

## External Style Sheets:

1. link element
2. The @import rule

## Embedded style sheet

placed in the `<head>` part.

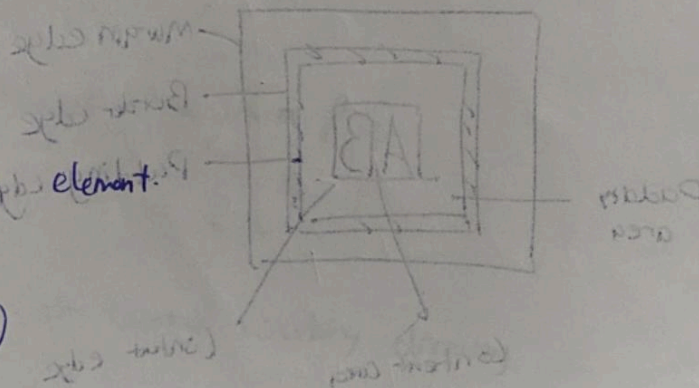
## Inline style

used in single element.

## CSS rule cascade

### Style Sheet Hierarchy

1. Browser default settings
2. User style settings
3. External SS
4. imported SS
5. Embedded SS
6. inline
7. Any rule marked !important by Author
8. " " " " " " by reader (user)

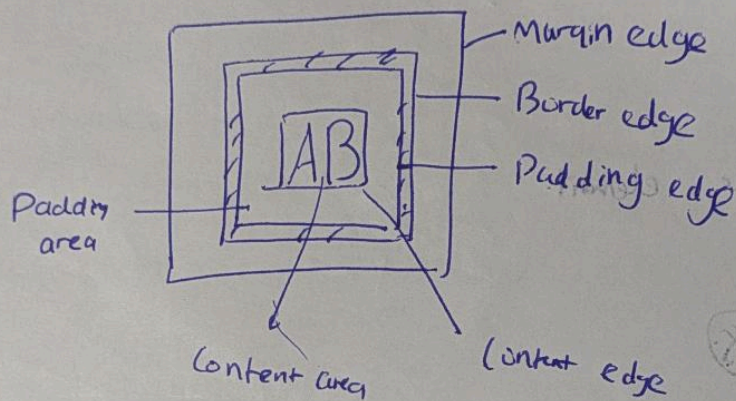




## 1-CSS font properties

- \* font-style
- " - variant
- " size:
- " - family

## Box-model





## Basics of Linux

→ Linux is a kernel

[kernel is interface to communicate to hardware of computer]

e.g.

→ Suse OS, Ubuntu and many others are OS built on Linux.

### NOTE:

All the commands in linux is a file.

### Commands

1. pwd - display the current working directory
2. ls - list [shows all files in a directory]
3. cd file\_name - changes directory [to move into particular directory]
4. cd .. - used to go previous directory [even to root]
5. cd → by default move to "home".
6. whoami → tells the name of user.
7. cat → displays content of a file. [concatenate]
8. man - provides manual for all commands
9. cp → copy the file

Copying a file

`sudo cp old-file new-file`

[Command to remove a file]  
`rm -r file`

`sudo rm file-name`

- display the content of a file

- list [show all files in a directory]

- Change directory [to move into particular directory]

- used to go previous directory (can to root)

- to change name of a file

- to tell the name of a file

- display content of a file [cat command]

- provides manual for all commands

- copy a file



Source:

Hack the box

## Linux fundamental

### 1. Linux Structure

- Linux is a kernel
- Open source / Source code (can be modified)
- Started by Finnish student Linus Torvalds
- e-g of OS based on Linux kernel  
Ubuntu, Debian, Fedora, Open SUSE, Linux mint, Red hat
- More secure
- Android OS runs based on Linux kernel

### philosophy [5 principles]

1. Everything is a file [All tasks are stored as file]
2. Small, single-purpose programs [tools can be combined]
3. Ability to chain programs and perform complex task [because of this, complex tasks can be solved]
4. Avoid Captive UI [Mainly work with Shell (terminal)]  
[~~like~~ ~~less~~ restricting user to navigate freely]



5. Configuration data  
stored in txt file.

/etc/passwd file stores all  
users required on system

## Components

### Bootloader

A piece of code to guide booting process to start OS.

NOTE: GRUB Bootloader used in parrot os

### OS Kernel

-> main component of OS

-> manages resources for system I/O devices at hardware level  
i.e. ensures each process gets its resources to function.

