

Lab - 1

Aim – Basic commands of Linux.

Introduction - Linux is a community of open-source Unix like operating systems that are based on the Linux Kernel. It was initially released by Linus Torvalds on September 17, 1991. It is a free and open-source operating system and the source code can be modified and distributed to anyone commercially or noncommercially under the GNU General Public License. you can get Linux based operating system by downloading one of the Linux distributions and these distributions are available for different types of devices like embedded devices, personal computers, etc.

Some of the popular Linux distributions are:

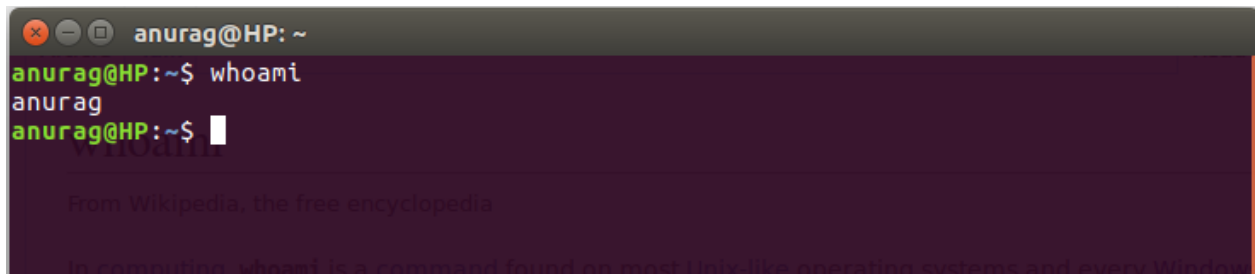
- MX Linux
- Manjaro
- Linux Mint
- elementary
- Ubuntu
- Debian
- Solus
- Fedora
- openSUSE
- Deepin

File Management becomes easy if you know the right basic command in Linux. some basic commands of Linux are listed below.

Commands:

1) whoami command

It displays the username of the current user when this command is invoked.

A terminal window titled 'anurag@HP: ~' shows the command 'whoami' being executed. The output is 'anurag'. Below the terminal, there is a Wikipedia snippet about the 'whoami' command.

```
anurag@HP:~$ whoami
anurag
anurag@HP:~$
```

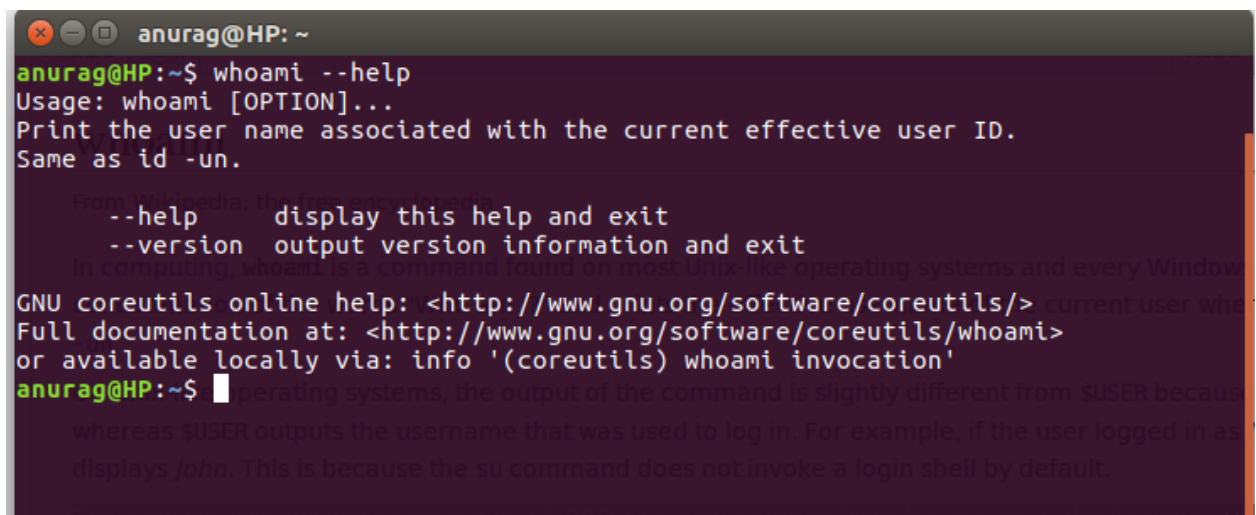
From Wikipedia, the free encyclopedia

In computing, **whoami** is a command found on most Unix-like operating systems and every Windows

--Help option :-

It gives the help message and exit.

