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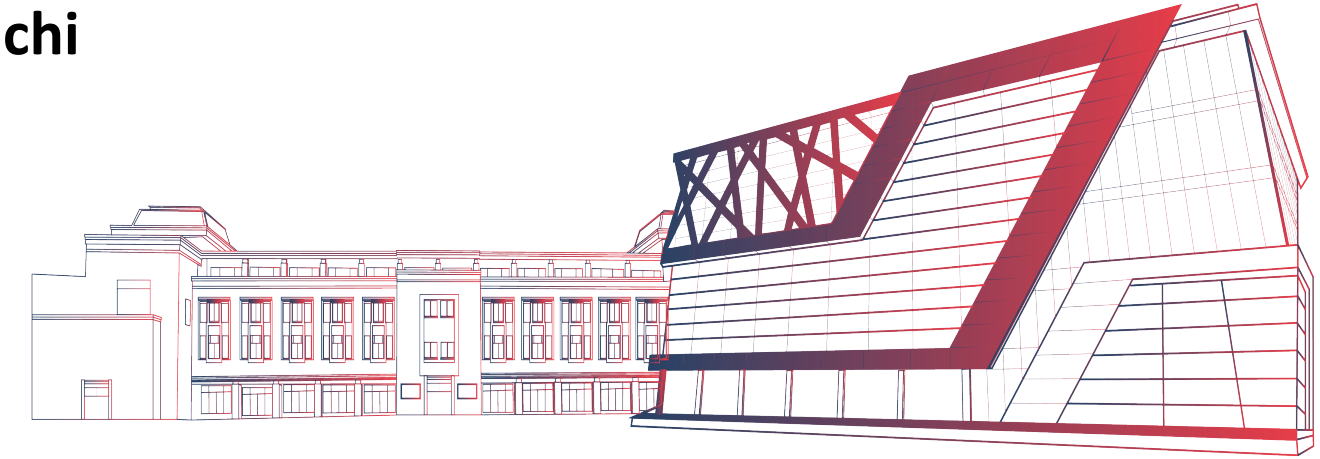
Linux and Crunch

Dr. Prachi



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Introduction to Linux Basics

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- Linux word derived and evolved from UNIX: **most popular non commercial OS**
- Unix was the first operating system came to existence with **CLI environment** and mainly used for **server side working**
- It is the most **flexible and customizable OS** used by skilled individuals.
- It is an **open source**
- Many variants, INDIA has its own Linux based operating system i.e. **BOSS.**

Advantages of using Linux OS

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Linux is very secure as compared to windows	Unix: Server Side OS	Popular OS:
• To install malware, it need to be run separately. It can't run with a click, as in Windows	• File Extension: .tar.gz and other compressed packages	• Red Hat, Fedora, CENT OS, MAC OS, etc.

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Linux

- Popular OS : Ubuntu Flavours, Linux Mint, Kali OS, BOSS etc.

OS

- **Parrot**-Hacking OS but not preferred as it was not stable

- We use **Kali**-ISO in VM

Kali Linux OS

- When kali is **freshly installed**
- Then, after installation we will **first update the repositories** by going to the directory

  /etc/apt/sources.list
- Now go to kali **official documentation pack** and **copy the repository** and then **save**
  - Update and upgrade Steps
    - **apt-get update** /sudo apt-get update
    - **apt-get upgrade**/ sudo apt-get upgrade

Directories Architecture In Linux

1./root : This is known as the home directory for the root user. Every single file path in Linux begins from root in one way or another.

2. /bin : Binary folder, this is where most of your binary files are stored

3. /boot : Keeps all files required for loading the operating system.

4. /dev : This is where your physical devices are mounted, eg USB, etc.

Directories Architecture In Linux

5. /etc : Configuration files specific to the machine

6./home : It is like the "Users" folder in Windows OS. The Desktop, Documents, Downloads, Photos, and Videos folders are all stored under the /home/username directory of every particular user.

7. /lib : This is where libraries are kept.

