LINUX - Chapter 3

25/05/2022

⇒ what is Diff b/w

32-Bit Processors

① Addressable space of 4gb
② 64 bit Applications / Programs won't work.
③ Not Recommended for multi-tasking and Stress Testing
④ Requires 32 bit O.S.
⑤ Cheaper
⑥ Can be used as a personal Computer & to run office routine Tasks.
⑦ It Can access 2^{32} Memory addresses

64-bit Processors

① A.s of 16gb
② Most 32 Bit applications / Programs will work.
③ Ideal for multi tasking & Stress Testing
④ Both 32 & 64 bit O.S will work.
⑤ Expensive.
⑥ Can be used as personal Computers and for video edition, audio editing Server applications etc.
⑦ It Can access 2^{64} M.A.

⇒ what is Diff b/w,

Specifications	Core-i3	Core-i5	Core-i7
① Application Processor →	Entry level	Mid range	High end.
② No of Cores →	2	2 to 4	2 to 4
③ Frequency range →	2.93 to 3.06GHZ	3.2 to 3.46GHZ	2.8 to 4 GHZ
④ Turbo boost →	not supported	Supported	Supported.
⑤ Hyper Threading →	Supported	not supported	Supported
⑥ Cache →	3 to 4MB	3 to 8MB	4 to 8MB
⑦ No of Threads →	4	4	8.
⑧ Size →	32 nm Silicon	32 to 45 nm silicon	32 to 45 nm silicon
⑨ Graphics →	low	mid range	Best
⑩ Price →	low	mid range	Expensive
⑪ Example →	i3-540	i5660, i5-750	i7-920

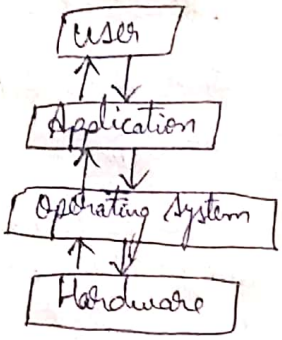
01/06/2022

1) What is Operating Systems Architecture?

* It refers to the overall design of Hardware and Software Components and their operational effectiveness as a whole.

* It is of 4 types:-

(A) Monolithic architecture (C) Micro Kernel architecture.
(B) Layered architecture (D) Hybrid architecture

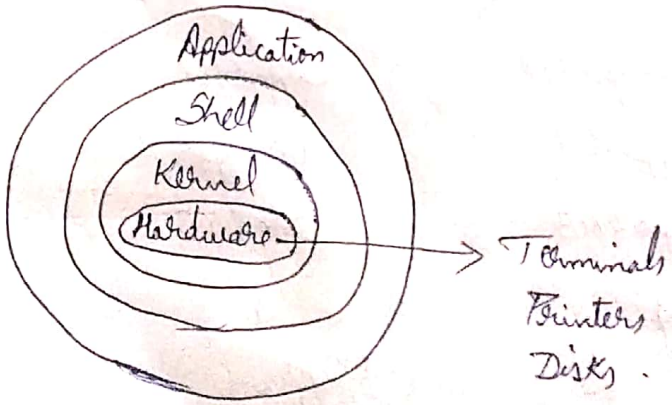


Basic operating system

2) What is Linux Architecture?

* The architecture of linux is Composed of Kernel, Shell and application Programmes ie, Softwares.

* Hardware: physical Parts of a Computer, Such as CPU, Monitor, Mouse, HDD



⇒ **Kernel**:- * It is one of the Core section of an OS. It is responsible for each of the major actions of the linux OS.

* Monolithic Kernel * Micro Kernel * EXO Kernel * Hybrid Kernel.

⇒ Hardware :- CPU, HDD & RAM.

⇒ Shell :- It is an Interface among the Kernel and users. It can afford the services of Kernel. It can takes Commands through users and runs the functions of Kernel.

* Graphical shells.
* Command-line shells.

⇒ 1° features of Linux OS :-

① Portable :- Can perform d/f Types of Hardware & the Kernel Support any H/w.

② Hierarchial File system :- Affords a Typical file structure where user files or system file.

③ Open Source :- OS Source Code is available Freely & for enhancing the capable of OS.

④ Multi Programming :- More than one application can be executed at the same time.

⑤ Security :- Security systems with various features of authentication Passwd Protection.

⑥ Multi user :- More than one user can use the resource. RAM, memory or application.

