EXPERIMENT - 2

Operating Systems Lab

AIM

To write about and execute various Linux commands.

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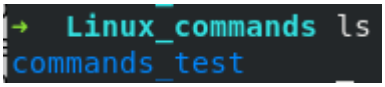
Aim:

To write about and execute various Linux commands.

Linux Commands:

1. mkdir:

2. ls:



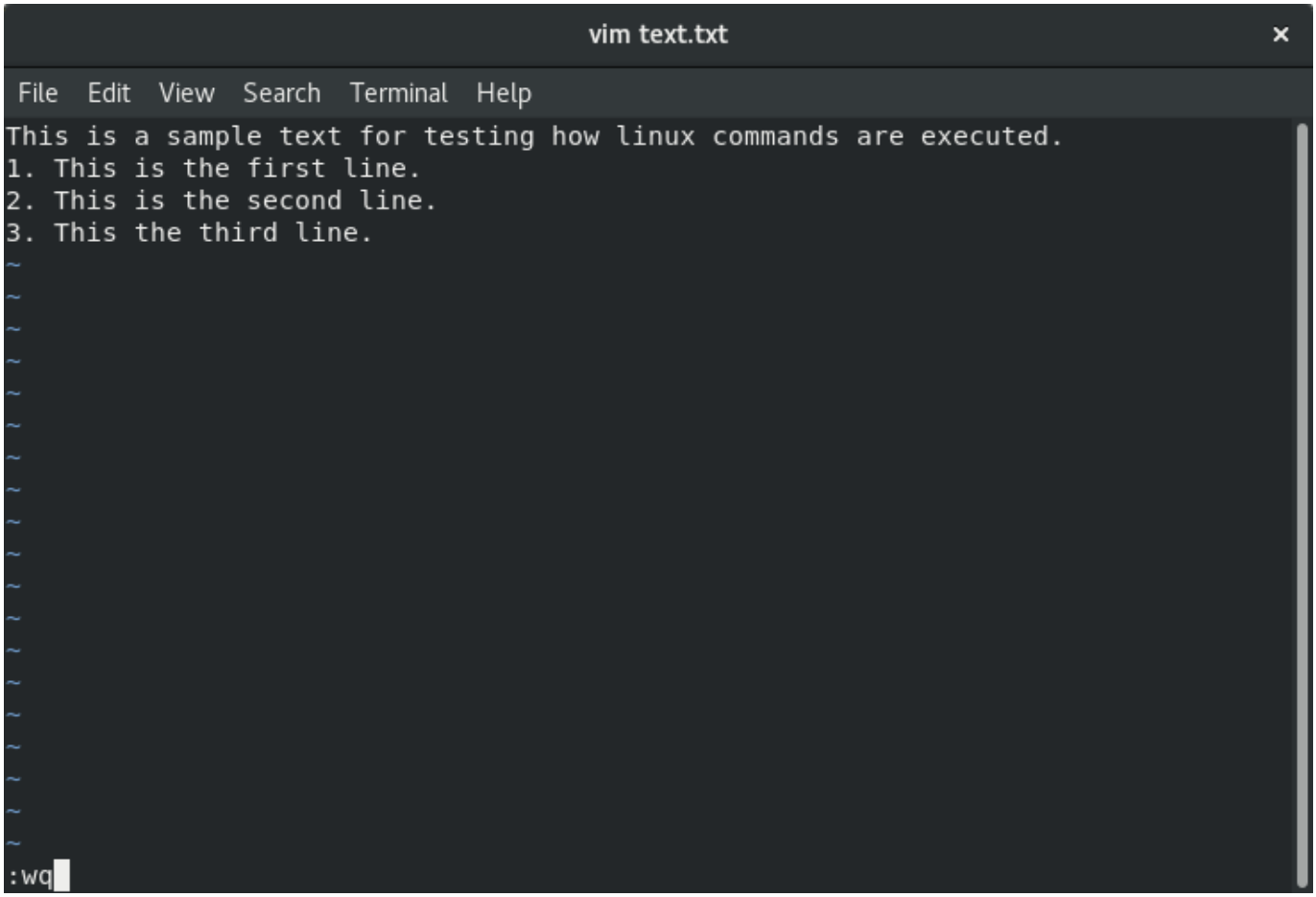
3. cd:

4. pwd:

```
→  commands_test pwd
/home/MAIT/Linux_commands/commands_test
```

Created a file through VIM for executing further commands:

```
→  commands_test vim text.txt
→  commands_test
```



5. cat:

```
→  commands_test cat text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
→  commands_test
```

```
➜  commands_test cat new.txt text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
  4  29 146 text.txt
➜  commands_test
```

5. wc:

```
➜  commands_test wc text.txt
  4  29 146 text.txt
➜  commands_test
```

```
➜  commands_test wc text.txt >> text.txt
➜  commands_test cat text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
  4  29 146 text.txt
➜  commands_test
```

6. file:

```
➜  commands_test file text.txt
text.txt: ASCII text
➜  commands_test
```

7. echo:

```
➜  commands_test echo "Reeha is using Linux"
Reeha is using Linux
➜  commands_test
```

```
➜  commands_test echo $PATH
/usr/libexec/python2-sphinx:/usr/share/Modules/bin:/usr/local/bin:/usr/local/sbi
n:/usr/bin:/usr/sbin:/home/MAIT/bin
➜  commands_test
```

```
➜  commands_test echo "Comand line text adding to file" >> abc.txt
➜  commands_test cat abc.txt
Comand line text adding to file
➜  commands_test
```

8. cp:

```
➜  commands_test cp text.txt new.txt
➜  commands_test ls
new.txt  text.txt
➜  commands_test
```

9. touch:

```
➜  commands_test touch abc.txt
➜  commands_test ls
abc.txt  new.txt  text.txt
➜  commands_test
```

10. rm:

```
➜  commands_test rm abc.txt
➜  commands_test ls
new.txt  text.txt
➜  commands_test
```

11. rmdir:

```
→  commands_test ls
dummy  new.txt  text.txt
→  commands_test rmdir dummy
→  commands_test ls
new.txt  text.txt
→  commands_test
```

12. diff:

```
→  commands_test diff new.txt text.txt
4a5
>   4  29 146 text.txt
→  commands_test
```

13. head:

```
→  commands_test head -2  text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
→  commands_test head text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
  4  29 146 text.txt
→  commands_test
```

14. tail:

```
→  commands_test tail text.txt
This is a sample text for testing how linux commands are executed.
1. This is the first line.
2. This is the second line.
3. This the third line.
  4  29 146 text.txt
→  commands_test tail -1 text.txt
  4  29 146 text.txt
→  commands_test tail -2 text.txt
3. This the third line.
  4  29 146 text.txt
→  commands_test
```

Piping

```
→  commands_test cat text.txt | head -3 | tail -2
1. This is the first line.
2. This is the second line.
→  commands_test
```

15. sort

```
→  commands_test sort new.txt
1. This is the first line.
2. This is the second line.
3. This the third line.
This is a sample text for testing how linux commands are executed.
→  commands_test
```

16. chmod

```
➜  commands_test ls -la
total 16
drwxr-xr-x. 2 MAIT MAIT 4096 Mar  3 10:41 .
drwxr-xr-x. 3 MAIT MAIT 4096 Mar  3 10:42 ..
----------. 1 MAIT MAIT  146 Mar  3 10:23 new.txt
-rw-r--r--. 1 MAIT MAIT  167 Mar  3 10:28 text.txt
➜  commands_test chmod 777 new.txt
➜  commands_test ls -la
total 16
drwxr-xr-x. 2 MAIT MAIT 4096 Mar  3 10:41 .
drwxr-xr-x. 3 MAIT MAIT 4096 Mar  3 10:42 ..
-rwxrwxrwx. 1 MAIT MAIT  146 Mar  3 10:23 new.txt
-rw-r--r--. 1 MAIT MAIT  167 Mar  3 10:28 text.txt
➜  commands_test
```

