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Concepts of Operating System

Assignment 2

Part A

What will the following commands do?

1. **echo "Hello, World!"**
   Print Hello, World!" on the console

```
cdac@GaneshPawar: ~
cdac@GaneshPawar:~$ echo "Hello, World!"
Hello, World!
cdac@GaneshPawar:~$ Hello, World!"
```

2. **name="Productive"**
   Store the Productive name into name Variable

```
cdac@GaneshPawar: ~
cdac@GaneshPawar:~$ name="Productive"
cdac@GaneshPawar:~$ $name
Productive: command not found
cdac@GaneshPawar:~$
```

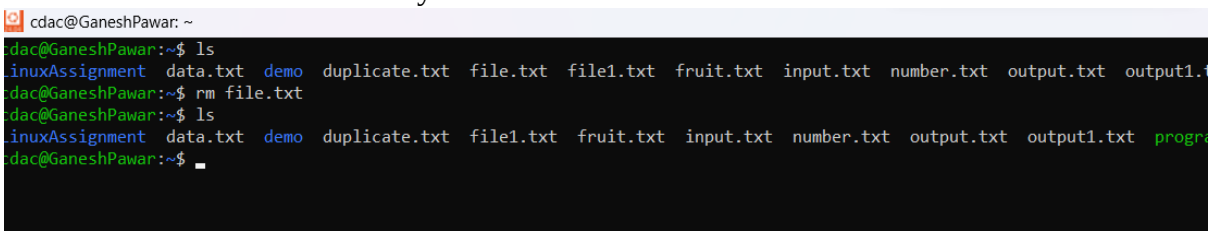
3. **touch file.txt**
   create file.txt file In Directory

```
cdac@GaneshPawar: ~
cdac@GaneshPawar:~$ touch file.txt
cdac@GaneshPawar:~$ ls
LinuxAssignment  data.txt  demo  duplicate.txt  file.txt
cdac@GaneshPawar:~$
```

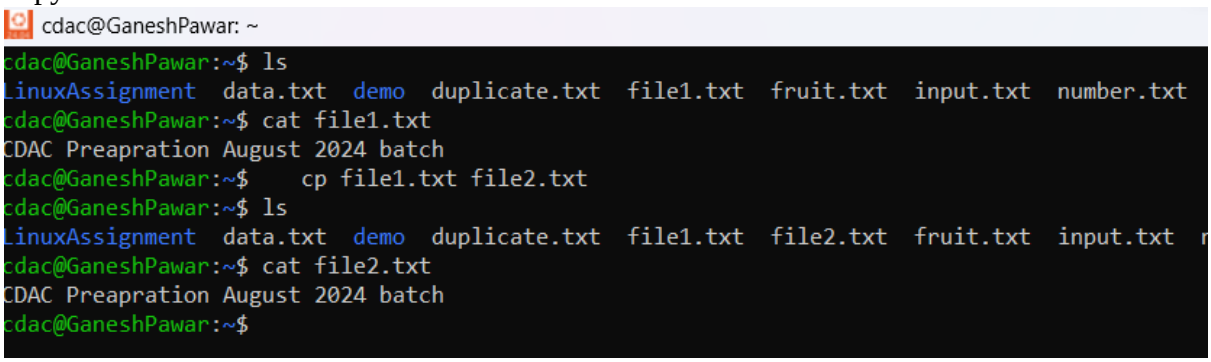
4. **ls -a**
   list out all files of directory including hidden also.

```
cdac@GaneshPawar: ~
cdac@GaneshPawar:~$ ls -a
.   .bash_history  .bashrc  .landscape  .motd_shown  .sudo_as_admin_successful  data.txt  duplicate.txt  file1.txt  input.txt   output.txt   program
..  .bash_logout   .cache   .local      .profile     LinuxAssignment            demo       file.txt       fruit.txt  number.txt  output1.txt  program.c
cdac@GaneshPawar:~$
```

