# Window Commands:

\ => the path for any directory is denoted by backslash.

ls => list all the directory.

ls path => eg. ls c:\ => list all the directory for the given path.

ls -Force path => list the hidden directory as well.

Get-Help ls -Full => get help about specific command.

~ => this represent user’s home directory like “C:\User\sachin sav”.

cd absolute/relative path => change directory to given path.

cd .. => go one level up from current directory.

pwd => print working directory.

` => this is escape character in windows.

mkdir directory\_name => make directory of given name i.e. “directory\_name”.

mkdir directory` name => mkdir “directory name” => make directory of given name i.e. “directory name”.

history => shows all previous entered commands.

CTRL+R => opens search option here one can type text and it will auto complete written text based on history commands(new in power shell)

#start\_typing => write # and start typing it will auto complete typed text based on history commands.

Arrow\_Up/Down => to navigate up and down in history.

clear => cls => clear the screen, does not delete history.

cp source destination => copy file/folder from source to destination.(if we don’t write destination ,it copies the file from source to present directory).

cp source\_pattern destination => cp .\temp2\\* => it will copy all the file present in temp2 folder into current directory.

cp source\_folder destination => it will only copy the source folder at the destination not the content of inside it for that we have to call “-Recurse”, it goes through every child of source folder and copy it into destination along with source directory.

cp source destination -Verbose => it will show information while copying the file/folder.

cp folder1 folder2 -Recurse -Verbose => copy folder1 with all of its content into folder2.

mv source destination => move file/folder from source to destination(Can Use wild card like \*).

mv folder1 folder2 => Rename folder1 to folder2 if folder2 doesn’t exist before, else it will move folder1 into folder 2.

rm file/folder -Recurse => remove file or folder. without -Recurse also it will work, it will just ask for one extra conformation.

rm file/folder -Force -Recurse => To delete system file or folder.

rm file\_name -Confirm => delete file, it will give prompt before each deletion.

cat file\_name => print whole file in the console.

cat file\_name -Head n => print first n line in the console.

cat file\_name -Tail n => print last n line in the console.

more file\_name => print the all text till console is not full then it will pause, then press ENTER to go forward by a line at a time OR press SPACE to go next page. press q to quite.

start notepad file\_name => to open/create file of given file\_name and open it in notepad for editing.

Get-Alias alias\_name => will show to Powershell commands for given alias\_name. eg. get-alias ls-> Get-ChildItem.

PowerShell contains Powershell command, Aliases and cmd.exe commands, like Get-ChildItem is powershell command, ls is alias, dir is cmd.exe command.

By default window search function searches string in file on the bases of file property not by content of the file, but we can enable it using indexing, open “Indexing Option” by searching then select “Users” and press “Advance” button then choose “File Type” tab and then choose “indexing by property and content” radio button.

sls word\_search file\_name => Using CLI it is very easy to search word in the file.

sls word\_search \*.txt => it will search “word\_search” in all the .txt file and give the result. Note- sls is alias for Select-String.

ls -Recurse -Filter \*.exe -Depth 2 => this will list all file of current and sub folder with the depth of atmost 2 which are ending with .exe.

echo text => to print the text on shell.

echo text > file\_name => to write the text in file.

echo text >> file\_name => to append the text in file.

cat h2.txt | sls sachin => it will print all the matching string of file h2 which contain sachin.

Note : pipe(|) character is used for passing output of one command as input to other command.

$PSItem => $\_ => shows current value in the pipeline.

Redirection operator:

1. > : it will redirect stdout stream.
2. 2> : it will redirect stderr stream.

$null => it is a variable which contain definition for nothing (like black hole) use for redirection into it.

### Week-2

Computer Management- system tool- localuser and group =>gui option to manage user(in window 10 home this is not available)

Get-LocalUser(glu) => shows all user account with other info like enable or not.

Get-LocalGroup(glg) => shows all group with other info.

Get-LocalGroupMember(glgm) group\_name => shows all user present in group group\_name.

net user user\_name passwd\_x => to change the passwd of user user\_name to passwd\_x.

net user user\_name \* => this will ask passwd in next line and shows that in \* form to be secure.

net user user\_name /logonpasswordchg:yes => force user named user\_name to change password on next login.

net user user\_name user\_pwd /add => to add user, we can write \* in place of user\_pwd, then it will ask for pwd in next line.

net user user\_name /del => to remove user named user\_name.

Remove-LocalUser(rlu) user\_name => to remove user named user\_name.

icacls dir\_name =>  It is capable of displaying and modifying the security descriptors on folders and files. An access control list is a list of permissions for securable object, such as a file or folder, that controls who can access it.

