LINUX COMMANDS INTERVIEW QUESTIONS

Mithun Technologies, +91 99809 23226, devopstrainingblr@gmail.com

Linux Commands Interview Questions

1) What command is used to count the total number of lines, words, and characters contained in a file?

A. countw

B. wcount

C. **Wc** – Word Count

D. count p

E. None of the above

Ans)

2)What command is used to remove files?

A. dm

B. Rm –

C. delete

D. erase

E. None of the above

Ans)

3)What command is used to remove the directory?

A. rdir

B. remove

C. rd

D. rmdir

E. None of the above

Ans)

4)What command is used with vi editor to delete a single character?

A. x

B. y

C. a

D. z

Ans)

5) Which of the following command can you execute to count the number of lines in a file?

A. lc

B. wc - l

C. cl

D. count

E. None of the above

Ans)

6) Which of the following is not a communication command?

A. Grep - It is used to search text and strings in a given file. In other words, grep command searches the given file for lines containing a match to the given strings or words.

B. mail

C. mesg

D. write

E. None of the above

7) What command is used to display the characteristics of a process?

A. au

B. Ps – process status.

C. du

D. pid

E. None of the above

8) What command is used to list contents of directories?

A. tar

B. dir

C. lp

D. Ls - List

E. None of the above

9) Command used to create an empty file.

A. mtfile
B. **touch**
C. intouch
D. file

10) .....command is used to show the logger or user

A. ?
B.Who
B. No of
D. ???

Ans)who

11. What command clears the contents of your terminal display?

Ans) Clear

12. what is the command to create the ssh key?

Ans) ssh-keygen (secure shell)

13. What do you type in to move to the parent directory?

Ans)

To navigate into the root directory, use "cd /"
To navigate to your home directory, use "cd" or "cd ~"
To navigate up one directory level, use "cd .."
To navigate to the previous directory (or back), use "cd -"

14. What command is used to change directories?

Ans) CD command (change directory)

15. What command is used to get the ip address of all interfaces on a server?

Ans) ifconfig command

16. What command is used to change ownership of a file?

Ans) chown command

17. What command is used to copy a file?

Ans) CP Command

18. What command(s) shows you disk partitions and percentage of disk space used?

Ans) df command – Shows the amount of disk space used and available on Linux file systems. **du command** – Display the amount of disk space used by the specified files and for each subdirectory

19. What command shows you how long it has been since the server was

rebooted?
Ans) who-b

20. What command shows you what directory you are in?
Ans) **pwd command**.

21. What command creates an empty directory?
Ans) **mkdir**

22. What command displays your current username?
Ans) **whoami**

23. What command shows you CPU and memory utilization for running processes?
Ans) **top command**

24. What command allows you to open and view a file one page at a time?
Ans) Combining the **cat command with the pg command** allows you to read the contents of a file one full screen at a time.

25. Which command(s) show users that are logged in?
Ans) **w command**

26. What command is used to change a file name?
Ans) **mv command**

27. What is the command to switch to the root user account?
Ans) **sudo su -**

28. What command is used to change the permissions of a file?
Ans) **chmod command**

29. What is the command to change your password?
Ans) `passwd [username]`

30. What command is used to display your previous commands?
Ans) **history**

Test - 2

1) What can you type at a command line to determine which shell you are using?
Ans)

- **ps -p $$ – Display your current shell name reliably.**
- **echo "$SHELL" – Print the shell for the current user but not necessarily the shell that is running at the movement.**

2) What is RPM?
Ans) RPM Package Manager (also known as RPM), originally called the Red-hat Package Manager, is an open-source program for **installing, uninstalling, and managing software packages** in Linux.

3) What is apt-get?

Ans) apt-get is a command line tool for interacting with the Advanced Package Tool (APT) library (a package management system for Linux distributions). It allows you to search for, install, manage, update, and remove software. (not for redhat)

4) What is the command to create user in Linux server?

Ans) useradd

5) What is the difference between rm and rmdir commands?

Ans) **The rm command removes complete directories, including subdirectories and files. The rmdir command removes empty directories.**

6) What is the command to display the user information like (users login name, real name, terminal name,shell)

Ans) **finger command is used to search information about a user on Linux. It doesn't come per-installed on many Linux systems. To install it on your system, run this command on the terminal. It shows a user's real name; home directory; shell; login: name, time; and so much more as below.**

7) What is the command to download any software from internet?

Ans) **Wget is a free GNU command-line utility tool used to download files from the internet. It retrieves files using HTTP, HTTPS, and FTP protocols. It serves as a tool to sustain unstable and slow network connections.**

8) What is the command to display the jobs that you are running in the background and in the foreground?

Ans) **Jobs Command: Jobs command is used to list the jobs that you are running in the background and in the foreground.**

9) How to check the status of one service?

Ans) **systemctl status**

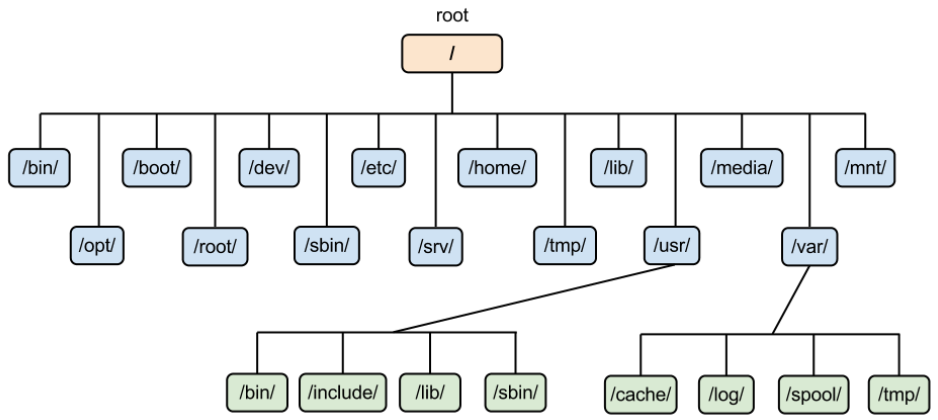
10) What is the command which will gives the description about any command?

Ans) **whatis command in Linux is used to get a one-line manual page descriptions. In Linux, each manual page has some sort of description within it.**

Test 3

Explain the file system hierarchy in Linux system?

Ans)

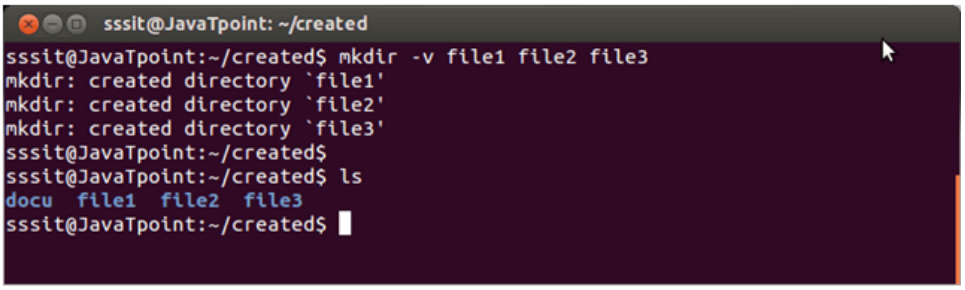


What is mkdir command and what is the -v, -p and -m options with mkdir command?

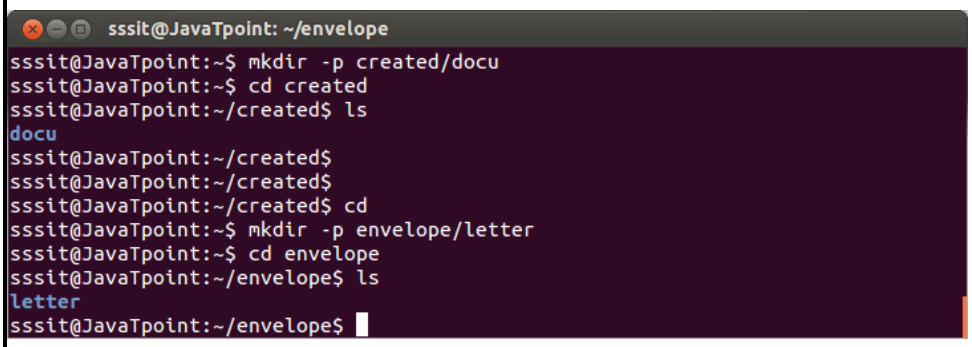
Ans) **The mkdir command creates one or more directory**

elements.

mkdir -v' command will print a message with every new file created.



mkdir -p command you can create sub-directories of a directory. It will create parent directory first, if it doesn't exist. But if it already exists, then it will not print an error message and will move further to create sub-directories.



What is ls -ltr? In this what is l,t and r?
Ans)

$ ls -ltr : To sort the file names in the last modification time in reverse order. This will be showing the last edited file in the last line which will be handy when the listing goes beyond a page.

s -l : As mentioned earlier -l will show the entries as a long list along with various attributes. ls -ltr : -t option will sort the entries by modification date (with newest first) -r will reverse the sorting order.

How to list all hidden files and hidden directories?
Ans) ls -a | grep '^\.'
ls -ld .*

How to display only directories?

Ans) **ls -d */ --> It will display only directories. ls -l | grep '^d'**
ls -l | grep d

How to display only files?
Ans) **ls -l**

What is cd -?
What is cd ~?
What is cd?

