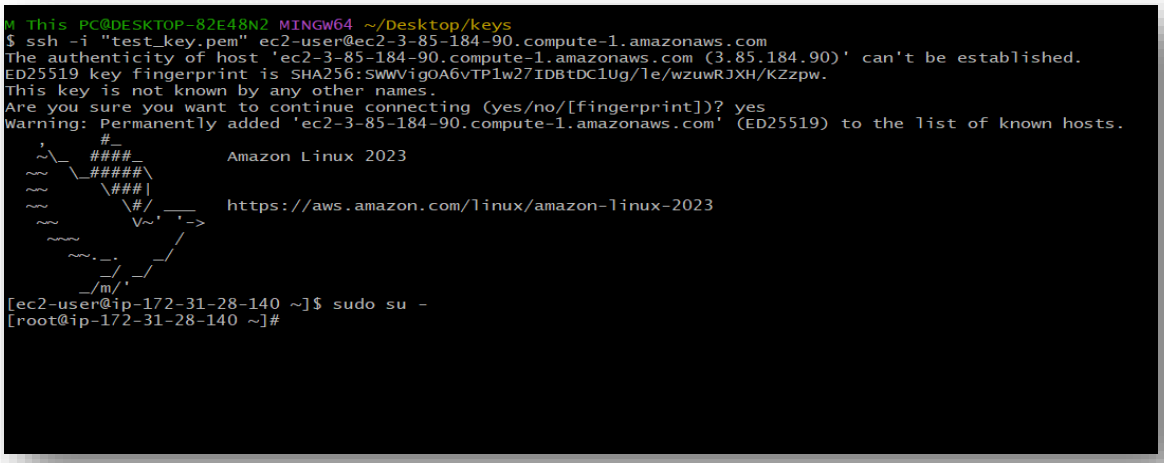
LINUX QUESTION AND ANSWERS

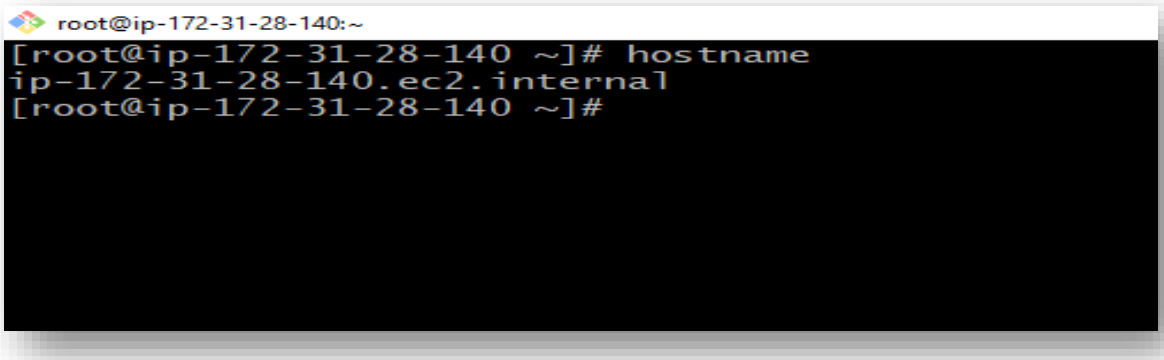
Q1: How do you switch to the root user?

A1: Run the command `sudo su -`. This grants you root privileges.



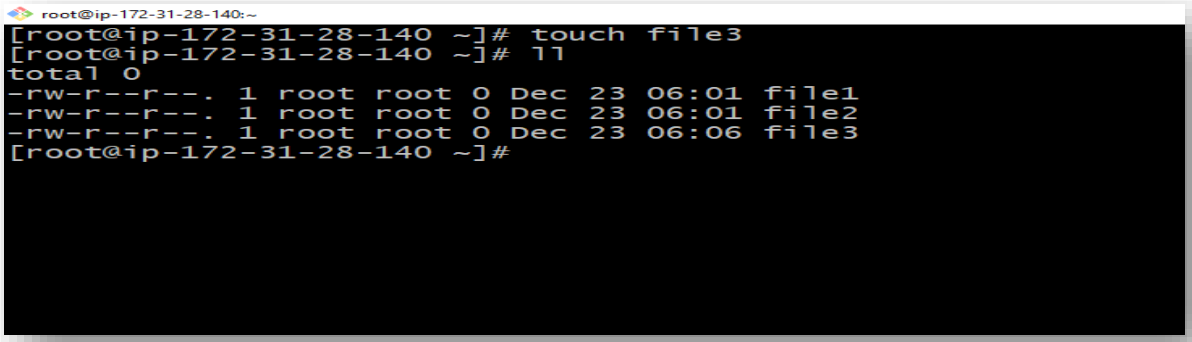
Q2: How can you view the current hostname of the server?