[ Other way to see this, go to direcotry right click-> properties -> security. ]

icacls dir\_name /grant “Everyone:(OI)(CI)(R)” => set Read permission for Everyone group.

icacls dir\_name /remove Everyone => remove permission for Everyone group.

icacls dir\_name /inheritance:e|d|r => e for enable,d for disable and r for remove all inheritance.

## Week-3

Compress-Archive -Path source\_file dest\_file => To create archive file such as zip.

eg.Compress-Archive -Path .\README.md,.\tt.txt target.zip

Find-Package => to list all the packages in the windows.

Install-Package -Name sysinternals => to install packages in window.

Get-Package -Name pkg\_name => show info about package named pkg\_name.

Uninstall-Package -Name pkg\_name => to uninstall the pkg.

Chocolatey => it is 3rd party package manager for windows.

choco install googlechrome => to install google chrome.

choco upgrade vlc => to update out dated app.

## Week-4

Diskpart => it change cli to diskpartition window.

list disk => it will list all disk active in computer.

select disk disk\_num => it will select the disk with given disk number.

clean => it will clean(remove all partition) present on selected disk.

create partition primary => create partition on selected disk.

select partition 1 => partition 1 is now selected partition.

active => diskpart marked the current partition as active.

format FS=NTFS label=my-usb-drive quick => FS(File System),label=lebel name for drive,quick is format type.

Windows NTFS file system store file information in MFT(Master File Table),every file in file has entry in MFT.

shortcut => it is another entry in MFT but it only has reference of some destination.

symbolic links => kind of shortcut but at the file system level. it points to linked file name. OS treat it as substitute of original file system in almost every way.

mklink sym\_link\_name file\_name => create symbolic link for given file\_name.

hard links => it points to linked file record number this means file name of linked file can changed and hard links still points to it.

mklink /H link\_name file\_name => create hard link for given file\_name.

computer manger -> device manager -> Disk Cleanup(used for clean the disk like, clean up the temp file, log files,compress the old and rarely use files etc.)

diskfragmentation => idea is to take all file stored in the disk and reorganize them into neighbouring locations.(used in hard drive I.e HDD). SSD used Trim.

fsutil repair query C: => this will check status of self-healing for C: drive.

chkdsk /F D: => to fix any error, corruption in data in given disk.

Question

What's the difference between a GPT and MBR partition table?

MBR only allows you to have volume sizes of 2TBs or less.

GPT doesn't have a limit to the amount of partitions you can make.

GPT allows you to have volume sizes of 2TBs or greater

## Week-5

Process are something which run on computer and takes some RAM,CPU and other resources.

powershell-> notepad.exe => this will open notepad process.

taskkill /pid pid\_number => to kill process with pid pid\_number.

task manager or taskmgr.exe => to view all process information.

tasklist => to list all the process in cli with other details like pid.

Get-Process => to list all process.

Get-Process -Name notepad => to list process of given name(notepad).

Get-Process -Name “\*razzle\*” => to list all process that contain razzle in their name.

CTRL+C => this key combination can be used to send SIGNINT(signal interrupt) signal to os to end any process in midway.

Process Explorer => to view and manage processes we can download the tools Process Explore created by MS to manage process.

Resource Monitor(GUI) => to view all the resource use by process.

Get-Process | sort CPU -descending | Select -first 3 -Property ID,ProcessName,CPU => to get top3 process using most cpu power.

top => realtime resource monitoring by top process which using most resources.

uptime => it shows time, uptime of computer, no of user login, load average,etc.

## Week-6

Event Viewer => to view event log of computer.

RDP => Remote Desktop Connection used to connect to another windows.

putty => Used to connect another linux connection.

pscp /home/cindy/Desktop/myfile.txt user@ip\_address: => putty secure copy to copy file to given user and ip\_address.

Start-Process file/url => start file/url => to open file or url by using by default application.

# Linux Commands:

/ => the path for any directory is refer by forward slash and it also shows the root directory.

ls --help => for help.

man ls => manual information, more detail information than help.

ls -l => ls -l / => -l flag is use for long listing format(detail file information).

ls -a(h) / => h indicate in human readable form like size is 1KB,show hidden file as well.

ls -l -a / => ls -la / => show hidden file in long listing format.

pwd, cd, ~, .. => are same as windows.

~ => eg. \home\sachin I.e. refer to user’s home directory.

/ => eg . \ I.e. refer to root directory.

\ => Escape character in Linux.

mkdir dir\_name => work same like window.

history, CTRL+R,Arrow\_Up/Down,clear => Work same as window.

