

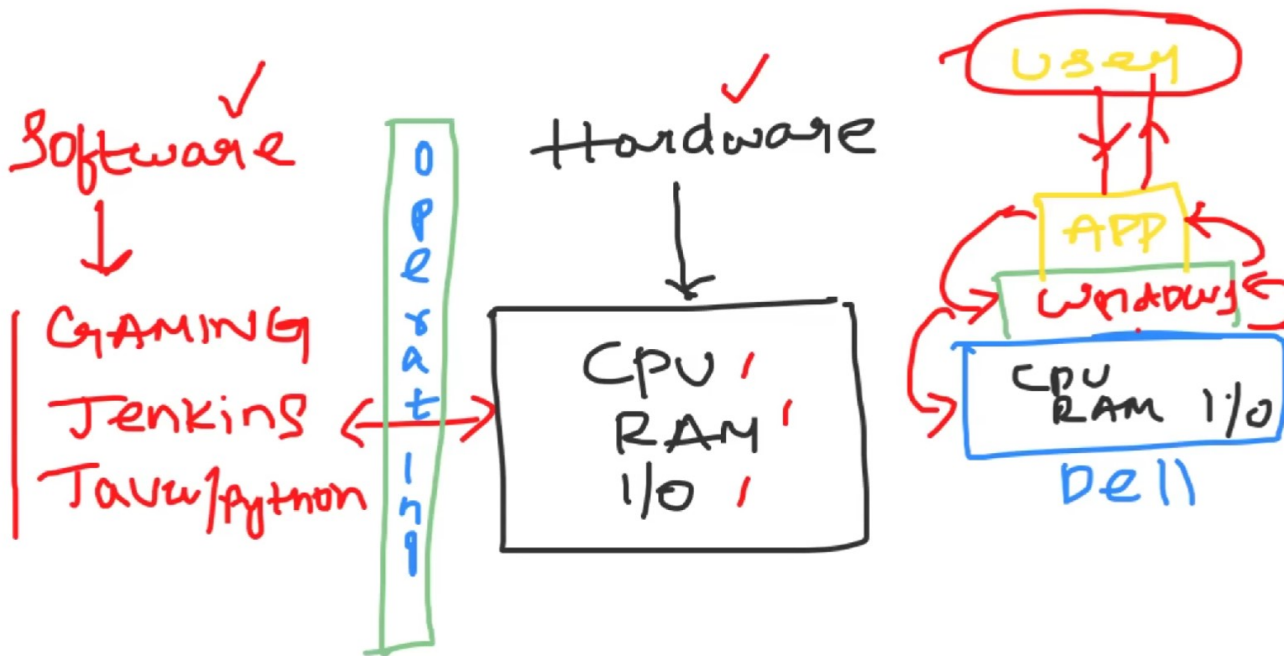
Day 6 - Linux & Shell Scripting

Operating System : we brought a hardware / pc. we try to use some softwares on top of the hardware. may be games, jenkins, photoshop, python, etc..

we cant run softwaresn directly on top of the hardware we have. so we need operating system here.

Defination :: OS is something that acts as a bridge between software and hardware. so it drives as a medium for communication between software and hardware.

Window, IOS, Linux etc



Why Linux is very popular ?

1. Free OS
2. Very secure (no need of anti viruses)
3. Distributions (Unix, Debian, Ubuntu, MintOS, SentOS)
4. Fast and dont crash

Kernel :: Its the heart of the OS, the responsibility of kernel is to establish a communication between your hardware and software.

Four Responsibilities::