8./proc : This includes a directory for each running process, including kernel processes, in directories named /proc/PID, where PID is the process number for every process.

Directories Architecture In Linux

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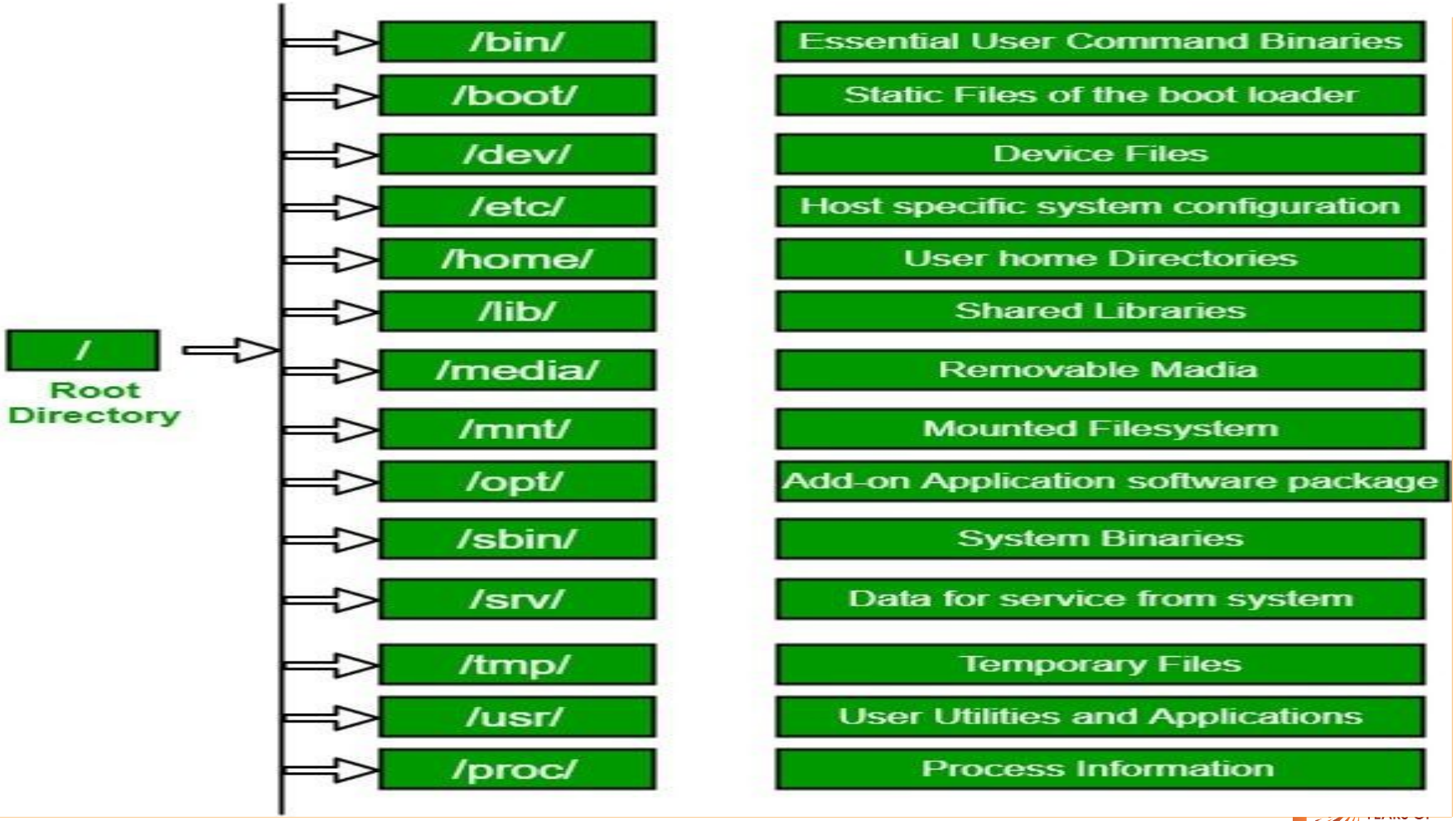
9./media : Removable Media Devices Folder. It is a place where external devices such as USB drives can be mounted.

