See 'snap info <snapname>' for additional versions.
rps@rps-virtual-machine:~/dir2$ man mv
rps@rps-virtual-machine:~/dir2$ mv file1.txt file2.txt
rps@rps-virtual-machine:~/dir2$ ls
file2.txt
rps@rps-virtual-machine:~/dir2$ cat file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ mv -n
mv: missing file operand
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u
mv: missing file operand
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u test2.txt
mv: missing destination file operand after 'test2.txt'
```

6. **move (Windows) / mv (Linux/macOS):** Moves a file from one location to another.

Use Case: You want to organize your files by moving them to a different folder.

Exercise: Use move test2.txt Documents (Windows) or mv test2.txt Documents (Linux/macOS) to move "test2.txt" to the "Documents" folder (assuming it exists).

Syntax: mv [options] source destination



```
>
Command 'move' not found, did you mean:
  command 'mote' from snap mote (2.0.5)
  command 'movx' from snap movx (2.0.1)
  command 'love' from snap love (11.2+pkg-d332)
  command 'jove' from deb jove (4.17.3.6-2)
  command 'love' from deb love (11.3-1)
  command 'lmove' from deb suck (4.3.4-1build1)
  command 'more' from deb util-linux (2.37.2-4ubuntu3.4)
  command 'mmove' from deb mtools (4.0.33-1+really4.0.32-1build1)
See 'snap info <snapname>' for additional versions.
rps@rps-virtual-machine:~/dir2$ man mv
rps@rps-virtual-machine:~/dir2$ mv file1.txt file2.txt
rps@rps-virtual-machine:~/dir2$ ls
file2.txt
rps@rps-virtual-machine:~/dir2$ cat file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ mv -n
mv: missing file operand
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u
mv: missing file operand
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u test2.txt
mv: missing destination file operand after 'test2.txt'
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv --version
mv (GNU coreutils) 8.32
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License GPLv3+: GNU GPL version 3 or later <https://gnu.org/licenses/gpl.html>.
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There is NO WARRANTY, to the extent permitted by law.

Written by Mike Parker, David MacKenzie, and Jim Meyering.
```
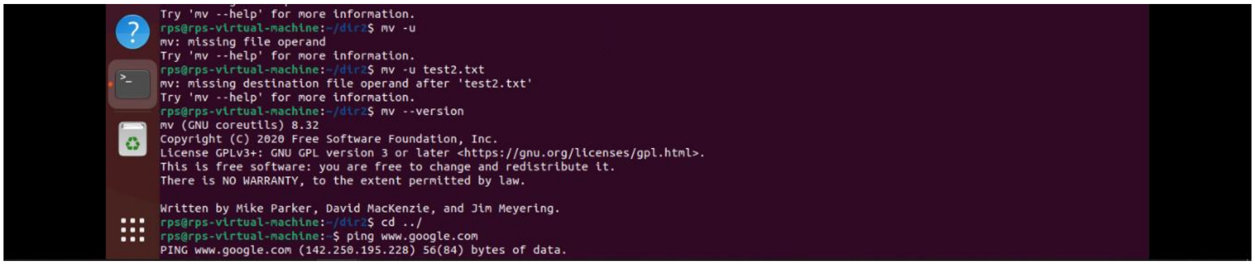

7. **rename (Windows) / mv (Linux/macOS):** Renames a file.

Use Case: You want to give a file a different name.

Exercise: Use rename test.txt newname.txt (Windows) or mv test.txt newname.txt (Linux/macOS) to rename "test.txt" to "newname.txt".

Syntax: mv [options] source destination



```
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u
mv: missing file operand
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv -u test2.txt
mv: missing destination file operand after 'test2.txt'
Try 'mv --help' for more information.
rps@rps-virtual-machine:~/dir2$ mv --version
mv (GNU coreutils) 8.32
Copyright (C) 2020 Free Software Foundation, Inc.
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There is NO WARRANTY, to the extent permitted by law.

