1) mkdir: creates new directories for the user.In order to do this you must have write permission in the parent directory of the new directory

2) ls: lists all the contents of the specified directory.It can be used to obtain information on the files and directories within it

3) cd: used to change from one directory to another

4) pwd: prints name of the current working directory.The command gives the full pathname of your current directory

5) mv: move or rename files or directories.It is used to change the name of files or directories, or to move them into other directories. mv cannot move directories from one file-system to another, so, if it is necessary to do that, use cp instead

```
nathanj@DESKTOP-2IF804J:~$ mkdir linTest
nathanj@DESKTOP-2IF804J:~$ ls
linTest
nathanj@DESKTOP-2IF804J:~$ cd /
nathanj@DESKTOP-2IF804J:/$ cd home
nathanj@DESKTOP-2IF804J:/home$ pwd
/home
nathanj@DESKTOP-2IF804J:/home$ mv linTest UbunTest
mv: cannot stat 'linTest': No such file or directory
nathanj@DESKTOP-2IF804J:/home$ cd ~
nathanj@DESKTOP-2IF804J:~$ mv linTest UbunTest
nathanj@DESKTOP-2IF804J:~$ ls
UbunTest
```

6) cp: copy files or directories and is used to make copies of the new files and directories.

7) rmdir: remove files or directories. rmdir removesnamed empty directories. If you need to delete a non-empty directory rm -r can be used instead

```
nathanj@DESKTOP-2IF804J:~$ cp -R UbunTest Ubuntest1
nathanj@DESKTOP-2IF804J:~$ ls
UbunTest  Ubuntest1
nathanj@DESKTOP-2IF804J:~$ rmdir Ubuntest1
nathanj@DESKTOP-2IF804J:~$ ls
UbunTest
nathanj@DESKTOP-2IF804J:~$
```

8) find: search for files in a specified directory hierarchy and all its subdirectories

```
nathanj@DESKTOP-2IF804J:~$ find ~ -name *.txt
```
nothing to find

9) history: prints recently used commands

```
nathanj@DESKTOP-2IF804J:~$ history
    1  ls
    2  ls-R
    3  ls -R
    4  ls -a
    5  cd home
    6  cd /
    7  cd home
    8  curl cheat.sh/ls
    9  who
   10  cd root
   11  cd /
   12  cd root
   13  mkdir linTest
   14  ls
   15  cd /
   16  cd home
   17  pwd
   18  mv linTest UbunTest
   19  cd ~
   20  mv linTest UbunTest
   21  ls
   22  cp UbunTest Ubuntest1
   23  cp -R UbunTest Ubuntest1
   24  ls
   25  rmdir Ubuntest1
   26  ls
   27  find -name *.txt
   28  find ./Home -name *.txt
   29  find ./C -name *.txt
   30  find ~ -name *.txt
   31  history
nathanj@DESKTOP-2IF804J:~$
```

10) cat: concatenate files and print on the standard output.takes a copy of a file and sends it to the standard output (i.e. to be displayed on your terminal, unless redirected elsewhere), so it is generally used either to read files, or to string together copies of several files, writing the output to a new file

11) echo: displays the text that the user types.It is generally used in shell programs.

```
nathanj@DESKTOP-2IF804J:~$ mkdir concat
nathanj@DESKTOP-2IF804J:~$ cat UbunTest concat
cat: UbunTest: Is a directory
cat: concat: Is a directory
nathanj@DESKTOP-2IF804J:~$ echo This is fine
This is fine
```

12) grep: prints lines that matches a pattern.It also searches for lines containing a specified pattern and, by default, writes them to the standard output.

13) wc: print the number of newlines, words, and bytes in files.If no filename is given, wc will count the standard input instead

```
nathanj@DESKTOP-2IF804J:~$ cat>data1
This is data
nathanj@DESKTOP-2IF804J:~$ cat>data2
And this is even more
nathanj@DESKTOP-2IF804J:~$ grep -i "This" data1
This is data
nathanj@DESKTOP-2IF804J:~$ wc data1
 1  3 13 data1
nathanj@DESKTOP-2IF804J:~$
```

14) chmod: change file access permissions.It alters the permissions on files and directories using either symbolic or octal numeric codes

15) ps: report a snapshot of the current processes.This information includes the process id, the controlling terminal (if there is one), the cpu time used so far, and the name of the command being run.

16) kill: to kill a process using signal mechanism.It requires the process id (PID). This can be found by using ps

17) date: displays the current date and time

18) diff: finds the differences between two files.The default output will contain lines such as n1 a n2,n3 and n4,n5 c n6,n7 , (where n1 a n2,n3 means that file2has the extra lines n2 to n3 following the line that has the number n1 in file1, and n4,n5 c n6,n7means that lines n4 to n5 in file1 differ from lines n6 to n7 in file2)

19) file: prints the type of file and the categoryto which its contents belong.