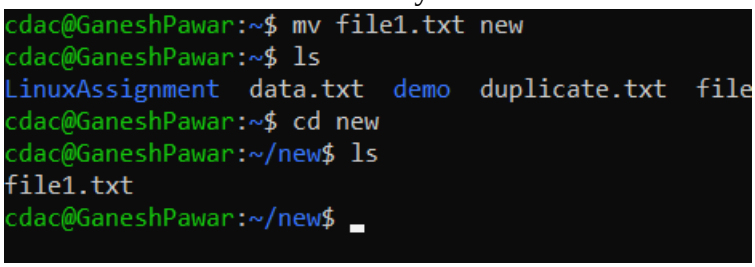
5. **rm file.txt**
   remove the file.txt from directory



6. **cp file1.txt file2.txt**
   copy file1.txt data into file2.txt



7. **mv file.txt /path/to/directory/**
   move file to destination directory

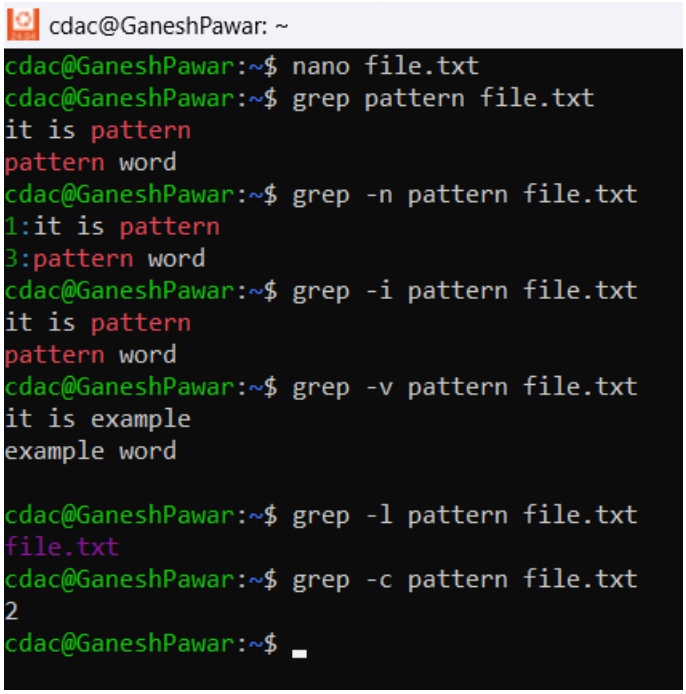


8. **chmod 755 script.sh**

gives the excute permission to all users of system including owner group and remote users .