Whoami - - help

A terminal window titled 'anurag@HP: ~' shows the command 'whoami --help' being executed. The output displays usage information and options. Below the terminal, there is a Wikipedia snippet about the 'whoami' command.

```
anurag@HP:~$ whoami --help
Usage: whoami [OPTION]...
Print the user name associated with the current effective user ID.
Same as id -un.

--help      display this help and exit
--version   output version information and exit

GNU coreutils online help: <http://www.gnu.org/software/coreutils/>
Full documentation at: <http://www.gnu.org/software/coreutils/whoami>
or available locally via: info '(coreutils) whoami invocation'
anurag@HP:~$
```

From Wikipedia, the free encyclopedia

In computing, **whoami** is a command found on most Unix-like operating systems and every Windows

operating systems, the output of the command is slightly different from `$USER` because whereas `$USER` outputs the username that was used to log in. For example, if the user logged in as `john`, this is because the `su` command does not invoke a login shell by default.

--version Option :-

It gives the version information and exit.

Whoami --version

```

anurag@HP: ~
anurag@HP:~$ whoami --version
whoami (GNU coreutils) 8.26
Copyright (C) 2016 Free Software Foundation, Inc.
License GPLv3+: GNU GPL version 3 or later <http://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 Richard Mlynarik.
anurag@HP:~$

```

2) PWD =

PWD stands for Present working directory. It will simply print out the current working directory.

```

infolinux@infolinux:~$ pwd
/home/infolinux

```

3) ls =

It lists the content of a given directory. The peculiarity of this command is that it supports a wide range of arguments.

```

guru99@VirtualBox:~$ ls
Desktop    Downloads    Music    Public    Videos
Documents  examples.desktop  Pictures  Templates
guru99@VirtualBox:~$

```

- Directories are denoted in blue color.
- Files are denoted in white.

4) 'ls-R' command

Suppose, the "Music" folder has some sub-directories and files.

You can use '**ls -R**' to show all the files not only in directories but also subdirectories.

```
guru99@VirtualBox:~$ ls -R
.:
Desktop    Downloads    Music    Public    Videos
Documents  examples.desktop  Pictures  Templates

./Desktop:

./Documents:

./Downloads:

./Music:
English

./Music/English:
Rock  Trans

./Music/English/Rock:
Test.mp3

./Music/English/Trans:
```

5) "ls -a"=

To view hidden files ls-a command used.

```
guru99@VirtualBox:~$ ls -a
.          .dmrc          .ICEauthority  sample
..         Documents   .local         sample1
.bash_history Downloads      .mission-control sample2
.bash_logout examples.desktop Music          Templates
.bashrc    .gconf        Pictures       .thumbnails
.cache     .gnome2       .profile       Videos
.config    .gstreamer-0.10 Public         .Xauthority
.dbus      .gtk-bookmarks .pulse         .xsession-error
Desktop    .gvfs         .pulse-cookie

guru99@VirtualBox:~$
```

6) History Command

History command shows all the basic commands in Linux that you have used in the past for the current terminal session. This can help you refer to the old commands you have entered and re-used them in your operations again.

```
guru99@VirtualBox:~$ history
 1  cat > sample
 2  cat sample
 3  cat sample ^a
 4  cat sample a
 5  cat sample | grep a
 6  cat sample | grep ^a
 7  useradd home
 8  useradd mycomputer
 9  sudo useradd mycomputer
10  sudo adduser MyLinux
11  sudo adduser mylinux
12  vi scriptsample.sh
```

7) Clear command

This command clears all the clutter on the terminal and gives you a clean window to work on, just like when you launch the terminal.

```
141 man
142 3a
143 man intro
144 man ls
145 man cat
146 man man
147 history
148 146
149 history 146
150 history
151 clear
152 history
guru99@VirtualBox:~$ clear
```

The window gets cleared

```
guru99@VirtualBox:~$
```

8) Echo command

The echo command in Linux is used to display a string provided by the user.