20) wc: prints the total number of lines in a file

21) ftp: file transfer program;used to make connections with another system

```
nathanj@DESKTOP-2IF804J:~$ ps
  PID TTY          TIME CMD
    9 tty1     00:00:00 bash
   22 tty1     00:00:00 ps
nathanj@DESKTOP-2IF804J:~$ kill program_nameaa
-bash: kill: program_nameaa: arguments must be process or job IDs
nathanj@DESKTOP-2IF804J:~$ date
Wed Mar 30 20:58:58 CDT 2022
nathanj@DESKTOP-2IF804J:~$ diff data1 data2
1c1
< This is data
---
> And this is even more
nathanj@DESKTOP-2IF804J:~$ file *
This:      empty
UbunTest: directory
concat:    directory
data1:     ASCII text
data2:     ASCII text
nathanj@DESKTOP-2IF804J:~$ wc data1
 1  3 13 data1
nathanj@DESKTOP-2IF804J:~$ ftp "known safe ip address74345"
ftp: known safe ip address74345: Name or service not known
ftp> man
```

22) man: displays an online reference manual page

23) more: scan through a text file page by page.Also,it displays the contents of a file on a terminal one screenful at a time.

```
nathanj@DESKTOP-2IF804J:~$ man
What manual page do you want?
For example, try 'man man'.
nathanj@DESKTOP-2IF804J:~$ more /etc/ssh/sshd_config
#       $OpenBSD: sshd_config,v 1.103 2018/04/09 20:41:22 tj Exp $

# This is the sshd server system-wide configuration file.  See
# sshd_config(5) for more information.

# This sshd was compiled with PATH=/usr/bin:/bin:/usr/sbin:/sbin

# The strategy used for options in the default sshd config shipped with
```

24) vim: a programmer's text editor

```
        VIM - Vi IMproved

        version 8.1.3741
        by Bram Moolenaar et al.
    Modified by team+vim@tracker.debian.org
    Vim is open source and freely distributable

        Sponsor Vim development!
type  :help sponsor<Enter>      for information

type  :q<Enter>                 to exit
type  :help<Enter>   or  <F1>   for on-line help
type  :help version8<Enter>     for version info
```

25) sort: sorts lines of text files in alphabetical order.By default, it sorts lines using a character bycharacter comparison, working from left to right, andusing the order of the ASCII character set.

26) chown:changes the file owner and group

27) who:shows how many users are logged in


```
nathanj@DESKTOP-2IF804J:~$ sort data1 data2
And this is even more
This is data
nathanj@DESKTOP-2IF804J:~$ chown data.txt
chown: missing operand after 'data.txt'
Try 'chown --help' for more information.
nathanj@DESKTOP-2IF804J:~$ who
nathanj@DESKTOP-2IF804J:~$ who
```

28) du:estimate file space usage

29) df:report file system disk space usage

```
nathanj@DESKTOP-2IF804J:~$ du
0        ./.landscape
4        ./.ssh
0        ./concat
0        ./UbunTest
20       .
nathanj@DESKTOP-2IF804J:~$ df
Filesystem      1K-blocks          Used  Available Use% Mounted on
rootfs          499477500     444992364   54485136  90% /
none            499477500     444992364   54485136  90% /dev
none            499477500     444992364   54485136  90% /run
none            499477500     444992364   54485136  90% /run/lock
none            499477500     444992364   54485136  90% /run/shm
none            499477500     444992364   54485136  90% /run/user
tmpfs           499477500     444992364   54485136  90% /sys/fs/cgroup
C:\             499477500     444992364   54485136  90% /mnt/c
D:\            1953497084    1677084384  276412700  86% /mnt/d
```

30) passwd:update user's authentication details.Youwill be prompted twice for your new password. Neither password will be displayed on the screen

```
nathanj@DESKTOP-2IF804J:~$ passwd
Changing password for nathanj.
Current password:
New password:
Retype new password:
Password unchanged
```

31) compress: compresses a file.It reduces the size of named files, replacing them with files of the same name extended by .Z .The amount of space saved by compression varies. If no saving of space would occur, then the file willnot be altered.

```
nathanj@DESKTOP-2IF804J:~$ compress data1

Command 'compress' not found, but can be installed with:

sudo apt install ncompress

nathanj@DESKTOP-2IF804J:~$
```

SHELL SCRIPTS:
1) Swap two numbers without using third variable
2) Find the sum of first 'N' numbers in Fibonacci Series
3) Print a given number in reverse order and sum of the individual digits
4) Read two strings and display whether it is equal , not equal, null strings or string with special characters
5) Accept one integer argument and print its multiplication table

6