To navigate into the root directory, use "cd /"
To navigate to your home directory, use "cd" or "cd ~"
To navigate up one directory level, use "cd .."
To navigate to the previous directory (or back), use "cd -"

Which user account is created on Linux while installation?
Ans) root user

What is the use of file command?
Ans) file command is used to determine the type of a file. .file type may be of human-readable(e.g. 'ASCII text') or MIME type(e.g. 'text/plain; charset=us-ascii'). This command tests each argument in an attempt to categorize it.

How to check the RAM size?
Ans) Using free command

How to check the server resources utilisation?
Ans) Using top command

How to check the CPU and Memory statistics?
Ans) Using vmstat command

How to search the files with various conditions like empty files, based on size...?
Ans) `$ find . -size 6M (m denotes megabytes)`

How to set the permissions for files or directories?
Ans) Using chmod command

What is Umask?
Ans) Default file and directory permissions.

How to set the umask permanently for aa user?
Ans) vim ~/.bashrc

How to check open ports on local system?
Ans) netstat -tunlp

How to check open ports on remote server?
Ans) nmap -A serverIp

How to check which services are enable across reboot?
Ans) chkconfig --list

What is load average in Linux?
Ans) Load average is defined as the average sum of the number of processes waiting in the ru queue and number of processes

currently executing over the period of 1, 5and 15 minutes. Using the 'top' and 'uptime' command we find the load average of a Linux server.

What is partial backup?
Ans) A partial backup is any operating system backup short of a full backup, taken while the database is open or shut down.

when you select single partition for single folder for backup on your server.
Ans)

How can we review boot message?
Ans) dmesg command

What are the fields in the/etc/passwd file?
Ans) user:pass:uid:gid:comment for user:user's home dir:user's login shell.

How to check which RPM provides/etc/shadow file?
Ans) rpm -gf /etc/passwd

In which file the password are saved for each user?
Ans) etc/passwd file.

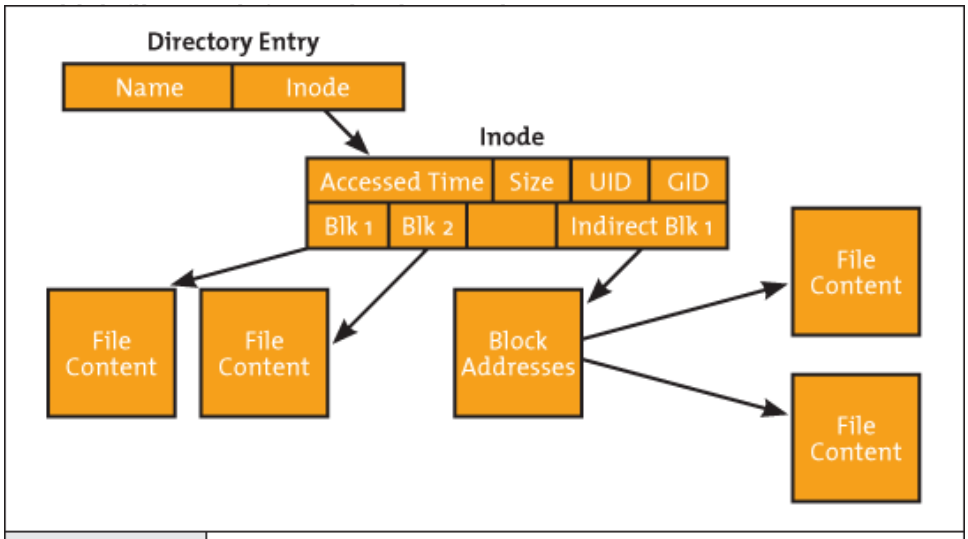


FIGURE 1 RELATIONSHIP BETWEEN THE DIRECTORY ENTRY, AN INODE, AND BLOCKS OF AN ALLOCATED FILE

Explain and if we not declared here what will happen?
Ans)

What is Vcpu,if vcpu % more than 1 what will happen?
Ans)

To display the number of virtual processor(cpu) on linux vps, you have to run any of this command : 1. This command will display exact number of virtual cpu (vCPU) : [root@centos62 ~]# cat /proc/cpuinfo | grep processor | wc -l 2. 2.

How you will find out memory details and explain about swap memory?
Ans)

1. **Open the command line.**
2. **Type the following command: grep MemTotal /proc/meminfo.**
3. **You should see something similar to the following as output: MemTotal: 4194304 kB.**
4. **This is your total available memory.**

or

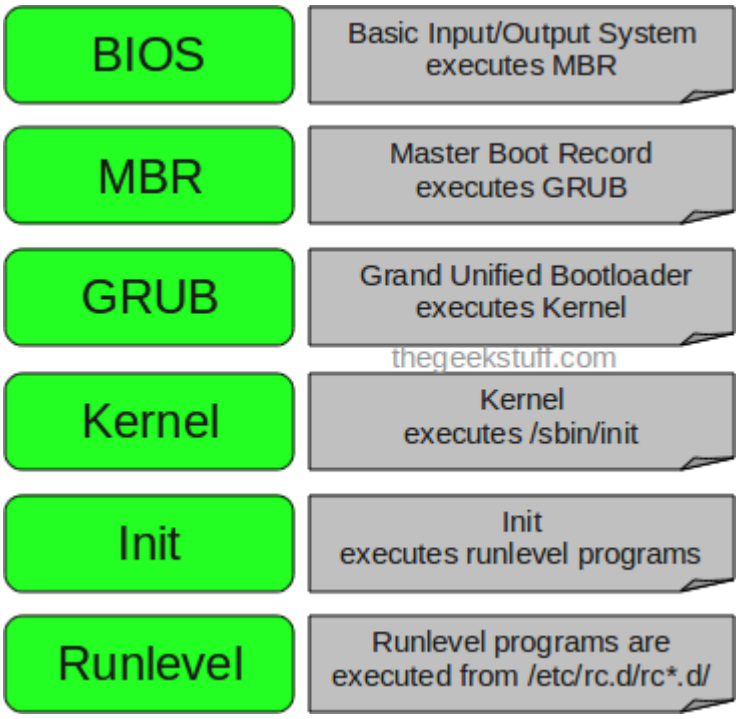
free command. The free command is the most simple and easy to use command to check memory usage on

linux

Swap space in Linux is used when the amount of physical memory (RAM) is full. If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM.

Write a command for 5 days older files with extension of .log , those files want to move it different directory?
Ans)

Booting process? Explain about run levels? what is default run levels?
Ans)



1. BIOS

- **BIOS stands for Basic Input/Output System**
- **Performs some system integrity checks**
- **Searches, loads, and executes the boot loader program.**
- **It looks for boot loader in floppy, cd-rom, or hard drive. You can press a key (typically F12 of F2, but it depends on your system) during the BIOS startup to change the boot sequence.**
- **Once the boot loader program is detected and loaded into the memory, BIOS gives the control to it.**
- **So, in simple terms BIOS loads and executes the MBR boot loader.**

2. MBR

- **MBR stands for Master Boot Record.**

- **It is located in the 1st sector of the bootable disk. Typically /dev/hda, or /dev/sda**
- **MBR is less than 512 bytes in size. This has three components 1) primary boot loader info in 1st 446 bytes 2) partition table info in next 64 bytes 3) mbr validation check in last 2 bytes.**
- **It contains information about GRUB (or LILO in old systems).**
- **So, in simple terms MBR loads and executes the GRUB boot loader.**

3. GRUB

- **GRUB stands for Grand Unified Bootloader.**
- **If you have multiple kernel images installed on your system, you can choose which one to be executed.**
- **GRUB displays a splash screen, waits for few seconds, if you don't enter anything, it loads the default kernel image as specified in the grub configuration file.**
- **GRUB has the knowledge of the filesystem (the older Linux loader LILO didn't understand filesystem).**
- Grub configuration file is /boot/grub/grub.conf (/etc/grub.conf is a link to this). The following is sample grub.conf of CentOS.

```
#boot=/dev/sda
default=0
timeout=5
splashimage=(hd0,0)/boot/grub/splash.xpm.gz
hiddenmenu
title CentOS (2.6.18-194.el5PAE)
          root (hd0,0)
          kernel /boot/vmlinuz-2.6.18-194.el5PAE ro root=LABEL=/
          initrd /boot/initrd-2.6.18-194.el5PAE.img
```

- As you notice from the above info, it contains kernel and initrd image.
- **So, in simple terms GRUB just loads and executes Kernel and initrd images.**

4. Kernel

The kernel is the core of any Linux system. It interfaces the PC's hardware with the underlying processes. The kernel controls all the processes on your Linux system. Once the selected Linux kernel is loaded by the bootloader, it must self extract from its compressed version before undertaking any task. Upon self-extracting, the selected kernel mounts the root file system and initializes the /sbin/init program commonly referred to as init.

- Mounts the root file system as specified in the "root=" in grub.conf
- **Kernel executes the /sbin/init program**
- **Since init was the 1st program to be executed by Linux Kernel, it has the process id (PID) of 1.** Do a 'ps -ef | grep init' and check the pid.
- **initrd stands for Initial RAM Disk.**
- **initrd is used by kernel as temporary root file system until kernel is booted and the real root file system is mounted. It also contains necessary drivers compiled inside, which helps it to access the hard**

drive partitions, and other hardware.