Syntax: echo [string]

```
test@test:~$ echo Hello, World!
Hello, World!
test@test:~$
```

9) touch command

touch command is used to create a file. It can be anything, from an empty txt file to an empty zip file. For example, “touch new.txt”.

```
nayso@Alok-Aspire:~/Desktop$ ls
nayso@Alok-Aspire:~/Desktop$ touch new.txt
nayso@Alok-Aspire:~/Desktop$ ls
new.txt
```

10) 'rm' command

The 'rm' command removes files from the system without confirmation.

Syntax: `rm [OPTION]... FILE...`

↪ List current contents of directory

```
guru99@VirtualBox:~$ ls
Desktop  Downloads  Music  [Public  sample1  Templates
Documents examples.desktop Pictures  sample  sample2  Videos
```

↪ Remove the file sample1

```
guru99@VirtualBox:~$ rm sample1
```

↪ List directory, to check file has been deleted

```
guru99@VirtualBox:~$ ls
Desktop  Downloads  Music  Public  sample2  Videos
Documents examples.desktop Pictures  sample  Templates
guru99@VirtualBox:~$
```

11) 'mkdir' command

Directories can be created using mkdir command.

Syntax: `mkdir [options...] [directories ...]`

```
home@VirtualBox:~$ mkdir mydirectory
home@VirtualBox:~$ ls
Desktop  Downloads  Music  Pictures  Templates
Documents examples.desktop mydirectory Public  Videos
home@VirtualBox:~$
```

12) 'rmdir' command

Directories can be removed using rmdir command.

Syntax: `rmdir [-p] [-v | -verbose] [-ignore-fail-on-non-empty] directories ...`

```
home@VirtualBox:~$ rmdir mydirectory
home@VirtualBox:~$ ls
Desktop  dir2  Documents  examples.desktop  Pictures  Templates
dir1     dir3  Downloads  Music              Public    Videos
home@VirtualBox:~$
```

13) 'mv' command

The 'mv' (move) command can also be used for renaming directories.

Syntax: `mv [Option] source destination`

```
home@VirtualBox:~$ mv mydirectory newdirectory
home@VirtualBox:~$ ls
Desktop  Downloads  Music  Pictures  Templates
Documents  examples.desktop  newdirectory  Public  Videos
home@VirtualBox:~$
```

14) cd command

Cd stands for Change Directory. It changes the current working directory.

Syntax: `$ cd [directory]`

Some cd option are shown below:

1. (`cd ~`) ~ stands for home directory

2. (cd .) . stands for the current directory
3. (cd ..) .. stands for parent directory
4. (cd /) / It takes you to the system's root directory.

```
infolinux@infolinux:~$ pwd
/home/infolinux
infolinux@infolinux:~$ cd /home/infolinux/Desktop/
infolinux@infolinux:~/Desktop$ pwd
/home/infolinux/Desktop
infolinux@infolinux:~/Desktop$
```

15) cmp command

cmp command is used to compare the two files byte by byte and helps you to find out whether the two files are identical or not.

For example, we have these text files are shown below:

File 1= List.txt



A screenshot of a text editor window titled "List.txt". The window has a menu bar with "Open", "Save", and a hamburger menu icon. The text content is as follows:

```
1 Desktop
2 Documents
3 Downloads
4 Music
5 Pictures
6 Public
7 Templates
8 VersionFile.txt
9 Videos
10 ABC
11 XYZ
```

File 2= List2.txt



A screenshot of a text editor window titled "List2.txt". The window has a menu bar with "Open", "Save", and a hamburger menu icon. The text content is as follows:

```
1 Desktop
2 Documents
3 Downloads
4 Music
5 Pictures
6 Public
7 Templates
8 VersionFile.txt
9 Videos
10 My Files
11 My Folders
```

Syntax: Cmp File1 File2

We have replaced File1 with List.txt and File2 with List2.txt.

```
kbuzdar@kbuzdar-VirtualBox:~$ cmp List.txt List2.txt
cmp: EOF on List.txt after byte 83, line 9
kbuzdar@kbuzdar-VirtualBox:~$
```

The output of this command reveals that our two specified text files are different from each other.

16) cat command

cat command reads data from the file and gives their content as output. It helps us to create, view, concatenate files.