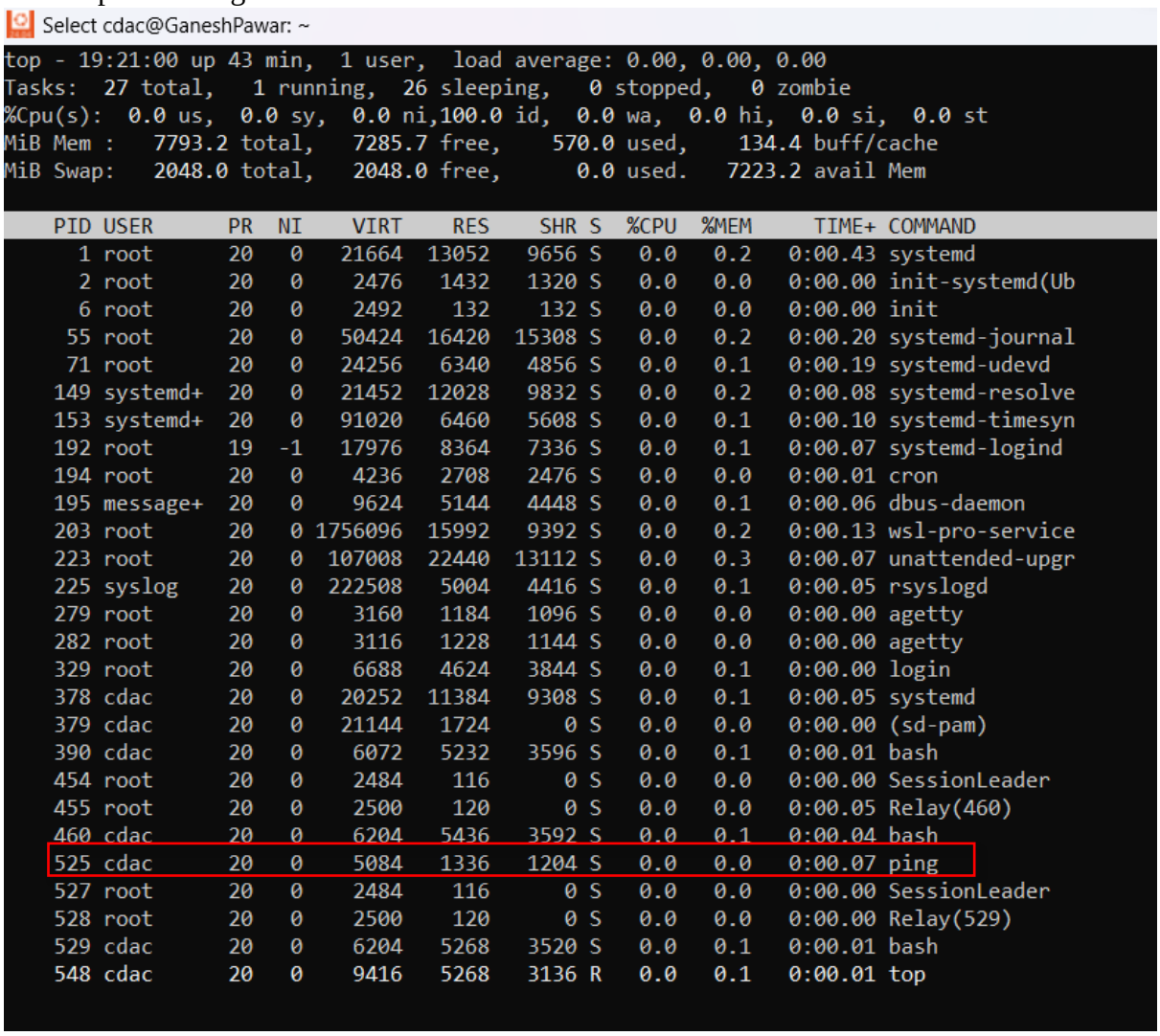
```
cdac@GaneshPawar:~$ nano script.sh
cdac@GaneshPawar:~$ ls -l
total 68
drwxr-xr-x 4 cdac cdac  4096 Aug 28 14:11 LinuxAssignment
-rw-r--r-- 1 cdac cdac   112 Aug 28 15:31 data.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 28 05:01 demo
-rw-r--r-- 1 cdac cdac   279 Aug 28 16:05 duplicate.txt
-rw-r--r-- 1 cdac cdac    35 Aug 29 16:34 file2.txt
-rw-r--r-- 1 cdac cdac   110 Aug 28 16:18 fruit.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:48 input.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 29 16:41 new
-rw-r--r-- 1 cdac cdac    51 Aug 28 15:33 number.txt
-rw-r--r-- 1 cdac cdac    76 Aug 28 15:47 output.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:49 output1.txt
-rwxr-xr-x 1 cdac cdac 15960 Aug 29 08:55 program
-rw-r--r-- 1 cdac cdac    70 Aug 29 08:56 program.c
-rw-r--r-- 1 cdac cdac    13 Aug 29 16:44 script.sh
cdac@GaneshPawar:~$ chomd 755 script.sh
Command 'chomd' not found, did you mean:
  command 'chmod' from deb coreutils (9.4-2ubuntu2)
Try: sudo apt install <deb name>
cdac@GaneshPawar:~$ chmod 755 script.sh
cdac@GaneshPawar:~$ ls -l
total 68
drwxr-xr-x 4 cdac cdac  4096 Aug 28 14:11 LinuxAssignment
-rw-r--r-- 1 cdac cdac   112 Aug 28 15:31 data.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 28 05:01 demo
-rw-r--r-- 1 cdac cdac   279 Aug 28 16:05 duplicate.txt
-rw-r--r-- 1 cdac cdac    35 Aug 29 16:34 file2.txt
-rw-r--r-- 1 cdac cdac   110 Aug 28 16:18 fruit.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:48 input.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 29 16:41 new
-rw-r--r-- 1 cdac cdac    51 Aug 28 15:33 number.txt
-rw-r--r-- 1 cdac cdac    76 Aug 28 15:47 output.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:49 output1.txt
-rwxr-xr-x 1 cdac cdac 15960 Aug 29 08:55 program
-rw-r--r-- 1 cdac cdac    70 Aug 29 08:56 program.c
-rwxr-xr-x 1 cdac cdac    13 Aug 29 16:44 script.sh
cdac@GaneshPawar:~$
```