5. Init

- Looks at the /etc/inittab file to decide the Linux run level.
- Following are the available run levels
  - **0 – halt / shutdown**
  - **1 – Single user mode**
  - **2 – Multiuser, without Networking**
  - **3 – multiuser mode with networking**
  - **4 – unused**
  - **5 – multi-user mode with networking / x11**
  - **6 – reboot**
- Init identifies the default initlevel from /etc/inittab and uses that to load all appropriate program.
- Execute 'grep initdefault /etc/inittab' on your system to identify the default run level
- If you want to get into trouble, you can set the default run level to 0 or 6. Since you know what 0 and 6 means, probably you might not do that.
- **By default most of the LINUX based system boots to runlevel 3 or runlevel 5. In addition to the standard runlevels, users can modify the preset runlevels or even create new ones according to the requirement.**

6. Runlevel programs

- **When the Linux system is booting up, you might see various services getting started. For example, it might say "starting sendmail .... OK". Those are the runlevel programs, executed from the run level directory as defined by your run level.**
- Depending on your default init level setting, the system will execute the programs from one of the following directories.
  - Run level 0 – /etc/rc.d/rc0.d/
  - Run level 1 – /etc/rc.d/rc1.d/
  - Run level 2 – /etc/rc.d/rc2.d/
  - Run level 3 – /etc/rc.d/rc3.d/
  - Run level 4 – /etc/rc.d/rc4.d/
  - Run level 5 – /etc/rc.d/rc5.d/
  - Run level 6 – /etc/rc.d/rc6.d/
- Please note that there are also symbolic links available for these directory under /etc directly. So, /etc/rc0.d is linked to /etc/rc.d/rc0.d.
- Under the /etc/rc.d/rc*.d/ directories, you would see programs that start with S and K.
- **Programs starts with S are used during startup. S for startup.**
- **Programs starts with K are used during shutdown. K for kill.**
- **There are numbers right next to S and K in the program names. Those are the sequence number in which the programs should be started or killed.**
- For example, S12syslog is to start the syslog deamon, which has the sequence number of 12. S80sendmail is to start the sendmail daemon, which has the sequence number of 80. So, syslog program will be started before sendmail.

How will you find out top ten process?
Ans) **Htop**

How to check open files in sever?
Ans) **lsof** command stands for **List Of Open File**. This command provides a list of files that are opened. Basically, it gives the information to find out the files which are opened by which process. With one go it lists out all open files in output console.

Directory special permissions?
Ans) **The permissions should be read, write, and execute for the owner, group, and everyone else, on directories that have the sticky bit set. This allows anyone to cd into the directory and create files.**

What is sticky bit?

Ans) In Unix-like operating systems, a sticky bit is a permission bit which is set on a file or folder, thereby permitting only the owner or root user of the file or folder to modify, rename or delete the concerned directory or file. No other user would be permitted to have these privileges on a file which has a sticky bit.

What is NFS?
Ans)

Network File Sharing (NFS) is a protocol that allows you to share directories and files with other Linux clients over a network.

What it gives/displays if you execute mount -a?
Ans)

mount command is used to mount the filesystem found on a device to big tree structure(Linux filesystem) rooted at '/'. Conversely, another command umount can be used to detach these devices from the Tree.

l : Lists all the file systems mounted yet.
h : Displays options for command.
V : Displays the version information.
a : Mounts all devices described at /etc/fstab.
t : Type of filesystem device uses.
T : Describes an alternative fstab file.
r : Read-only mode mounted.

I have a file in some location. How to find that file. in that file how to display the

particular content(already I know the content) ?
Ans)

How to find a port that is enable or not?

Ans) sudo netstat -tulpn | grep LISTEN. - displays all the ports.

What is SSL?

Ans) SSL stands for Secure Sockets Layer and, in short, it's the standard technology for keeping an internet connection secure and safeguarding any sensitive data that is being sent between two systems, preventing criminals from reading and modifying any information transferred, including potential personal details.

What is GRUB?

- **GRUB stands for Grand Unified Bootloader.**
- **If you have multiple kernel images installed on your system, you can choose which one to be executed.**
- **GRUB displays a splash screen, waits for few seconds, if you don't enter anything, it loads the default kernel image as specified in the grub configuration file.**

Explain soft link and hard link? What is the difference? When you use?

Ans) A hard link acts as a copy (mirrored) of the selected file. It accesses the data available in the original file.
If the earlier selected file is deleted, the hard link to the file will still contain the data of that file.

Soft Link :
A soft link (also known as Symbolic link) acts as a pointer or a reference to the file name. It does not access the data available in the original file. If the earlier file is deleted, the soft link will be pointing to a file that does not exist anymore.

Sr.No	Link("ln" or Hard Link)	Soft OR Symbolic link ("symlink")
1	Old file should be existing and new is not to create this link	Both new and old files may be new or existing ones.
2	Both the old and new files will have same "inode" numbers	Both the files will have different "inode" numbers.
3	Both the files will have same permissions(Generally speaking "-rw-r- -r--)	Old file will have ""-rw-r- - r - -" and new file will have "lrwxrwxrwx".
4	Both will have link entry as "2"	It differs
5	**$chmod** command executed on one file will affect the other file	You cannot "chmod" on new file and it will be as it is.
6	Both the files will have same sizes	Many a times old file will be larger than the new file, as new file contains only path and inode number.
7	**"$rm"** command works on both the files	We can remove both the files
8	Change of file contents in one file changes the other file	Same here

What is the first statement in shell scripting?

Ans) The first line called a hashbang or shebang. It tells Unix that this script should be run through the /bin/bash shell. Second line is just the echo statement, which prints the words after it to the terminal.

#!/bin/bash

Explan about Process and threads?

Ans)

A process is a task that your Linux machine is currently working on. For example, when you open a browser, your machine creates a process for it.

A thread is a lightweight process also called an LWP. A process has its own memory. A thread shares the memory with the parent process and other threads within the process.

What is zombie proces?

Ans) Zombie processes in Linux are sometimes also referred to as defunct or dead processes. They're processes that have completed their execution, but their entries are not removed from the process table.

How will you find out what are the files using by particular process?
Ans)

lsof command stands for List Of Open File. This command provides a list of files that are opened. Basically, it gives the information to find out the files which are opened by which process.

What is zone file?
Ans)

A zone file consists of directives and resource records. Zone files contain the IP and name data, MX records and other service records. They also contain glue data that connects them to the other DNS servers.

How can you prevent anyone from scheduling a cronjob?

A) Delete the file /etc/cron.deny
B) Create an empty file called /etc/cron.deny
C) Create two empty files: /etc/cron.deny and /etc/cron.allow
D) Create an empty file called /etc/cron.allow

Ans) D

Using command substitution, how would you display the value of the present working directory?
A) echo $(pwd)
B) echo pwd
C) $pwd
D) pwd|echo

Ans) A

Explanation: The echo command can be used to display the contents of variables. The present working directory is held in the pwd variable. echo $(pwd) will display the contents of the pwd variable. Other commands that would work are echo $ PWD and echo "$PWD".
Reference: http://www.bolthole.com/solaris/ksh-beforeyoustart.html
Incorrect Answers:

B:echo pwd would display the text ‘pwd’.
C:$pwd doesn’t do anything although $PWD would work.
D:pwd | echo doesn’t do anything.

Which file contains the default environment variables when using the bash shell?

A) ~/.profile
B) /bash
C) /etc/profile
D) ~/bash

Ans) C

Explanation:
The /etc/profile file contains the system default environment variables for the bash shell.

What is Crontab?
Ans)

The crontab is a list of commands that you want to run on a regular schedule

Linux Crontab Format

MIN HOUR
DOM MON DOW
CMD

Whats is vmstat and memstat?
Ans)

memstat lists all accessible processes, executables, and shared libraries that are using up virtual memory.

Virtual memory statistics reporter, also known as vmstat , is a Linux command-line tool that reports various bits of system information. Things like memory, paging, processes, IO, CPU, and disk scheduling are all included in the array of information provided.

How to change run levels?
Ans)

Use the init command to change run levels:

init 1

What is Linux Loader?
Ans)

LILO stands for Linux Loader that is used to load Linux into memory. It can boot operating systems from floppy disks, hard disks, and it does not depend on a specific file system.

What is stateless Linux server?
Ans)

A stateless Linux server is a centralized server in which no state exists on the single workstations. There may be scenarios when a state of a partilcuar system is meaningful (A snap shot is taken then) and the user wants all the other machines to be in that state.

A process is identified by a unique
a)**pid**
b)id
c) processid
d)proid

Ans)

Which of the following is the BEST way to set up SSH(Secure Shell) for communicating between Systems without needing passwords?

A) Use ssh-keygen for generating public-private keys.
B) Disable passwords on specific accounts that will use SSH.
C) Both A and B
D) None of the above

Ans)

Given a file, replace all occurrence of word "mithun" with "manan" from 5th line till end in only those lines that contains word "ruthvik"
Ans)
Given file is mithuntechnologies.txt
sed -n `5,$p` mithuntechnologies.txt | sed '/ ruthvik/s/ mithun/manan/

1) In Ubuntu server I have fired a command"cat/etc/lsb-release", what it will gives me?
Ans) It will give the version of the software and release name like below.

```
root@b3d60c26b7d0:/etc# cat lsb-release
DISTRIB_ID=Ubuntu
DISTRIB_RELEASE=16.04
DISTRIB_CODENAME=xenial
DISTRIB_DESCRIPTION="Ubuntu 16.04.3 LTS"
root@b3d60c26b7d0:/etc# cat os-release
NAME="Ubuntu"
VERSION="16.04.3 LTS (Xenial Xerus)"
ID=ubuntu
ID_LIKE=debian
PRETTY_NAME="Ubuntu 16.04.3 LTS"
VERSION_ID="16.04"
HOME_URL="http://www.ubuntu.com/"
SUPPORT_URL="http://help.ubuntu.com/"
BUG_REPORT_URL="http://bugs.launchpad.net/ubuntu/"
VERSION_CODENAME=xenial
UBUNTU_CODENAME=xenial
root@b3d60c26b7d0:/etc#
```

LSB: Linux Standard Base tools

2) The command uname –a what it will gives me?
Ans) uname command will print the system information like kernel, hardware, operation system info…etc

uname -a : it will print all information like kernel-name, kernel-release, node hostname…etc

```
[devops@mithuntechnologies ~]$ uname -s
Linux
[devops@mithuntechnologies ~]$ uname -n
mithuntechnologies
[devops@mithuntechnologies ~]$ uname -r
3.10.0-693.5.2.el7.x86_64
[devops@mithuntechnologies ~]$ uname -v
#1 SMP Fri Oct 20 20:32:50 UTC 2017
[devops@mithuntechnologies ~]$ uname -m
x86_64
[devops@mithuntechnologies ~]$ uname -p
x86_64
[devops@mithuntechnologies ~]$ uname -i
x86_64
[devops@mithuntechnologies ~]$ uname -a
Linux mithuntechnologies 3.10.0-693.5.2.el7.x86_64 #1 SMP Fri Oct 20 20:32:50 UTC
2017 x86_64 x86_64 x86_64 GNU/Linux
[devops@mithuntechnologies ~]$
```

3) Let say that I have one shell script, I wanted to be executed whenever the system boot time, it should not be executing at any other time, it exacted only boot time. In this scenario what will do?

