

## Week3 – day2

### Memory and System Usage Commands

#### 1. free -h

- Displays memory usage in a human-readable format (-h flag).
- Shows total, used, and available RAM and swap space.

```
thinkitive@thinkitive-HP-Laptop-14-ck2xxx:~$ free -h
```

	total	used	free	shared	buff/cache	available
Mem:	7.5Gi	2.6Gi	1.2Gi	358Mi	3.7Gi	4.2Gi
Swap:	2.0Gi	0B	2.0Gi			

#### 2. ps aux --sort -%mem | head

- Lists all running processes, sorted by memory usage in descending order (--sort -%mem).
- head limits output to the top 10 memory-consuming processes.

#### 3. top

- Displays real-time system resource usage, including CPU and memory consumption.

### Network and Connectivity Commands

#### 4. ping chatgpt.com

- Sends ICMP echo requests to chatgpt.com to check connectivity and response time.

#### 5. nslookup google.com

- Queries DNS servers to find the IP address of google.com.

#### 6. ifconfig

- Displays network interfaces and IP configurations (deprecated; ip a is the modern alternative).

```
thinkitive@thinkitive-HP-Laptop-14-ck2xxx:~$ ifconfig
```

```
docker0: flags=4099<UP,BROADCAST,MULTICAST> mtu 1500
    inet 172.17.0.1 netmask 255.255.0.0 broadcast 172.17.255.255
    ether 1a:15:99:ba:a1:66 txqueuelen 0 (Ethernet)
    RX packets 0 bytes 0 (0.0 B)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 0 bytes 0 (0.0 B)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0
```

#### 7. curl http://google.com

- Fetches and displays the HTTP response from google.com (useful for checking connectivity).

### File and Disk Operations

#### 8. ls -lrt

- Lists files in the current directory, sorted by modification time (-t), in reverse order (-r), with detailed info (-l).

#### 9. less a.txt

- Opens a.txt for viewing, allowing navigation.

10.stat a.txt

- Displays detailed metadata about a.txt, including size, permissions, and modification time.

11.df -h

- Shows disk space usage in a human-readable format (-h).

## Software Installation and Management

12.sudo apt search firefox

- Searches for firefox in the package repository.

13.sudo apt search python

- Searches for python in the package repository.

14.dpkg -l

- Lists all installed packages.

// Name	Version	Architecture	Description
accounts-service	0.6.55-0ubuntu12-20.04.7	amd64	query and manipulate user account information
acl	2.2.53-6	amd64	access control list - utilities
acpi-support	0.143	amd64	scripts for handling many ACPI events
acpid	1:2.0.32-1ubuntu1	amd64	Advanced Configuration and Power Interface
adduser	3.118ubuntu2	all	add and remove users and groups
adwaita-icon-theme	3.36.1-2ubuntu0.20.04.2	all	default icon theme of GNOME (small subset)
aisleriot	1:3.22.9-1	amd64	GNOME solitaire card game collection

15.dpkg -l | grep python

- Filters installed packages to show only those related to python.

rc libpython2.7-minimal:amd64	2.7.18-1-20.04.7	amd64	Minimal subset of the Python language (version 2.7)
ii libpython3-dev:amd64	3.8.2-0ubuntu2	amd64	header files and a static library for Python (default)
ii libpython3-stdlib:amd64	3.8.2-0ubuntu2	amd64	interactive high-level object-oriented language (default python3 version)
ii libpython3.10:amd64	3.10.15-1+focal1	amd64	Shared Python runtime library (version 3.10)
ii libpython3.10-dev:amd64	3.10.15-1+focal1	amd64	Header files and a static library for Python (v3.10)

16.dpkg -l | grep mysql

- Filters installed packages to show only those related to mysql.

## User Management

- Delete user: `sudo userdel -r meenakshi`
- Create user: `sudo useradd -m meenakshetry`
- Set password: `sudo passwd meenakshetry`
- Add user interactively: `sudo adduser meenakshi`
- View user info: `finger meenakshetry`
- Manage groups: `sudo groupadd c406cohort`, `sudo usermod -a -G c406cohort meenakshetry`

## Permissions & Directory Management

- Create directory: `sudo mkdir -p /home/grouptry/meenakshi/a`
- Set read-only: `sudo chmod 400 /home/grouptry/meenakshi/a`
- Change group ownership: `sudo chgrp c406cohort /home/grouptry`
- Set group inheritance: `sudo chmod 2775 grouptry/`, `sudo chmod g+s grouptry/meenakshi/a`

## SSH Key Generation

- Generate key: `ssh-keygen -t rsa -b 4096 -C "ranawatjinesh@gmail.com"`
- Start SSH agent: `eval "$(ssh-agent -s)"`
- Install OpenSSH: `sudo apt install openssh-client`
- View keys: `less ~/.ssh/id_rsa.pub`, `less ~/.ssh/id_rsa`

## System Monitoring

- Print queue: `lpq`
- System logs: `dmesg | tail -50`, `dmesg | grep "USB"`
- Switch user: `su - jineshtry`
- Command history: `history`

## Network Testing

- Run iperf server: `iperf -s -f M`
- Install iperf: `sudo apt install iperf`
- Start packet capture: `sudo tcpdump -i any`
- Check connectivity: `telnet google.com`, `dig google.com`

## Jenkins Setup

- Install Java: `sudo apt install openjdk-11-jdk -y`
- Add Jenkins repo:  

```
wget -q -O - https://pkg.jenkins.io/debian-stable/jenkins.io.key | sudo apt-key add -  
echo "deb https://pkg.jenkins.io/debian-stable binary/" | sudo tee  
/etc/apt/sources.list.d/jenkins.list
```
- Install & start Jenkins:  

```
sudo apt update  
sudo apt install jenkins -y  
sudo systemctl start jenkins  
sudo systemctl enable jenkins
```
- Get initial admin password: `sudo cat /var/lib/jenkins/secrets/initialAdminPassword`