Written by Mike Parker, David MacKenzie, and Jim Meyering.
rps@rps-virtual-machine:~/dir2$ cd ../
rps@rps-virtual-machine:~$ ping www.google.com
PING www.google.com (142.250.195.228) 56(84) bytes of data.
```
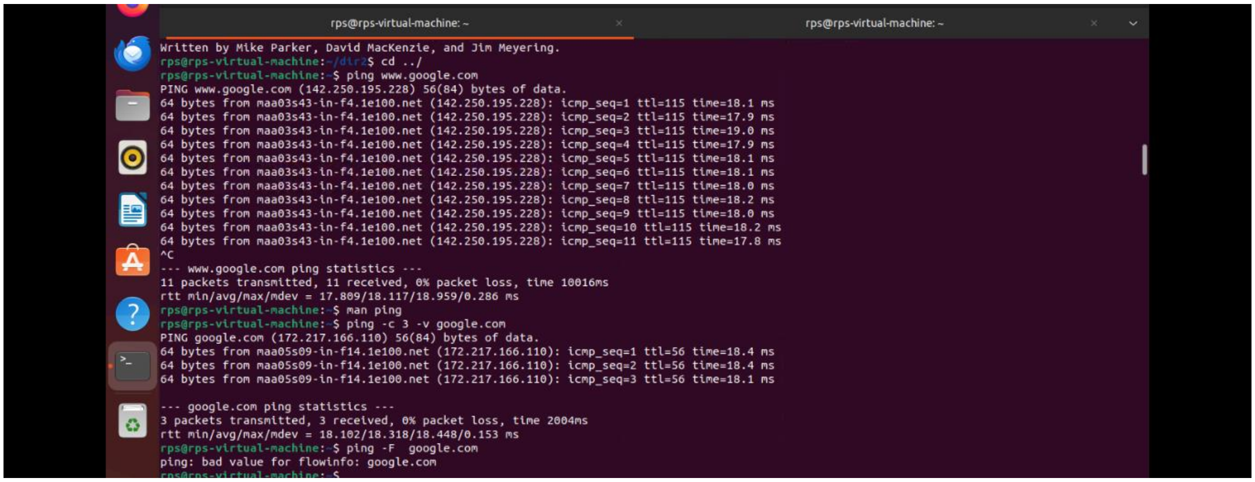

8. **ping (all):** Checks if another computer is reachable on a network.

Use Case: You want to see if you can connect to a website or another device.

Exercise: Use ping google.com (all) to see if you can reach Google's servers.

Syntax: ping [options] host



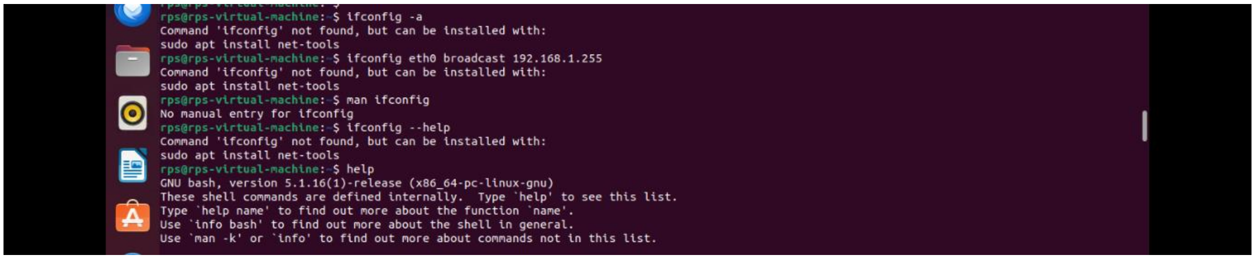
```
Written by Mike Parker, David MacKenzie, and Jim Meyering.
rps@rps-virtual-machine:~/dir2$ cd ../
rps@rps-virtual-machine:~$ ping www.google.com
PING www.google.com (142.250.195.228) 56(84) bytes of data.
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=1 ttl=115 time=18.1 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=2 ttl=115 time=17.9 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=3 ttl=115 time=19.0 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=4 ttl=115 time=17.9 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=5 ttl=115 time=18.1 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=6 ttl=115 time=18.1 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=7 ttl=115 time=18.0 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=8 ttl=115 time=18.2 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=9 ttl=115 time=18.0 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=10 ttl=115 time=18.2 ms
64 bytes from maa03s43-in-f4.1e100.net (142.250.195.228): icmp_seq=11 ttl=115 time=17.8 ms
^C
--- www.google.com ping statistics ---
11 packets transmitted, 11 received, 0% packet loss, time 10016ms
rtt min/avg/max/mdev = 17.809/18.117/18.959/0.286 ms
rps@rps-virtual-machine:~$ man ping
rps@rps-virtual-machine:~$ ping -c 3 -v google.com
PING google.com (172.217.166.110) 56(84) bytes of data.
64 bytes from maa05s09-in-f14.1e100.net (172.217.166.110): icmp_seq=1 ttl=56 time=18.4 ms
64 bytes from maa05s09-in-f14.1e100.net (172.217.166.110): icmp_seq=2 ttl=56 time=18.4 ms
64 bytes from maa05s09-in-f14.1e100.net (172.217.166.110): icmp_seq=3 ttl=56 time=18.1 ms