A2: Execute `hostname`. It displays the server's hostname.



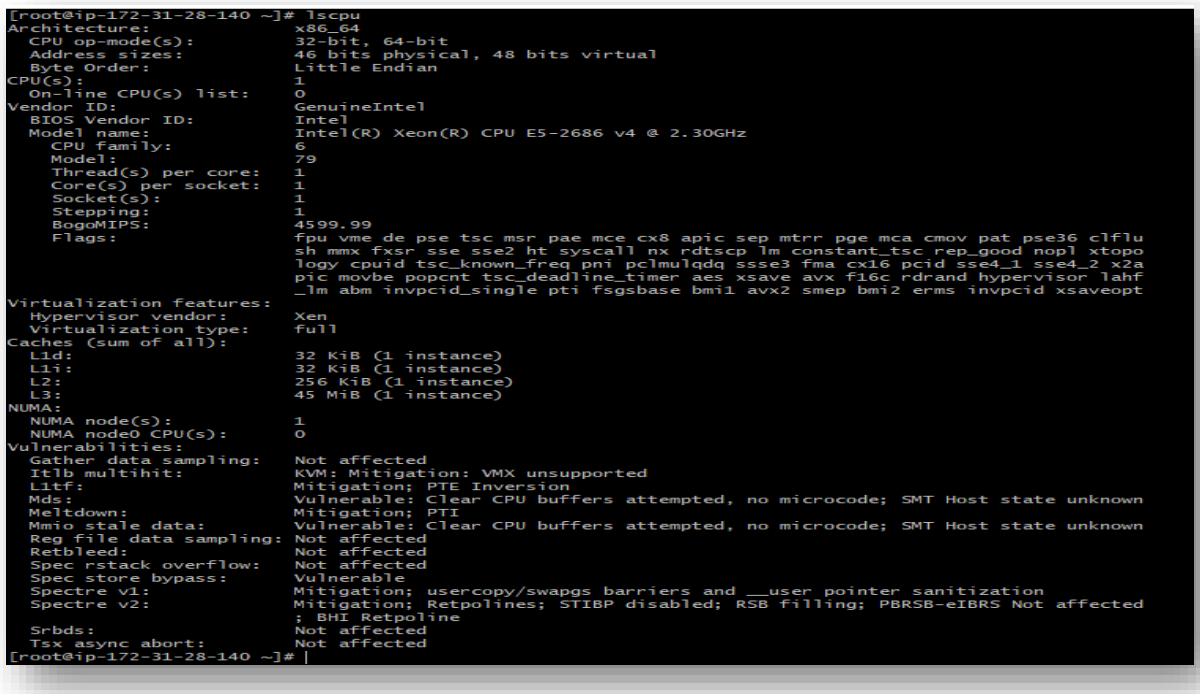
Q3: Which command is used to create a new file?

A3: `touch <filename>` will create an new file.



Q4: How do you display the CPU configuration?

A4: Use `lscpu` to show detailed CPU information.



Q5: Which command is used to test network connectivity?

A5: `ping <hostname/IP>` checks connectivity to a network host.

```
[root@ip-172-31-28-140 ~]#
[root@ip-172-31-28-140 ~]# ping ip-172-31-28-140
PING ip-172-31-28-140.ec2.internal (172.31.28.140) 56(84) bytes of data.
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=1 ttl=127 time=0.013 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=2 ttl=127 time=0.030 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=3 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=4 ttl=127 time=0.029 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=5 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=6 ttl=127 time=0.029 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=7 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=8 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=9 ttl=127 time=0.030 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=10 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=11 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=12 ttl=127 time=0.027 ms
```

Q6: How can you remove files or directories forcefully?

A6: Execute `rm -rf <directory>` to delete files or directories without confirmation.

```
[root@ip-172-31-28-140 ~]# ll
total 0
-rw-r--r--. 1 root root 0 Dec 23 05:57 file1
[root@ip-172-31-28-140 ~]# rm -rf file1
[root@ip-172-31-28-140 ~]# ll
total 0
[root@ip-172-31-28-140 ~]#
```

Q7: What is the command to display disk usage of a file or directory?

A7: `du -sh <filename>` shows disk space usage in a humanreadable format.

root@ip-172-31-28-140:~

```
[root@ip-172-31-28-140 ~]# du -sh file1
0       file1
[root@ip-172-31-28-140 ~]#
```

Q8: How do you search for a specific pattern in a file?