Ans)

4) What is the difference between bash_profile and bashrc file in user home directory?

Ans) bash_profile is executed for login shells, while . bashrc is executed for interactive non-login shells.

5) What is Login Shell and Non Login shell

Ans) If the output is the name of our shell, prepended by a dash, then it is a login shell. For example -bash, -su etc. A Non login shell is started by a program without a login. In this case, the program just passes the name of the shell executable.

A Login shell is created after a successful login of user. For example, when you login t a Linux system via terminal, SSH or switch to user with "su -" command.

6) Can you explain me the contents in /etc/shadow file?

Ans)

- **The /etc/shadow file stores user account information. Like username, password, last password changes etc.**
- **Password is stored in encrypted format.**
- **All fields are separated by a colon**

(:) symbol. #cat /etc/shadow

```
root@e763009607d9:/# cat /etc/shadow
root:$6$tnhB/Tvd$fMlnDf3TzcX8zQ0NpgCXPlYtw2TxaXTN0k.B8iKuh1rWf1OZemgTW3glRGDrcbNC9RSCKsijRUUHhQH5jm1iu.:17434:0:99999:7:::
daemon:*:17357:0:99999:7:::
bin:*:17357:0:99999:7:::
sys:*:17357:0:99999:7:::
sync:*:17357:0:99999:7:::
games:*:17357:0:99999:7:::
man:*:17357:0:99999:7:::
lp:*:17357:0:99999:7:::
mail:*:17357:0:99999:7:::
news:*:17357:0:99999:7:::
uucp:*:17357:0:99999:7:::
proxy:*:17357:0:99999:7:::
www-data:*:17357:0:99999:7:::
backup:*:17357:0:99999:7:::
list:*:17357:0:99999:7:::
irc:*:17357:0:99999:7:::
gnats:*:17357:0:99999:7:::
nobody:*:17357:0:99999:7:::
systemd-timesync:*:17357:0:99999:7:::
systemd-network:*:17357:0:99999:7:::
systemd-resolve:*:17357:0:99999:7:::
systemd-bus-proxy:*:17357:0:99999:7:::
_apt:*:17357:0:99999:7:::
devops:$6$v.WfL9xy$P1WIlKwThn5HNReFyCALQxT2OIxUullD/Fubg3mWQGtoWsCF2A.WogFf6xu/niCtG1tHE3u/aYJsF4Hej.8tn0:17434:2:99:7:::
root@e763009607d9:/#
```

7) How is your knowledge on Linux File System?
Ans)

Linux file system is generally a built-in layer of a Linux operating system used to handle the data management of the storage. It helps to arrange the file on the disk storage. It manages the file name, file size, creation date, and much more information about a file.

8) Have you worked on /srv directory?
Ans)
The /srv/ Directory. The /srv/ directory contains site-specific data served by your system running Red Hat Enterprise Linux. This directory gives users the location of data files for a particular service, such as FTP, WWW, or CVS. Data that only pertains to a specific user should go in the /home/ directory.

9) What is the difference between /bin and /sbin directory? Ans)

/bin is a standard subdirectory of the root directory in Unix-like operating systems that contains the executable (i.e., ready to run) programs that must be available in order to attain minimal functionality for the purposes of booting (i.e., starting) and repairing a system.

/bin : For binaries usable before the /usr partition

is mounted. This is used for trivial binaries used in the very early boot stage or ones that you need to have available in booting single-user mode. Think of binaries like cat, ls, etc.
/sbin : Same, but for binaries with superuser (root) privileges required.
/usr/bin : Same as first, but for general system-wide binaries.
/usr/sbin : Same as above, but for binaries with superuser (root) privileges required.

10) What configuration we have to set to do for normal user and root user differentiation?
Ans)

The root user is basically equivalent to the administrator user on Windows — the root user has maximum permissions and can do anything to the system. Normal users on Linux run with reduced permissions — for example, they can't install software or write to system directories.

11) There is some settings which makes doesn't show some advanced commands to normal user? What are those settings?
Ans)

https://access.redhat.com/solutions/65822

12) What is PATH and what does it do?
Ans)

PATH is an environmental variable in Linux and other Unix-like operating systems that tells the shell which directories to search for executable files (i.e., ready-to-run programs) in response to commands issued by a user.

13) Which lang u prefer?
Ans) python , c , c++,java

14) Difference between $* and $@
Ans)

$* Stores all the arguments that were entered on the command line ($1 $2 ...). "$@" Stores all the arguments that were entered on the command line, individually quoted

("$1" "$2"

15) Explain about Cron Job?
Ans)

A cron job is **a Linux command used for scheduling tasks to be executed sometime in the future**. This is normally used to schedule a job that is executed periodically

16) How to check one software where is installed in Linux machine? Suppose take Jenkins.
Ans)

Run command `apt list --installed` to list all installed packages on Ubuntu
To display a list of packages satisfying certain criteria such as show matching apache2 packages, run `apt list Jenkins`

17) How to set the path which is accessible by the all the users?
Ans)

18) How to create the user?
Ans) We can create the user by using the command **'useradd'**

useradd <<User Name>>
useradd srikar

19) How to create the group?
Ans) We can create the group by using the command **'groupadd'**
groupadd <<Group Name>>
groupadd devopsteam

20) How to add user to group?
Ans) using usermod commnd we can add the user to group as follows. usermod –g <<Group Name>> <<User Name>>

21) How to check CPU utilization?
Ans) We can check the cpu utilization using top command or mpstat command.

22) What is load average?
Ans) In UNIX computing, the system load is a measure of the amount of computational work that a computer system performs. The load average represents the average system load over a period of time. It conventionally appears in the form of three numbers which represent the system load during the last 1, 5 and 15 minute periods.

Using below command we can find the load average.
uptime
top
cat
/proc/loadavg w
23) What is the difference between load average and cpu load?
Ans)

System load/CPU Load – is a measurement of CPU over or under-utilization in a Linux system; the number of processes which are being executed by the CPU or in waiting state. Load average – is the average system load calculated over a given period of time of 1, 5 and 15 minutes.

24) What is load average?
Ans) Below commands will give the load average values.

#cat /proc/loadavg

#w

#uptime

#top

load average 3.00 in prod server, but things are running fine? What is this?

Ans) On multi-processor system, the load is relative to the number of processor cores available. The "100% utilization" mark is 1.00 on a single-core system, 2.00, on a dual-core, 4.00 on a quad-core, etc.

A load of 1.00 is 100% CPU utilization on single-core box. On a dual-core box, a load of 2.00 is 100% CPU utilization.

25) What is Inode?

Ans) Inode is a data structure that contains information of a file.
The inode contains a list of all the blocks in which a file is stored, the owner information for that file, permissions, and all other attributes that are set for the file. In a sense, you could say that a file really *is* the inode, and names are attached to these inodes to make it easier for humans to work with them.

Linux® must allocate an index node (inode) for every file and directory in the filesystem. Inodes do not store actual data. Instead, they store the metadata where you can find the storage blocks of each file's data.

26) What is Sticky bit?

Ans) A Sticky bit is a permission bit that is set on a file or a directory that lets only the owner of the file/directory or the root user to delete or rename the file. No other user is given privileges to delete the file created by some other user.

To set the sticky bit for file or directory will follow like below.
chmod +o file/directory

example:
chmod o+devops.txt
chmod 1777 devops.txt

```
[devops@mithuntechnologies tmp]$ ls -l
total 0
-rw-r--r--. 1 devops devops 0 Dec 18 15:55 devops.txt
[devops@mithuntechnologies tmp]$ chmod o+t devops.txt
[devops@mithuntechnologies tmp]$ ls -l
total 0
-rw-r--r-T. 1 devops devops 0 Dec 18 15:55 devops.txt
[devops@mithuntechnologies tmp]$ chmod 1777 devops.txt
[devops@mithuntechnologies tmp]$ ls -l
total 0
-rwxrwxrwt. 1 devops devops 0 Dec 18 15:55 devops.txt
[devops@mithuntechnologies tmp]$
```

After setting Sticky Bit to a file/folder, if you see 'T' in the file permission area

that indicates the file/folder does not have executable permissions for others on that particular file/folder.

27) How to check process is in waiting state or not?

Ans) In Linux a process can be in any of the below states.