Syntax: Cat test1.txt

```
sofia@sofia-VirtualBox:~$ cat test1.txt
This is test file #1.
```

For multiple files :

Syntax: Cat test1.txt test2.txt

```
sofia@sofia-VirtualBox:~$ cat test1.txt test2.txt
This is test file #1.
This is test file #2.
```

17) cal command

cal command is a calendar command in Linux which is used to see the calendar of a specific month or a whole year.

```

dharam@dharam-H110MHC: ~
dharam@dharam-H110MHC:~$ cal
December 2018
Su Mo Tu We Th Fr Sa
                1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31

```

cal -y command: Shows the calendar of the complete current year with the current date highlighted.

```

ubuntu@sanju6890: ~
ubuntu@sanju6890:~$ cal -y
2021
January February March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
17 18 19 20 21 22 23 24 25 26 27 28 29 30 31
24 25 26 27 28 29 30 31
31

April May June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
18 19 20 21 22 23 24 25 26 27 28 29 30
25 26 27 28 29 30

July August September
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
18 19 20 21 22 23 24 25 26 27 28 29 30
25 26 27 28 29 30 31

October November December
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 3  4  5  6  7  8  9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30
17 18 19 20 21 22 23 24 25 26 27 28 29 30
24 25 26 27 28 29 30
31

```

cal 2018 : Shows the whole calendar of the year.

```

dharam@dharam-H110MHC: ~
dharam@dharam-H110MHC:~$ cal 2018
2018
    January                February                March
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6          1  2  3              1  2  3
 7  8  9 10 11 12 13      4  5  6  7  8  9 10      4  5  6  7  8  9 10
14 15 16 17 18 19 20      11 12 13 14 15 16 17      11 12 13 14 15 16 17
21 22 23 24 25 26 27      18 19 20 21 22 23 24      18 19 20 21 22 23 24
28 29 30 31              25 26 27 28              25 26 27 28 29 30 31

    April                  May                    June
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7      1  2  3  4  5          1  2
 8  9 10 11 12 13 14      6  7  8  9 10 11 12      3  4  5  6  7  8  9
15 16 17 18 19 20 21      13 14 15 16 17 18 19      10 11 12 13 14 15 16
22 23 24 25 26 27 28      20 21 22 23 24 25 26      17 18 19 20 21 22 23
29 30                    27 28 29 30 31              24 25 26 27 28 29 30

    July                   August                 September
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6  7      1  2  3  4          1
 8  9 10 11 12 13 14      5  6  7  8  9 10 11      2  3  4  5  6  7  8
15 16 17 18 19 20 21      12 13 14 15 16 17 18      9 10 11 12 13 14 15
22 23 24 25 26 27 28      19 20 21 22 23 24 25      16 17 18 19 20 21 22
29 30 31                  26 27 28 29 30 31          23 24 25 26 27 28 29
                                                30

    October                November              December
Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa Su Mo Tu We Th Fr Sa
 1  2  3  4  5  6      1  2  3              1
 7  8  9 10 11 12 13      4  5  6  7  8  9 10      2  3  4  5  6  7  8
14 15 16 17 18 19 20      11 12 13 14 15 16 17      9 10 11 12 13 14 15
21 22 23 24 25 26 27      18 19 20 21 22 23 24      16 17 18 19 20 21 22
28 29 30 31              25 26 27 28 29 30          23 24 25 26 27 28 29
                                                30 31

```

18) passwd command

passwd command is used to change the user account passwords.

```

hp@DESKTOP-:~$ passwd
Changing password for hp.
(current) UNIX password:
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
hp@DESKTOP-:~$

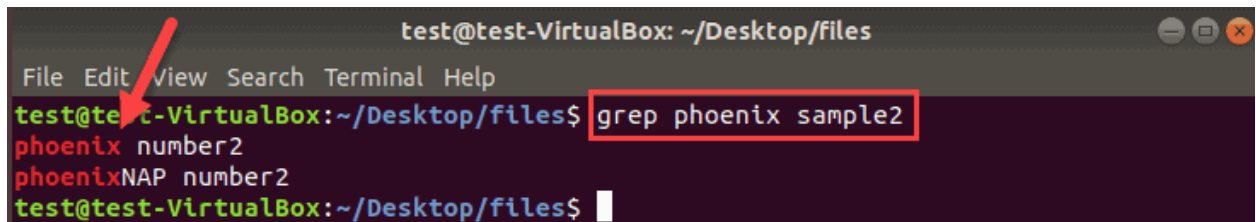
```

19) grep command

Grep command used to search for a string of characters in a specified file. The text search pattern is called a regular expression. When it finds a match, it prints the line with the result. The grep command is handy when searching through large log files.

Syntax: `grep [options] pattern [files]`

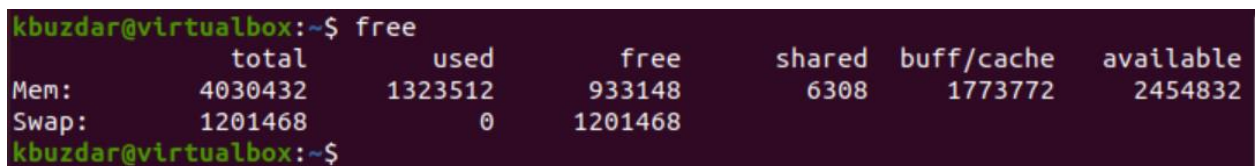
Exa: `grep phoenix sample2`

A terminal window titled 'test@test-VirtualBox: ~/Desktop/files'. The command 'grep phoenix sample2' is entered and highlighted with a red box. The output shows two lines: 'phoenix number2' and 'phoenixNAP number2'. A red arrow points to the command line.

```
test@test-VirtualBox: ~/Desktop/files
File Edit View Search Terminal Help
test@test-VirtualBox:~/Desktop/files$ grep phoenix sample2
phoenix number2
phoenixNAP number2
test@test-VirtualBox:~/Desktop/files$
```

20) free command

Free command shows the system memory usage (free, used , swaped , cached etc). This field shows the total amount of memory and how much is installed on your system.

A terminal window showing the output of the 'free' command. The output is a table with 7 columns: total, used, free, shared, buff/cache, and available. The rows are for Mem and Swap.

```
kbuzdar@virtualbox:~$ free
              total        used         free       shared    buff/cache   available
Mem:      4030432      1323512         933148          6308       1773772       2454832
Swap:      1201468           0         1201468
kbuzdar@virtualbox:~$
```

21) uname command

The command 'uname' displays the information about the system.

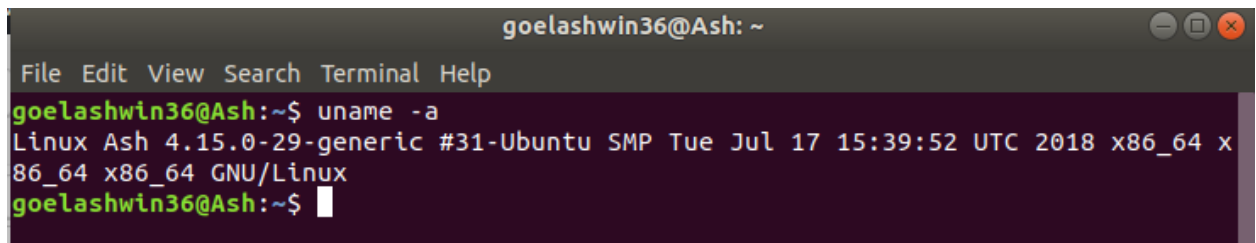
Syntax: `uname [OPTION]`

A terminal window showing the output of the 'uname' command, which is 'Linux'.

```
$ uname
Linux
$
```

-a option: It prints all the system information in the following order: Kernel name, network node hostname, kernel release date, kernel version, machine hardware name, hardware platform, operating system.