A8: Run `grep <pattern> <file>` to find a pattern within a file.

```
[root@ip-172-31-12-59 opt]# cat example.txt
Embark on a transformative journey with our Cloud Computing and DevOps course. Master the art of scalable, efficient IT infrastructure through cloud services and collaborative developme
nt operations. Drive innovation in the digital era.

Experience hands-on Cloud Computing and DevOps course training in Cloud Computing Fundamentals, Cloud Platforms (AWS, Azure, GCP), Virtualization, Infrastructure as Code (IaC), DevOps P
rinciples, Containerization, Cloud Security Best Practices, Continuous Integration and Continuous Deployment (CI/CD).
With a stellar 4.9-star rating, we're recognized as the #1 International Cloud Computing and DevOps course Training Institute by esteemed entities like the British Columbia Times, Busin
ess World, Avalon Global, and more. Making BIA®: your premier destination for mastering high-demand skills in Cloud Computing and DevOps technologies.

[root@ip-172-31-12-59 opt]# grep "DevOps" example.txt
Embark on a transformative journey with our Cloud Computing and DevOps course. Master the art of scalable, efficient IT infrastructure through cloud services and collaborative developme
nt operations. Drive innovation in the digital era.
Experience hands-on Cloud Computing and DevOps course training in Cloud Computing Fundamentals, Cloud Platforms (AWS, Azure, GCP), Virtualization, Infrastructure as Code (IaC), DevOps P
rinciples, Containerization, Cloud Security Best Practices, Continuous Integration and Continuous Deployment (CI/CD).
With a stellar 4.9-star rating, we're recognized as the #1 International Cloud Computing and DevOps course Training Institute by esteemed entities like the British Columbia Times, Busin
ess World, Avalon Global, and more. Making BIA®: your premier destination for mastering high-demand skills in Cloud Computing and DevOps technologies.
[root@ip-172-31-12-59 opt]#
```

Q9: Which command is used to monitor system resources in real time?

A9: Use `top` to view real-time system resources and processes. For an enhanced experience, try `htop`.

```
[root@ip-172-31-28-140 ~]#
[root@ip-172-31-28-140 ~]# top
top - 06:08:38 up 32 min,  2 users,  load average: 0.00, 0.00, 0.00
Tasks: 102 total,   1 running, 101 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni, 95.8 id,  0.0 wa,  0.0 hi,  0.0 si,  4.2 st
MiB Mem :    949.5 total,    605.2 free,    120.4 used,    223.8 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    691.7 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
   2344 root      20   0  233296   7848   6548 S   0.7   0.8   0:00.04 sudo
      1 root      20   0  105904  17048  10492 S   0.0   1.8   0:00.77 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_gp
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_par_gp
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 slub_flushwq
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 netns
      8 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
     10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 mm_percpu_wq
     11 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_kthread
     12 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthread
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthread
     14 root      20   0       0      0      0 S   0.0   0.0   0:00.05 ksoftirqd/0
     15 root      20   0       0      0      0 I   0.0   0.0   0:00.04 rcu_preempt
     16 root      rt   0       0      0      0 S   0.0   0.0   0:00.01 migration/0
     18 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     20 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kdevtmpfs
     21 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 inet_frag_wq
     22 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kauditd
     23 root      20   0       0      0      0 S   0.0   0.0   0:00.00 khungtaskd
     24 root      20   0       0      0      0 S   0.0   0.0   0:00.00 oom_reaper
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 writeback
     28 root      20   0       0      0      0 S   0.0   0.0   0:00.05 kcompactd0
     29 root      39  19       0      0      0 S   0.0   0.0   0:00.00 khugepaged
     30 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 cryptd
     31 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kintegrityd
     32 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kblockd
     33 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 blkcg_punt_bio
```

Q10: How can you download files from the internet using a command-line tool?

A10: Download files using `wget <url>` or `curl -o <filename> <url>`.

```
[root@ip-172-31-28-140 ~]# wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.2/bin/apache-tomcat-11.0.2.zip
--2024-12-23 06:10:34--  https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.2/bin/apache-tomcat-11.0.2.zip
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 14213779 (14M) [application/zip]
Saving to: 'apache-tomcat-11.0.2.zip'

apache-tomcat-11.0.2.zip          100%[=============================================================>]  13.55M  --.-KB/s    in 0.1s

2024-12-23 06:10:35 (93.5 MB/s) - 'apache-tomcat-11.0.2.zip' saved [14213779/14213779]

[root@ip-172-31-28-140 ~]# ll
total 13884
-rw-r--r--. 1 root root 14213779 Dec  5 16:43 apache-tomcat-11.0.2.zip
-rw-r--r--. 1 root root        0 Dec 23 06:01 file1
-rw-r--r--. 1 root root        0 Dec 23 06:01 file2
-rw-r--r--. 1 root root        0 Dec 23 06:06 file3
[root@ip-172-31-28-140 ~]#
```

Q11: How can you save and exit a file in Vim?