--- google.com ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2004ms
rtt min/avg/max/mdev = 18.102/18.318/18.448/0.153 ms
rps@rps-virtual-machine:~$ ping -F  google.com
ping: bad value for flowinfo: google.com
rps@rps-virtual-machine:~$
```

9. ipconfig (Windows) / ifconfig (Linux/macOS): Shows network configuration information.

Use Case: You want to troubleshoot network connectivity issues.

Exercise: Use ipconfig (Windows) or ifconfig (Linux/macOS) to see your IP address and other network details.

Syntax: ifconfig [interface] [options]



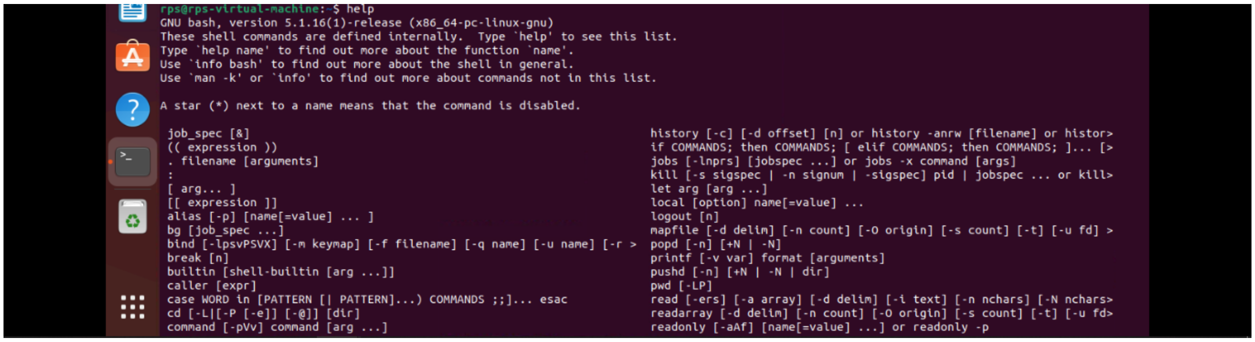
```
rps@rps-virtual-machine:~$
rps@rps-virtual-machine:~$ ifconfig -a
Command 'ifconfig' not found, but can be installed with:
sudo apt install net-tools
rps@rps-virtual-machine:~$ ifconfig eth0 broadcast 192.168.1.255
Command 'ifconfig' not found, but can be installed with:
sudo apt install net-tools
rps@rps-virtual-machine:~$ man ifconfig
No manual entry for ifconfig
rps@rps-virtual-machine:~$ ifconfig --help
Command 'ifconfig' not found, but can be installed with:
sudo apt install net-tools
rps@rps-virtual-machine:~$ help
GNU bash, version 5.1.16(1)-release (x86_64-pc-linux-gnu)
These shell commands are defined internally.  Type `help' to see this list.
Type `help name' to find out more about the function `name'.
Use `info bash' to find out more about the shell in general.
Use `man -k' or `info' to find out more about commands not in this list.
```

10. help (all): Provides help information for other commands.

Use Case: You're unsure about how to use a specific command.

Exercise: If you're stuck on command like mv, type help mv (all) to see a manual page with usage information.

Syntax: help [command]



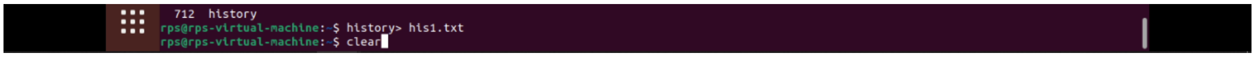
```
rps@rps-virtual-machine:~$ help
GNU bash, version 5.1.16(1)-release (x86_64-pc-linux-gnu)
These shell commands are defined internally.  Type `help' to see this list.
Type `help name' to find out more about the function `name'.
Use `info bash' to find out more about the shell in general.
Use `man -k' or `info' to find out more about commands not in this list.

A star (*) next to a name means that the command is disabled.