R running or runnable (on run queue)
D uninterruptible sleep (usually IO)
S interruptible sleep (waiting for an event to complete)
Z defunct/zombie, terminated but not reaped by its parent T stopped, either by a job control signal or because it is being traced
W paging (not valid since the 2.6.xx kernel) X dead (should never be seen)

A process starts its life in an R "running" state and finishes after its parent reaps it from the Z "zombie" state.

With help of top or ps command we can find the process is in which state.

https://www.cbtnuggets.com/blog/certifications/open-source/what-are-the-5-linux-process-states

```
[devops@mithuntechnologies tmp]$ top

top - 16:46:04 up 6 days, 23:15,  2 users,  load average: 0.00, 0.02, 0.05
Tasks: 199 total,   2 running, 197 sleeping,   0 stopped,   0 zombie
%Cpu(s): 18.2 us, 13.6 sy,  0.0 ni, 68.2 id,  0.0 wa,  0.0 hi,  0.0 si,  0.0 st
KiB Mem :  1016232 total,    79852 free,   561716 used,   374664 buff/cache
KiB Swap:   839676 total,   476488 free,   363188 used.   237392 avail Mem

  PID USER      PR  NI    VIRT    RES    SHR S  %CPU %MEM     TIME+ COMMAND
 1718 bhaskar+  20   0 1980424 229748  15884 S   8.0 22.6  17:25.78 gnome-shell
    1 root      20   0  193700   4340   2484 S   0.0  0.4   0:46.55 systemd
    2 root      20   0       0      0      0 S   0.0  0.0   0:00.30 kthreadd
    3 root      20   0       0      0      0 S   0.0  0.0   0:06.02 ksoftirqd/0
    5 root       0 -20       0      0      0 S   0.0  0.0   0:00.00 kworker/0:0H
    7 root      rt   0       0      0      0 S   0.0  0.0   0:00.00 migration/0
    8 root      20   0       0      0      0 S   0.0  0.0   0:00.00 rcu_bh
    9 root      20   0       0      0      0 S   0.0  0.0   0:11.10 rcu_sched
```

```
[devops@mithuntechnologies tmp]$ ps -o state,pid,command
S   PID COMMAND
S  7211 bash
S  7463 bash
S  7806 bash
S  8037 bash
S  8213 bash
R  9202 ps -o state,pid,command
S 31903 bash
[devops@mithuntechnologies tmp]$
```

28) What is process?

Ans) **A process is an instance of a program that is being executed. Processes are also frequently referred to as tasks. OR A process is the execution context of a running program.**

29) What is thread?

Ans) **Threads are "light weight processes" (LWPs).**

30) On what process the server will shutdown?
Ans)

Shutdown does its job by signalling the init process, asking it to change the runlevel. Runlevel 0 is used to halt the system, runlevel 6 is used to reboot the system, and runlevel 1 is used to put the system into a state where administrative tasks can be performed

31) How to find the empty directories in the current directory and need to delete?
Ans) **find . -type d -empty -delete**

32) How to find the empty files in current directory?
Ans) find . -type f -empty

33) How to find the empty lines in particular file and need to remove?
Ans) With help of sed command.

```
[root@mithuntechnologies devops]# cat devops.txt
Hi Guys,
My name is Mithun Reddy L.

I am working as a DevOps Engineer.

DevOps is not a technology.
[root@mithuntechnologies devops]# sed '/^\s*$/d' devops.txt
Hi Guys,
My name is Mithun Reddy L.
I am working as a DevOps Engineer.
DevOps is not a technology.
[root@mithuntechnologies devops]#
```

34) What is the umask?
Ans) UMASK (User Mask) is the default permission given when a new file or directory is created on a Linux machine. At the point when user create a file or directory under Linux or UNIX, It create with a default set of permissions. Most of the Linux distros give 022 (0022) as default UMASK. In other words, it is a system default permissions for newly created files/folders in the machine.

```
[root@mithuntechnologies devops]# umask
0022
[root@mithuntechnologies devops]#
```

35) What is max value of giving to umask?

Ans) **The minimum and maximum UMASK value for a folder is 000 and 777**
The minimum and maximum UMASK value for a file is 000 and 666

36) What is the default permissions to a file?

Ans) **It will depends on umask value. By default umask value is 022, so the default file permission ins 644 (rw-r--r--).**

```
[root@mithuntechnologies devops]# umask
0022
[root@mithuntechnologies devops]# ls -l
total 4
-rw-r--r--. 1 root root 101 Dec 18 15:05 devops.txt
[root@mithuntechnologies devops]#
```

What is the default permissions to a directory?

Ans) It will depends on umask value. By default umask value is 022, so the default directory permission ins 755 (rwxr-xr-x).

```
[root@mithuntechnologies devops]# ls -l
total 4
drwxr-xr-x. 2 root root   6 Dec 18 15:38 devops
-rw-r--r--. 1 root root 101 Dec 18 15:05 devops.txt
[root@mithuntechnologies devops]#
```

37) what is chmod?

Ans) chmod (change mode) is used to set the permissions for files and directories.

38) How to check ports in linux?

Ans) Using netstat command we can find the all the port numbers in linux server as follows. netsat -a : It will Shows both listening and non-listening (for TCP this means established connections) sockets.

#netstat -a | grep LISTENING | grep 8080

```
[root@mithuntechnologies devops]# netstat -a | grep LISTENING | grep 20696
unix  2      [ ACC ]     STREAM     LISTENING     20696    private/smtp
[root@mithuntechnologies devops]#
```

What do the following commands do?

Tr

tac

curl

wget

watch

tail –

last

10

lines

displ

aied

What does a & after a command do?

Ans) The symbol & makes the command to run in a the background. sh mithun.sh &

A background process will not stay alive after the shell session is closed. SIGHUP terminates all running processes. By default anyway. If your command is long-running or runs indefinitely you need to prefix it with nohup so it remains running after you disconnect from the session, as follows.

nohup sh mithun.sh &

What is a packet filter and how does it work?

Ans) Packet filtering is a firewall technique used to control network access by monitoring outgoing and incoming packets and allowing them to pass or halt based on the source and destination Internet Protocol (IP) addresses, protocols and ports.

Network layer firewalls define packet filtering rule sets, which provide highly efficient security mechanisms.

Packet filtering is also known as static filtering.

What is swap and what is it used for?

Ans) A computer has sufficient amount of physical memory but most of times we need more so we swap some memory on disk. Swap space is a space on hard disk which is a substitute of physical memory. It is used as virtual memory which contains process memory image. Whenever our computer run short of physical memory it uses it's virtual memory and stores information in memory on disk. Swap space helps the computer's operating system in pretending that it have more RAM than it actually has. It is also called as swap file. This interchange of data between virtual memory and real memory is called as swapping and space on disk as "swap space".

Virtual memory is a combination of RAM and disk space that running processes can use. Swap space is the portion of virtual memory that is on the hard disk, used when RAM is full.

What is the sticky bit?

Ans) A Sticky bit is a permission bit that is set on a file or a directory that lets only the owner of the file/directory or the root user to delete or rename the file. No other user is given privileges to delete the file created by some other user.

What is the difference between hardlinks and symlinks? What happens when you remove the source to a symlink/hardlink?

Ans) A hard link acts as a copy (mirrored) of the selected file. It accesses the data available in the original file.
If the earlier selected file is deleted, the hard link to the file will still contain the data of that file.

Soft Link :
A soft link (also known as Symbolic link) acts as a pointer or a reference to the file name. It does not access the data available in the original file. If the earlier file is deleted, the soft link will be pointing to a file that does not exist anymore.

What is an inode and what fields are stored in an inode?
Ans)

Linux® must allocate an index node (inode) for every file and directory in the filesystem. Inodes do not store actual data. Instead, they store the metadata where you can find the storage blocks of each file's data.

How to force/trigger a file system check on next reboot?
Ans)

touch /forcefsck

The empty file created by the command above will override any other settings for fsck and force fsck to check the filesystem on the next system reboot. Once the filesystem is checked the file will be removed so you do not have to remove the file – it will be deleted by the system after the file system check.

What is SNMP and what is it used for?
Ans)

Simple Network Management Protocol (SNMP) is a networking protocol used for the management and monitoring of network-connected devices in Internet Protocol networks.

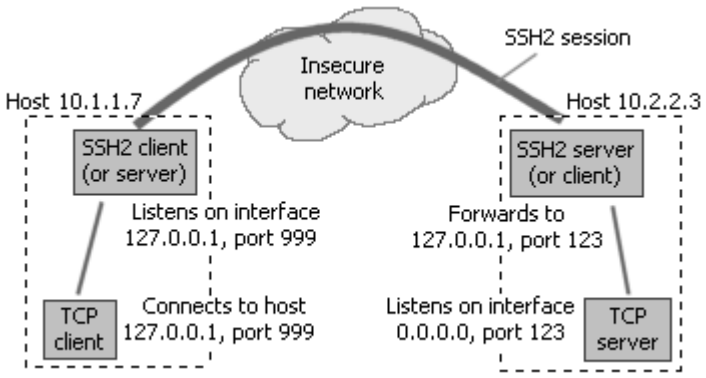
What is a runlevel and how to get the current runlevel?
Ans)

When the Linux system is booting up, you might see various services getting started. For example, it might say "starting sendmail …. OK". Those are the runlevel programs, executed from the run level directory as defined by your run level.

who –r

What is SSH port forwarding?
Ans)