9. **grep "pattern" file.txt**
   its search the pattern word in the file.txt file and return the lines which containing pattern word

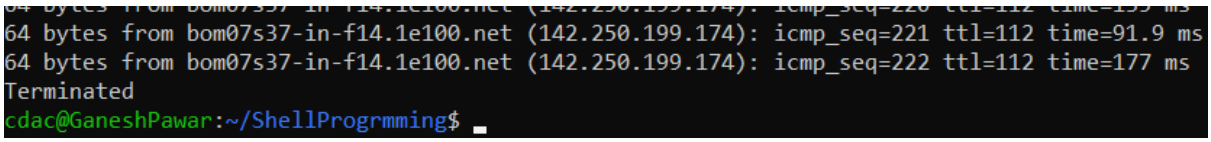


10. kill PID

kill the process of given ID



Here process ping is run in another shell of having PID 525 now I kill the process by another shell using KILL commnd and PID as 525



The process is Terminated

cdac@GaneshPawar: ~

```
top - 19:25:01 up 47 min,  1 user,  load average: 0.02, 0.01, 0.00
Tasks:  26 total,   1 running,  25 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni,100.0 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
MiB Mem :   7793.2 total,   7281.8 free,    573.8 used,    134.5 buff/cache
MiB Swap:   2048.0 total,   2048.0 free,      0.0 used.   7219.4 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
      1 root      20   0   21664  13052   9656 S   0.0   0.2   0:00.43 systemd
      2 root      20   0    2476   1432   1320 S   0.0   0.0   0:00.00 init-systemd(Ub
      6 root      20   0    2492    132    132 S   0.0   0.0   0:00.00 init
     55 root      20   0   50424  16424  15312 S   0.0   0.2   0:00.21 systemd-journal
     71 root      20   0   24256   6340   4856 S   0.0   0.1   0:00.20 systemd-udevd
    149 systemd+  20   0   21452  12028   9832 S   0.0   0.2   0:00.08 systemd-resolve
    153 systemd+  20   0   91020   6460   5608 S   0.0   0.1   0:00.11 systemd-timesyn
    192 root      19  -1   17976   8364   7336 S   0.0   0.1   0:00.07 systemd-logind
    194 root      20   0    4236   2708   2476 S   0.0   0.0   0:00.01 cron
    195 message+  20   0    9624   5144   4448 S   0.0   0.1   0:00.06 dbus-daemon
    203 root      20   0 1756096  15992   9392 S   0.0   0.2   0:00.13 wsl-pro-service
    223 root      20   0  107008  22440  13112 S   0.0   0.3   0:00.07 unattended-upgr
    225 syslog    20   0  222508   5004   4416 S   0.0   0.1   0:00.05 rsyslogd
    279 root      20   0    3160   1184   1096 S   0.0   0.0   0:00.00 agetty
    282 root      20   0    3116   1228   1144 S   0.0   0.0   0:00.00 agetty
    329 root      20   0    6688   4624   3844 S   0.0   0.1   0:00.00 login
    378 cdac      20   0   20252  11384   9308 S   0.0   0.1   0:00.05 systemd
    379 cdac      20   0   21144   1724      0 S   0.0   0.0   0:00.00 (sd-pam)
    390 cdac      20   0    6072   5232   3596 S   0.0   0.1   0:00.01 bash
    527 root      20   0    2484    116      0 S   0.0   0.0   0:00.00 SessionLeader
    528 root      20   0    2500    120      0 S   0.0   0.0   0:00.00 Relay(529)
    529 cdac      20   0    6204   5268   3520 S   0.0   0.1   0:00.03 bash
    551 cdac      20   0    9308   5212   3060 R   0.0   0.1   0:00.03 top
    552 root      20   0   24260   3380   1892 S   0.0   0.0   0:00.00 (udev-worker)
    553 root      20   0   24260   3384   1896 S   0.0   0.0   0:00.00 (udev-worker)
    554 root      20   0   24260   3380   1892 S   0.0   0.0   0:00.00 (udev-worker)
```