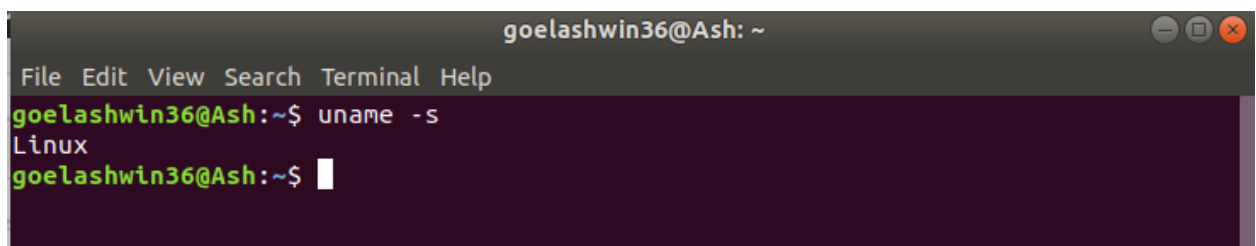
Syntax: `$uname -a`

A terminal window titled 'goelashwin36@Ash: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'goelashwin36@Ash:~\$'. The command 'uname -a' has been entered and executed, displaying the following output: 'Linux Ash 4.15.0-29-generic #31-Ubuntu SMP Tue Jul 17 15:39:52 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux'. The prompt is now 'goelashwin36@Ash:~\$' with a cursor.

```
goelashwin36@Ash:~$ uname -a
Linux Ash 4.15.0-29-generic #31-Ubuntu SMP Tue Jul 17 15:39:52 UTC 2018 x86_64 x86_64 x86_64 GNU/Linux
goelashwin36@Ash:~$
```

-s option: It prints the kernel name.

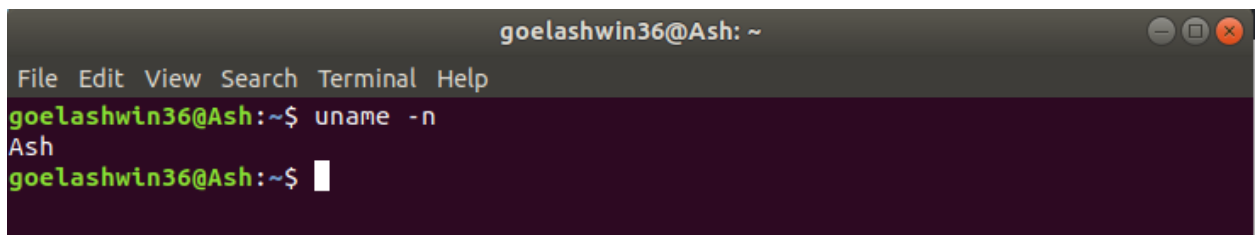
Syntax: `$uname -s`

A terminal window titled 'goelashwin36@Ash: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'goelashwin36@Ash:~\$'. The command 'uname -s' has been entered and executed, displaying the output: 'Linux'. The prompt is now 'goelashwin36@Ash:~\$' with a cursor.

```
goelashwin36@Ash:~$ uname -s
Linux
goelashwin36@Ash:~$
```

-n option: It prints the hostname of the network node(current computer).

Syntax: `$uname -n`

A terminal window titled 'goelashwin36@Ash: ~' with a menu bar (File, Edit, View, Search, Terminal, Help). The prompt is 'goelashwin36@Ash:~\$'. The command 'uname -n' has been entered and executed, displaying the output: 'Ash'. The prompt is now 'goelashwin36@Ash:~\$' with a cursor.

```
goelashwin36@Ash:~$ uname -n
Ash
goelashwin36@Ash:~$
```

22) Groups command

Groups command displays all the names of group a user is part of.

```
demon@AJ7:~$ groups
demon adm cdrom sudo dip plugdev lpadmin sambashare
demon@AJ7:~$
```

23) comm commands

The 'comm' command compares two files or streams.

Syntax: `comm [file1] [file2]`

```
sssit@JavaTpoint: ~
sssit@JavaTpoint:~$ cat file1.txt
Dhoni
Dravid
Sachin
Sehwag
Yuvi
sssit@JavaTpoint:~$ cat file2.txt
Dhoni
Dravid
Sachin
Zadeja
sssit@JavaTpoint:~$ comm file1.txt file2.txt
          Dhoni
          Dravid
          Sachin
Sehwag
Yuvi
          Zadeja
sssit@JavaTpoint:~$
```

24) date command

date command displays and sets the system date and time. This command also allows users to print the time in different formats and calculate future and past dates.

Syntax: `date [option]... [+format]`

To show the current system time and date,

```
andreja@andreja-test:~$ date
Wed 30 Sep 2020 04:51:04 PM CEST
```

-d option: this option allows user to operate on a specific date.
For example,

```
andreja@andreja-test:~$ date -d "2000-11-22 09:10:15"
Wed 22 Nov 2000 09:10:15 AM CET
```

--date command: To display the given date string in the format of a date. This command does not affect the system's actual date and time.

```
andreja@andreja-test:~$ date --date="09/10/1960"
Sat 10 Sep 1960 12:00:00 AM CET
```