17. ps

```
➜  commands_test ps
  PID TTY          TIME CMD
 4652 pts/0    00:00:00 zsh
 7143 pts/0    00:00:00 ps
```

18. date

```
➜  commands_test date
Thu Mar  3 10:48:23 IST 2022
➜  commands_test
```

19. find

```
→  commands_test find new.txt
new.txt
→  commands_test
```

20. who

```
→  commands_test who
MAIT     tty2         2022-03-03 09:50 (tty2)
→  commands_test
```

21. vmstat

```
→  commands_test 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 380160 806068  43612 986068    1   27   318    80  281  577  5  2 89  4  0
→  commands_test
```

22. users

```
→  commands_test users
MAIT
→  commands_test
```

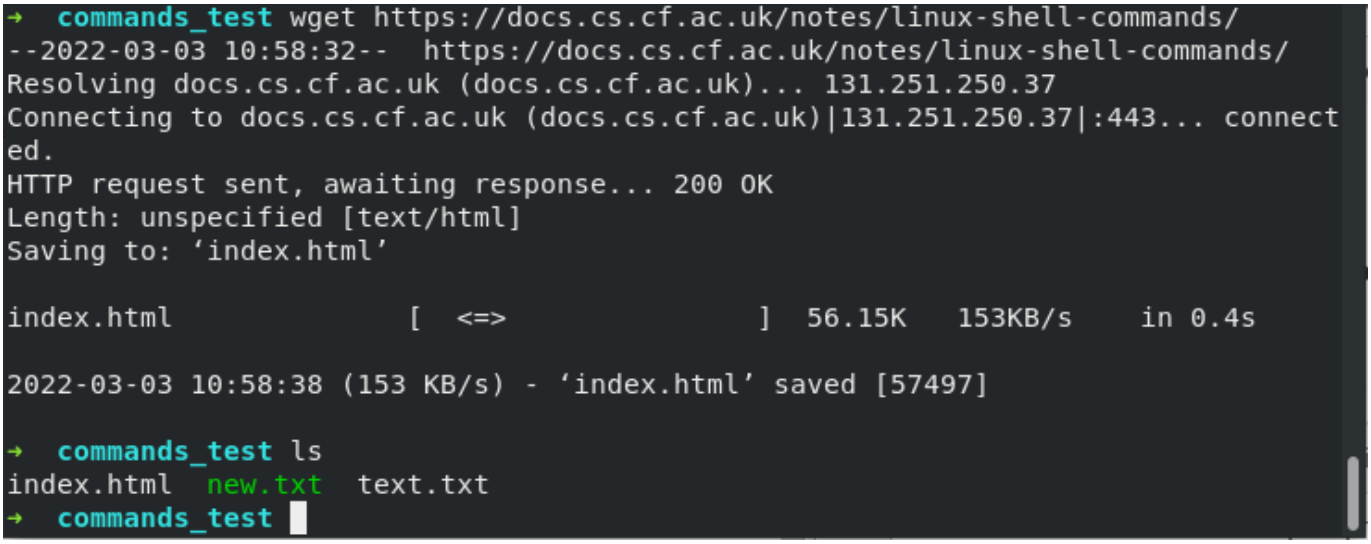
23. w

```
→  commands_test w
 10:54:33 up  1:05,  1 user,  load average: 0.13, 0.27, 0.37
USER     TTY        LOGIN@   IDLE   JCPU   PCPU WHAT
MAIT     tty2      09:50    1:05m  9:15   0.02s /opt/google/chrome/chrome --typ
→  commands_test
```