Note: #start\_typing => this doesn’t work here.

cp source destination => same as windows except “-Recurse” and “-Verbose” which has been replaced by “-r” and “-v” respectively.

cp folder1 folder2 -rv => copy folder1 with all its content into folder2.

mv source destination => same as windows.

rm file/folder -r => to delete file or folder recursively.

cat file\_name => more file\_name => same as window.

less file\_name => launch an interactive shell can go up and down by pressing up and down arrow key,pageUp and pageDown, g for navigate to beginning of page,G for end of page, /word\_search to search word or phrase in the file,q for quite the interactive shell.

head -n file\_name => print first n line.(by default 10)

tail -n file\_name => print last n line.(by default 10)

nano file\_name => open/create file of given file\_name and open it in interactive shell for editing.

vim file\_name => to open/create file of given file\_name and open it in interactive shell in command mode, :q to quite to interactive shell, :w for save, :wq for save and quite, :q! for quit without saving, “:set number” for displaying text with line number, “i” to go in insert mode then one can edit the file in command mode one can’t, press ESC to come back in command mode from insert mode, “dd” to delete a line, “[n]dd” to delete n lines,”u” for undo, “CTRL+r” for redo, /word\_search to search word or phrase in a file and “n” to go to next match and “N” for previous match.

:%s/yourtext/replacetext/gc => use for replace yourtext with replacetext, g flag shows replace all occurrence and c flag will ask for conformation before each replacement.

grep pattern file\_name => stands for “global regular expression print”, it will search given pattern in the given file\_name. grep by default does not use perl-compatible regex i.e. \d for int does not support by default.

grep -P “regex\_pattern” file\_name => P for perl-compatible regex.

grep -w(i,n,) [-B(A,C) no\_of\_line] “sachin” dir\_name => i indicates case insensitive search, n for line number,matches the whole word like “sachinhello” would not be the match in this case,B for before and A for after,C for Content around shows no\_of\_line lines before and after the match.

grep -win “sachin” ./\* => searches all the file and dir in the current dir and shows matches.

grep -winr “sachin” . => searches all the file,dir, and subdirectory recursively and shows matches.

grep -wil(c)r “sachin” . =>c for no.of match found, searches all the file,dir, and subdirectory recursively and just shows the file name where matches has occured.

| **Option** | **Meaning** |
| --- | --- |
| -i | Ignore case |
| -v | Invert match |
| -n | Print line number |
| -H | Print filename |
| -a | Treat binary files as text |
| -I | Ignore binary files |
| -r | Recurse through subdirectories |
| -l | Print out names of all files that contain matches |
| -L | Print out names of all files that do not contain matches |
| -c | Print out number of matching lines only |
| -e | Use the following pattern; useful for multiple strings and special characters |

Redirection Operator :

1. < : used to redirect stdin stream.
2. > : used to redirect stdout stream.
3. 2> : used to redirect stderro stream.

/dev/null => a directory for storing definition of nothing(like black hole).

| => operator to pass output of one command to input to other(same as window).

ls | grep hel => to find directory of name which match string hel from all the current directory.

### Week-2

ubuntu --default-user root => execute this command in cmd, this will change default user of ubuntu as root, then you can change passwd of anyone simpy by command *passwd user\_name* in ubuntu.

root => this is the first user that get created while installing linux, it has permission of all things.

sudo => superuser do , something which require root user permission.

sudo su - => su(substitude user) by default it change to root.

exit => to came back to normal user from root user.

cat /etc/group => shows all the groups.(eg. sudo:x:27:sachin represent group\_name:engrpted\_password:group\_id:listOfUserInTheGroup respectively).

cat /etc/passwd => shows all the users.(eg. root:x:0:0:root:/root:/bin/bash represent user\_name:encrypted\_passwd:user\_id: other info are irrelevent for now).

passwd user\_name => it will ask for old\_pwd then new\_pwd, used to change the passwd.

sudo passwd -e user\_name => it will expire the current passwd of user named user\_name and tell to set new password when user login next time. (similar to windows /logonpasswordchg:yes

sudo useradd user\_name => add user named user\_name.

sudo userdel user\_name => delete user named user\_name.

ls -l dir\_name => it lists all dir and file in long listing format. eg. shown below

[ -rwxrwxrwx 1 root root 17230 Sep 16 21:15 Commands.docx

drwxrwxrwx 1 root root 4096 Sep 16 21:22 temp

1st char is shows info about is it normal file(-) or directory(d) next 3 char showing permission for owner user,next 3 for permission of groups which owner belong to,next 3 shows permission for other groups. read(r), write(w), executable(e), disabled(-), in our case 1st root is owner name, 2nd root is showing owner belong to group named root. ]

ls -l file\_name => to see file in long listing format.

ls -ld dir\_name => to see directory in long listing format.

u-owner, g-group, o-other.

