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Experiment #1

Aim: Explore Linux Commands: Explore the internal commands of linux like ls, chdir, mkdir,chown, chmod, chgrp, ps etc.

Theory:

1. ls: is a utility for listing the files in a directory. Most used options are:

-a all files (include files with . prefix)
-l long detail (provide file statistics)
-t order by creation time
-u sort by access time (or show when last accessed together with -l) etc...

```
siesgst@siesgst-OptiPlex-3020:~$ ls
 alpha.sh            destination       fork1        new          snap
 alpha.txt           destination.txt   fork1.c      New          source.c
 a.out               diskalgo.c        fork.c       OS           student.data
 avyn.sh             disk.c            gamma        outout.txt   t1.txt
 ayv                 Documents         Gif.c        output.txt   t3.txt
 ayvn1.txt           Downloads         Giftam.c     ovivo        tan
 ayvn.txt            dsa.c             gifta.txt    ovivo.c      tanvi
 best.c              d.txt             Gift.c      'P&C'         temp
 bf.c                example           google.com  'P&C.C'       Templates
 c                   exp2.sh           id           Pictures     temp.sh
'Child process.c'    expt3             id.c         PNC.C        temp.txt
 command             expt3.c           id.txt       process.c    test
 command.c           f1.txt            lex          prog         text1.txt
 command.txt         FcFc.c            ls           prog.c       Vedant
 consumer.c          fcfs.c            ls.c         program      vedant.c
 copy.c              ff.c              ls-l         program.c    Videos
 cp                 'first fit'        marks.txt    program.txt  vighnesh
 cp1.c              'first fit.c'      mitesh       prog.txt     vs
 cp.c                first.sh          move.c       Public
 cp.txt              firsts.sh         Music        qw
 data.txt            fit.c             mv.c         saniya
 Desktop             fobos.txt         nano.save    sjf.c
```

```
siesgst@siesgst-OptiPlex-3020:~$ ls -a
 .                   diskalgo.c      id.txt        Public
 ..                  disk.c          lex           qw
 alpha.sh            Documents       .local        saniya
 alpha.txt           Downloads       ls            sjf.c
 a.out               dsa.c           ls.c          snap
 avyn.sh             d.txt           ls-l          source.c
 ayv                 example         marks.txt     .ssh
 ayvn1.txt           exp2.sh         mitesh        student.data
 ayvn.txt            expt3           move.c        .sudo_as_admin_successful
 .bash_history       expt3.c         .mozilla      .swn
```

```
siesgst@siesgst-OptiPlex-3020:~$ ls -l
total 580
-rwx------ 1 siesgst siesgst    21 Jan 29 12:39  alpha.sh
-rw-rw-r-- 1 siesgst siesgst  5827 Jan 29 11:54  alpha.txt
-rwxrwxr-x 1 siesgst siesgst 16960 Jan 25 12:46  a.out
-rwxr--r-- 1 siesgst siesgst   140 Jan 25 12:10  avyn.sh
drwxrwxr-x 2 siesgst siesgst  4096 Jan 11 12:12  ayv
-rw-rw-r-- 1 siesgst siesgst     2 Jan 11 12:14  ayvn1.txt
-rw-rw-r-- 1 siesgst siesgst     2 Jan 11 12:04  ayvn.txt
-rw-rw-r-- 1 siesgst siesgst   957 Mar 28  2023  best.c
-rw-rw-r-- 1 siesgst siesgst   455 Mar 14  2023  bf.c
-rw-rw-r-- 1 siesgst siesgst     0 Jan 10  2023  c
-rw-rw-r-- 1 siesgst siesgst    93 Feb 28  2023 'Child process.c'
-rwxrwxr-x 1 siesgst siesgst 16880 Mar  9  2023  command
```

```
siesgst@siesgst-OptiPlex-3020:~$ ls -t
 Downloads   avyn.sh     nano.save   ls           'P&C.C'        vedant.c          ovivo.c
 fork1       expt3       temp.sh     tanvi        'P&C'          process.c         ovivo
 fork1.c     expt3.c     marks.txt   temp          consumer.c    Vedant            program
 alpha.sh    cp.c        data.txt    disk.c        bf.c          sjf.c             program.c
 alpha.txt   new         temp.txt    diskalgo.c    ff.c         'Child process.c'  program.txt
 gamma       f1.txt      snap        dsa.c         cp           id                 mitesh
 Desktop     Pictures    ayvn1.txt   best.c        cp.txt       id.c               New
 t3.txt      text1.txt   ayv         fit.c         command      prog               ls.c
 a.out       ls-l        ayvn.txt   'first fit.c'  command.c    prog.c             destination
 cp1.c       Documents   qw         'first fit'    command.txt  id.txt             mv.c
 t1.txt      lex         tan         PNC.C         vighnesh     prog.txt           destination.txt
siesgst@siesgst-OptiPlex-3020:~$ ls -u
 fork1       OS          example     a.out       ls-l        ayvn1.txt     'P&C.C'        command
 fork1.c     gamma       new         cp1.c       lex         qw            'P&C'          command.c
 Downloads   test        saniya      t1.txt      nano.save   disk.c         consumer.c    command.txt
 snap        temp        Templates   avyn.sh     temp.sh     diskalgo.c     process.c     sjf.c
 alpha.sh    ayv         Videos      expt3       marks.txt   dsa.c          ovivo.c      'Child process.c'
 alpha.txt   tan         Music       expt3.c     data.txt    best.c         program.c     id
 New         tanvi       Pictures    cp.c        first.sh    fit.c          bf.c          id.c
 mitesh      ls          Documents   copy.c      temp.txt   'first fit.c'   ff.c          prog
 Vedant      vs          Desktop     f1.txt      vedant.c   'first fit'     cp            prog.c
 vighnesh    Public      t3.txt      text1.txt   ayvn.txt    PNC.C          cp.txt        id.txt
siesgst@siesgst-OptiPlex-3020:~$
```

