Experiment No 1

Title:

Implementation of DevOps-Related Linux Commands

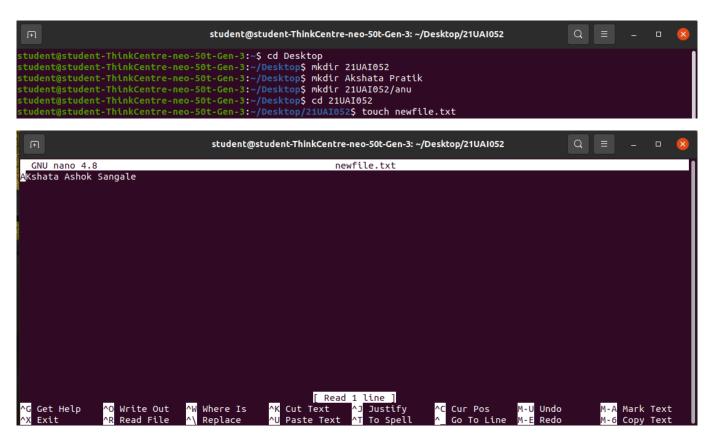
Objective:

To learn and execute essential Linux commands used in DevOps for file handling, process management, package installation, and text processing.

Important Steps

1. Creating and Navigating Directories:

- Used mkdir to create directories.
- Used ls to list files and directories.
- Used cd to change directories and navigate.



2. File Management:

- Used touch to create empty files.
- Used echo to add content to files.
- Used cat to view file contents.
- Used nano to edit files.

```
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop

student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ echo "AKshata Ashok Sangale">newfile.txt
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ cat newfile.txt

AKshata Ashok Sangale
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ echo "21UAI052 cse(AI) Student">>Info.txt
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ cat Info.txt
21UAI052 cse(AI) Student
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ nano newfile.txt
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052$ rm file2.txt
```

4. Copying, Moving, and Deleting Files:

- Used cp to copy files and directories.
- Used my to move or rename files and directories.
- Used rm and rmdir to delete files and directories.

5. Package Management:

• Used sudo apt-get install to install software packages.

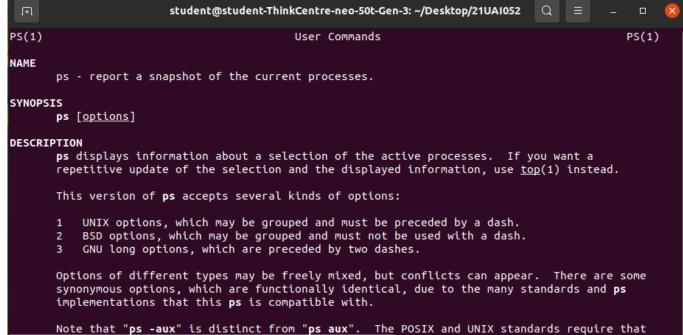
```
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
                                                                                 Q
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ mkdir manali
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ rmdir manali
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ move newfile.txt q.txt
Command 'move' not found, did you mean:
  command 'mmove' from deb mtools (4.0.24-1)
  command 'more' from deb util-linux (2.34-0.1ubuntu9.3)
Try: sudo apt install <deb name>
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ mv newfile.txt q.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ cat q.txt
AKshata Ashok Sangale
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ rm q.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ sudo apt-get install apache2
[sudo] password for student:
Reading package lists... Done
Building dependency tree
Reading state information... Done
E: Unable to locate package apache2
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$
```

5.Process and System Management:

- Used ps -e to list running processes.
- Used grep to filter process information.
- Used ping to check network connectivity.

```
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
                                                                                 Q
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ls
anu Info.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ echo "Akshata Ashok Sangale">Info.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ cat Info.txt
Akshata Ashok Sangale
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ grep 'As' Info.txt
Akshata <mark>As</mark>hok Sangale
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ grep -i 'Sangale' Info.txt
Akshata Ashok
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ grep -w 'Akshata' Info.txt
       Ashok Sangale
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ grep -v 'Aks' Info.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ cat Info.txt
Akshata Ashok Sangale
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ps -e | grep 'ssh'
  1451 ?
                00:00:00
                            h-agent
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ mkdir Manali | touch newfile1.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ls
anu Info.txt Manali newfile1.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$
```

```
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
                                                                                     Q
 tudent@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ps -e
                      TIME CMD
    PID TTY
      1 ?
                  00:00:02 systemd
                  00:00:00 kthreadd
      2 ?
      3 ?
                  00:00:00 rcu qp
                  00:00:00 rcu_par_gp
      4 ?
      5 ?
                  00:00:00 netns
                  00:00:00 kworker/0:0H-events highpri
      9 ?
                  00:00:00 mm percpu wq
     10 ?
                  00:00:00 rcu_tasks_rude_
                  00:00:00 rcu_tasks_trace
     11 ?
     12
                  00:00:00 ksoftirqd/0
                  00:00:05 rcu_sched
     13 ?
     14 ?
                  00:00:00 migration/0
     15 ?
                 00:00:00 idle_inject/0
     17
                  00:00:00 cpuhp/0
                  00:00:00 cpuhp/1
     18 ?
                  00:00:00 idle inject/1
     19 ?
     20 ?
                  00:00:00 migration/1
     21 ?
                  00:00:00 ksoftirqd/1
                  00:00:00 kworker/1:0H-events_highpri
     23 ?
     24 ?
                  00:00:00 cpuhp/2
     25 ?
                  00:00:00 idle_inject/2
     26
                  00:00:00 migration/2
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ps -f
                     PPID C STIME TTY
8419 0 17:40 pts/0
8549 0 18:05 pts/0
             PTD
                                                  TIME CMD
HTD
student
             8549
                                              00:00:00 bash
student
            10493
                                             00:00:00 ps -f
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ps -alx
    UID
             PID
                    PPID PRI NI
                                     VSZ RSS WCHAN STAT TTY
                                                                         TIME COMMAND
                              0 168276 11416 -
0 0 0 -
                                                                         0:02 /sbin/init splash
0:00 [kthreadd]
4
      0
               1
                       0
                          20
                                                        Ss
      0
               2
                       0
                           20
                                                                         0:00 [rcu_gp]
1
      0
               3
                       2
                           0 -20
                                        0
                                              0 -
                                                        I<
                                                             ?
1
      0
               4
                        2
                          0 -20
                                        0
                                              0 -
                                                        Ι<
                                                                         0:00 [rcu_par_gp]
      0
               5
                       2
                           0 -20
                                       0
                                              0 -
                                                        I<
                                                                         0:00 [netns]
      0
                       2
                           0 -20
                                       0
                                              0 -
                                                        I<
                                                                         0:00 [kworker/0:0H-events_highpri
1
              9
                          0 -20
                                                                         0:00 [mm percpu wq]
      0
                                       0
                                              0 -
                                                        Ι<
      0
              10
                       2 20 0
                                        0
                                              0 -
                                                       S
                                                                         0:00 [rcu_tasks_rude_]
                                                                         0:00 [rcu_tasks_trace]
0:00 [ksoftirqd/0]
                       2 20
                                       0
                                                       S
      0
              11
                                              0 -
      0
              12
                           20
                                0
                                        0
                                              0 -
                                                        S
                                                                         0:05 [rcu_sched]
      0
              13
                          20
                                0
                                        0
                                              0 -
      0
              14
                       2 -100
                                        0
                                              0 -
                                                                         0:00 [migration/0]
                                        0
                                                                         0:00 [idle_inject/0]
      0
              15
                       2 -51
                                              0 -
      0
              17
                           20
                                0
                                        0
                                              0
                                                                         0:00
                                                                               [cpuhp/0]
5
                        2
                                                        S
      0
              18
                           20
                                0
                                        0
                                              0
                                                                         0:00 [cpuhp/1]
                          student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
                                                                                                      PS(1)
                                              User Commands
                                                                                                    PS(1)
```

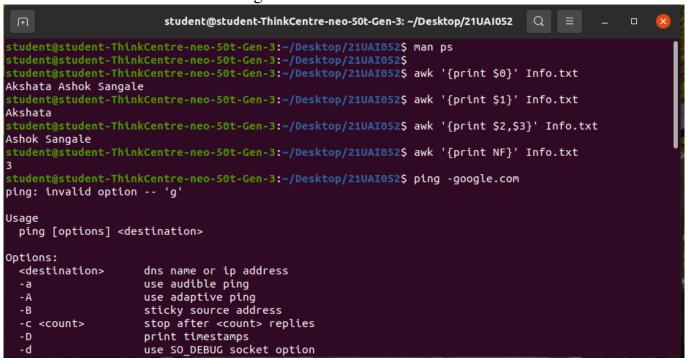


Manual page ps(1) line 1 (press h for help or q to quit)

```
student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
                                            /home/student/.bashrc
  ~/.bashrc: executed by bash(1) for non-login shells
    *i*) ;;
HISTCONTROL=ignoreboth
shopt -s histappend
HISTSIZE=1000
HISTFILESIZE=2000
                                           [ Read 117 lines ]
  Get Help
              ^O Write Out
                             ^W Where Is
                                              Cut Text
                                                          ^]
                                                             Justify
                                                                            Cur Pos
                                                                                        M-U Undo
                 Read File
                                                                            Go To Line
   Exit
                                Replace
                                               Paste Text
                                                          ^Т
                                                             To Spell
                                                                                            Redo
```

6. Text Processing with awk:

- Extracted columns and rows from structured files.
- Counted fields and rows using NF and NR.



7. Alias and Permissions:

- Created command shortcuts using alias.
- Used ls -l to check file permissions.

```
Q
                         student@student-ThinkCentre-neo-50t-Gen-3: ~/Desktop/21UAI052
  -W <timeout>
                      time to wait for response
IPv4 options:
                      use IPv4
                     allow pinging broadcast
  -b
                     record route
  -T <timestamp>
                     define timestamp, can be one of <tsonly|tsandaddr|tsprespec>
IPv6 options:
                     use IPv6
  -F <flowlabel>
                     define flow label, default is random
  -N <nodeinfo opt> use icmp6 node info query, try <help> as argument
For more details see ping(8).
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ alias ll='ls -l'
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ ls
<mark>anu</mark> Info.txt M<mark>anali</mark> newfile1.txt
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ alias linux ='sudo apt-get update'
bash: alias: linux: not found
bash: alias: =sudo apt-get update: not found
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ alias linux='sudo apt-get update'
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ nano ~/.bashrc
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$ source ~/.bashrc
student@student-ThinkCentre-neo-50t-Gen-3:~/Desktop/21UAI052$
```

Conclusion:

The experiment helped in understanding and executing fundamental Linux commands essential for DevOps tasks. It covered directory handling, file operations, package management, process monitoring, text processing, and system administration, all of which are crucial for DevOps workflows.