1. Device Management
2. Memory Management
3. Process Management
4. Handling System related calls

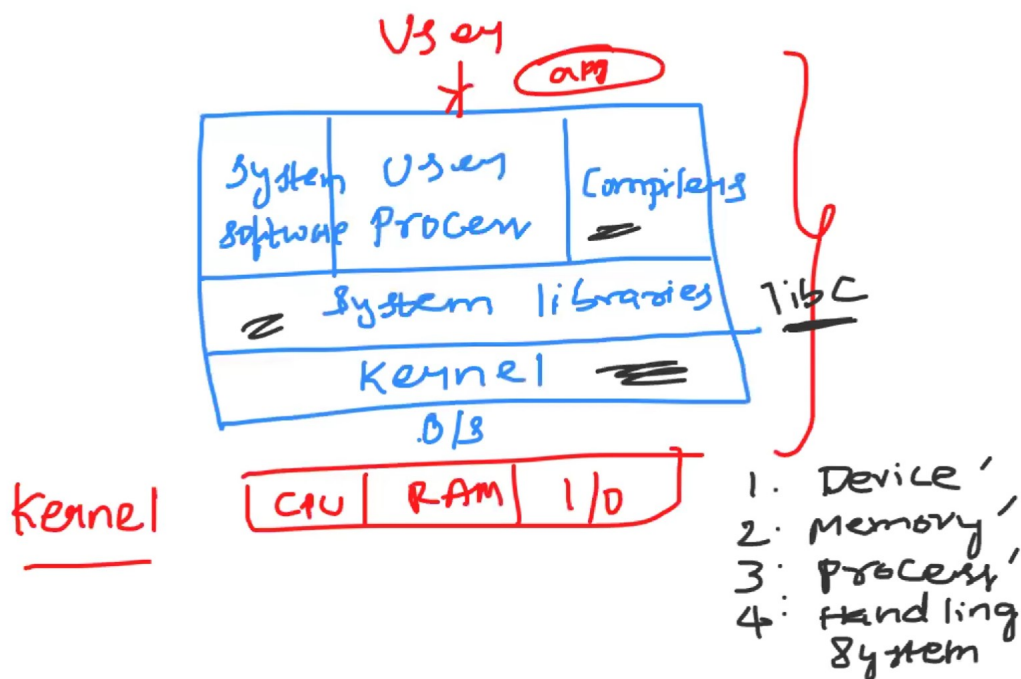
System Libraries :: User query ---> System Library ---> Kernel

System Libraries may differ according to OS's but same functions.

EX : Lipsy

Compilers :: If the user want to run Python, java etc. they have to compile the code.

Same as Compilers we need Users Processes and System related softwares.



SHELL Scripting:: SHELL is a way that you talk to your OS. to create a file in windows we can create it using graphical user interface. but in Linux we create using command lines to create them.

Most of the companies won't prefer graphical user interface, they mostly use SHELL Environment in Dev, Staging and Production.

SHELL is common among Distributions like MintOS, CentOS, Ubuntu etc.

Popular SHELL Commands ::

ls ---> to list the current directory

pwd ---> to check present working directory

cd ---> changes the directory.

cd .. ---> going back to one directory

cd ../.. ---> going to home directory

cd ubuntu/bundle ---> go ahead of multiple directories.

ls -ltr ---> it provides you the information D means directory, if not D, then its file. file size, when its created. who is the owner.

touch ---> create a file

vi test ---> create a file and write something. (vi = command, test = folder name). Click "I" which inserts into the file. use **:wq!** ---> to save the file.

cat ---> using cat we can print the file.

mkdir ---> make a folder

rm ---> remove a file

rm -r ---> remove a directory

free -g ---> understand what is the memory space we have. (Memory)

nproc ---> no of CPUs (CPU)

df -h ---> check the disk size (DISK)

top ---> complete information about the System. (ALL)

hari@Hari: ~

```
hari@Hari:~$ ls
```

```
snap
```

```
hari@Hari:~$ pwd
```

```
/home/hari
```

```
hari@Hari:~$ cd snap
```

```
hari@Hari:~/snap$ ls
```

```
ubuntu-desktop-installer
```

```
hari@Hari:~/snap$ pwd
```

```
/home/hari/snap
```

```
hari@Hari:~/snap$ cd ..
```

```
hari@Hari:~$ pwd
```

```
/home/hari
```

```
hari@Hari:~$ ls
```

```
snap
```

```

hari@Hari:~$ ls
snap
hari@Hari:~$ mkdir AwsWithHari
hari@Hari:~$ ls
AwsWithHari  snap
hari@Hari:~$ cd AwsWithHari
hari@Hari:~/AwsWithHari$ pwd
/home/hari/AwsWithHari
hari@Hari:~/AwsWithHari$ touch sample1.txt
hari@Hari:~/AwsWithHari$ ls
sample1.txt
hari@Hari:~/AwsWithHari$ sample1.txt
sample1.txt: command not found
hari@Hari:~/AwsWithHari$ vi sample2.txt
hari@Hari:~/AwsWithHari$ cat sample2.txt
Hi, Hari Dama here. this is my sample file 2.
hari@Hari:~/AwsWithHari$ mkdir samfold
hari@Hari:~/AwsWithHari$ rm -r samfold
hari@Hari:~/AwsWithHari$ mkdir samfold
hari@Hari:~/AwsWithHari$ ls
samfold  sample1.txt  sample2.txt
hari@Hari:~/AwsWithHari$ rm -r samfold
hari@Hari:~/AwsWithHari$ ls
sample1.txt  sample2.txt
hari@Hari:~/AwsWithHari$ free -g
              total        used          free      shared  buff/cache   available
Mem:           3             0             2           0           0           2
Swap:          1             0             1
hari@Hari:~/AwsWithHari$ nproc
16
hari@Hari:~/AwsWithHari$ df -h
Filesystem      Size  Used Avail Use% Mounted on
none            1.9G  4.0K  1.9G   1% /mnt/wsl
drivers         162G  150G   13G  93% /usr/lib/wsl/drivers
none            1.9G    0  1.9G   0% /usr/lib/modules
none            1.9G    0  1.9G   0% /usr/lib/modules/5.15.153.1-microsoft-standard-WS
/dev/sdc        1007G  2.2G  954G   1% /
none            1.9G   80K  1.9G   1% /mnt/wslg
none            1.9G    0  1.9G   0% /usr/lib/wsl/lib
rootfs          1.8G  2.1M  1.8G   1% /init
none            1.9G  864K  1.9G   1% /run
none            1.9G    0  1.9G   0% /run/lock