### Daemons

-> Background Services (without direct user interaction)

-> load after we boot or log in to computer.

-> ensures scheduling, printing, multimedia

### OS Shell

-> Command line interface between OS and user.

-> Helps user to tell OS what to do  
eg Bash, Zsh, Fish.



## Graphic Server

Provides graphical Sub-system "X" or "X-server" to run graphical programs

## Window manager

- Also known as GUI / desktop environment
- GNOME, KDE, MATE, Unity, Cinnamon.

## Utilities

- They are applications that perform particular function.

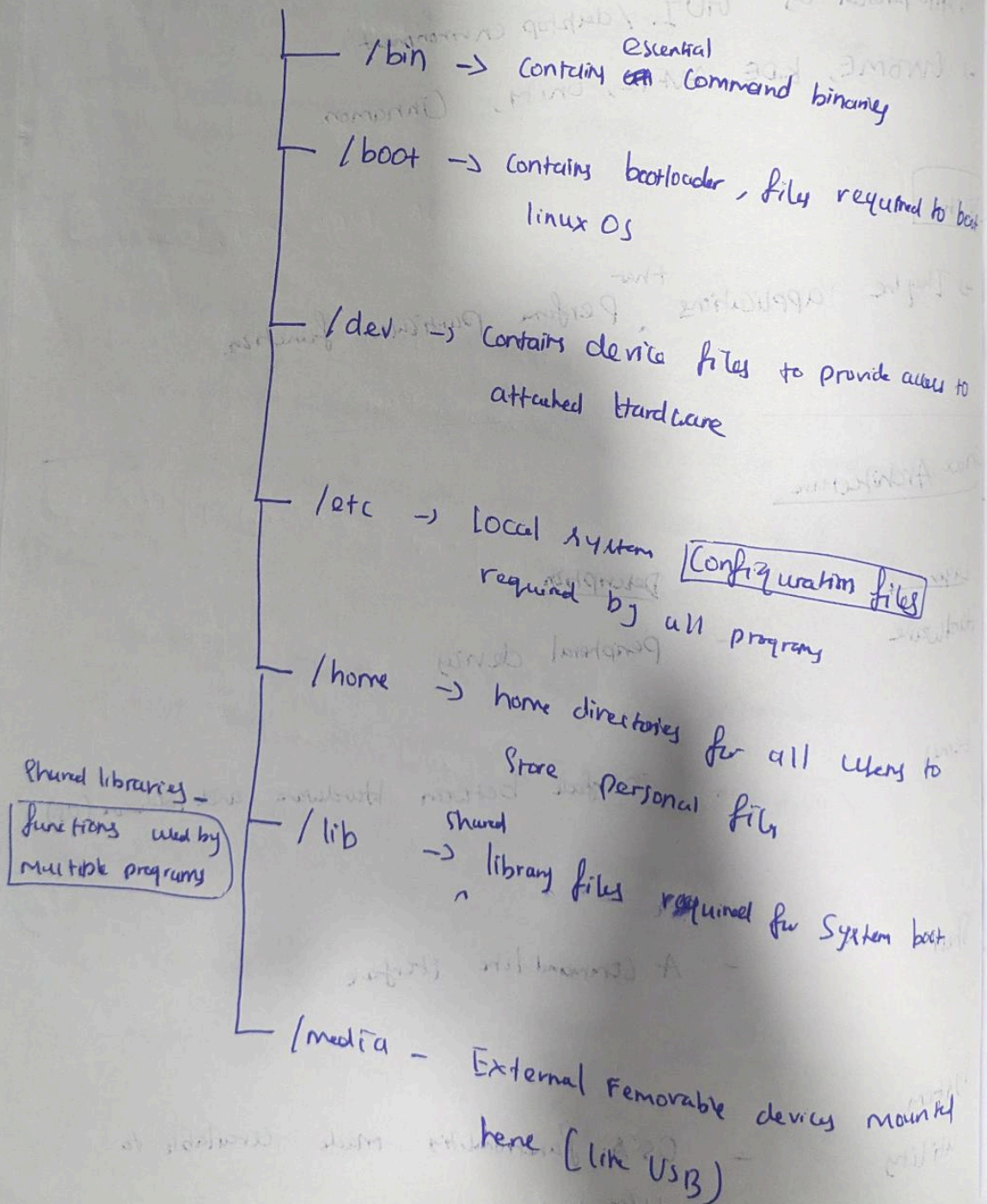
## Linux Architecture

Layer	Description
Hardware	Peripheral device
Kernel	Interface between hardware and software (OS)
Shell	- A Command line interface
System utility	- OS's functionality made available to user.