 job_spec [&]                                                         history [-c] [-d offset] [n] or history -anrw [filename] or histor>
 (( expression ))                                                     if COMMANDS; then COMMANDS; [ elif COMMANDS; then COMMANDS; ]... [>
 . filename [arguments]                                               jobs [-lnprs] [jobspec ...] or jobs -x command [args]
 :                                                                    kill [-s sigspec | -n signum | -sigspec] pid | jobspec ... or kill>
 [ arg... ]                                                           let arg [arg ...]
 [[ expression ]]                                                     local [option] name[=value] ...
 alias [-p] [name[=value] ... ]                                       logout [n]
 bg [job_spec ...]                                                    mapfile [-d delim] [-n count] [-O origin] [-s count] [-t] [-u fd] >
 bind [-lpsvPSVX] [-m keymap] [-f filename] [-q name] [-u name] [-r > popd [-n] [+N | -N]
 break [n]                                                            printf [-v var] format [arguments]
 builtin [shell-builtin [arg ...]]                                    pushd [-n] [+N | -N | dir]
 caller [expr]                                                        pwd [-LP]
 case WORD in [PATTERN [| PATTERN]...) COMMANDS ;;]... esac           read [-ers] [-a array] [-d delim] [-i text] [-n nchars] [-N nchars>
 cd [-L|[-P [-e]] [-@]] [dir]                                         readarray [-d delim] [-n count] [-O origin] [-s count] [-t] [-u fd>
 command [-pVv] command [arg ...]                                     readonly [-aAf] [name[=value] ...] or readonly -p
```

11. clear (all): Clears the screen (text) in the terminal window.

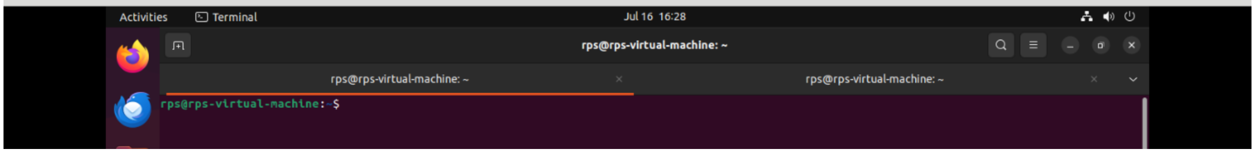
Use Case: Your terminal window is cluttered with previous commands, and you want a clean slate.

Exercise: Type clear (all) to clear the screen.

Syntax: clear [options]



```
  712  history
rps@rps-virtual-machine:~$ history> his1.txt
rps@rps-virtual-machine:~$ clear
```



Activities
Terminal
Jul 16 16:28
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~

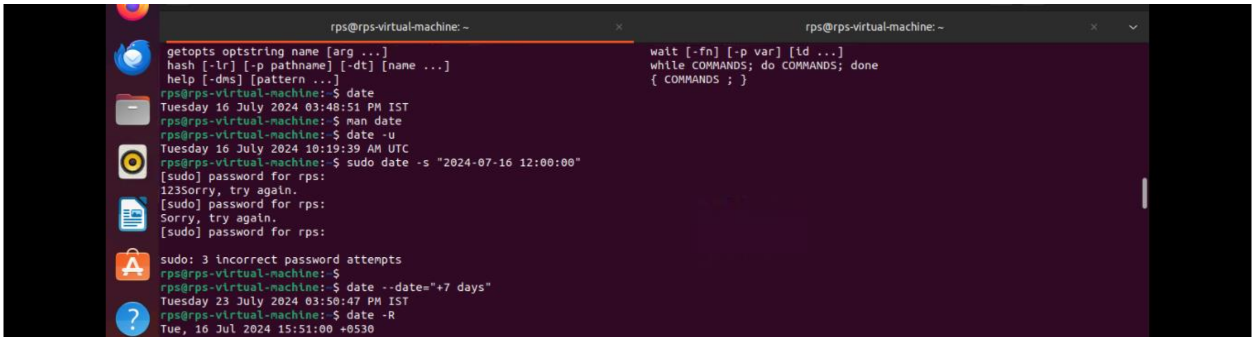
```
rps@rps-virtual-machine:~$
```

12. date (all): Shows the current date and time.

Use Case: You need to know the current date and time.

Exercise: Type date (all) to see the current date and time.

Syntax: date [options]

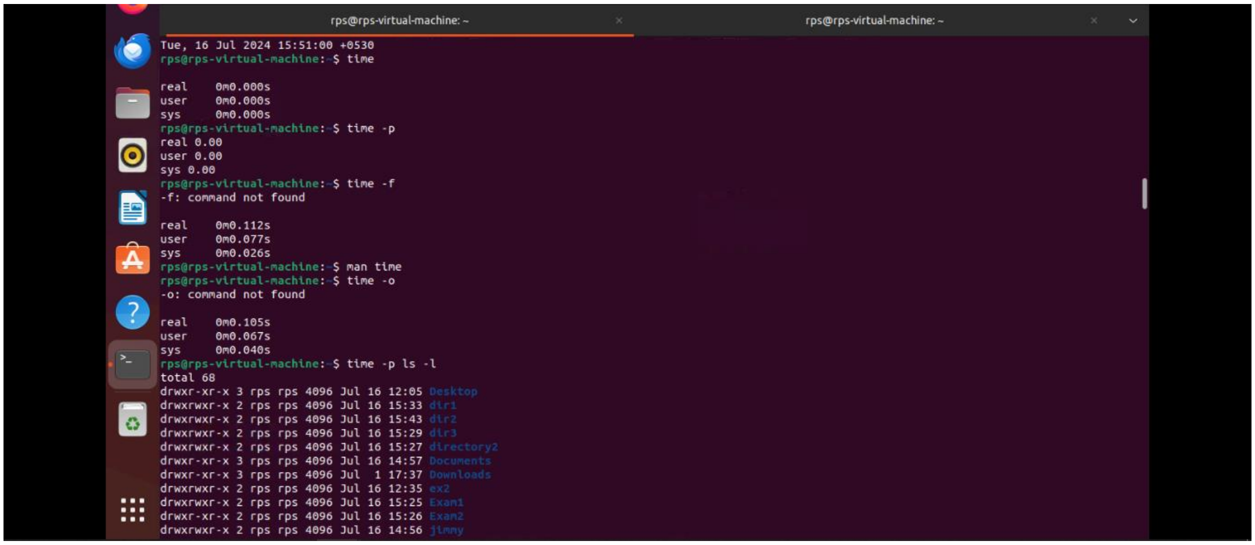