Process id 525 is not in the list …after kill command executed

11. **mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt**
    - 1. mkdir mydir-- by mkdir its make directory mydir
    - 2. Cd mydir -- cd commnd its open the directory mydir
    - 3. Touch file.txt-- touch command its create file file.txt
    - 4. echo “Hello, World!” > file.txt – its write the Hello,World! Into file.txt
    - 5. Cat file.txt – shows the file.txt content on console

cdac@GaneshPawar: ~/mydir

```
cdac@GaneshPawar:~$ mkdir mydir && cd mydir && touch file.txt && echo "Hello, World!" > file.txt && cat file.txt
Hello, World!
cdac@GaneshPawar:~/mydir$ ls
file.txt
cdac@GaneshPawar:~/mydir$ cat file.txt
Hello, World!
cdac@GaneshPawar:~/mydir$
```

12. ls -l | grep ".txt"

firstly ls -l shows the list of iles and directories name into the directory and then grep ".txt" intersect and shows only .txt matching format file on console

```
cdac@GaneshPawar:~$ ls -l | grep ".txt"
-rw-r--r-- 1 cdac cdac   112 Aug 28 15:31 data.txt
-rw-r--r-- 1 cdac cdac   279 Aug 28 16:05 duplicate.txt
-rw-r--r-- 1 cdac cdac    56 Aug 29 16:54 file.txt
-rw-r--r-- 1 cdac cdac    35 Aug 29 16:34 file2.txt
-rw-r--r-- 1 cdac cdac   110 Aug 28 16:18 fruit.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:48 input.txt
-rw-r--r-- 1 cdac cdac    51 Aug 28 15:33 number.txt
-rw-r--r-- 1 cdac cdac    76 Aug 28 15:47 output.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:49 output1.txt
cdac@GaneshPawar:~$
```

13. cat file1.txt file2.txt | sort | uniq

cat command show the content of file1.txt and file2.txt on console and then sort the content of both file and then only uniq .. no duplicate content will be shown on console disply

```
cdac@GaneshPawar: ~
cdac@GaneshPawar:~$ cat file.txt file1.txt
Good Morning
Good Night
Good Afternoon
Good Evening
Morning
Evening
Monday
Tuesday
Monday
Tuesday
Wednesday
Morning
Good Night
cdac@GaneshPawar:~$ cat file.txt file1.txt | sort
Evening
Good Afternoon
Good Evening
Good Morning
Good Night
Good Night
Monday
Monday
Morning
Morning
Tuesday
Tuesday
Wednesday
cdac@GaneshPawar:~$ cat file.txt file1.txt | sort | uniq
Evening
Good Afternoon
Good Evening
Good Morning
Good Night
Monday
Morning
Tuesday
Wednesday
cdac@GaneshPawar:~$
```

14. ls -l | grep "^d"

ls -l shows the list of files and directory with all detils then grep “^d” command shows the only child directories list in the directory. | - intersect the result

```
cdac@GaneshPawar:~$ ls -l | grep "^d"
drwxr-xr-x 4 cdac cdac  4096 Aug 28 14:11 LinuxAssignment
drwxr-xr-x 2 cdac cdac  4096 Aug 28 05:01 demo
drwxr-xr-x 2 cdac cdac  4096 Aug 29 17:13 mydir
drwxr-xr-x 2 cdac cdac  4096 Aug 29 16:41 new
cdac@GaneshPawar:~$
```

15. grep -r "pattern" /path/to/directory/

its shows the pattern name matching lines from various files on console for given directory path

```
fafkjjgf
cdac@GaneshPawar:~/new$ cd
cdac@GaneshPawar:~$ grep -r "pattern"
.bashrc:# If set, the pattern "**" used in a pathname expansion context will
file.txt:pattern
file.txt:lkeagfjgvd pattern
file.txt:a,bjfk pattern
new/file.txt:pattern
new/file.txt:lkeagfjgvd pattern
new/file.txt:a,bjfk pattern
cdac@GaneshPawar:~$ grep -r "pattern" /new/
grep: /new/: No such file or directory
cdac@GaneshPawar:~$ grep -r "pattern" /new
grep: /new: No such file or directory
cdac@GaneshPawar:~$ grep -r "pattern" new
new/file.txt:pattern
new/file.txt:lkeagfjgvd pattern
new/file.txt:a,bjfk pattern
cdac@GaneshPawar:~$
```

16. **cat file1.txt file2.txt | sort | uniq –d**

firstly its shown the data of two files on console then its sort and then its find the uniq content in two files and by -d its shos the duplicate data once .

```
cdac@GaneshPawar:~$ cat file1.txt file2.txt |sort
CDAC Preapration August 2024 batch
Good Night
Monday
Monday
Morning
Sunday
Tuesday
Tuesday
Wednesday
cdac@GaneshPawar:~$ cat file1.txt file2.txt | sort| uniq
CDAC Preapration August 2024 batch
Good Night
Monday
Morning
Sunday
Tuesday
Wednesday
cdac@GaneshPawar:~$ cat file1.txt file2.txt | sort| uniq -d
Monday
Tuesday
cdac@GaneshPawar:~$
```

17. chmod 644 file.txt

it gives the read permission to all users of system

```
cdac@GaneshPawar:~$ ls -l
total 80
drwxr-xr-x 4 cdac cdac  4096 Aug 28 14:11 LinuxAssignment
-rw-r--r-- 1 cdac cdac   112 Aug 28 15:31 data.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 28 05:01 demo
-rw-r--r-- 1 cdac cdac   279 Aug 28 16:05 duplicate.txt
--w------- 1 cdac cdac    89 Aug 29 17:33 file.txt
-rw-r--r-- 1 cdac cdac    44 Aug 29 17:39 file1.txt
-rw-r--r-- 1 cdac cdac    57 Aug 29 17:41 file2.txt
-rw-r--r-- 1 cdac cdac   110 Aug 28 16:18 fruit.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:48 input.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 29 17:13 mydir
drwxr-xr-x 2 cdac cdac  4096 Aug 29 17:35 new
-rw-r--r-- 1 cdac cdac    51 Aug 28 15:33 number.txt
-rw-r--r-- 1 cdac cdac    76 Aug 28 15:47 output.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:49 output1.txt
-rwxr-xr-x 1 cdac cdac 15960 Aug 29 08:55 program
-rw-r--r-- 1 cdac cdac    70 Aug 29 08:56 program.c
-rwxr-xr-x 1 cdac cdac    13 Aug 29 16:44 script.sh
cdac@GaneshPawar:~$ chmod 644 file.txt
cdac@GaneshPawar:~$ ls -l
total 80
drwxr-xr-x 4 cdac cdac  4096 Aug 28 14:11 LinuxAssignment
-rw-r--r-- 1 cdac cdac   112 Aug 28 15:31 data.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 28 05:01 demo
-rw-r--r-- 1 cdac cdac   279 Aug 28 16:05 duplicate.txt
-rw-r--r-- 1 cdac cdac    89 Aug 29 17:33 file.txt
-rw-r--r-- 1 cdac cdac    44 Aug 29 17:39 file1.txt
-rw-r--r-- 1 cdac cdac    57 Aug 29 17:41 file2.txt
-rw-r--r-- 1 cdac cdac   110 Aug 28 16:18 fruit.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:48 input.txt
drwxr-xr-x 2 cdac cdac  4096 Aug 29 17:13 mydir
drwxr-xr-x 2 cdac cdac  4096 Aug 29 17:35 new
-rw-r--r-- 1 cdac cdac    51 Aug 28 15:33 number.txt
-rw-r--r-- 1 cdac cdac    76 Aug 28 15:47 output.txt
-rw-r--r-- 1 cdac cdac    40 Aug 28 15:49 output1.txt
-rwxr-xr-x 1 cdac cdac 15960 Aug 29 08:55 program
-rw-r--r-- 1 cdac cdac    70 Aug 29 08:56 program.c
```