## Linux file system

Linux OS is structured in a tree-like hierarchy called FHS [Filesystem Hierarchy Standard]

### Linux file system





→ /mnt → where temporary file systems can be mounted.

→ /opt → third party tool (optional files) can be saved here

NOTE:

There can be only one root user in linux

→ /root → home directory for root user. (superior user)

→ /sbin → contains essential (executable) commands for system administration

difference btw bin and/sbin

bin	sbin
* for all users	* for root user or administrators (user with privilege)
* contains commands for system usage	* contains for system administration (containing system)
eg. * ls, cp	eg. /sbin/reboot - if config

→ /tmp → Store temp. files. Cleared upon reboot and deleted upon warning



`/usr` → contains (cmd) libraries, man files, etc

`/var` → contains files that frequently change, such as logs, caches, and spool files.

### Booting Process in Computer

The kernel and OS are stored in Rom (SSD or Hard drive)

#### ① Power on

When power turned on, power supplied to CPU, memory and other hardware.

#### ② POST [Power-on Self Test]

The BIOS [Basic I/O System] firmware runs POST to check hardware (CPU, memory) functions properly. If not booting stops and error msg displayed.

#### ③ BIOS Initialization

BIOS

- Initialize system hardware
- Configures system settings
- Identifies bootable devices (like SSD, HD, USB)



#### ④ MBR / GPT and Boot loader Loading

→ The BIOS looks for Master Boot Record (MBR) or GUID Partition Table [GPT] on modern system to

find boot loader.

A boot loader loads the O.S

#### ⑤ Boot loader Execution

→ The Boot loader [e.g. GRUB, Windows Boot Manager]

is loaded into memory and executed.

→ It allows user to Select OS or load default OS

#### ⑥ O.S loading

→ The boot loader loads O.S kernel into memory.

#### ⑦ Kernel initialization

→ The kernel initializes system resources

→ mounts root file system

→ starts init process



## ⑧ System and services startup

→ init process initializes System services and background  
including networking, display managers

## ⑨ User login

Authentication happens here.

## Linux Distribution

They OS based on linux kernel. Each serve for different purposes like for embedded devices, servers, mobile phones and desktop pc.

e.g. Ubuntu, Debian, RedHat Enterprise Linux, Fedora, CentOS

## Introduction to Shell

→ Shell is a text-based (I/O) interface between user and kernel for computer system.

→ like text-based GUI

Most commonly used shell in Linux is Bash  
[ Bourne - Again. Shell ]



## Why Shell?

1. To avoid repetitive work
2. Adding new functionality.
3. Quick start
4. interactive debugging.

## Alternative to Bash

Tcsh/csh, Ksh, Fish, Zsh

## Shell prompt description

<username>@<hostname> <Current directory> \$

e.g. (matharamoorthi @ linux) - [ /home ]

## Note

- The home dir marked as [ ~ ] as default when logged in
- When we log in to user, \$ → # [ \$ → stands for user ]

The prompt description can be modified using file ~/.bashrc

\u → Current username

\H → full hostname

\t → Current time 24-hrs

\T → Current time 12-hr



### ⑧ Getting help

#### man Command

Syntax: `man <tool>` e.g. `man curl`

#### --help

⑨ Syntax: `<tool> --help` e.g. `curl --help`

#### -h

Syntax: `<tool> -h` e.g. `curl -h`

Line

tool for searching descriptions for instances of a given key

Syn: `apropos <keyword>`

e.g. `apropos curl`

### Commands for system information

Int: `whoami` - displays username

`id` -> user's identity

`hostname` -> current host system name

`uname` -> info. of OS

`pwd` -> working dir.

`ifconfig` -> to view address to network interface

`uname -v` [version of kernel]



ip - show or manipulate routing, network devices

netstat - show network status

ss - investigate sockets

env - print environment

lsblk - list block devices

### Logging in via SSH

→ by using we can access remote server (computer

→ SSH (Secure Shell) refer to a protocol.

↓  
different physical  
address (IP)

→ allows secure communication between two systems  
over networks. ~~that mean~~

→ remote access to servers.