**Linux**

open source (code freely available to public),

different distributions including UBuntu, CentOS, Debian and more.

Provides CLI

**Ubuntu**

Linux distribution

**Linux Command Line Interface (CLI)**

**File system navigation**

* cd : change directory
* ls : list (view the content of directory)
* pwd : display the current directory path

**File and directory management**

* mkdir : make directory
* rmkdir : remove directory
* cp : copy
* mv : move or rename
* rm : remove
* touch : to create the empty file
* nano/vim : text editor

**Text Processing**

* cat : concatenate
* nano : basic text editor
* sed : system editor

**System Information**

* uname – a : display information about the system kernel and architecture
* lsb\_release -a : shows distribution specific information such as linux distribution and version
* hostnamectl : provides detailed information about the system hostname, OS, kernel and architecture
* cat /proc/cpuinfo : shows information about the CPU installed on system
* free -m : display information about available memory and swap space in MB

**Process Management**

* ps : process status
* ps aux : list all running processes along with detailed information such as PID, CPU usage, memory usage and command
* top : display system resource usage
* htop : display real time overview of your system’s CPU usage, memory and running processes

**Killing Processes**

* kill : terminate a process
* kill <PID> : terminate a specific processes using its Process ID(PID)
* killall <process-name> : terminate all processes with the specified name
* pkill <process-name> : terminate processes based on process name
* kill -9 <PID> : forcefully terminate the zombie process using its PID

**User and Permission Management**

* useradd : add user
* passwd : change password
* chown : change owner
* chmod : change mode

**System Restart and Shutdown**

* reboot : restart the system
* shutdown -r now : initiates an immediate system restart
* shutdown -h now : initiates an immediate system shutdown
* poweroff : power off the system

Renicing Processes

* renice <priority> <PID> : Changes the priority of a running process. The priority ranges from -20 (highest) to 19 (lowest), with 0 being the default.

**Remote Access and Networking (enable user to access and manage remote system over a network)**

* ssh : secure shell client for remote access
* scp : secure copy files between hosts
* ifconfig or ip addr : display network interface information

**VIM**

Text editor for Unix like OS (used for editing files, writing code, and performing various text manipulation tasks)  
Vi and Vim are powerful command-line text editors available on Unix-like operating systems.

**Opening a file**

* vi filename or vim filename

**Modes**

* Normal mode : default mode
* Insert mode : press ‘i’ to enter insert mode from normal mode
* Visual mode : press ‘v’ to enter visual mode from normal mode

**Navigation**

* h : move left
* j : move down
* k : move up
* l : move right

**Save and Existing**

* :w : save changes(write)
* :q : quit (exit)
* :wq or :x : save changes and exit

**Pipelines and Re-directions**

**Pipeline ( | ) :** Used to redirect the output of one command as input to another command.

Eg- ls -l | grep “myfile”

Redirection:

1. Output Redirection ( > and >> )

2. Input Redirection ( < and << )

Packet management

1. Update packages : sudo apt update

2. Installing package : sudo apt install package\_name

3. Removing packages : sudo apt remove package\_name

4. Searching for packages : apt search “keyword”

5 . Listing Installed Packages : dpkg -l

6. Upgrade installed package : sudo apt upgrade

7. Cleaning up : sudo apt autoremove