# Experiment 2

## *Implement the basic and user status commands like: su, sudo, man, help, history, who, whoami, id, uname, uptime, free, tty, cal, date, hostname, reboot, clear, bc.*

Linux commands are case sensitive hence you need to be careful about what you are keying in. Open the terminal by pressing the **Ctrl + Alt + T**

1. **ls:** In Linux, the ls command is used to list out files and directories.
    - ls -R will list all the files in the sub-directories as well
    - ls -a will show the hidden files
    - ls -al will list the files and directories with detailed information like the permissions, size, owner, etc
2. **cd:** change directory

    To navigate through the Linux files and directories, use the cd command. It requires either the full path or the name of the directory, depending on the current working directory that you're in.

    Let's say you're in /home/username/Documents and you want to go to Photos, a subdirectory of Documents. To do so, simply type the following command: cd Photos
    - cd .. (with two dots) to move one directory up
    - cd to go straight to the home folder
    - cd- (with a hyphen) to move to your previous directory
3. **su:** The Unix command su, which stands for 'substitute user' is defined as The su command lets you switch the current user to any other user
4. **sudo:** Short for "SuperUser Do", this command enables you to perform tasks that require administrative or root permissions.
5. **man:** man command in Linux is used to display the user manual of any command that we can run on the terminal. It provides a detailed view of the command which includes NAME, SYNOPSIS, DESCRIPTION, OPTIONS, EXIT STATUS, RETURN VALUES, ERRORS, FILES, VERSIONS
6. **help:** If you are new to LINUX operating system and having trouble dealing with the command-line utilities provided by LINUX then you really need to know first of all about the **help command** which as its name says help you to learn about any built-in command.
    - -d output short description for each topic
    - -m display usage in pseudo-manpage format
    - -s output only a short usage synopsis for each topic matching
7. **history**: command is used to view the previously executed command.

- $ history 5: To show the limited number of commands (5) that executed previously

8. **who:** The Linux "who" command lets you display the users currently logged in to your UNIX or Linux operating system. Whenever a user needs to know about how many users are using or are logged-in into a particular Linux-based operating system, he/she can use the "who" command to get that information.
    - who -m -H : Command to display the hostname and user associated with the input/output devices like a keyboard
    - who –a: this command's help, one sees all the details of every user logged in to the current system
9. **whoami:** It is basically the concatenation of the strings **"who","am","i" as whoami**. It displays the username of the current user when this command is invoked. It is similar as running **the id** command with the options **-un.**
    - whoami –help: It gives the help message and exit.
    - whoami –version: It gives the version information and exit.
10. **id:** is used to print the genuine and effective user ID and group ID.
    The supported options by the id command are as following:
    - -a: It is used to ignore the compatibility with other versions.
    - -Z, --context: It is used to print only the security context of the process.
    - -g, --group: It is used to print only the effective GID.
    - -G, --groups: It is used to print all group Ids.
    - -n, --name: It is used to print a name instead of a number.
    - -r, --real: It is used to print the real ID instead of the effective ID, with -ugG
    - -u, --user: It is used to print only the effective UID.
    - -z, --zero: It is used to delimit entries with NULL characters, except the whitespace;
    - --help: It used to display the help documentation and exit.
11. **uname:** displays the information about the system.
    uname [OPTION] …..Syntax
    - -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
    - -s option: It prints the kernel name.
    - -n option: It prints the hostname of the network node (current computer).
12. **uptime:** It is used to find out how long the system is active (running). This command returns set of values that involve, the current time, and the amount of time system is in running state, number of users currently logged into, and the load time for the past 1, 5 and 15 minutes respectively.
    Syntax: uptime [-options]
    Options:

- -p, --pretty  show uptime in pretty format
- -h, --help  display this help and exit
- -s, --since  system up since
- -V, --version  output version information and exit

13. **free:** displays the total amount of free space available along with the amount of memory used and swap memory in the system, and also the buffers used by the kernel.

    Syntax: $free [OPTION]

    - -b, – -bytes : It displays the memory in bytes.
    - -k, – -kilo : It displays the amount of memory in kilobytes(default).
    - -m, – -mega : It displays the amount of memory in megabytes.
    - -g, – -giga : It displays the amount of memory in gigabytes.
        - – tera : It displays the amount of memory in terabytes.
    - -h, – -human : It shows all output columns automatically scaled to shortest three digit unit and display the units also of print out. The units used are B(bytes), K(kilos), M(megas), G(gigas), and T(teras).
    - -c, – -count : It displays the output c number of times and this option actually works with -s option.
    - -l, – -lohi : It shows the detailed low and high memory statistics
    - -o, – -old : This option disables the display of the buffer adjusted line.
    - -s, – -seconds : This option allows you to display the output continuously after s seconds delay. In actual, the usleepsystem call is used for microsecond resolution delay times.
    - -t, – -total : It adds an additional line in the output showing the column totals.
        - -help : It displays a help message and exit.
    - -V, – -version : It displays version info and exit.

14. **tty:** displays information related to terminal. The tty command of terminal basically prints the file name of the terminal connected to standard input. tty is short of ***teletype***.

    Syntax: tty [OPTION]

    - -s, – –silent, – –quiet : Prints nothing, only returns an exit status.
    - – –help : It will display the help message and exit.
    - – –version : Prints the version information and exits

15. **cal:** a quick view of the calendar in the Linux termina

    Syntax: cal [ [ month ] year]

    - cal : Shows current month calendar on the terminal with the current date highlighted.
    - cal -y : Shows the calendar of the complete current year with the current date highlighted.
    - cal 08 2000 : Shows calendar of selected month and year.

- cal 2018 : Shows the whole calendar of the year.
- cal 2018 | more : But year may not be visible in the same screen use more with cal use spacebar to scroll down.
- cal -3 : Shows calendar of previous, current and next month

16. **date:** display the system date and time. date command is also used to set date and time of the system.
    - date (no option) : With no options, the date command displays the current date and time, including the abbreviated day name, abbreviated month name, day of the month, the time separated by colons, the time zone name, and the year.
    - -u Option: Displays the time in GMT(Greenwich Mean Time)/UTC(Coordinated Universal Time )time zone.
    - –date or -d Option: Displays the given date string in the format of date. But this will not affect the system's actual date and time value.Rather it uses the date and time given in the form of string.
        - $date --date="2/02/2010"
17. **hostname:** is used to obtain the DNS(Domain Name System) name and set the system's hostname or NIS(Network Information System) domain name. A hostname is a name which is given to a computer and it attached to the network. Its main purpose is to uniquely identify over a network.

    Syntax: hostname -[option] [file]
18. **reboot:** is used restart or reboot the system.
19. **clear:** is a standard Unix computer operating system command that is used to clear the terminal screen.

    Syntax: $clear
20. **bc:** is used for command line calculator. It is similar to basic calculator by using which we can do basic mathematical calculations.
    - Example1 : $ echo "12+5" | bc
    - Example 2 : $ echo "10^2" | bc
    - Example3: $ echo "var=10;var" | bc