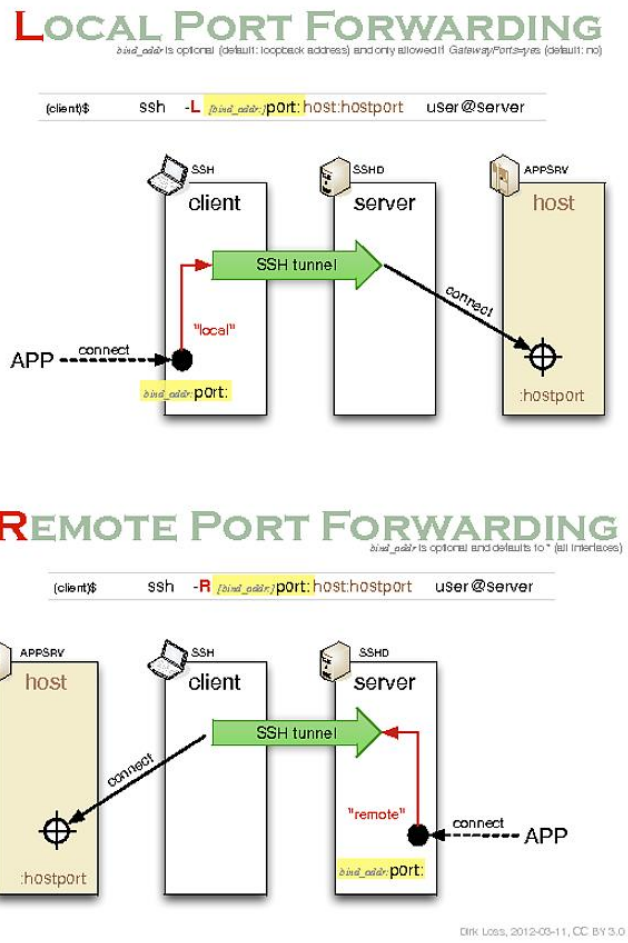
Port forwarding via SSH (SSH tunneling) creates a secure connection between a local computer and a remote machine through which services can be relayed.



What is the difference between local and remote port forwarding?
Ans)

Local port forwarding – connections from an SSH client are forwarded, via the SSH server, to a destination server. Remote port forwarding – connections from an SSH

server are forwarded, via the SSH client, to a destination server.



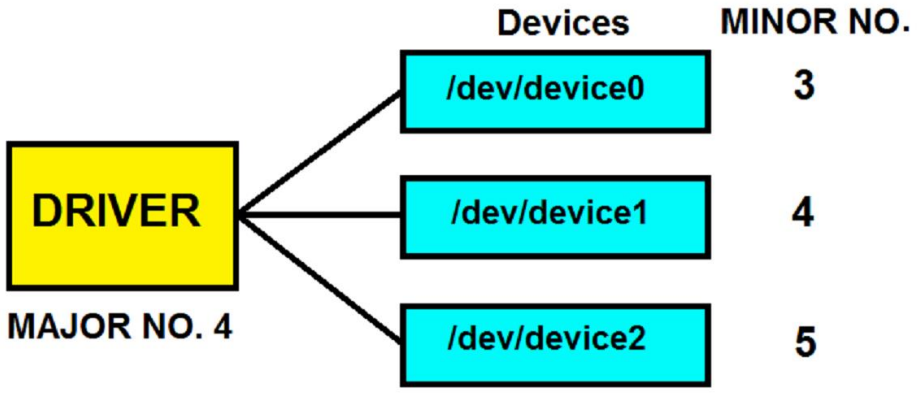
What steps to add a user to a system without using useradd/adduser?
Ans)

Add an entry for the user in /etc/passwd file.
Add an entry for the group in /etc/group file.
Create the home directory for the added user.
Set the new user password using the passwd command.

What is MAJOR and MINOR numbers of special files?
Ans)

Major number is a unique number which specifies a particular driver. Every Device driver has their unique major number which helps kernel to identify the driver . When any application in user space open any device file , kernel check major number associated with that device file and identify which driver is responsible for handling this request. After that any subsequent calls for that particular device is passed to same driver.

To differentiate between devices , every device in linux system provided a unique number which is called minor device number. Minor number for example COM port1 in our system has different minor number than COM port2. We can say that Minor number represents a device and major number specify a driver. but one thing is to note here is that Two or more device of same type can have same major number but not minor number.



Describe a scenario when you get a "filesystem is full" error, but 'df' shows there is free space.

Ans) There is a certain percentage reserved for the root user on most filesystems. This is usually 5%.

Describe a scenario when deleting a file, but 'df' not showing the space being freed.
Ans)

Deleting the filename doesn't actually delete the file. Some other process is holding the file open, causing it to not be deleted; restart or kill that process to release the file.
Use
lsof +L1

to find out which process is using a deleted (unlinked) file.

Describe how 'ps' works.
Ans)

ps command is used to list the currently running processes and their PIDs along with some other information depends on different options.

What happens to a child process that dies and has no parent process to wait for it and what's

bad about this?

Ans) A Zombie is created when a parent process does not use the wait system call after a child dies to read its exit status, and an orphan is child process that is reclaimed by init when the original parent process terminates before the child

How to know which process listens on a specific port?
Ans)

sudo netstat -tulpn | grep LISTEN. - displays all the ports.

What key combination can you press to suspend a running job and place it in the background?
Ans) ctrl + z
You can suspend a currently running job by using the Ctrl + z keystroke. This will stop the job, but it won't end it. The job will be available to be resumed. Note: you can only stop jobs that were started in your current shell.

Which of these tools can provide the most information about DNS queries?

A. Dig - Short for Domain Information Groper, dig is a network administration tool for querying DNS name servers. dig defaults to querying for DNS results according to your computer's network settings. It is also capable of querying specific name servers and even of tracing through the resolution of a particular query.

B. dig has a lot of functionality. Largely because of the vast functionality and reliability of dig, we recommend it over the other local tools available; however, it's still useful to know about other tools that may be available to you.

C.

D. nslookup

C. host
D. named-checkconf
E. named-checkzone

Ans) A

https://vceguide.com/which-file-contains-a-list-of-filesystems-that-can-be-currently-mounted-on-the-system/

How to know user is root user or sudo user?
Ans) If UID is 0 we can consider user is root user, otherwise we can consider not root user, it may be normal user or system user.

sudo is a command or program which enables normal users to perform administrative tasks, and allow other privileges. Whereas root is the name of the main administrator account, which is created when you install the OS in your system.

How to create users in linux and how to give sudo permissions to user?
Ans)

Using useradd command we can create a user.
Using visudo command we can give sudo access.. add user into /etc/sudoers file to provide the sudo access.

How to display last 10 commands which we have used in Linux?
Ans) **history 10**

Write script/command to delete last word from every line in a file.
Ans)
```
awk '{gsub("[a-zA-Z0-9]*$", "");print}' <filename>
```

To replace last word with hello in every line
Ans)
```
awk '{gsub("[a-zA-Z0-9]*", "hello");print}' <filename>
```

Write a script/command to find the files with more than 1gb size.
Ans)
find <path for directory> -size +1G -type f

What is Swap Space?
Ans)

Swap space in Linux is used when the amount of physical memory (RAM) is full. If the system needs more memory resources and the RAM is full, inactive pages in memory are moved to the swap space. While swap space can help machines with a small amount of RAM, it should not be considered a replacement for more RAM.

What is the maximum length for a file name in Linux?
Ans)

255 bytes
On Linux: The maximum length for a file name is 255 bytes. The maximum combined length of both the file name and path name is 4096 bytes.

Which partition stores the system configuration files in Linux system?
Ans)

Linux system configuration files are present under /etc, which is part root partition in general.

Which command is used to uncompress gzip files?
Ans)

Gunzip is a command-line tool for decompressing Gzip files.

What is the difference between soft and hard mounting points?
Ans)

A hard mount is generally used for block resources like a local disk or SAN. A soft mount is usually used for network file protocols like NFS or CIFS. The advantage of a soft mount is that if your NFS server is unavailable, the kernel will time out the I/O operation after a pre-configured period of time.

What are the file permissions in Linux?
Ans)

permission, on a file, on a directory
r (read), read file content (cat),
read directory content (ls)
w (write), change file content (vi),
create file in directory (touch)
x (execute), execute the file, enter
the directory (cd)

Some more questions are from sed, find and awk .

How to check Memory stats and CPU stats as a Linux admin?
Ans)

top Command to View Linux CPU Load.
mpstat Command to Display CPU Activity.
sar Command to Show CPU Utilization. (System activity report)
iostat Command for Average Usage.

How to reduce or shrink the size of LVM partition?
Ans)

Logical Volume Management enables the combining of multiple individual hard drives and/or disk partitions into a single volume group.

Unmount the file system.
Check the file system for any errors.
Shrink the file system size.
Reduce the logical volume size.
Re-check the file system for errors (Optional).
Mount the file system.
Check the reduced file system size.

Reducing/Shrinking the logical volume is the highest risk of data corruption. So try to avoid this kind of situation if possible, but go ahead if you have no other options.

https://www.2daygeek.com/reduce-shrink-decrease-resize-lvm-logical-volume-in-linux/

How can you enhance the security of password file?
Ans)

Change a password. passwd [username]
Change a password via stdin. echo "Some_STRONG_PASSWORD" | passwd —stdin root.
Lock and unlock a password. passwd -l [username] passwd -u [username]
Files. ...
Why the /etc/shadow file? ...
Change the port. ...
Firewalls. ...

What is the difference between Cron and Anacron?
Ans)

Both Cron and Anacron automatically run reoccurring jobs that at a scheduled time. Cron runs the scheduled jobs at a very specific interval, but only if the system is running at that moment. However, Anacron runs the scheduled job even if the computer is off at that moment.

What command is used to check the number of files, disk space and each user's defined quota?
Ans)

repquota command.

