1. **What is Linux? Components in Linux?**

Ans: - Linux is an Operating system (Just like Windows and Mac) based on UNIX it was developed by Linus Torvalds in 1991. In Simple words, OS is bridge between s/w and h/w.

There are mainly 3 components in Linux – hardware, Kernel, and Shell

**Hardware:** Peripheral devices such as RAM, HDD, CPU together constitute Hardware layer for the LINUX operating system.

**Kernel: The core part of Linux OS is called Kernel.** It is the first program to get loaded on system start-up. Every click of our mouse is processed through the kernel**. It is used for many activities in Linux like it directly interacts with hardware, which provides low level services like providing hardware details to the system.**

**2-types in kernel (Monolithic and Micro)**

**Monolithic: -**

* **All processes are executed under kernel space in privileged mode**
* **Kernel size is bigger when compared to micro**
* **Provides faster execution of processes**
* **If single process crashes it will cause the entire s/y crash**
* **Difficult to extend and maintenance is more time and resource consuming**
* **Harder to Debug and less secure**

**Micro kernel: -**

* Only the most important processes execute under kernel space. All other processes are executed under user space
* Kernel size is smaller
* Process execution is slower
* A single process crashes will have no impact on the other processes
* Easily extendable and easily maintainable
* Easy to Debug and more secure

**Shell:** - It is an interface b/w kernel and user. It hides the complexity of functions of the kernel from the User. It accepts commands from users and perform the actions

* **Bash Shell: -** The Bash Shell stands for Bourne again shell and it is the default shell of many Linux distributions today. This shell is very well compatible with the Bourne shell and carries many improvements over the Bourne shell. Some of the improvements are Job control, command-line editing, unlimited size command history, etc.  
  Below are some of the examples of commands:
* C Shell
* TENEXT C Shell
* Korn Shell
* Z shell
* Fish shell

1. **What is Unix? Diff b/w Linux and Unix?**

Unix originally began as a propriety operating system from Bell Laboratories, which later on spawned into different commercial versions. On the other hand, Linux is free, open source.

**Advantages of Linux: -**

* + Linux is opensource it can be downloaded from the internet. There is no cost for registration, updates or any thing
  + It is flexible. Can be downloaded on any system. If user not sure what OS on his machine can be installed, he can go for Linux
  + Linux is developed in a way it can run all the time without any reboot and because of this many appl runs on Linux servers
  + More secure
  + Linux can be customized as per requirement and bug fixes are very fast as it is open source and we can find many people available on the internet for solutions.

1. **What is LILO?**

Ans: - It is a boot loaded of Linux. It used to load the Linux OS into main memory so that it can begin its operations

1. **Diff b/w DOS and Bash?**

* Bash commands are case sensitive while DOS commands are not
* Under BASH, / character is a directory separator and \ acts as an escape character. Under DOS, / serves as a command argument delimiter and \ is the directory separator
* DOS follows a convention in naming files, which is 8-character file name followed by a dot and 3 characters for the extension. BASH follows no such convention.

1. **What is Swap space in Linux?**

Ans: - Swap space is a certain amount of space used by Linux to temporarily hold some programs that are running con currently. This happens when RAM doesn’t have enough memory to hold all the programs that are executing.

1. **What are all the process sates in Linux?**

* **Ready**: The process is created and is ready to run
* **Running:**The process is being executed
* **Blocked or wait:**Process is waiting for input from the user
* **Terminated or Completed:**Process completed execution, or was terminated by the Operating System
* **Zombie:**Process terminated, but the information still exists in the process table.

1. **What is daemon process?**

Ans: - A daemon (also known as background processes) is a Linux or UNIX program that runs in the background. Almost all daemons have names that end with the letter "d". For example, httpd the daemon that handles the Apache server, or, sshd which handles SSH remote access connections. Linux often start daemons at boot time.