A11: To save and exit in Vim, type `:wq`.

```
hi,

welcomes to aws devops class.
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
~
:wq
```

Q12: What is the command to create a new user?

A12: Create a new user with `useradd <username>`.

```
[root@ip-172-31-28-140 ~]# useradd linux_user
[root@ip-172-31-28-140 ~]# tail -3 /etc/passwd
tcpdump:x:72:72::/:/sbin/nologin
ec2-user:x:1000:1000:EC2 Default User:/home/ec2-user:/bin/bash
linux_user:x:1001:1001::/home/linux_user:/bin/bash
[root@ip-172-31-28-140 ~]#
```

Q13: Which command counts the number of lines, words, and characters in a file?

A13: `wc <filename>` provides counts of lines, words, and characters.

```
[root@ip-172-31-28-140 ~]# wc file
 4  6 36 file
[root@ip-172-31-28-140 ~]#
```

Q14: How can you display the first 10 lines of a file?

A14: Use `head <filename>` to see the first 10 lines.

```
[root@ip-172-31-28-140 ~]# head file
hi,
welcomes to aws devops class.

-------------------------

AC file
[root@ip-172-31-28-140 ~]#
```

Q15: How do you display the current working directory?

A15: Execute `pwd` to show the current directory.

```
[root@ip-172-31-28-140 ~]# pwd
/root
[root@ip-172-31-28-140 ~]#
```

Q16: Which command allows you to create a new directory?

A16: Run `mkdir <foldername>` to create a directory.

```
[root@ip-172-31-28-140 ~]# mkdir dir1
[root@ip-172-31-28-140 ~]# ll
total 13888
-rw-r--r--. 1 root root 14213779 Dec  5 16:43 apache-tomcat-11.0.2.zip
drwxr-xr-x. 2 root root        6 Dec 23 06:25 dir1
-rw-r--r--. 1 root root      140 Dec 23 06:20 file
-rw-r--r--. 1 root root        0 Dec 23 06:01 file1
-rw-r--r--. 1 root root        0 Dec 23 06:01 file2
-rw-r--r--. 1 root root        0 Dec 23 06:06 file3
[root@ip-172-31-28-140 ~]#
```

Q17: What is the command to copy a file or directory?

A17: Copy files or directories with `cp <source> <destination>`.

```
[root@ip-172-31-12-59 opt]# touch abc.txt
[root@ip-172-31-12-59 opt]# ll
total 0
-rw-r--r--. 1 root root 0 Dec 23 13:20 abc.txt
[root@ip-172-31-12-59 opt]# cd /tmp/
[root@ip-172-31-12-59 tmp]# ll
total 0
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-chronyd.service-91zih0
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-dbus-broker.service-lGLWHl
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-policy-routes@enX0.service-iWqoCE
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-systemd-logind.service-31tCur
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-systemd-resolved.service-o3DF2t
[root@ip-172-31-12-59 tmp]# cd /opt/
[root@ip-172-31-12-59 opt]# ll
total 0
-rw-r--r--. 1 root root 0 Dec 23 13:20 abc.txt
[root@ip-172-31-12-59 opt]# cp /opt/abc.txt /tmp/
[root@ip-172-31-12-59 opt]# ll
total 0
-rw-r--r--. 1 root root 0 Dec 23 13:20 abc.txt
[root@ip-172-31-12-59 opt]# cd /tmp/
[root@ip-172-31-12-59 tmp]# ll
total 0
-rw-r--r--. 1 root root  0 Dec 23 13:21 abc.txt
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-chronyd.service-91zih0
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-dbus-broker.service-lGLWHl
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-policy-routes@enX0.service-iWqoCE
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-systemd-logind.service-31tCur
drwx------. 3 root root 60 Dec 23 11:33 systemd-private-59d895b5db1e42f29464eb11b86e3a83-systemd-resolved.service-o3DF2t
[root@ip-172-31-12-59 tmp]#
```

Q18: How can you list the disk space usage in a humanreadable format with filesystem type?