24. netstat

```
➜  commands_test netstat
Active Internet connections (w/o servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 localhost.localdo:41920 del11s15-in-f10.1:https ESTABLISHED
tcp        0      0 localhost.localdo:49102 del03s14-in-f3.1e:https ESTABLISHED
tcp        0      0 localhost.localdo:51746 lb-140-82-113-25-:https ESTABLISHED
tcp        0      0 localhost.localdo:36086 151.101.120.193:https   ESTABLISHED
tcp        0      0 localhost.localdo:47240 151.101.129.69:https    ESTABLISHED
tcp        0      0 localhost.localdo:33954 del11s13-in-f3.1e:https ESTABLISHED
udp6       0      0 localhost:44783         localhost:44783         ESTABLISHED
Active UNIX domain sockets (w/o servers)
Proto RefCnt Flags       Type       State         I-Node   Path
unix  3      [ ]         DGRAM                    261      /run/systemd/notify
unix  2      [ ]         DGRAM                    23823    /var/run/chrony/chron
yd.sock
unix  30     [ ]         DGRAM                    276      /run/systemd/journal/
dev-log
unix  3      [ ]         STREAM     CONNECTED     30707    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     42070    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     42067    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     33857
unix  3      [ ]         STREAM     CONNECTED     28277
unix  3      [ ]         STREAM     CONNECTED     25443    /var/lib/sss/pipes/pr
ivate/sbus-dp_implicit_files.986
unix  3      [ ]         STREAM     CONNECTED     55413    /run/user/1000/bus
unix  3      [ ]         STREAM     CONNECTED     41574    @/tmp/.X11-unix/X0
unix  3      [ ]         STREAM     CONNECTED     34924    /run/systemd/journal/
stdout
unix  3      [ ]         STREAM     CONNECTED     32923
unix  2      [ ]         DGRAM                    26879
unix  3      [ ]         STREAM     CONNECTED     33482
unix  3      [ ]         STREAM     CONNECTED     32822
unix  3      [ ]         STREAM     CONNECTED     19348
Active Bluetooth connections (w/o servers)
Proto  Destination       Source            State         PSM DCID   SCID      IM
TU    OMTU Security
Proto  Destination       Source            State     Channel
➜  commands_test
```

25. wget


commands_test wget https://docs.cs.cf.ac.uk/notes/linux-shell-commands/
--2022-03-03 10:58:32-- https://docs.cs.cf.ac.uk/notes/linux-shell-commands/
Resolving docs.cs.cf.ac.uk (docs.cs.cf.ac.uk)... 131.251.250.37
Connecting to docs.cs.cf.ac.uk (docs.cs.cf.ac.uk)|131.251.250.37|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: unspecified [text/html]
Saving to: 'index.html'
index.html [<=>] 56.15K 153KB/s in 0.4s
2022-03-03 10:58:38 (153 KB/s) - 'index.html' saved [57497]
commands_test ls
index.html new.txt text.txt
commands_test

Viva Questions

1. Which are the Shells used in Linux?

Ans.

The most common Shells used in Linux are

bash: Bourne Again Shell is the default for most of the Linux distributions

ksh: Korn Shell is a high-level programming language shell

csh: C Shell follows C like syntax and provides spelling correction and Job Control

zsh: Z Shell provides some unique features such as filename generation, startup files, login/logout watching, closing comments etc.

fish: Friendly Interactive Shell provides some special features like web-based configuration, auto-suggestions, fully scriptable with clean scripts

2. Explain file permission in Linux.

Ans.

There are 3 kinds of permission in Linux:

- **Read:** Allows a user to open and read the file
- **Write:** Allows a user to open and modify the file
- **Execute:** Allows a user to run the file.

3. Which are the different modes of vi editor?

Ans.

There are 3 modes of vi editor:

- **Regular/Command mode:** Lets you view the content
- **Insertion/edit mode:** Lets you delete or insert content
- **Replacement mode:** Lets you overwrite content

4. What are the process states in Linux?

Ans.

The process states are as follows:

- **Ready:** The process is created and is ready to run
- **Running:** The process is being executed
- **Blocked or wait:** Process is waiting for input from the user
- **Terminated or Completed:** Process completed execution, or was terminated by the Operating System
- **Zombie:** Process terminated, but the information still exists in the process table.

5. Explain the 'ls' command in Linux

Ans.

The ls command is used to list the files in a specified directory. The general syntax is:

$ ls <options> <directory>