# LDS Assignment

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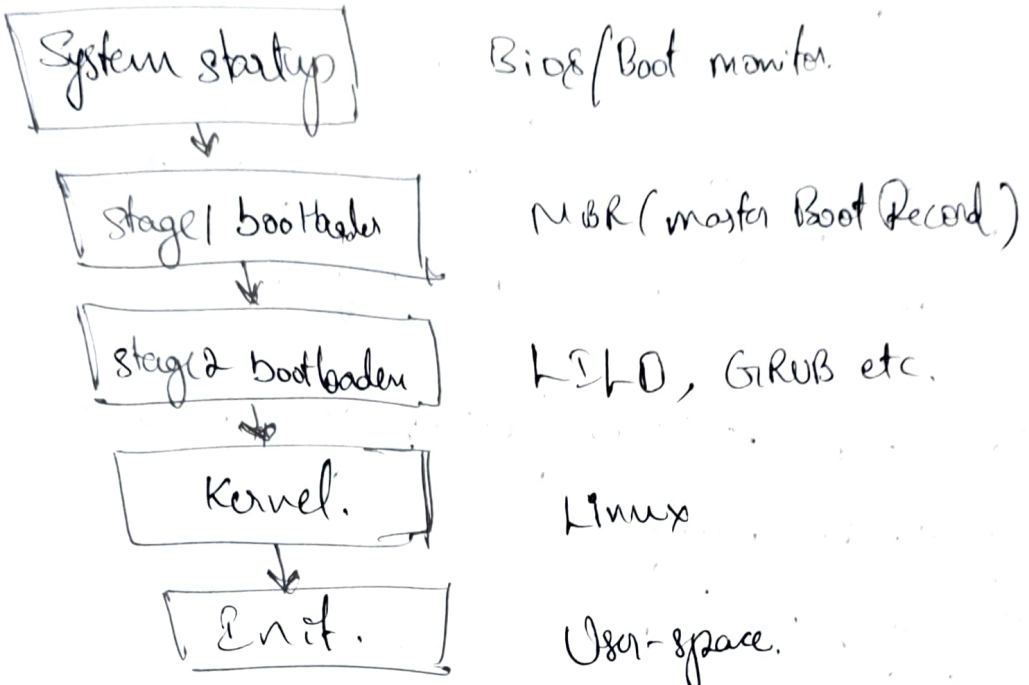
## (1) Booting Process.




System startup :→ when a system is first booted / reset, the processor executes code at a well known location. In PC – BIOS is stored on a flash memory on motherboard.

BIOS is a small piece of code (512 bytes) - 1st prog to run.

BIOS identifies HW (bootdevice) which is bootable & active.

Stage1 Boot Loader :- Job is to find & load secondary bootloader.

MBR loads the stage1 bootloader.

Stage 2 boot loader → Also called as Kernel loader. It's task is to load the linux kernel.

1st & 2nd stage boot loader combined are called LILO or GRUB.

File system is consulted, default kernel image & initrd image are loaded into memory.

Kernel → At the head of the kernel image, a routine does some setup & decompress the kernel image & place it in high memory.

kernel is then called & kernel boot begins.

Init → Kernel starts the first user space application.

Compiled .rtoC library.

first prog /sbin/init.

## (2) Function of OS.

Security :- protects user data.

It prevents unauthorized access to program & user data.

Job accounting :- OS keeps track of time & resources used by various tasks.

Error detecting aids :- Constantly monitors the system to detect error & avoid malfunctioning of system.

Coordination b/w software & users :- OS coordinates & assign interpreters, compilers, assemblers.

Memory management :- The OS manages the primary memory. It keeps track of memory, which bytes are used by which prog. Allocate memory for the process, deallocates when the process has terminated.

Processor management :- OS decides the order in which the processes have access to the processor.

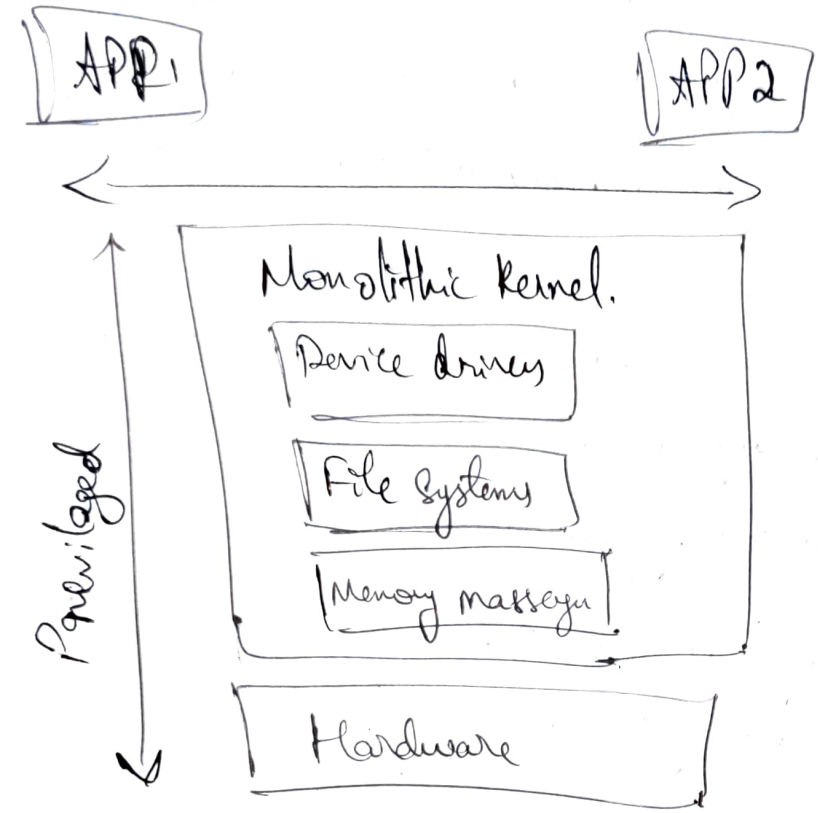
Keeps tracks of the status of processes.