4-read, 2-write, 1-execute.

sudo chmod [ugo][-+][rwx] dir\_name => + to add permission , - to remove permission.

sudo chmod 754 dir\_name => 7=4+2+1 i.e rwx, 5=4+1 i.e rx, 4=4 i.e r, respectively for ugo users.

sudo chown user\_name dir\_name => change owner of dir named dir\_name to user named user\_name.

sudo chgrp grp\_name dir\_name => change group of file belong to.

find [location] [criteria] [actions] => search for files in a directory hierarchy.

find . => list all the subdirectory and file ahead of current directory.

find . -type f(d) -name(iname) "C\*.docx" => f for file, d for directory, it will search through all the file to find file name which match given regex, iname matches in case insensitive manner.

find . -type f -mmin(mtime) -(+)4 => mmin for modified minute, mtime for modified day,- for less than 4,+ indecate more than 4, given cammand shows all file which are modified less than 4 min ago.

find . -size +5M(k,G) => M indicate MB,k indicates KB, G indicates GB, it searches for all file which have size more than 5MB.

find dir\_name -type d -exec chmod 775 {} + => exec is for excution, {} placeholder, it will change permission of every subdirecotry of dir\_name to 775.

find . -type f -name “\*.jpg” -maxdepth 1 -exec rm {} + => remove all the .jpg file from current directory.

find /tmp -newer /tmp/tstfile -ls => Find all files under the /tmp directory that are newer than an already existing file(tstfile) and give a detailed listing.

sed => stands for stream editor. Its job is to make substitutions and other modifications in files and in streamed output.

sed s/pig/cow/g file > newfile => s stands for substitute, If you want to change all instances, you have to add the g (global) qualifier, slash(/) is just partition b/w text can be replaced by colon (:), it replace all occurance of ‘pig’ in ‘file’ to ‘cow’ and copy the content in newfile.

## Week-3

Ubantu sapport debian(.deb) packages.

dpkg => package manager for debian. if we install packages using this, this won’t install dependency of the packages automatically.

sudo dpkg -i atom-amd64.deb => to install atom package.

sudo dpkg -r atom => to remove atom package.

dpkg -l => to list all the debian package installed.

sudo dpkg -i pkg.deb => sometime it will give error for dependency you can go ahead and install each dependency one by one by yourself but there is better way to do it through apt.

apt => Advance Package tool, it install package with dependency and clean also when not needed.

sudo apt install gimp => to install gimp package.

sudo apt remove gimp => to unintall gimp pacakge.

sudo apt update => to update package list.

* list - list packages based on package names
* search - search in package descriptions
* show - show package details
* install - install packages
* reinstall - reinstall packages
* remove - remove packages
* autoremove - Remove automatically all unused packages
* update - update list of available packages
* upgrade - upgrade the system by installing/upgrading packages

tar option(s) archive\_name file\_name(s) => tape archive used to convert group of file into archive.

tar -cvf aa.tar file1 file2 file3 => create,verbose the filename aa.tar by file1,file2 and file3.

tar -xvf aa.tar => extract,verbose the file of name aa.tar

tar -tf aa.tar => just show the inside content of file without extracting it.

uname -r => to print kernal release version

apt full-upgrade => to upgrade everything including kernal.

## Week-4

parted can be used in both mode I.e interactive mode and cli mode.

sudo parted -l => list disk information.

sudo parted /dev/sdb => launch parted in interactive mode and select /dev/sdb.

print => to print info about selected disk.

mklabel gpt => to make lable for selected disk.

mkpart primary ext4 1MiB 5GiB => mkpart name file\_system start\_pos end\_pos.

sudo mkfs -t ext4 /dev/[SECOND DRIVE]2 => to format second drive to ext4 file system.

sudo mount /dev/[SECOND DRIVE]2 /home/my\_drive => mount the formated disk to /home/my\_drive.

quit => to exit the interactive shell.

fdisk is very useful in linux

lsblk => to list all blocks of disks.

sudo fdisk -l => to list all partition in disk.

sudo fdisk -l /dev/sda => to list partition contain in /dev/sda.

sudo fdisk /dev/sda => start fdisk interactive shell.

d-> to delete default partition, n-> to create new partition,w-> to commit changes.

sudo mkfs -t ext4 /dev/sdb1 => format the partition.

