Linux Fundamentals Part2

Package Manager
APT (Advanced Package Tool) : used for debian based distribution like ubuntu
using it for dependency resolution
Update packages

```
sudo apt update

## install package
sudo apt install nginx

## auto approve
sudo apt install nginx -y

## remove package
sudo apt remove nginx -y

## install one more
sudo apt install curl -y
```

YUM (Yellowdog update Modified)
    RPM based distribution like centOS and fedora
DNF (Dandified YUM): succesor of YUM
    introduced in Fedora 22 and RHEL 8

```
## install
sudo dnf install curl

## update
sudo dnf update
```

System Administration with systemctl
its a command line utility , using that we can manage administration of system services.
starting service, stopping service, enabling services and manage with entire control
let's do one example
install apcahe2
sudo apt install apache2

```
## its a web server so let's start it
sudo systemctl start apache2

## check the status
sudo systemctl status apache2

## if its is running you can go to browser and type localhost and enter
## you can see the dafault page of apache2
## to stop again
sudo systemctl stop apache2

## for restrating service
sudo systemctl restart apache2

## disabling service at Boot time
sudo systemctl disable apache2
```

File Permissions and its Numeric Format
Types: Read(r), write (w), Execute (x)
Users:

- Owner : who created the file
- Group: a set of users who can access the file
- others: all other users who don't direct access

Numeric Permission

- Read = 4
- Write = 2
- Execute = 1

777 (rwxrwxrwx) first represent owner, 2nd group and 3rd others
chmod 755 data.txt
rwxr-xr-x
owner: read write execute
group: read and execute (no write)
others: read and execute (no write)

Symbolic permission
chmod u+x file.txt

(u for user, g for group and o for others)

+ for adding the permission
  -for removing the permission
chmod -R 755 directory

File Ownership
chown new_owner : new_group name of your file

chown :group_name data.txt

**** umask ******
for setting default permission
check umask value: umask
change: umask 027
calculate
default permission is 666 and mask is 027 then resulting permission is 640

Disk usage
df: its command to check file system usage,
we can also check space, check mounted files system etc..
df
df -h (human readable format)

du : identify directory sizes and locate the space consuming files
du location
du /mnt/d/Physicswalla/Devops-March
du -h /mnt/d/Physicswalla/Devops-March
du -sh /mnt/d/Physicswalla/Devops-March (summarize)

CRON JOBS
which used in Linux to schedule and automate some time to run at some specific interval
to create own job

manage the processes
run any process in background use & symbol
  sleep 60 & (it will run in background)
check: jobs
if you want to take it in foreground: fg procesId
fg %1 (1 is jobs id)

to stop the fg process ctrl+z (after this execute jobs command so you can see job is in stopped state)
again to run in background: bg %1 (it will again start in background) (job is in running state)
if its completed it will move to Done state and them removed from job list)
for terminating job: kill %1 (job ID)

Analyze performance
VMstat (virtual memory statistics)
information processes, memory, paging, blocks, IO
    vmstat (provides statistics for process, memory, swappe memory , io/io, system , cpu)
    vmstat 1 (after every 1 second calculation)
    vmstat 2 5 (every 2 second and 5 iterations)
iostat (input/output statistics)
install: sudo apt install sysstat
iostat
  (input output and cpu utilization)

Key Networking Tools
ifconfig (view and configure network interfaces)
install: sudo apt install net-tools

ifconfig (see the available network interfaces)