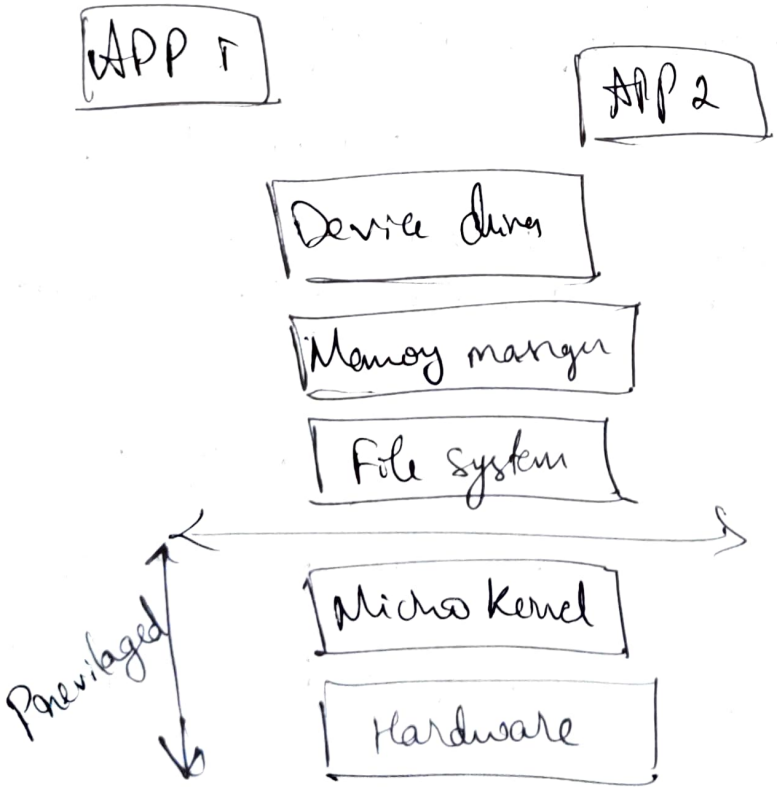
File management :- A file management system is organised into directories for efficient navigation & usage.

(3) Monolithic & Micro kernel difference with diagram.

→

| Micro Kernel | Monolithic Kernel |
|---|---|
| user services & kernel are kept in seperate address space | Both user services & kernel services are kept in same address space. |
| OS is complex to design | OS is easy to design & implement |
| Micro kernel is small in size | Monolithic kernel are larger in size |
| Easier to add new function | Difficult to add new function |
| Failure of one component does not effect the work of micro kernel | Failure of one component leads to failure of entire system. |
| Execution speed is low. | Execution speed is high. |


APP 1
APP 2
Monolithic Kernel.
Device drivers
File systems
Memory massegu
Hardware
Previlaged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## 4) UEFI and Legacy boot

UEFI stands for unified extensible firmware interface. Most new motherboards consists of this type. It has more advantage than using BIOS.

In regular BIOS that uses the keyboard to select the options.
UEFI allows controls via mouse.
UEFI contains secure boot.

Legacy BIOS used by BIOS firmware. It stores a list of installed storage device that are bootable. BIOS performs POST

## 5) Commands on windows to check disk partition.

-> Open power shell terminal
-> Type diskpart.
-> Diskpart > list disk.
    ↳ It will list any detected disks.
-> Diskpart > list volume.
    ↳ It will list detected volumes.
-> Diskpart > list partition.
    ↳ this will list the current partitions on the device.

(6) Commads to check Service in windows.

-> List all services

sc queryex type = service state = all.

-> Search for specific Service.

> sc queryex type = service state = all | find /i "servicename"

(7) Steps to start or stop Services in windows.

Start Service.

open start
Search Services.
Click on the service you want to start
click start button
Apply button.

Stop service.

open start
search Service
Click on the Service you want to stop.
click stop button.
then click apply.