shell script are executed directly interpreted not compiled

cat *etc*/shell type of shell scripts supported by our os

which bash tells where bash is located

#! / *bin*/bash tells imterparator which bash to be used

chmod +x hello.sh gives make hello.sh executable permission

**shell : A prtogram which takes command form keyboard and give it to os**

Cli command line interface

terminal : tool to send command to shell

**pwd**

**cd /**  change directory to root directory

**ls** / list files in root directory

ls or ls ~ lists files in home directory

ls ../.. lists two foders back

ls . Lists in pwd

l

ls -l lists in long format

ls -ltuh | head -15 list latest 15 files

drwxr-xr-x rights of the users are separated by - d direcotry r read w write x:execute r read

ls -a list all files hidden also

ls -al in long format

ls -S sort on basis of size remember S

ls -t sort on basis of time

ls -lS > out.txt lists output of -lS command to out.txt

ls -d \*/ lists all directories only

man ls referance of ls

**cd** same as ls

**cat** file1.txt file2.txt : shows content of two files

cat -b file1.txt : add numbers in front of non blank lines

cat -n file1.txt : add numbers to all lines

cat -s file1.tst :display content squeezed means many blank lines in one line

cat -E file.txt add $ in last of each line

cat > amit.txt : write whatever you write after this command uptil you pust ctrl+D

>> for append mode in cat

cat file1.txt file2.txt > amit.txt

**searching** a file:

locate -i amit.txt -i case insensitive

**mkdi**r amit

mkdir -p amit/as make amit and as, if amit even does not exist( equevalent to mkdir --parents amit/as)

mkdir -p amit/{subu,am,sub,d} will create multiple daughter directories Warning : no space bw subu,am,sub,d

rmdir -p a/b/c/d will remove a b c d if all are empty

rmdir -pv a/b/c/d will remove a b c d if all are empty, show extedned ifno ie what is happending in background

rm -r a/b/c will removea, b,c with files or rm -r a will also do the same jobs

**cp** source dest

cp amti.txt am.txt

cp amit.txt ~/Desktop/am.txt copy amit.txt to destination with name am.txt

cp amit.txt ~/Desktop/ copy amit.txt to destination with same name

cp -i amit.txt am.txt will ask user before copyting if am.txt exist already

cp amit.txt am.txt will overwirte

cp sourece . will copy source file to pwd

cp -R dir1 di3 copy directory1 content to directory3 if directory3 doesnt exits

cp -R dir1 dir3 copy directory1 inside directory3 if directory 3 alredy exist

cp -R ~/Desktop/111/. 222 copy content of 111 in 222( . at end of 111 includes hidden files also)

**rysnc** -r source/ dest sync source and dest(if destination doesnot exist it will create it first)

rsync -rv --include "\*.py" --exclude "\*" --delete /home/amit/Desktop/Covid\_backup/github/weaklens\_pipelin/ [cami@pegasus.ac.iucaa.in](mailto:camit@pegasus.ac.iucaa.in):/mnt/home/student/camit/github/weaklens\_peline/

**Note:** above command will also delete files which you delted from source

rsync -r #will copy directiores and their content

rysnc -a #will do same as -r but will also copy symlinks and preserve group ` user perimssions

rsync -a --dry-run # to see what will be copide

rysnc -a --delete –dry-run #to dry run to find it will mirror source and dest but

rsync -zaP #z for archive P for progress

rsync soucrce server\_destination

rsync -u #update

server\_destination: [username@ipadress](mailto:username@ipadress):location (please mind ipadress is separated to location with :

eg [camit@pegasus.ac.in](mailto:camit@pegasus.ac.in):/mnt/home/student/camit/

rysnc -azvP --dru-run [camit@pegasus.ac.in](mailto:camit@pegasus.ac.in):/mnt/home/student/camit/

rsync -azvP --include={"\*.py","\*.dat"} --exclude "\*" /home/amit/Desktop/test\_local/ Desktop/tt

#will include only pythonand dat files excluding all

rsync -azvP --include={"\*/","\*.py","\*.dat","\*.txt"} --exclude="\*" /home/amit/Desktop/test\_local/ Desktop/tt/

#noticd diff with above command it will copy py dat and txt file from all source subdirectoreis

notice that how exclude is used

rsync -azvP --exclude={"\*.py","\*.dat"} /home/amit/Desktop/test\_local/ Desktop/tt

#will include only pythonand dat files excluding all

or

rsync -azvP --include={"\*"} --exclude={"\*.py","\*.dat"} /home/amit/Desktop/test\_local/ Desktop/tt/ #will exclude only py ad dat files from all directories and subdirectories

both commands above are equavalent

l**ess** used to see contern of a file same as cat but cat is not that handy(press q to quit)

less -N amt.txt show amit wiht numbers

**sudo** : super user do

sudo -s : go to root user

ie sudo mkdir amit

**top :** show memory usage of compputer

i show/hide idle process

s change refresh interval in seconds

k to kill any process

**pidof** processname ie pidof unity-control-center return a number

kill number or kill -KILL number forces the process to closed. Not recommended

kill -9 number less stronger than KILL

**ps** -ux long list of all running processes

ps -aux process of all users

ps -u username user specific processes

ps -C processname process specifications

**echo** used in bash scripting mainly, dfine variables in terminal

eg

var=”amit” mind there is no space

echo “valure of variablie is = $var” will print amit

echo $var1

echo -e “ anit\tsib ” will print amiit sib -e enable escape sequence of \ ...it interperates \n as new line

echo “`expr 32 \\* $i`”

echo -e “connect 00:16:94:3A:21:F4” | bluetoothctl will give connect 00:16:94:3A:21:F4 input to bluetoothctl command