2. chown: change file owner and group To check the ownership of a file or directory use ls -l Usage: chown [-Rcfv] newowner filenames/director. Only root can change the ownership.

```
-rwxrwxr-x 1 siesgst siesgst   173 Jan 16 09:36  temp.txt
```

```
siesgst@siesgst-OptiPlex-3020:~$ chown hdoop temp.txt
chown: changing ownership of 'temp.txt': Operation not permitted
siesgst@siesgst-OptiPlex-3020:~$ sudo su
[sudo] password for siesgst:
root@siesgst-OptiPlex-3020:/home/siesgst# chown hdoop temp.txt
root@siesgst-OptiPlex-3020:/home/siesgst# exit
exit
```

```
-rwxrwxr-x 1 hdoop   siesgst   173 Jan 16 09:36  temp.txt
```

Example:

chown linda file.txt

This will cause file.txt to now be owned by linda.

chown -R abu: sales /home/account/

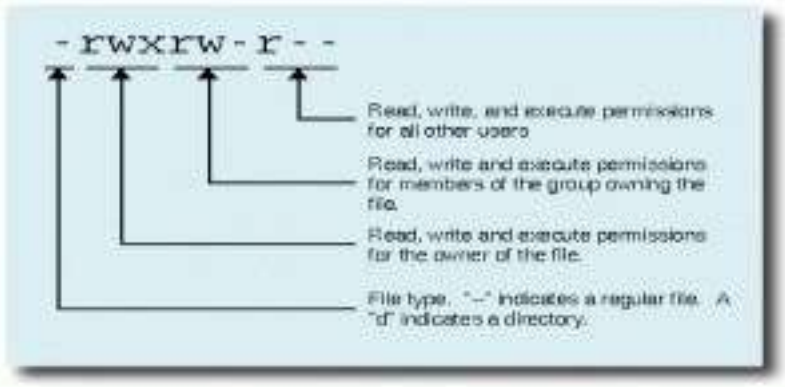
This is going to make all files inside /home/account/ and its subdirectories to

belong to abu andto be associated with the group sales. -R means include all subdirectories.

3. chmod: to change the permissions of a file or directory. Use ls -l to see the permission settings. Below is how the permission is assigned.

```
siesgst@siesgst-OptiPlex-3020:~$ chmod 744 temp.txt
chmod: changing permissions of 'temp.txt': Operation not permitted
siesgst@siesgst-OptiPlex-3020:~$ sudo su
root@siesgst-OptiPlex-3020:/home/siesgst# chmod 744 temp.txt
```

```
-rwxr--r-- 1 hdoop   siesgst   173 Jan 16 09:36  temp.txt
```



rwx rwx rwx = 111 111 111
rw- rw- rw- = 110 110 110
rwx -------= 111 000 000 etc.

rwx = 111 in binary
= 7rw- = 110 in
binary = 6r-x = 101
in binary = 5 r-- =
100 in binary = 4
For example, if we wanted to set some_file to have read and write permission for the owner, butwanted to keep the file private from others, we would:
chmod 600 some_file

4. chdir: to change to another directory.

The syntax is chdir followed by the name of the directory you want to go to. Example: chdir /home/user/www will change the directory you are in to /home/user/www.

```
siesgst@siesgst-OptiPlex-3020:~$ cd Desktop
siesgst@siesgst-OptiPlex-3020:~/Desktop$
```

5. Chgrp: Used to change group ownership from one group to other group for a file/folder.

```
-rwxr--r-- 1 hdoop   siesgst   173 Jan 16 09:36  temp.txt
siesgst@siesgst-OptiPlex-3020:~$ sudo su
root@siesgst-OptiPlex-3020:/home/siesgst# chgrp hdoop temp.txt
root@siesgst-OptiPlex-3020:/home/siesgst# exit
exit
-rwxr--r-- 1 hdoop   hdoop     173 Jan 16 09:36  temp.txt
```

Example1: Change group name:sales of a file to other group

name:hrgroup.chgrp hrgroup file1

6. ps: ps (processes status) is a native Unix/Linux utility for viewing information concerning a selection of running processes on a system: it reads this information from the virtual files in /proc file system. It is one of the important utilities for system administration specifically under process monitoring, to help you understand whats is going on a Linux system.

If run ps command without any arguments, it displays processes for the current shell.

```
siesgst@siesgst-OptiPlex-3020:~$ ps
    PID TTY          TIME CMD
   6386 pts/0    00:00:00 bash
   7482 pts/0    00:00:00 ps
```

Conclusion: Various commands are explored and learned on ubuntu.