10./mnt : This is basically a placeholder folder used for mounting other folders or drives.

11./usr : Contains files and utilities that are shared between different users on the same OS.

Directories Architecture In Linux

- Directories



Basic Commands of Linux

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1. cd:	Changes directories.	
2. ls :	List directory	ls –al (details of permissions)
3. man :	To get the manual of any command or tool.	
4. mkdir :	To make a directory in linux	
5. cp :	Copy a file to another folder	
6. mv :	Move a file to another location	

Basic Commands of Linux

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7. rm : To remove a file only.

8. rmdir : Remove Directory.

9. grep : **To check whether a particular word is in a particular file or not.** But in o/p it gives complete line in which word is found. e.g. ping 127.0.0.1 ping 127.0.0.1/grep '64 bytes' search but gives complete line

10. cat : To read the contents of the file. cat rockyou.txt

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Basic Commands of Linux

11. locate : To locate the specific file. It gives path of file. E.g. locate rockyou.txt

12. echo : For printing something on the terminal.

13. date : For viewing the current date and time

14. cal : For finding the Calendar.

Basic Commands of Linux

15. uname : Find out OS Version.

16. uname -a : Finding out all the information of the OS. Like

- User Information,
- OS Information,
- version etc.

17. init 0 : Shutting down the OS.

18. reboot : Restarting the OS.

Basic Commands of Linux

19.Starting a Python Server : **python** -m SimpleHTTPServer 4444(Port Number) Can share content of machine on which a server is running with any machine
connected on network . To stop the Server, Ctrl+C .

20. sudo : Sudo allows users to run commands at the root level.

21. ifconfig : Interface configuration, IP address and other details

Basic Commands of Linux

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22. apt-get install application name : Installation of Application through terminal.

23. gunzip filename.tar.gz : For unzipping the file.

`Gunzip file.txt` ➔ `file.txt.gz` `Gunzip file.txt.gz` ➔ `file.txt`

24. gedit filename.txt : Text Editor

25. leafpad filename.txt : Text Editor

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Basic Commands of Linux

26. Nano filename.txt : Text Editor

27. vi fulename.txt:

There are multiple editors present in a Linux based system which gives you several interface to edit a file.

28. history: will show all commands executed earlier

Some more Basic Commands of Linux

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29. whoami: It gives root

30. rm abc.txt: It **removes** the specific file

31.rmdir: It is used to **remove directory**, but if it does not remove directory, we need to forcefully remove it

32. rmdir –rf: **Remove forcefully**

Understanding Privileges and Permissions

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1. **Read** - a readable permission allows the contents of the file to be viewed.

2. **Write** - a write permission on a file allows you to modify the contents of that file.

3. **Execute** - for a file, the executable permission allows you to run the file and execute a program or script.

For a directory, the execute permission allows you to make it your current working directory.

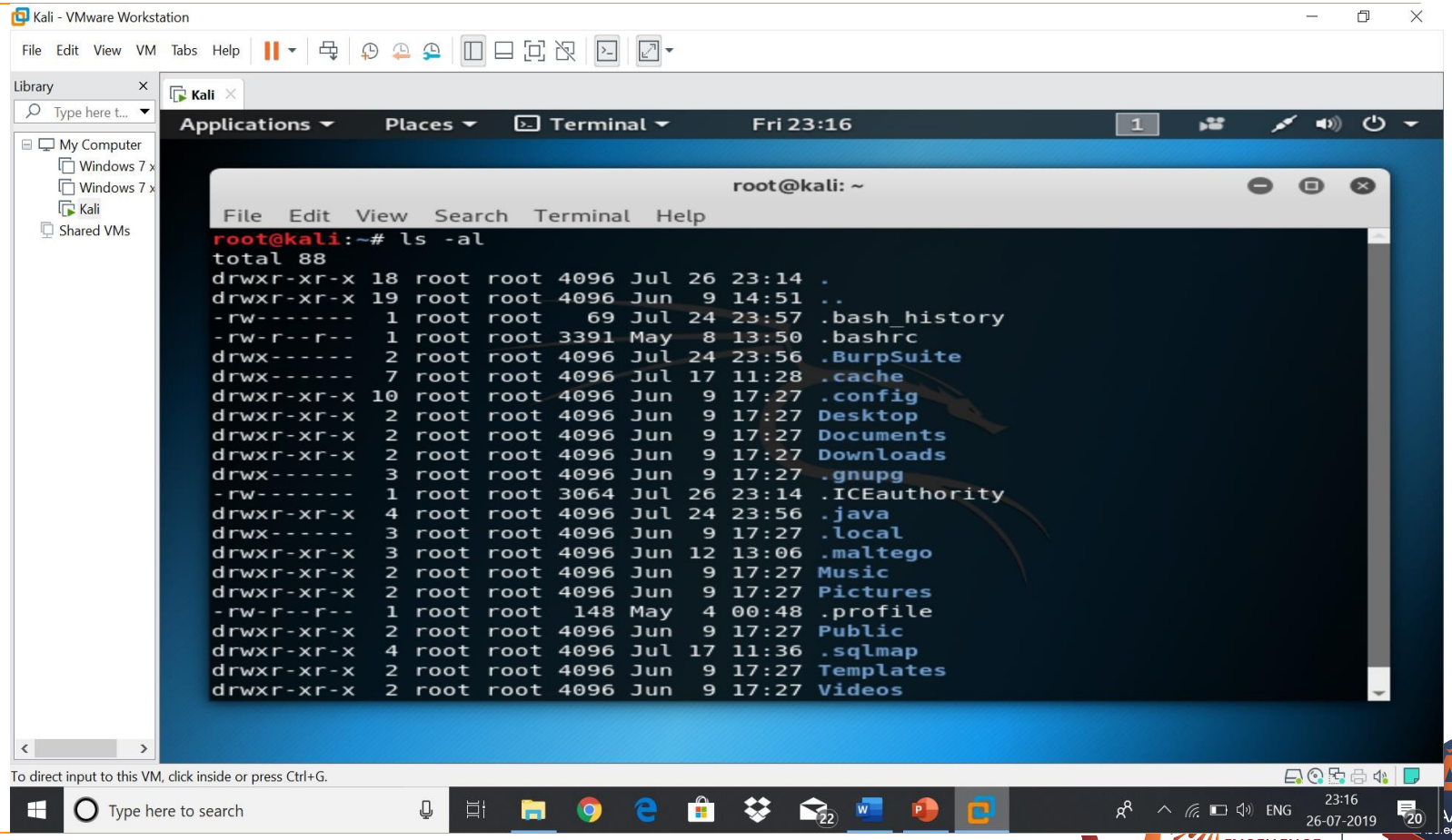
Understanding Privileges and Permissions

Terminal command:

“ls -al" - Show Privileges

Explore ls -a

ls -l ls



Understanding Privileges and Permissions

drwxr-xr-x prachi faculty Jul 26 17:29 Desktop

d -> directory –

- The first three characters (rwx) define the **owner's permission** to the file.
- The next three characters (r-x) are the **permissions** for the **members of the same group**
- The last three characters (r-x) show the **permissions** for **all other users**.

- File

. Hidden, confidential data

Command-chmod

"chmod": chmod **changes the permissions** of each file according to mode, where mode describes the **permissions to modify**.

Syntax : "chmod 754 filename" 4 stands for "read",

2 stands for "write",
1 stands for "execute", and 0 stands for "no permission.“

Here,

7 is the combination of permissions 4+2+1 (read, write, and execute) 5 is 4+0+1 (read, no write, and execute)

and 4 is 4+0+0 (read, no write, and no execute)

Chmod example

Chmod 764 Desktop

7 is the combination of permissions 4+2+1 (read, write, and execute)

6 is 4+2+0 (read, no write, and execute)

and 4 is 4+0+0 (read, no write, and no execute)