sudo mount /dev/sdb1 /my\_usb/ => it will mount the selected partition(/dev/sdb1) to given directory(/my\_usb).

umount /dev/sdb1 => umount /my\_usb/ => both command do the same I.e. un-mount the disk.

sudo blkid => it shows block id of disks like uuid(universal unique id),partuuid,type,etc.

swap space => area in disk which is used for paging.

sudo parted /dev/sdb -> mkpart primary linux-swap(any label name) 5GiB(start pos) 100%(use all available space) -> print -> quit -> sudo mkswap /dev/sdb2 -> sudo swapon /dev/sdb2 => steps to create swap area.

ln -s file\_name softlink\_name => to create soft link.

ln file\_name hardlink\_name => to create hard link, it point to real hard disk address where file has stored.

[you can view hardlink count of a file by command ls -l]

du -h => to view disk uses(-h for human readable form).

df -h => to print free disk space in human readable format.

sudo fschk /dev/sda => file system check, to fix file system, sometime it may corrupt disk.

## Week-5

ps => process status without any argument it shows only the process running under the logged in user account and from the current terminal.

*The ps command accepts options in three styles.*

1. BSD UNIX style: - In this style, options are supplied without any leading dash (such as "aux").
2. AT & T Unix style: - In this style, options are supplied with a leading dash (such as "-aux").
3. GNU Linux style: - In this style, options are supplied with double leading dashes (such as "--sort").

Although the PS command accepts options in the mix style, you should always use only one style to specify the options.

ps -f => to view process with full detail.

ps -A => ps -e => to print all running process(it gives summarized overview of all process).

ps -ef => ps -eF=> to view every(-e) process even run by other user with full(-f) or extra full(-F) format details.

ps -ef|grep Chrome => to list particular process.

ps aux | grep “Qwicklab Error” => to see error which has Qwicklab Error keyword in it.

*ps aux command options*

a:- This option prints the running processes from all users.

u:- This option shows user or owner column in output.

x:- This option prints the processes those have not been executed from the terminal.

ps aux => Collectively the options "aux" print all the running process in system regardless from where they have been executed.

In linux everything is stored In file even processes, so we can view it in /proc directory.

CTRL+C => this key combination can be used to send SIGNINT(signal interrupt) signal to os to end any process in midway.

kill pid\_num => to kill process of given process id number.

kill -KILL pid\_num => to kill the process even without giving time to clean the directory in which it was working on.

kill -TSTP pid\_num => to suspend the process by pid\_num it send the terminal stop signal(TSTP).

kill -CONT pid\_num => to resume the suspended process by pid\_num it sends Continue(CONT) signal.

lsof => list open file, use to view any file use by which process.

## Week-6

* To Connect Linux to window and android :

apt install openssh-server => to install ssh server.

service ssh start => to start ssh server service.

service ssh status => to check ssh status.

vim /etc/ssh/sshd\_config -> PermitRootLogin yes => add this to allowed root access

ifconfig => to check ip ubuntu laptop.

cmd-> ssh user\_name@ip\_address => to connect to linux through cmd of window.

install termux -> pkg install openssh -> ssh user\_name@ip\_address => to connect to linux thought android.

scp => Secure copy you can use in linux to copy file across the network.

scp /home/cindy/Desktop/myfile.txt user@ip\_address: => to copy file to given user and ip\_address.

ls /var/log => to view logs file.

sudo cat /var/log/syslog => to view content of any log file.

sudo du -a /home | sort -n -r | head -n 5 => show the top 5 largest file.

## By-Me

*Applications:*

xdg-open file or url => To open any file or url using by default application by terminal.

ex. xdg-open [http://www.google.com](http://www.google.com/) => it will launch google in by default browser.

all installed application can be view in /usr/bin/ direcotry.

ls /usr/bin/ => to list all the binary applications.

ls /usr/bin | grep “chrome” => to search any application by name.

google-chrome => to launch any application just write its name, name can be found as shown in previous command.

eg. unity-control-center(for setting),vlc(for vlc),nautilus(file explorer)

*Processes:*

ps aux|grep “google-chrome” => it will shows all detail note the pid number.

kill /pid pid\_num => to terminate(kill/close) any application using its pid number.

*System:*

cat /sys/class/backlight/radeon\_bl0/brightness => this is the path where brightness of screen has stored it can contain value between 0 to 100 and change screen brightness accordingly.

/etc/rc.local => script written in /etc/rc.local will run every time we boot computer.

ls /home/sachin(user\_name)/.cache/ => to list all the cache file of application. You can delete any if any application showing unusual behavior.