1. **How to create folder in Linux?**

**mkdir** – to create a directory

**mkdir -p folder1/folder2/folder3** – to create nested directories

**mkdir dir1 dir2 dir3** – to create multiple folders at a time

**tree** – to see the file and folder structure

1. **How to create and delete files in Linux?**

**touch filename** – to create empty file

**touch .filename** – to create hidden file

**cat filename** – to view the content of file

**cat filename1 filename2** – to view content of multiple files

**cat > filename** – to create file and add the content at a time

**cat -b filename** – to add line numbers to nonblank lines

**cat -n filename** – to add line numbers to all lines

**cat -s filename** – to squeeze blank lines into one single line

**cat -E filename** – it will append $ end of each line

**rm -dir** – to remove directory

**rm** – to remove file

**rm -rf** – to remove files recursively and forcefully

**rm -f** – to remove file forcefully

1. **List of Copy commands used in Linux?**

**cp devops /home/sravani/sravani2/devops1** – It will copy the content whatever in devops to devops1. Nothing but it will replace the content in devops1

**cp devops1 techies** --- it creates the file techies and copy the content whatever in devops1 to techies

**cp f1 f2 f3 pathname** --- It used to copy multiple files at a time to specified path

**cp -p** -- To copy a file to a new file and preserve the modification date, time, and access control list associated with the source file

**cp -r** – used to recursive copy for copying directories, it also copies the hidden files

**cp -v filename1 filename2** --it tells about what is going on. That is verbose

1. **List of Find commands used in Linux?**

**find /root -name filename** – to search by filename

**find /root -inum** – to search by using I node number

**find pathname -name “\*srav**” – to find all srav files from given directory

**find -type f -empty** – to find empty file within directory

**find / -name “\*conf” -mtime -7** – to find the list of all files in the entire file system that end with the characters conf and have been modified in the last 7 days

**find /home/sravs/ -name “\*conf” -mtime -3** – it filters sravs directory for files end with conf and have been modified in previous 3 days.

1. **List of Cut commands?**

**cut -c 2,5,7 sravs** – It will cut and print the 2,5, and 7 characters from sravs file

**cut -c 2 -7 sravs** – it will curt and print the characters from 2-7

**cut -d: -f1 passwd**- it will give first string from passwd file

1. **List of commands used to replace the content**

**‘>’** – It is to override the existing content of the file (eg :- cat > sravs)

**‘>>’** – it used to append the new content to the file (Eg :- cat >> sravs)

**sed** --- this command used to replace the content

**sed ‘s/sravs/Sravani/g’ filename** – it searches for the sravs word and replace with Sravani from given file

**wc sravs** --- to check line and characters count from file sravs

E.g: - 23 123 234

23 – lines, 123 – words, 234 – characters

**wc -l filename** – it gives line count from file

**wc -w filename** – it gives word count

**wc -c and wc -m** – these used to get character count from file

**zcat filename** – to check content of a compressed file

1. **List of commands used to create users and groups in Linux?**

When you create user, it will automatically create: -

* User and group id’s
* Mailbox
* Primary group
* Home directory

**adduser** --- To add a user

**passwd** – To set password for created user

**addgroup** – to add a group

**deluser** – to delete a user

**gpasswd -a ‘username’ ‘groupname’** – to add user to a group

**gpasswd -m user1, user2 ‘groupname’** – to add multiple users to a group

**gpasswd -d ‘username’ groupname’** – to delete a user from group

1. **How to check CPU and memory usage?**

**top and htop**– it will CPU and memory usage

**top +c** – gives to top 10 processes

**free** -m – to check memory stats

**vmstat** -s – to check complete memory stats (active, inactive, total used etc.)

1. **How to give permissions to users and groups?**

chmod --- change mode which is used to give permissions

+ --- to give permission and ‘-‘– to remove permission

E.g :- **chmod <user/group/>(+/-/=)<permission><filename>**

**Numbering in permissions: -**

**Read =4 write =2 execute =1**

**Owner/user -u**

**Group -g**

**Others-o**

**Chmod 777** -- > to give all permissions

**ls -l** – to see current permissions

**chmod o+x ‘filename’**- to give execute permission to other on given file

**chmod u-w,g+w,o-x ‘filename’** – to remove write access to user, add write access to group and to remove execute option to others for the given file