```
 getopts optstring name [arg ...]                                     wait [-fn] [-p var] [id ...]
 hash [-lr] [-p pathname] [-dt] [name ...]                            while COMMANDS; do COMMANDS; done
 help [-dms] [pattern ...]                                            { COMMANDS ; }
rps@rps-virtual-machine:~$ date
Tuesday 16 July 2024 03:48:51 PM IST
rps@rps-virtual-machine:~$ man date
rps@rps-virtual-machine:~$ date -u
Tuesday 16 July 2024 10:19:39 AM UTC
rps@rps-virtual-machine:~$ sudo date -s "2024-07-16 12:00:00"
[sudo] password for rps:
123Sorry, try again.
[sudo] password for rps:
Sorry, try again.
[sudo] password for rps:

sudo: 3 incorrect password attempts
rps@rps-virtual-machine:~$
rps@rps-virtual-machine:~$ date --date="+7 days"
Tuesday 23 July 2024 03:50:47 PM IST
rps@rps-virtual-machine:~$ date -R
Tue, 16 Jul 2024 15:51:00 +0530
```

13. time (all): (continued) You want to see how long a command takes to execute.

Exercise: Try time ls (all) to see how long it takes to list the directory contents.

Syntax: time [options] command [arguments]



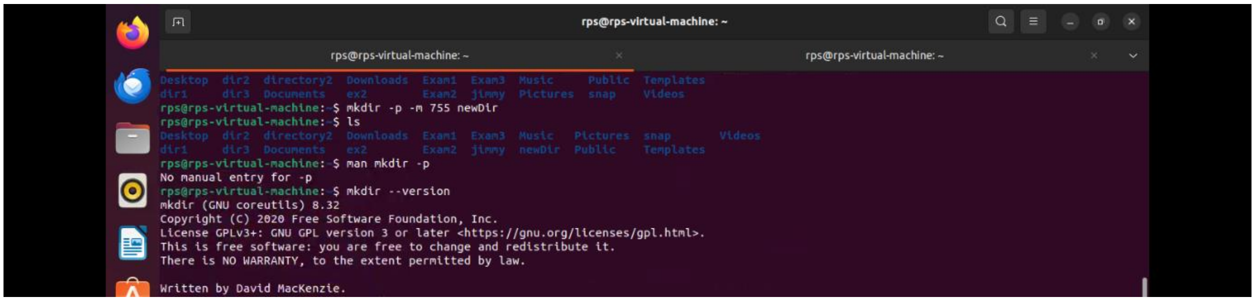
```
Tue, 16 Jul 2024 15:51:00 +0530
rps@rps-virtual-machine:~$ time

real    0m0.000s
user    0m0.000s
sys     0m0.000s
rps@rps-virtual-machine:~$ time -p
real 0.00
user 0.00
sys 0.00
rps@rps-virtual-machine:~$ time -f
-f: command not found

real    0m0.112s
user    0m0.077s
sys     0m0.026s
rps@rps-virtual-machine:~$ man time
rps@rps-virtual-machine:~$ time -o
-o: command not found