⑦ Shell :- a unique Interpreter program. This can be applied for executing Commands of the O.S.

⇒ Drawbacks of ~~Linux~~ :-

① Hardware drives :- most faced Issue while using linux, various Companies of H/w Proper Mac or windows to build drivers for Mac.

② Software alternative :- MS office, photo shop many other tool Software not available.

③ Learning Curve :- Linux is not user-Friendly OS, Confuse many beginner understand Linux is Complex.

④ Games :- Several games are developed for windows but unfortunately not for linux.

⇒ what is Computer System BIOS?

* BIOS → Basic Input/output system is the programme of a computers microprocessor.

* It uses to start the Computer System after it is powered on. It also manages data & flow thro the computers OS & attached devices such as, the Hard disk, video adapter, keyboard, mouse & printer.

* Power on self Test
* Boot strap loader
* Software / drivers
* Complementary metal-oxide Semiconduct Setup.

⇒ what is an OS Interrupt driven?

An OS in which the Interrupt System is the mechanism for reporting all changes in the states of Hardware and Software resources and such changes are the events that include new assignments of thes resources to meet work-load demands.

⇒ what is Interrupt Handling?

It is a key function in real-time software and comprises Interrupts and their handlers. only those physical Interrupts which of high enough priority can be entered into system Interrupt Table.

Interrupt is the method of creating a temporary halt during Program execution & allows peripheral devices to access the microprocessor.

⇒ Functions of Interrupt?

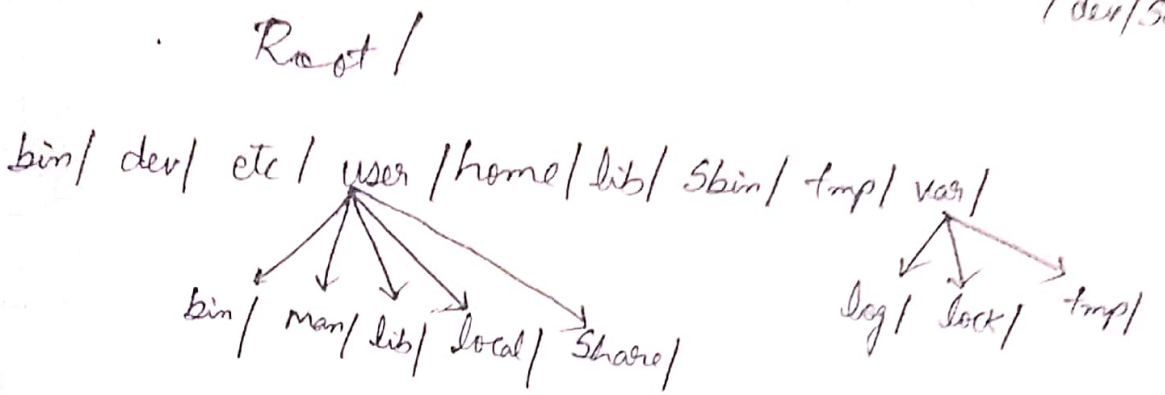
Interrupts are commonly used to service H/w timers, Transfe data to and from storage (eg. disk I/O) and Communication Interfac (eg. UART, Ethernet) handle Keyboard & Mouse events and to respond to any other time sensitive events as required by the application system.

Linux directory Hierarchy :-

* It is the Primary hierarchy root and root directory of the entire file system hierarchy Essential Comm and binaries that need to be available in single user mode; For all users.

Eg: Cat, LS, Cp, Boot loader Files. Eg: Kernels; Device. Files

Eg: /dev/null.
/dev/disk
/dev/sda1.



/bin → binary or executable Programs
/etc → System Configuration Files
/home → home directory, default
/opt → optional / 3rd Party Sfw.

/tmp → temporary space / typically.
/usr → user related Program
/var → log files.

1) Create a directory → 'test' → mkdir, Cd test
2) Create Files 'test1.txt' & 'test2.txt' → touch Files.txt, Cat > File1.txt, Nano Files.txt, Vi File1.txt
3) write the File test1.txt & test2.txt → nano, vi, or cat.
4) Print the File Content → Cat Filename.
5) Print the File word Count → WC Filename.
6) delete a File → rm Filename
7) delete an empty directory → rmdir dirname
8) delete Non-empty directory → rm -rf dirname