Student Name: Patil Ratnakar Netaji
Student Roll no.: 322050
Class: TY- B
Batch: B2

ASSIGNMENT 1

Linux Commands for Cloud and DevOps

1. File Related Commands:

1. 'ls'- This command lists all the contents in the current working directory.

```
ls <flag>
```

Output:

```
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/Project1$ ls -l
total 4
-rwxrwxrwx 1 ratnakarpatil ratnakarpatil 1094 Jan 16 10:58 LICENSE
drwxrwxrwx 1 ratnakarpatil ratnakarpatil  512 Jan 16 10:58 Login_v1
-rwxrwxrwx 1 ratnakarpatil ratnakarpatil   37 Jan 16 10:58 README.md
drwxrwxrwx 1 ratnakarpatil ratnakarpatil  512 Jan 16 10:58 project1
drwxrwxrwx 1 ratnakarpatil ratnakarpatil  512 Jan 16 10:58 server
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/Project1$
```

2. 'touch'- This creates a new file in current directory

```
touch {filename}
```

Output:

```
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d$ cd CloudDemo/
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ touch test.txt
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ls
test.txt
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$
```

3. 'cat'- This command can read, modify or concatenate text files. It also displays file contents.

```
cat {filename}
```

Output:

```
ratnakarpatil@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ cat test.txt
Hello user !! cat Command working properly.ratnakarpatil@LAPTO
```

4. 'mkdir'- This command creates directories..

```
mkdir {filename}
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ mkdir NewFile
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ls
NewFile  test.txt
```

5. 'rm'- This command deletes/removes the file.

```
rm {filename}
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ls -ltr
total 0
-rwxrwxrwx 1 ratnakar ratnakar 43 Jan 18 09:27 test.txt
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ rm test.txt
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ls -ltr
total 0
```

3. Process Related Commands:

1. 'ps'- This command Reports a snapshot of current processes.

```
ps
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ps aux
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.0   1824  1192 ?        Sl   15:05   0:00 /init
root          13  0.0  0.0   2172   368 ?        Ss   15:06   0:00 /init
root          14  0.0  0.0   2180   368 ?        S    15:06   0:00 /init
ratnakar      15  0.0  0.1   6200  5364 pts/0    Ss   15:06   0:00 -bash
ratnakar     107  0.0  0.0   7476  3236 pts/0    R+   15:36   0:00 ps aux
```

2. 'kill'- This command Sends a signal to terminate a process.

```
kill PID
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ kill 116
```

3. 'pgrep'- This command Searches for processes by name.

```
pgrep
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ pgrep bash
15
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ps aux
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.0   1824  1184 ?        Sl   15:05   0:00 /init
root          13  0.0  0.0   2172   368 ?        Ss   15:06   0:00 /init
root          14  0.0  0.0   2180   368 ?        R    15:06   0:00 /init
ratnakar      15  0.0  0.1   6200  5364 pts/0    Ss   15:06   0:00 -bash
```

4. 'pidof'- This command Finds the process ID of a running program.

```
pidof
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ pidof init
14 13 1
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ ps aux
USER         PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root           1  0.0  0.0   1824  1184 ?        Sl   15:05   0:00 /init
root          13  0.0  0.0   2172   368 ?        Ss   15:06   0:00 /init
root          14  0.0  0.0   2180   368 ?        R    15:06   0:00 /init
```

5. 'nice'- This command uns a command with a modified scheduling priority.

```
nice
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ nice -n 10 command
```

2. Memory Related Commands:

1. 'free -m'- This command is used to displays amount of free and used memory in the system.

```
free -m
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ free -m
               total        used        free      shared  buff/cache   available
Mem:            3799          87        3682           0          30        3616
Swap:           1024           0        1024
```

2. 'top'- This command is used to displays dynamic real-time information about system resource usage.

```
top
```

Output:

```
Tasks:   5 total,   1 running,   4 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 :   3799.7 total,   3681.1 free,     87.7 used,     30.9 buff/cache
MiB Swap:   1024.0 total,   1024.0 free,      0.0 used.   3616.2 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
    1 root      20   0    1824   1192   1108 S   0.0   0.0   0:00.03 init
   13 root      20   0    2172    368      0 S   0.0   0.0   0:00.00 init
   14 root      20   0    2180    368      0 S   0.0   0.0   0:00.19 init
   15 ratnakar  20   0    6200   5360   3548 S   0.0   0.1   0:00.12 bash
   46 ratnakar  20   0    7788   3316   2952 R   0.0   0.1   0:00.21 top
```

3. 'vmstat'- This command Reports virtual memory statistics.

```
vmstat
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ vmstat
procs -----------memory---------- ---swap-- -----io---- -system-- ------cpu-----
 r  b   swpd   free   buff  cache   si   so    bi    bo   in   cs us sy id wa st
 2  0      0 3769104   4448  27184    0    0     1   275    1    3  0  0 100  0  0
```

4. 'vpmap'- This command Reports memory map of a process.

```
pmap
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ pmap -X 01
1:   /init
```

5. 'htop'- This command shows a frequently updated list of the processes running on a computer, normally ordered by the amount of CPU usage.

```
htop
```

Output:

```
  0[          0.0%]   3[          0.0%]   6[          0.0%]   9[          0.0%]
  1[          0.0%]   4[          0.0%]   7[          0.0%]   10[         0.0%]
  2[          0.0%]   5[          0.0%]   8[          0.0%]   11[         0.0%]
Mem[||||                    93.7M/3.71G]   Tasks: 5, 2 thr; 1 running
Swp[                          0K/1.00G]   Load average: 0.01 0.01 0.00
                                          Uptime: 00:27:43
```

4. Networking Related Commands:

1. 'ifconfig'- This command Displays or configures network interface parameters.

```
ifconfig eth0
```

2. 'ping'- Sends ICMP echo request packets to network hosts.

```
ping google.com
```

3. 'netstat'- This command Displays network connections, routing tables, interface statistics, masquerade connections, and multicast memberships.

```
netstat -tuln
```

4. 'traceroute'- This command Prints the route packets take to network host.

```
traceroute google.com
```

5. 'ssh'- This command Connects to a remote computer.

```
ssh user@hostname
```

5. Utility Commands:

1. 'du'- This command Displays disk usage of files and directories.

```
du
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ du
0       .
```

2. 'df'- This command Reports file system disk space usage.

```
df
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ df
Filesystem     1K-blocks      Used Available Use% Mounted on
/dev/sdb       263174212   1138088 248597968   1% /
none             1945436         4   1945432   1% /mnt/wsl
tools          213330244 206694792   6635452  97% /init
none             1945436         4   1945432   1% /run
none             1945436         0   1945436   0% /run/lock
none             1945436         0   1945436   0% /run/shm
none             1945436         0   1945436   0% /run/user
tmpfs            1945436         0   1945436   0% /sys/fs/cgroup
drivers        213330244 206694792   6635452  97% /usr/lib/wsl/drivers
lib            213330244 206694792   6635452  97% /usr/lib/wsl/lib
drvfs          213330244 206694792   6635452  97% /mnt/c
drvfs          262142972 174001336  88141636  67% /mnt/d
```

3. 'grep'- This command searches for patterns in files or output.

```
grep "error" logfile.txt
```

4. 'awk'- This command is a versatile programming language for pattern scanning and processing.

```
awk '{print $1}' filename.txt
```

5. 'find'- This command Reports file system disk space usage.

```
find /path/to/search -name "*.txt"
```

Output:

```
ratnakar@LAPTOP-TVRA7L5R:/mnt/d/CloudDemo$ find test.txt
find: ‘test.txt’: No such file or directory
```