```

```

hari@Hari:~/AwsWithHari$ top
top - 09:02:27 up 51 min,  1 user,  load average: 0.06, 0.05, 0.01
Tasks:  36 total,   1 running, 35 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.1 us,  0.1 sy,   0.0 ni, 99.8 id,   0.0 wa,   0.0 hi,   0.0 si,   0.0 st
MiB Mem :  3689.1 total,  2853.3 free,   573.0 used,   262.7 buff/cache
MiB Swap:  1024.0 total,  1024.0 free,    0.0 used,  2958.0 avail Mem

```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	167016	12636	8304	S	0.7	0.3	0:22.66	systemd
442	root	20	0	44224	37464	10048	S	0.3	1.0	0:12.93	python3
2	root	20	0	2476	1432	1320	S	0.0	0.0	0:00.01	init-systemd(Ub
8	root	20	0	2528	136	132	S	0.0	0.0	0:01.69	init
41	root	19	-1	47804	15428	14392	S	0.0	0.4	0:00.19	systemd-journal
65	root	20	0	22220	6012	4492	S	0.0	0.2	0:00.20	systemd-udev
78	root	20	0	4492	204	56	S	0.0	0.0	0:00.00	snapfuse
79	root	20	0	4624	184	32	S	0.0	0.0	0:00.00	snapfuse
81	root	20	0	5016	1724	1172	S	0.0	0.0	0:01.18	snapfuse
89	root	20	0	5056	1812	1232	S	0.0	0.0	0:02.25	snapfuse
91	root	20	0	4492	168	24	S	0.0	0.0	0:00.00	snapfuse
93	root	20	0	4928	1800	1340	S	0.0	0.0	0:01.19	snapfuse
100	systemd+	20	0	25532	12644	8452	S	0.0	0.3	0:00.22	systemd-resolve
124	root	20	0	4304	2620	2380	S	0.0	0.1	0:00.01	cron
129	message+	20	0	8588	4688	4148	S	0.0	0.1	0:00.20	dbus-daemon
142	root	20	0	30096	19196	10356	S	0.0	0.5	0:00.20	networkd-dispat
143	syslog	20	0	222400	5220	4396	S	0.0	0.1	0:00.04	rsyslogd
146	root	20	0	15324	7460	6512	S	0.0	0.2	0:00.20	systemd-logind
213	root	20	0	4780	3324	3084	S	0.0	0.1	0:00.13	subiquity-serve
218	root	20	0	107224	21152	13032	S	0.0	0.6	0:00.11	unattended-upgr
223	root	20	0	3236	1112	1024	S	0.0	0.0	0:00.00	agetty
228	root	20	0	3192	1096	1008	S	0.0	0.0	0:00.00	agetty
344	root	20	0	1098776	86936	28336	S	0.0	2.3	0:04.50	python3.10
358	root	20	0	7516	4776	3860	S	0.0	0.1	0:00.01	login
416	hari	20	0	16904	8920	7468	S	0.0	0.2	0:00.06	systemd
417	hari	20	0	168896	3544	16	S	0.0	0.1	0:00.00	(sd-pam)
422	hari	20	0	6120	4868	3288	S	0.0	0.1	0:00.02	bash
1875	root	20	0	4740	1928	1412	S	0.0	0.1	0:01.70	snapfuse
1894	root	20	0	2133868	44904	18860	S	0.0	1.2	0:02.53	snappd

.....