How can you manage memory in linux machines?
Ans)

The top command. The top command lets you monitor processes and system resource usage on Linux. ...
free command. The free command displays the amount of free and used memory in the system. ...
vmstat command. vmstat is a performance monitoring tool in Linux.

What is the name and path of the main system log?
Ans)

Name of the main system log is "messages" and path is /var/log/messages .

How to manage logical volumes?
Ans)

Logical Volume Management enables the combining of multiple individual hard drives and/or disk partitions into a single volume group (VG). That volume group can then be subdivided into logical volumes (LV) or used as a single large volume.

https://www.howtogeek.com/howto/40702/how-to-manage-and-use-lvm-logical-volume-management-in-ubuntu/

Explain /proc filesystem?
Ans)

Proc file system (procfs) is virtual file system created on fly when system boots and is dissolved at time of system shut down. It contains useful information about the processes that are currently running, it is regarded as control and information center for kernel.

What are the fields in the/etc/passwd file?
Ans)

There are seven fields on each line in a typical Linux "/etc/passwd" file: root: Account username.

User name.
Encrypted password.
User ID number (UID)
User's group ID number (GID)
Full name of the user (GECOS)
User home directory.
Login shell.

How do you terminate an ongoing process?
Ans)

Kill -9 <processID>

SIGHUP, 1, Hangup
SIGINT, 2, Interrupt from keyboard
SIGKILL, 9, Kill signal
SIGTERM, 15, Termination signal
SIGSTOP, 17, 19, 23, Stop the process

How can you know the execution time of a command?
Ans)

The time command in Linux is used to determine the duration of execution of a command. This command is useful when you want to know the exection time of a command or a script.

By default, three times are displayed:
real time – the total execution time. This is the time elapsed between invocation and termination of the command.
user CPU time – the CPU time used by your process.
system CPU time – the CPU time used by the system on behalf of your process.
Here is an example. The following command will report how long it took to execute the find ./* -name "*file*" command:

```
bob@bobs-computer:~$ time find ./* -name "*file*"
./Desktop/Sublime/Pristine Packages/Makefile.sublime-package
./file1.txt
./new_file.txt
./new_file.txt~

real    0m0.012s
user    0m0.005s
sys     0m0.006s
bob@bobs-computer:~$
```

The time command can also be used to track the execution time of scripts:

```
bob@bobs-computer:~$ time ./my_script
./Desktop/Sublime/Pristine Packages/Makefile.sublime-package
./file1.txt
./new_file.txt
./new_file.txt~

real    0m0.013s
user    0m0.006s
sys     0m0.007s
```

How can you append one file to another in Linux?
Ans)

You can use cat with redirection to append a file to another file. You do this by using the append redirection symbol, ``>>''. To append one file to the end of another, type cat, the file you want to append, then >>, then the file you want to append to, and press <Enter>.
For example, to append a file called report2 to the end of report1, type:

cat report2 >> report1

How you can run a Linux program in the background simultaneously when you start your Linux Server?
Ans)

By using nohup. It will stop the process receiving the NOHUP signal and thus terminating it you log out of the program which was invoked with. & runs the process in the background.

How to find a particular word from a file?
Ans)

Grep is an acronym that stands for Global Regular Expression Print.

The grep command consists of three parts in its most basic form. The first part starts with grep, followed by the pattern that you are searching for. After the string comes the file name that the grep searches through.
The simplest grep command syntax looks like this:

What is stop command?
Ans)

On Unix-like operating systems, the stop command calls the init daemon to stop a job that is running on the system

How to stop particular process using Linux command?
Ans)

Kill -9 <processID>

Can we delete content in a file by using SED command? How to do?
Ans)

sed -i d file

1) What is Linux?

Linux is an operating system based on UNIX and was first introduced by Linus Torvalds. It is based on the Linux Kernel and can run on different hardware platforms manufactured by Intel, MIPS, HP, IBM, SPARC, and Motorola. Another popular element in Linux is its mascot, a penguin figure named Tux.

2) What is the difference between UNIX and LINUX?

Difference between Linux and Unix

Comparison	Linux	Unix
Definition	It is an open-source operating system which is *freely available to everyone*.	It is an operating system which *can be only used by its copyrighters*.
Examples	It has different distros like Ubuntu, Redhat, Fedora, etc	IBM AIX, HP-UX and Sun Solaris.
Users	Nowadays, Linux is in great demand. Anyone can use Linux whether a home user, developer or a student.	It was developed mainly for servers, workstations and mainframes.
Usage	Linux is used everywhere from servers, PC, smartphones, tablets to mainframes and supercomputers.	It is used in servers, workstations and PCs.
Cost	Linux is freely distributed,downloaded, and distributed through magazines also. And priced distros of Linux are also cheaper than Windows.	Unix copyright vendors decide different costs for their respective Unix Operating systems.
Development	As it is open source, it is developed by sharing and collaboration of codes by world-wide developers.	Unix was developed by AT&T Labs, various commercial vendors and non-profit organizations.
Manufacturer	Linux kernel is developed by the community of developers from different parts of the world. Although the father of Linux, Linus Torvalds oversees things.	Unix has three distributions IBM AIX, HP-UX and Sun Solaris. Apple also uses Unix to make OSX operating system.
GUI	Linux is command based but some distros provide GUI based Linux. Gnome and KDE are mostly used GUI.	Initially it was command based OS, but later Common Desktop Environment was created. Most Unix distributions use Gnome.
Interface	The default interface is BASH (Bourne Again SHell). But some distros have developed their own interfaces.	It originally used Bourne shell. But is also compatible with other GUIs.
File system support	Linux supports more file system than Unix.	It also supports file system but lesser than Linux.
Coding	Linux is a Unix clone,behaves like Unix but doesn't contain its code.	Unix contain a completely different coding developed by AT&T Labs.
Operating system	Linux is just the kernel.	Unix is a complete package of Operating system.
Security	It provides higher security. Linux has about 60-100	Unix is also highly secured. It has about 85-120 viruses

	viruses listed till date.	listed till date
Error detection and solution	As Linux is open-source,whenever a user post any kind of threat, developers from all over the world start working on it. And hence, it provides faster solution.	In Unix, users have to wait for some time for the problem to be resolved.

3) What is BASH?

BASH is short for Bourne Again SHell. It was written by Steve Bourne as a replacement to the original Bourne Shell (represented by /bin/sh). It combines all the features from the original version of Bourne Shell, plus additional functions to make it easier and more convenient to use. It has since been adapted as the default shell for most systems running Linux.

4) What is Linux Kernel?

The Linux Kernel is a low-level systems software whose main role is to manage hardware resources for the user. It is also used to provide an interface for user-level interaction.

7) What is the advantage of open source?

Open source allows you to distribute your software, including source codes freely to anyone who is interested. People would then be able to add features and even debug and correct errors that are in the source code. They can even make it run better and then redistribute these enhanced source code freely again. This eventually benefits everyone in the community.

8) What are the basic components of Linux?

Just like any other typical operating system, Linux has all of these components: kernel, shells and GUIs, system utilities, and an application program. What makes Linux advantageous over other operating system is that every aspect comes with additional features and all codes for these are downloadable for free.

9) What is CLI?

The Command Line Interface (CLI), is a non-graphical, text-based interface to the computer system, where the user types in a command

and the computer then successfully executes it. The Terminal is the platform or the IDE that provides the command line interface (CLI) environment to the

10) What is a typical size for a swap partition under a Linux system?

The preferred size for a swap partition is twice the amount of physical memory available on the system. If this is not possible, then the minimum size should be the same as the amount of memory installed.

11)What are filenames that are preceded by a dot?

In general, filenames that are preceded by a dot are hidden files. These files can be configuration files that hold important data or setup info. Setting these files as hidden makes it less likely to be accidentally deleted.

12) What are daemons?

A daemon is a program with a unique purpose. They are utility programs that run silently in the background to monitor and take care of certain subsystems to ensure that the operating system runs properly. A printer daemon monitors and takes care of printing services. A network daemon monitors and maintains network communications, and so on.

Daemons perform certain actions at predefined times or in response to certain events. There are many daemons that run on a Linux system, each specifically designed to watch over its own little piece of the system, and because they are not under the direct control of a user, they are effectively invisible, but essential. Because daemons do the bulk of their work in the background, they can appear a little mysterious and so, perhaps difficult to identify them and what they
actually do.

Again, the most common way to identify a Linux daemon is to look for a service that ends with the letter d. Here are some examples of daemons that may be running on your system. You will be able to see that daemons are created to perform a specific set of tasks:
systemd – the main purpose of this daemon is to unify service configuration and behavior across Linux distributions.
rsyslogd – used to log system messages. This is a newer version of syslogd having several additional features. It supports logging on local systems as well as on remote systems.
udisksd – handles operations such as querying, mounting, unmounting,

formatting, or detaching storage devices such as hard disks or USB thumb drives
logind – a tiny daemon that manages user logins and seats in various ways
httpd – the HTTP service manager. This is normally run with Web server software such as Apache.
sshd – Daemon responsible for managing the SSH service. This is used on virtually any server that accepts SSH connections.
ftpd – manages the FTP service – FTP or File Transfer Protocol is a commonly-used protocol for transferring files between computers; one act as a client, the other act as a server.
crond – the scheduler daemon for time-based actions such as software updates or system checks.

13)What are environmental variables?

Environmental variables are global settings that control the shell's function as well as that of other Linux programs. Another common term for environmental variables is global shell variables.

14)How can you find the status of a process?

Use the command
ps ux

15)What is the command to calculate the size of a folder?

To calculate the size of a folder uses the command du –sh folder1.

*** How do you check performance of linux server?**

Top – Linux Process Monitoring. ...
VmStat – Virtual Memory Statistics. ...
Lsof – List Open Files. ...
Tcpdump – Network Packet Analyzer. ...
Netstat – Network Statistics. ...
Htop – Linux Process Monitoring. ...
Iotop – Monitor Linux Disk I/O. ...
Iostat – Input/Output Statistics.

***What is a Shell, and Why do we need them?**

Whenever a user logs in to the system or opens a console window, the kernel runs a new shell instance. The kernel is the heart of any operating system.

It is responsible for the control management, and execution of processes, and to ensure proper utilization of system resources.

A shell is a program that acts as an interface between a user and the kernel. It allows a user to give commands to the kernel and receive responses from it. Through a shell, we can execute programs and utilities on the kernel. Hence, at its core, a shell is a program used to execute other programs on our system.

Being able to interact with the kernel makes shells a powerful tool. Without the ability to interact with the kernel, a user cannot access the utilities offered by their machine's operating system.

Each of these shells has properties that make them highly efficient for a specific type of use over other shells. So let us discuss the different types of shells in Linux along with their properties and features.

1. The Bourne Shell (sh)

The Bourne shell is regarded as the first UNIX shell ever. It is denoted as sh. It gained popularity due to its compact nature and high speeds of operation.
However, the Bourne shell has some major drawbacks.
It doesn't have in-built functionality to handle logical and arithmetic operations.
Also, unlike most different types of shells in Linux, the Bourne shell cannot recall previously used commands.
The complete path-name for the Bourne shell is /bin/sh and /sbin/sh.

2. The GNU Bourne-Again Shell (bash)

More popularly known as the Bash shell, the GNU Bourne-Again shell was designed to be compatible with the Bourne shell. It incorporates useful features from different types of shells in Linux such as Korn shell and C shell.
It allows us to automatically recall previously used commands and edit them with help of arrow keys, unlike the Bourne shell.
The complete path-name for the GNU Bourne-Again shell is /bin/bash.

3. The C Shell (csh)

The C shell was created at the University of California by Bill Joy. It is denoted as csh. It was developed to include useful programming features like in-built support for arithmetic operations and a syntax similar to the C programming language.
Further, it incorporated command history which was missing in different types of shells in Linux like the Bourne shell. Another prominent feature of a C shell is "aliases".
The complete path-name for the C shell is /bin/csh.

4. The Korn Shell (ksh)

The Korn shell was developed at AT&T Bell Labs by David Korn, to improve the Bourne shell. It is denoted as ksh. The Korn shell is essentially a superset of the

Bourne shell.

Besides supporting everything that would be supported by the Bourne shell, it provides users with new functionalities. It allows in-built support for arithmetic operations while offereing interactive features which are similar to the C shell.
The Korn shell runs scripts made for the Bourne shell, while offering string, array and function manipulation similar to the C programming language. It also supports scripts which were written for the C shell. Further, it is faster than most different types of shells in Linux, including the C shell.
The complete path-name for the Korn shell is /bin/ksh.

5. The Z Shell (zsh)

The Z Shell or zsh is a sh shell extension with tons of improvements for customization. If you want a modern shell that has all the features a much more, the zsh shell is what you're looking for.
Some noteworthy features of the z shell include:
Generate filenames based on given conditions
Plugins and theming support
Index of built-in functions
Command completion

Shell	Complete path-name	Prompt for root user	Prompt for non root user
Bourne shell (sh)	/bin/sh and /sbin/sh	#	$
GNU Bourne-Again shell (bash)	/bin/bash	bash-VersionNumber#	bash-VersionNumber$
C shell (csh)	/bin/csh	#	%
Korn shell (ksh)	/bin/ksh	#	$
Z Shell (zsh)	/bin/zsh	<hostname>#	<hostname>%

Wrapping up

Shells are one of, if not the most powerful tools available to a Linux user. Without shells, it is practically impossible for a person to utilise the features and functionality offered by the kernel installed on their system.

***What is a job in Linux ?**

A job is a process that the shell manages. Each job is assigned a sequential job ID. Because a job is a process, each job has an associated PID.

***** How to run jobs in background in linux?**

The symbol & makes the command to run in a the background. count &

***** Types of variables in shell scripting?**

A shell can have two types of variables:

Environment variables – Variables that are exported to all processes spawned by the shell. Their settings can be seen with the env command. A subset of environment variables, such as PATH, affects the behavior of the shell itself.

Shell (local) variables – Variables that affect only the current shell. In the C shell, a set of these shell variables have a special relationship to a corresponding set of environment variables. These shell variables are user, term, home, and path. The value of the environment variable counterpart is initially used to set the shell variable.

***How to check no.of ".pdf" files in directory in linux?**

find . -type f -name "*.pdf"

***What is sed command in Linux?**

SED command in UNIX stands for stream editor and it can perform lots of functions on file like searching, find and replace, insertion or deletion. Though most common use of SED command in UNIX is for substitution or for find and replace.

***What is cut command ?**

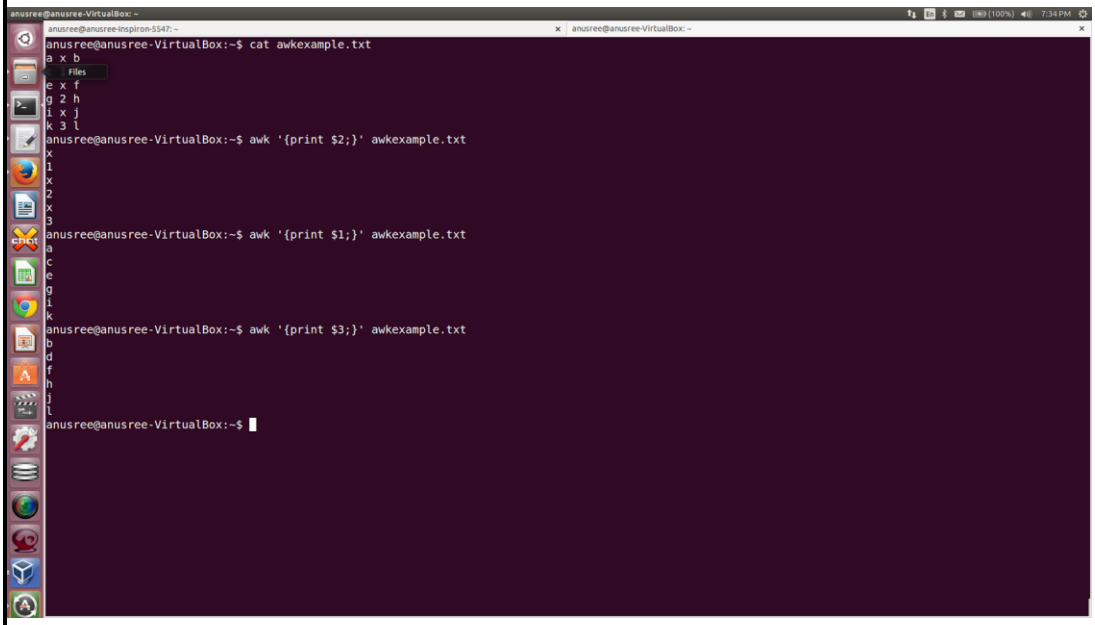
The cut command is a command-line utility that allows you to cut out sections of a specified file or piped data and print the result to standard output. The command cuts parts of a line by field, delimiter, byte position, and character. In this tutorial, you will learn what the cut command is and how to use

```
javatpoint@javatpoint-Inspiron-3542:~$ cat marks.txt
alex-50
alen-70
jon-75
carry-85
celena-90
justin-80
javatpoint@javatpoint-Inspiron-3542:~$ cut -d- -f2 marks.txt
50
70
75
85
90
80
javatpoint@javatpoint-Inspiron-3542:~$ cut -d- -f1 marks.txt
alex
alen
jon
carry
celena
justin
```

***What is awk command ?**

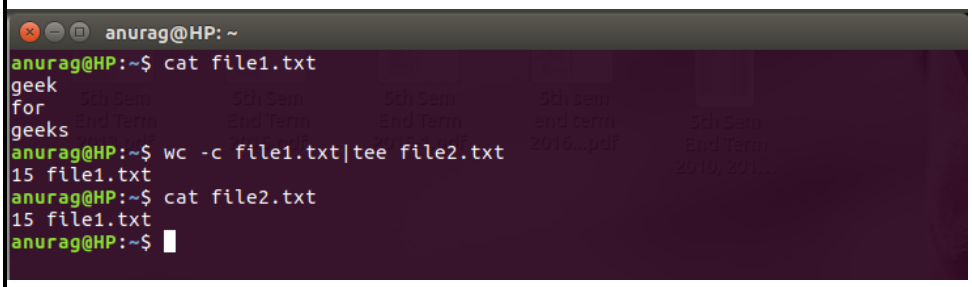
Awk is a scripting language used for manipulating data and generating reports. The awk

command programming language requires no compiling and allows the user to use variables, numeric functions, string functions, and logical operators.



***What does T command do ?**

The tee command, used with a pipe, reads standard input, then writes the output of a program to standard output and simultaneously copies it into the specified file or files. Use the tee command to view your output immediately and at the same time, store it for future use.



***What does watch command do?**

The watch command is a built-in Linux utility used for running user-defined commands at regular intervals. It temporarily clears all the terminal content and displays the output of the attached command, along with the current system date and time. By default, the watch command updates the output every two seconds
Watch date - date is updated every 2 seconds.
Watch –n date
If n = 5 , date will be updated every 5 seconds

***Diff between settings.xml vs pom.xml ?**

settings. xml contains system and/or user configuration, while the pom. xml contains

project information.