18. **cp -r source_directory destination_directory**
    its copy thee source directory into the destination directory as child Directory

```
cdac@GaneshPawar:~$ cd demo
cdac@GaneshPawar:~/demo$ ls
cdac@GaneshPawar:~/demo$  cd ..
cdac@GaneshPawar:~$ cd new
cdac@GaneshPawar:~/new$ ls
file.txt  file1.txt
cdac@GaneshPawar:~/new$ cd ..
cdac@GaneshPawar:~$ cp -r new demo
cdac@GaneshPawar:~$ cd demo
cdac@GaneshPawar:~/demo$ ls
new
cdac@GaneshPawar:~/demo$ ls -l
total 4
drwxr-xr-x 2 cdac cdac 4096 Aug 29 17:59 new
cdac@GaneshPawar:~/demo$ cd new
cdac@GaneshPawar:~/demo/new$ ls
file.txt  file1.txt
cdac@GaneshPawar:~/demo/new$
```

19. **find /path/to/search -name "*.txt"**
    its find the .txt extension files to the given path directory

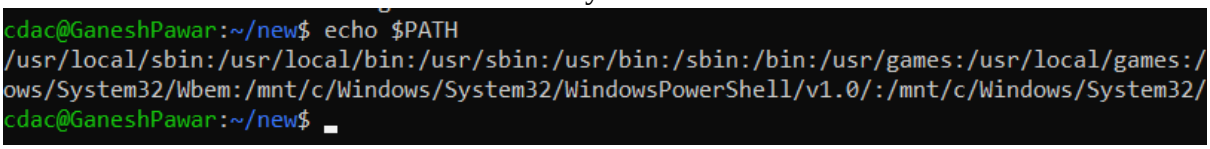
```
cdac@GaneshPawar:~$ find new -name "*.txt"
new/file1.txt
new/file.txt
cdac@GaneshPawar:~$ find demo -name "*.txt"
demo/new/file1.txt
demo/new/file.txt
cdac@GaneshPawar:~$
```

20. **chmod u+x file.txt**
    it gives the exexutable permission to the owner

```
cdac@GaneshPawar:~$ cd new
cdac@GaneshPawar:~/new$ ls -l
total 8
-rw-r--r-- 1 cdac cdac 89 Aug 29 17:35 file.txt
-rw-r--r-- 1 cdac cdac 44 Aug 29 17:25 file1.txt
cdac@GaneshPawar:~/new$ chmod u+x file.txt
cdac@GaneshPawar:~/new$ l
file.txt*  file1.txt
cdac@GaneshPawar:~/new$ ls
file.txt  file1.txt
cdac@GaneshPawar:~/new$ ls-l
ls-l: command not found
cdac@GaneshPawar:~/new$ ls -l
total 8
-rwxr--r-- 1 cdac cdac 89 Aug 29 17:35 file.txt
-rw-r--r-- 1 cdac cdac 44 Aug 29 17:25 file1.txt
cdac@GaneshPawar:~/new$
```

21. echo $PATH

it Gives the environmental Variable Path in System



Part B

Identify True or False:

1. ls is used to list files and directories in a directory.
   -True

2. mv is used to move files and directories.
   -True

3. cd is used to copy files and directories.
   -False
   - cd is used to Change the Directory

4. pwd stands for "print working directory" and displays the current directory.
   -True

5. grep is used to search for patterns in files.
   -True

6. chmod 755 file.txt gives read, write, and execute permissions to the owner, and read and execute permissions to group and others.
   -False
   -Chmod 755 only gives The execute permission to all users

7. mkdir -p directory1/directory2 creates nested directories, creating directory2 inside directory1 if directory1 does not exist.
   -True

8. rm -rf file.txt deletes a file forcefully without confirmation.
   -True

Identify the Incorrect Commands:

1. chmodx is used to change file permissions.

    - Incorrect Command
    - Correct Command is - **Chmod**

2. cpy is used to copy files and directories.

    -Incorrect Command

    - Correct Command us – **cp**

3. mkfile is used to create a new file.

    -Incorrect Command

    -Correct Command is – **touch, nano**

4. catx is used to concatenate files.

    - Incorrect Command

    -Correct Command - **cat**

5. rn is used to rename files

    - Incorrect Command

    - Correct Command – **mv**