**chmod ugo+rwx filename**  give permission to user group othres for read write execute

other equivalents (chmod a+rwx filename ) chmod a=rwx filename, chmod u=rwx,g=rwx,o=rwx filename

chmod u-x filename take permission execution from user

**script** is a text file which contain sequence of commands to be executed by terminal

you can declare variables in script and use them with $ symbol

Note: a scipt file need to have a execute permission for exucution. by default the script you create don’t have this execute permission

qsub qsub.sh -v start=`expr 32 \\* $i`

see running\_multiple\_jobs\_at\_time.sh for passing variables to qsub and executing expressions

**which** software location osoftware

**what** is ls give short info of command

which ls gives path of ls

**sudo useradd** name\_of\_user -m -s /bin/usr/bash/ -g users -c “my comments”

passwd name\_of\_user password changes password for user

sudo userdel name\_of\_user deltes user but not files associated with that user

(to remove files from deleted user user simple sudo rm -r path command)\

**groups**  print all groups associated with curent user

cat /etc/groups all groups on system

sudo goupadd group\_name

sudo groudel group\_name

sudo gppasswd -a/-d username groupname : to add or remove password to group

**bashrc** is a script that gets executed whenever a new terminal session is added in interactiove mode

ie

**alias** aaaa=’clear’ will make aaaa to clear command

alis ls=”ls -l” change ls to ls -l

df -h free space on disk

**du**  disk space used by files or folder pwd

du -sh summary of pwd or du -s -h

du -sg g means giga m mega k kilobyte

du -sh file/foldername

watch command ies watch ls (executes command at regular interval)

watch -n 5 ls refresh at the rate of 5 sec (press ctrl+c to quit)

**head** <filename> print first10 lines of file

tail <filename> print last 10linse

head -n 4 filename or head -4 filename will pirnt 4 lines of file

tail -f filename will hangor follow ie it will keep in checking for the file changes

head file1name file2name 10 lines for both files

f**ind is** used for finding file in diretory hiererhy

find seachdirectory -name filename/directoryname

find searchdirectory -name \*.txt

find searchdirectory -mtime -5 seach files which were created within last 5 days

**wc** filename will give in file

wc -l/w/c filename

**cal**

cal 2019

cal 3 2014 3rd month of 2014

cal -2 2014 first 2 months of 2014

**date**

date print det

date -s “11/20/2020 17:00:00” to set system date in quotes as string

date “+%d%h-%y” print 20Jan-20

run multiple commands

ls ; pwd all commands separated by comman will be executed

ls && pwd first or second commnd will be executed depending on result of firrst command

Ls && pwd no command will be executed

ls && Pwd only ls will be executed

ls || pwd only ls will be executed

Ls||pwd pdw will be executed

t**o find text**

grep -Ril "text-to-find-here" /

**apt-get**

sudo apt-get install packagename

sudo apt-get remove packagenem will remove package not the libaraires installed dureing package installation

sudo apt -get –parse packagename will remove package and associated libraries

**version**

packagename -version

**ifconfig**

interface connection configration

ifconfig : give info of connections

inconfig eth0 up/down enable/disable eth0

**tar**

tap archive just like zip

tar -cvf c creating archive v verbose f filename

ie to make zip of test folder $ tar -cvf test.tar test f need to be used to givefilename

tar -x x extarcting $ tar -xf test.tar

**tar.gz**

gz means gzip wil craeate zip in tar.gz file

tar -czf $ tar -czf test.tar.gz test ;remember z need ot come after c

simailaly tar -xzf test.tar.gz

**grep**

grep global representative enviorenmetn print case sensitive

grep -i “paterntosearchfor” filename eg grep “hello” hello.txt make case insensitive

will print lines containing hello

grep -in “patterntosearch” filename will print line number aslo

grep -in “patterntosearch” filename1 filename2 searching multiple files

grep -v “pattern” filename will print all lines **not c**ontaing pattern

**netstat**

netstat -a

netstat -a | less

**important**

command1 | command2 output of command1 will be used by command2

ls | grep “hleello” will print files having name hello in their name from all files l**isted**

**ssh**  secure shell

ssh [user@ipadress](mailto:user@ipadress) -p portnumber

ssh localhost check open ssh sever is installed(this need to be installed for accessing for other os to acces this system via terminal

sudo apt-get openssh -sever to install open sshserver

now if open server is installled

ssh localhost

it will login you to your own system via terminal

ssh filename ipadress ie ssh test.txt 192.168.0.15:/home/amit/Desktop/test.txt

ssh ipadress to login ipadress

ssh -x ipadress allow to use graphix applications

connecting server iucaa usage

<https://www.digitalocean.com/community/tutorials/how-to-set-up-ssh-keys--2>

you need to add someone's public key to your authorised keys ot allow him to use your adresss.

**Locate find**

locate -b \*creat\*fits\*.py # -b for case insensitive

**Craeting Links in Linux**

ln -sf filename linkname ## -s soft link, f-force

in absence of -s, it will crate a hard copy of teh file but bot files will be linked. Its like twoo mirror copies of teh file. You cant create hard copy of a file on different disk.

In absence of linkname it will use the filename as the link name.

**Install** package to specific version of python

sudo python2.7 -m pip install pandas

install package with pip to a particular location

pip install package\_name -t /*home/amit/Desktop/*

*To install pipeline to a particular location*

*sudo python setup.py install --install-scripts /home/amit/python\_packages\_for\_weaklens\_pipeline/*

pip install boost -t /mnt/home/student/camit/.local/lib/python3.7/site-packages/

Install gsl:

see how\_how\_to\_installl file on my (surhud’s modified wp by amit) repository weaklens

How to install boost: