

# Linux Masterclass

what happen when you start your Computer?

- \* It execute's the softwares that are in BIOS (Basic Input Output System). AKA (Firmware)
- \* This firmware comes by default in a computer stored in a small chip that is there in the motherboard. [ROM]
- \* This BIOS/Firmware is there in the (ROM).
- \* When you start your Computer the first thing happens is it executes the software in the bios and the job of this is to check if the system is working correctly or not. like.
  - checking if the memory is loaded fine or not.
  - check if the RAM is there
  - what devices are connected to the system.
  - what drives are there what hard disk is connected.
  - check if the Keyboard & Mouse are connected.

It'll make all these check to see if the system is ready to launch the operating System or not.

- \* If it feels it good to go it'll load the bootloader. (might not be the case all the time)
  - This bootloader is responsible to initialise the OS.

what is an operating System?

An operating System is a software to manage and operate a Computing device.

Things as Software needs to be called an OS?

- 1) Kernel → method or a DS that the OS uses to
- 2) File System → store & retrieve data in the memory.
- 3) User Interface [ CLI, GUI ]
- 4) Should be able to manipulate data based on commands.

### Kernel

Kernel is the core of any OS it generally has complete control over everything in the system.

→ facilitates interaction between a Software with the hardware.

### Some popular Operating System.

- 1) Windows
- 2) Mac OS → pretty similar
- 3) Linux → UNIX Based.

## Why Linux?

- Open Source.
- Supports almost all programming Languages.
- Terminal is superior to CMD.
- Bash Scripting.
- SSH

## History of Linux

1969 - First UNIX OS

↳ Ken Thompson

↳ Dennis Ritchie



10 years later

Richard Stallman - GNU  
(BSD, MINIX, etc)

\* they were all unix based but they didn't have a unified kernel

1991 → Linux Torvalds

↳ Linux kernel

There are many distributions of Linux  
but they all uses the same (Linux kernel)

## Terminal

To Open:  $\text{ctrl} + \text{ALT} + T$

To Increase size:  $\text{ctrl} + \text{Shift} + =$

- \* Terminal is basically a text Input & Output environment. (also referred to as console.)
- Its job is to launch the shell.

## OS Shell

- A shell is basically a command line Interpreter.
- executes each command line by line.
- take the command give it to OS/kernal to execute.
- most shells use bash as the programming language.

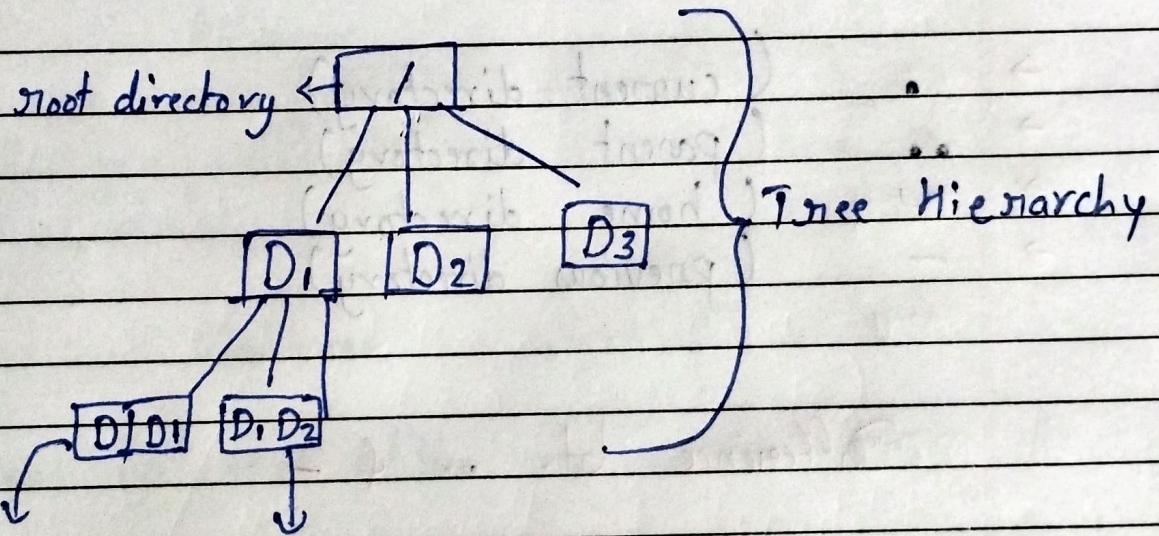
echo Hello, World!

# echo is used to print something.

pwd

# print working directory

### Tree Hierarchy for Directories:



Path: /D<sub>1</sub>/D<sub>1</sub>/D<sub>1</sub> /D<sub>1</sub>/D<sub>1</sub>/D<sub>2</sub>

# ls

# list down everything available in current directory

cd directory-name

# change directory

~ Symbol represents home directory

cd -

# takes you to previous directory also prints where you currently are.

ls -a

# prints everything present in the directory including hidden directories.

- . (current directory)
- .. (parent directory)
- ~ (home directory)
- - (previous directory)

Difference bt. .. & -

- .. takes you to the parent directory
- takes you to where you were previously

ls -l # list long

# long details of every directory

ls -la

# long details for all (including hidden) directories.

Clear

# cleans everything from the terminal.

→ (#) is used to add comments in shell.

mkdir dir-name # make / create directory

touch file-name # creates a file

file file-name

# tells you what the file is what kind of data it contains.

gedit file-name

# Opens up text editor for you to edit.

cat file-name # concatenate

# Shows contents of a file. Also, shows contents of multiple file's together. (not recommended for larger files)

history

# Shows the history of all of the commands you've executed in the past

ctrl + c # exit

ctrl + r # reverse search

- Tab is used to auto complete
- double tabs show all the dir. starting with the letter you have typed on shell.

rm # remove file's

cp file-name source  
# copy T where you want to paste.

mv file-name source

# move

### Relative Path & Absolute Path

An absolute path is a complete path from start of actual file system form / directory.

Relative path is defined as the path related to the present working directory (pwd)

if the dir doesn't exist  
it will automatically create one.

`mkdir -p linux-masterclass/testing`

# folder(s) (directories) under directories.

`rmdir` command is used to remove a dir.  
if dir contains content/ data it can't be removed.  
So, we can do,

`rm -r linux-masterclass`

↳ (recursive) whatever files are there in  
the dir. delete them recursively and then  
remove the dir.

`rm -rv linux-masterclass`

# remove & also tell what you are removing.

`find ~ -name a.txt`

# find the path/ where a.txt file exists.

`find ~ -name a.*`

↳ if you don't remember the  
extension of the file.

`find ~ -type d -name folder-name`  
↳ directory

man find

# manual of any command

# gives a short description of the command