real    0m0.105s
user    0m0.067s
sys     0m0.040s
rps@rps-virtual-machine:~$ time -p ls -l
total 68
drwxr-xr-x 3 rps rps 4096 Jul 16 12:05 Desktop
drwxrwxr-x 2 rps rps 4096 Jul 16 15:33 dir1
drwxrwxr-x 2 rps rps 4096 Jul 16 15:43 dir2
drwxrwxr-x 2 rps rps 4096 Jul 16 15:29 dir3
drwxrwxr-x 2 rps rps 4096 Jul 16 15:27 directory2
drwxr-xr-x 3 rps rps 4096 Jul 16 14:57 Documents
drwxr-xr-x 3 rps rps 4096 Jul  1 17:37 Downloads
drwxrwxr-x 2 rps rps 4096 Jul 16 12:35 ex2
drwxrwxr-x 2 rps rps 4096 Jul 16 15:25 Exam1
drwxr-xr-x 2 rps rps 4096 Jul 16 15:26 Exam2
drwxrwxr-x 2 rps rps 4096 Jul 16 14:56 jimmy
```

14. mkdir -p (Linux/macOS): Creates a directory and any missing parent directories.

Use Case: You want to create a new folder within a nested structure that might not exist yet.

Exercise: Use mkdir -p Documents/Subfolder1/Subfolder2 (Linux/macOS) to create "Subfolder2" within "Subfolder1" inside the "Documents" folder (assuming "Documents" exists).

Syntax: mkdir -p directory_path


rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~

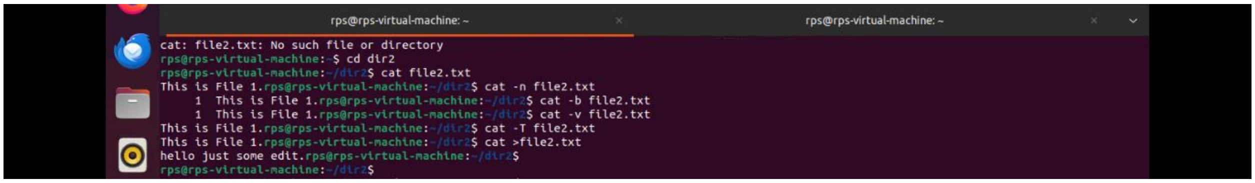
```
Desktop  dir2  directory2  Downloads  Exam1  Exam3  Music     Public  Templates
dir1     dir3  Documents   ex2        Exam2  jimmy  Pictures  snap    Videos
rps@rps-virtual-machine:~$ mkdir -p -m 755 newDir
rps@rps-virtual-machine:~$ ls
Desktop  dir2  directory2  Downloads  Exam1  Exam3  Music   Pictures  snap       Videos
dir1     dir3  Documents   ex2        Exam2  jimmy  newDir  Public    Templates
rps@rps-virtual-machine:~$ man mkdir -p
No manual entry for -p
rps@rps-virtual-machine:~$ mkdir --version
mkdir (GNU coreutils) 8.32
Copyright (C) 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.

Written by David MacKenzie.
```

15. cat (Linux/macOS): Displays the contents of a text file.

Use Case: You want to read the contents of a text file without opening it in a separate program.

Exercise: Create a text file with some content and use cat filename.txt (Linux/macOS) to see its contents.

Syntax: cat [options] [file(s)]



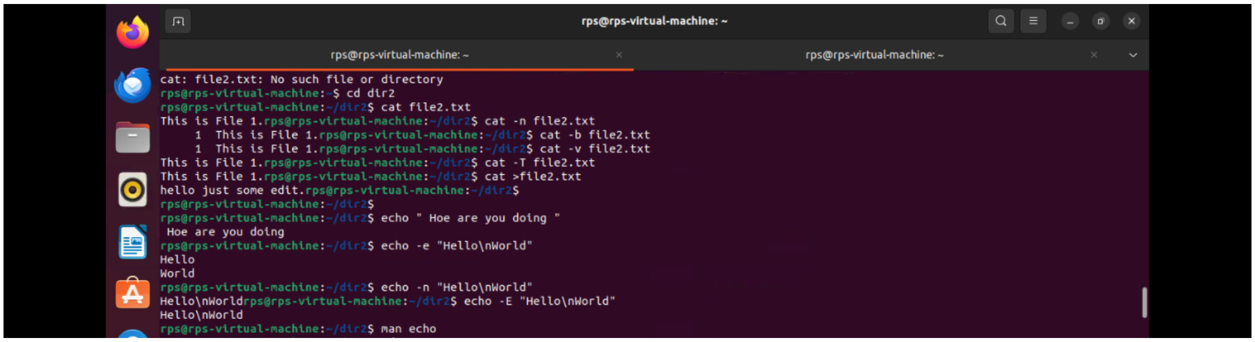
```
cat: file2.txt: No such file or directory
rps@rps-virtual-machine:~$ cd dir2
rps@rps-virtual-machine:~/dir2$ cat file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat -n file2.txt
     1	This is File 1.rps@rps-virtual-machine:~/dir2$ cat -b file2.txt
     1	This is File 1.rps@rps-virtual-machine:~/dir2$ cat -v file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat -T file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat >file2.txt
hello just some edit.rps@rps-virtual-machine:~/dir2$
rps@rps-virtual-machine:~/dir2$
```

16. echo (all): Prints text to the terminal window.

Use Case: You want to display a message or variable in the terminal.

Exercise: Use echo Hello, world! (all) to print the message to the screen.

Syntax: echo [options] [string(s)]



rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~

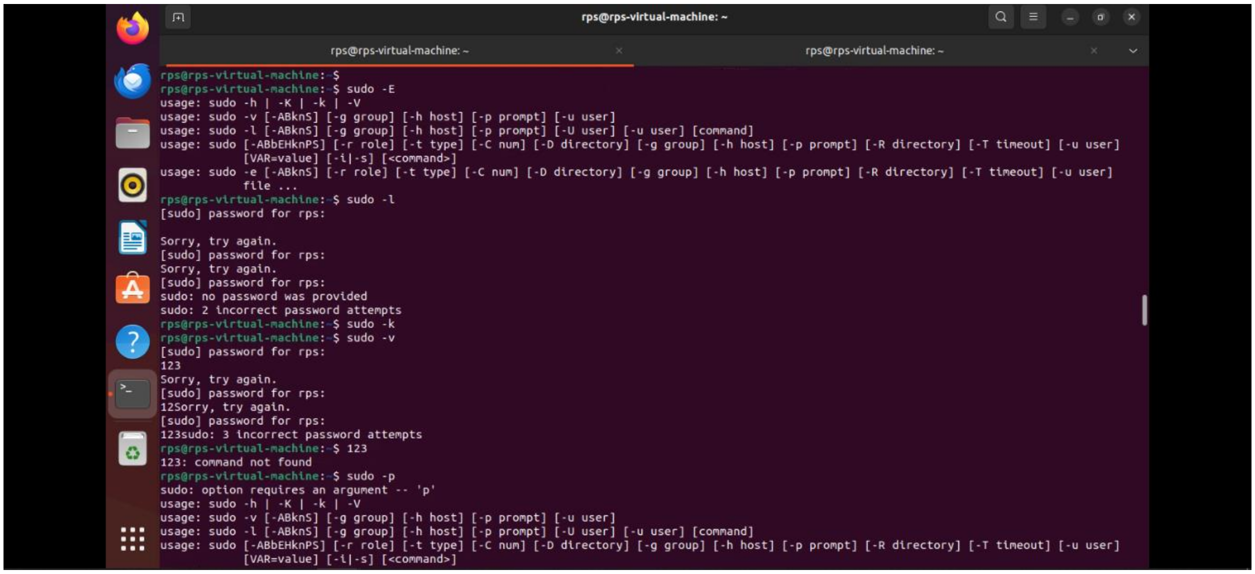
```
cat: file2.txt: No such file or directory
rps@rps-virtual-machine:~$ cd dir2
rps@rps-virtual-machine:~/dir2$ cat file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat -n file2.txt
     1	This is File 1.rps@rps-virtual-machine:~/dir2$ cat -b file2.txt
     1	This is File 1.rps@rps-virtual-machine:~/dir2$ cat -v file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat -T file2.txt
This is File 1.rps@rps-virtual-machine:~/dir2$ cat >file2.txt
hello just some edit.rps@rps-virtual-machine:~/dir2$
rps@rps-virtual-machine:~/dir2$
rps@rps-virtual-machine:~/dir2$ echo " Hoe are you doing "
 Hoe are you doing
rps@rps-virtual-machine:~/dir2$ echo -e "Hello\nWorld"
Hello
World
rps@rps-virtual-machine:~/dir2$ echo -n "Hello\nWorld"
Hello\nWorldrps@rps-virtual-machine:~/dir2$ echo -E "Hello\nWorld"
Hello\nWorld
rps@rps-virtual-machine:~/dir2$ man echo
```

17. sudo (Linux/macOS): Grants temporary superuser privileges to execute a command (use with caution!).

Use Case: You need to perform an action that requires administrative rights.

Exercise: Important: Never use sudo for untrusted commands! In a safe scenario (like creating a test file), use sudo touch important.txt to create a file that might require admin access (assuming you have the password).

Syntax: sudo [command]


rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~
rps@rps-virtual-machine: ~

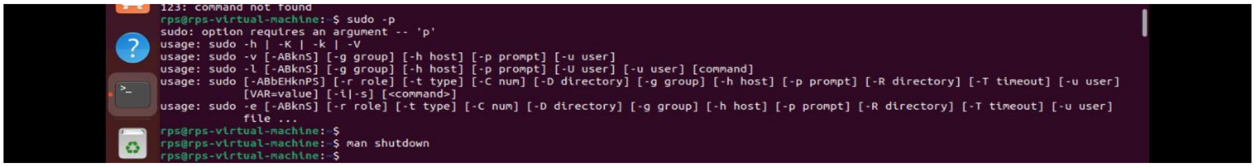
```
rps@rps-virtual-machine:~$
rps@rps-virtual-machine:~$ sudo -E
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-ABbEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user]
            [VAR=value] [-i|-s] [<command>]
usage: sudo -e [-ABknS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user]
            file ...
rps@rps-virtual-machine:~$ sudo -l
[sudo] password for rps:

Sorry, try again.
[sudo] password for rps:
Sorry, try again.
[sudo] password for rps:
sudo: no password was provided
sudo: 2 incorrect password attempts
rps@rps-virtual-machine:~$ sudo -k
rps@rps-virtual-machine:~$ sudo -v
[sudo] password for rps:
123
Sorry, try again.
[sudo] password for rps:
12Sorry, try again.
[sudo] password for rps:
123sudo: 3 incorrect password attempts
rps@rps-virtual-machine:~$ 123
123: command not found
rps@rps-virtual-machine:~$ sudo -p
sudo: option requires an argument -- 'p'
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-ABbEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user]
            [VAR=value] [-i|-s] [<command>]
```

18. shutdown (Linux/macOS) / shutdown /s /t (Windows): Initiates a system shutdown or restart.

Use Case: You want to turn off or restart your computer.

Exercise: Important: Don't accidentally shut down your computer! This is for learning purposes only. Look up the specific options for your system to safely test a shutdown with a delay (e.g., shutdown /s /t 60 for Windows to shutdown in 60 seconds).

Syntax: shutdown [options] [time]



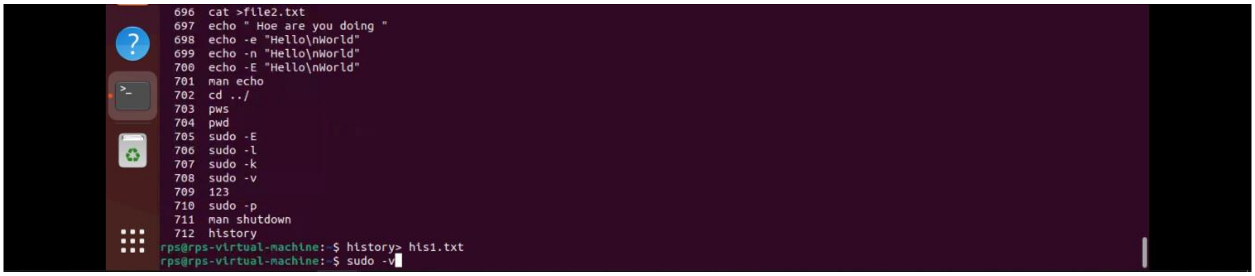
```
123: command not found
rps@rps-virtual-machine:~$ sudo -p
sudo: option requires an argument -- 'p'
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABknS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABknS] [-g group] [-h host] [-p prompt] [-U user] [-u user] [command]
usage: sudo [-ABbEHknPS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user]
            [VAR=value] [-i|-s] [<command>]
usage: sudo -e [-ABknS] [-r role] [-t type] [-C num] [-D directory] [-g group] [-h host] [-p prompt] [-R directory] [-T timeout] [-u user]
            file ...
rps@rps-virtual-machine:~$
rps@rps-virtual-machine:~$ man shutdown
rps@rps-virtual-machine:~$
```

19. history (all): Shows a list of previously entered commands.

Use Case: You want to see what commands you've used recently, in case you need to refer back to one.

Exercise: Type history (all) to see a list of your recent commands.

Syntax: history [options]



```
  696  cat >file2.txt
  697  echo " Hoe are you doing "
  698  echo -e "Hello\nWorld"
  699  echo -n "Hello\nWorld"
  700  echo -E "Hello\nWorld"
  701  man echo
  702  cd ../
  703  pws
  704  pwd
  705  sudo -E
  706  sudo -l
  707  sudo -k
  708  sudo -v
  709  123
  710  sudo -p
  711  man shutdown
  712  history
rps@rps-virtual-machine:~$ history> his1.txt
rps@rps-virtual-machine:~$ sudo -v
```