**chmod ugo=rwx ‘filename’** – to give write, read and execute permission to all users for the file

**chmod u=x ‘filename’** --- it is to replace the permission

**usermod -L ‘username’** – to lock a user

**usermod -U ‘username’** – to unlock a user

**chage -l ‘username’** – to check password params for a user

**chage ‘username’** – to change password params for a user

1. **How to create link b/w to files? How to unlink?**

**ln** – to create soft link

**ln -sf file1 file2** – to create soft link

**ln -l file1 link1** – to check new soft link

1. **What is passwd, shadow and group files in Linux?**

**Passwd –** It shows you the list of users and their details

**E.g :- dev : X :505:509: : /home/dev :**

**X—** file ref of a password file

**505 –** user id

**509 –** group id

**: : --** it is to see designation

**Shadow –** it contains all the passwords in encrypted format

**Group** – it contains all the groups info

1. **What is virtualization?**

Ans: - Virtualization is refers to running one or more virtual machines on physical computer that is operated by Linux OS. Popular Linux Virtualization are VMWare, VirtualBox and KVM

1. **What is process id and I node?**

Ans: - **inode** is the unique name given by the operating system to each file. Similarly, **process id** is the unique id given to each process.

1. **What is GNU?**

Ans: - Free software movement allows several advantages, such as the freedom to run programs for any purpose and freedom to study and modify a program to your needs. It also allows you to redistribute copies of software to other people, as well as the freedom to improve software and have it released for the public.

1. **List of Sort, Move and grep commands?**

**Sort ‘filename’**– It sorts the content of file in alphabetic order

**Sort -u ‘filename’** – it sorts and give the unique data (remove duplicates)

**Sort -d ‘filename’** – it sorts the numbers in sequence

**grep ‘string’ filename** – it will search for the given string in the file

**grep -I ‘string’ filename** – it ignores case sensitive and search for the given string from file

**grep -v ‘string’ filename** – it excludes the given string

**mv filename pathname** – it is to move file to specified path

**$ echo $SHELL** --- To check which shell you are using

**ssh username@ipadd** – to login into other system in your network from your s/y

**VI editor: -** view editor there are 3 modes in it. Default will be command mode

* **Command mode**
* **Insert mode**
* **Colon/extended mode**

Once you open the file in vi mode below are the commands used mostly: -

**Press G** – to go to last line in vi editor

**Press gg** – to go to first line

**Press w** – to move word by word

**Press 5w** – to move cursors to 5 words each time

**Press b** – to go to backward direction

**Press yy** – to copy the content from the line

**Press p** – to paste the copied content

**Press dd** – to delete a line

**Press 3dd** – to delete 3 lines at a time

**Press dw** – to delete words in backward direction

**Press x**- to delete character by character

**U and u** – for undo and redo

**Note**: - in command mode we can’t insert any data

**Insert mode: -** once you open the file press I to insert the date into the file

**Colon mode: -** Once you insert the data press ESC and enter to save the data

**:w!** – to save forcefully in vi editor

**:q!** – to Quit forcefully

**:wq!** – forcefully save and quit

**:senu** – to see numbers for each line

**:3** – to go to particular line here it takes you to line 3

**:se nonu**—if you don’t want to see line numbers it will help

**:x** to give file name to save file if you are creating new one

**GIT/GIT HUB interview questions: -**

1)What is GIT and diff b/w Git and GitHub?

2)What is your role in using GIT in your project?

3)What is different areas in GIT?

4)what is branching in git?

5)tell about git stash?

6)tell about merging in git?

7)tell about configuration and commands used for it?

8)what is Bare repo and Non-Bare repo in git?

9)tell about cloning/fork and checkout in git?

10)what language git use? And why?

11)tell about push and pull in git?

12)what is diff in git and commands in it?

13)how to check list of merged branches?

14)how to check list of non-merged branches?

15)what is Head in git?

16)commands used for undo in working area?

17)commands used for undo in staging area?

18)commands used for undo in committing area?

19)how to see the reference logs in git?

20)tell about tags in git?

21)how does rebase works in git?

22)what is squashing and use of it?

23)what is git stash pop used for?

24) What is version control system? And uses?

25)what is source code?

26)Diff between distributed and centralized VCS?