Introduction to Operating Systems
starts at 9:04 pm

Agenda

1. Operating System
2. Role of an Operating System
3. Why Linux?
4. Linux boot process

} Theory

5. Linux file structure
6. Common Linux Commands
7. Getting started with vim

} Practical

Operating systems

hardware → Keyboard, CPU, RAM, mouse, display (monitor)

→ O.S is what allows you to interact with your computer or phone, without needing to know the complex language of machines.

Role of an O.S.

① → Process management.

② → Memory management.

① Primary memory (RAM)

② Secondary memory. (HDD, SSD)

memory management is about O.S distributing the RAM among different processes.

③ Storage management.

④ I/O management.

⑤ Security.

Why linux is important for devops Engineer?

① Dominance in server market.

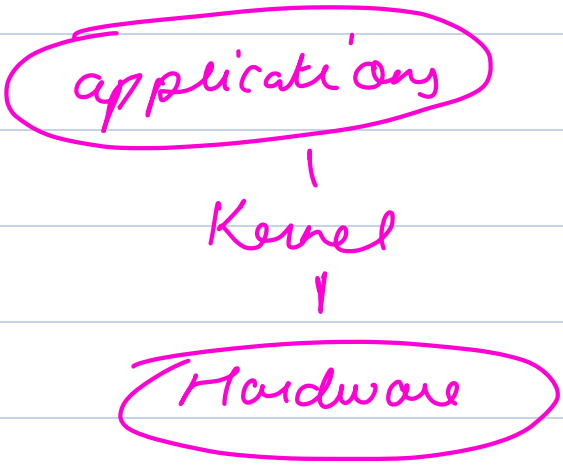
② open source. (highly customizable)

③ Containerisation.

④ Security and Reliability.
⑤ Career Opportunities

→ Kernel (Heart of the O.S)

① the middleman



② Resource Manager.

Components of OS → Kernel, System libraries
user interface, file system.

Linux Boot Process.

① BIOS → Basic Input Output System.
(ROM)

→ hardware integrity.
→ loads the Bootloader.

(2) BootLoader (GRUB) Grand unified Bootloader.

→ responsible for finding the Kernel.
→ If multiple O.S → it shows them as options.

(3) Kernel takes charge

(4) System Services (systemd) service manager.

nginx
docker.
httpd.

systemctl → command line utility to interact with systemd.

systemctl start nginx
stop

restart.

(5) We see the login screen.
Boot Process ends here.

Practical

(1) pwd → print working directory.
(2) ls → list files or directories in a directory.

-a → shows all files.

. → used make files or directories hidden.

→ mkdir → create directories.
→ cd → change directory.
cd - (back to where we came from)
cd .. (back 1 directory)

→ man (manual)

→ whoami (prints the current user)

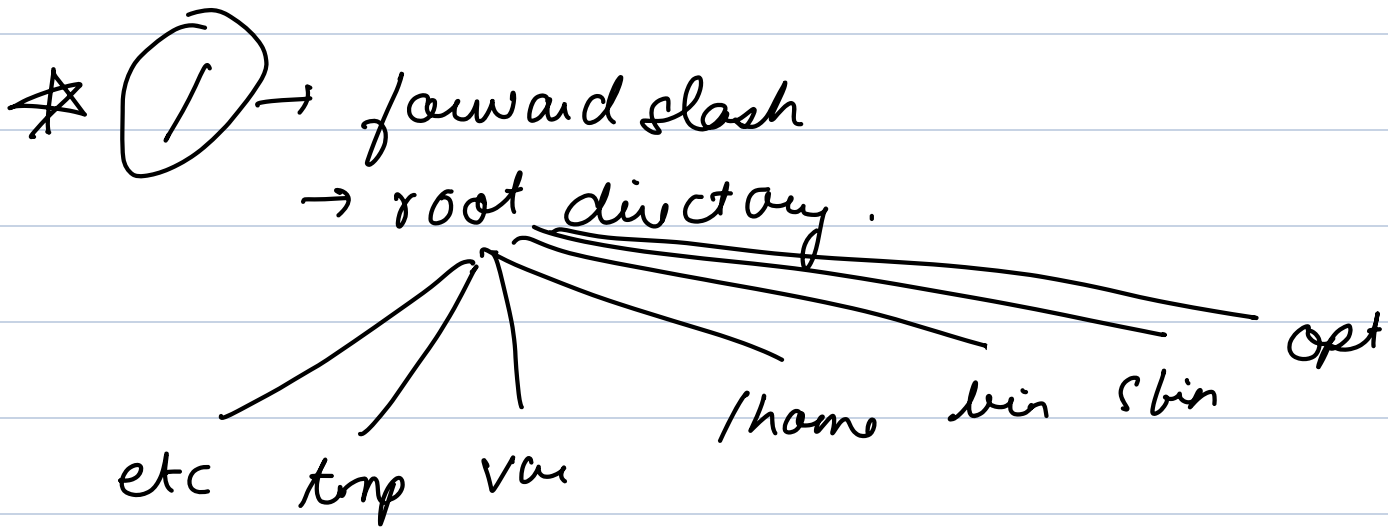
→ history

→ clear (clears the screen)

→ touch (create a file)

Break 10:15 pm.

Linux Directory Structure.



/root → root users home directory

cd → takes you to users home directory.

/home → personal space.

/etc → heart of system configuration.

/bin → includes commands needed by all users.

ls cp mv cat

/sbin → includes commands needed by system administrators.
→ reboot, Shutdown.

/tmp → temporary files.

/opt → optional.
used to install third party apps.

/var → system journal (logs)

/usr → user system resource.
not essential for basic operation.
but might be needed by applications.

free -h (to show current memory utilisation)

Absolute and Relative path.

/home/ubuntu/banana.

task → apple folder.

Absolute → cd /home/ubuntu/apple.

Relative → cd ../apple/

includes path from root directory (/)

how we can reach from current directory.

More Linux Commands.

→ mkdir -p (used to create subdirectories)

mkdir -p test /test1/test2.

→ rmdir → used to delete empty directories.

→ Rm → used to delete files and directories.

rm -rf

r → recursively

f → forcibly.

ctrl + c → abort any command.

→ cp source destination

→ mv source destination (cut and paste)

→ renaming

→ cat → used for printing the content of a file.

→ echo →

echo "word" >> file

↳ appending.

>

↳ overwrite

→ print numbers from 1 ... 1000 into a file every second.

& → running a command in background.

for i in {1...1000}; do sleep 1;
echo "$i" >> orange; done

→ tail → used to print last few lines of a file.

→ tail -5 filename.

→ kill -9 process id

→ head -5 filename.

→ storage → df -h
→ memory → free -h