A18: `df -Th` shows disk space usage and filesystem types in a readable format.

```
[root@ip-172-31-28-140 ~]# df -Th
Filesystem      Type      Size  Used Avail Use% Mounted on
devtmpfs        devtmpfs  4.0M     0  4.0M   0% /dev
tmpfs           tmpfs     475M     0  475M   0% /dev/shm
tmpfs           tmpfs     190M  448K  190M   1% /run
/dev/xvda1      xfs       8.0G  1.6G  6.4G  20% /
tmpfs           tmpfs     475M     0  475M   0% /tmp
/dev/xvda128    vfat       10M  1.3M  8.7M  13% /boot/efi
tmpfs           tmpfs      95M     0   95M   0% /run/user/1000
[root@ip-172-31-28-140 ~]#
```

Q19: Which command displays memory usage?

A19: `free` displays the amount of free and used memory.

```
[root@ip-172-31-28-140 ~]# free
               total        used        free      shared  buff/cache   available
Mem:          972260      133832      585888         452      252540      697380
Swap:              0           0           0
[root@ip-172-31-28-140 ~]#
```

Q20: How can you display files and folders in a tree structure format?

A20: Use `tree` to list directories and files in a tree format.

```
[root@ip-172-31-28-140 ~]# tree
.
├── apache-tomcat-11.0.2.zip
├── dir1
├── file
├── file1
├── file2
└── file3

1 directory, 5 files
[root@ip-172-31-28-140 ~]#
```

Q21: Which command allows you to download content and save it to a specific file?

A21: `curl -o <filename> <url>` saves downloaded content to a specified file.

```
[root@ip-172-31-28-140 ~]# curl -o tomcat https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.2/bin/apache-tomcat-11
.0.2.zip
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100 13.5M  100 13.5M    0     0  64.4M      0 --:--:-- --:--:-- --:--:-- 64.5M
[root@ip-172-31-28-140 ~]# ll
total 27776
-rw-r--r--. 1 root root 14213779 Dec  5 16:43 apache-tomcat-11.0.2.zip
drwxr-xr-x. 2 root root        6 Dec 23 06:25 dir1
-rw-r--r--. 1 root root      140 Dec 23 06:20 file
-rw-r--r--. 1 root root        0 Dec 23 06:01 file1
-rw-r--r--. 1 root root        0 Dec 23 06:01 file2
-rw-r--r--. 1 root root      140 Dec 23 06:20 file3
-rw-r--r--. 1 root root 14213779 Dec 23 06:31 tomcat
[root@ip-172-31-28-140 ~]#
```

Q22: What is the purpose of the chmod command?

A22: `chmod` changes permissions for files or directories.

```
[root@ip-172-31-12-59 opt]#
[root@ip-172-31-12-59 opt]# ll
total 4
-rw-r--r--. 1 root root 138 Dec 23 11:43 httpd.sh
[root@ip-172-31-12-59 opt]# chmod 777 httpd.sh
[root@ip-172-31-12-59 opt]# ll
total 4
-rwxrwxrwx. 1 root root 138 Dec 23 11:43 httpd.sh
[root@ip-172-31-12-59 opt]# ./httpd.sh
Last metadata expiration check: 0:10:09 ago on Mon Dec 23 11:34:17 2024.
Dependencies resolved.
================================================================================
 Package                 Architecture  Version                       Repository      Size
================================================================================
Installing:
 httpd                   x86_64        2.4.62-1.amzn2023             amazonlinux     48 k
Installing dependencies:
 apr                     x86_64        1.7.5-1.amzn2023.0.2          amazonlinux    130 k
 apr-util                x86_64        1.6.3-1.amzn2023.0.1          amazonlinux     98 k
 generic-logos-httpd     noarch        18.0.0-12.amzn2023.0.3        amazonlinux     19 k
 httpd-core              x86_64        2.4.62-1.amzn2023             amazonlinux    1.4 M
 httpd-filesystem        noarch        2.4.62-1.amzn2023             amazonlinux     14 k
 httpd-tools             x86_64        2.4.62-1.amzn2023             amazonlinux     81 k
 libbrotli               x86_64        1.0.9-4.amzn2023.0.2          amazonlinux    315 k
 mailcap                 noarch        2.1.49-3.amzn2023.0.3         amazonlinux     33 k
Installing weak dependencies:
 apr-util-openssl        x86_64        1.6.3-1.amzn2023.0.1          amazonlinux     17 k
 mod_http2               x86_64        2.0.27-1.amzn2023.0.3         amazonlinux    166 k
 mod_lua                 x86_64        2.4.62-1.amzn2023             amazonlinux     61 k

Transaction Summary
================================================================================
Install  12 Packages

Total download size: 2.3 M
Installed size: 6.9 M
Downloading Packages:
(1/12): apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64.rpm   349 kB/s |  17 kB  00:00
(2/12): apr-1.7.5-1.amzn2023.0.2.x86_64.rpm                2.3 MB/s | 130 kB  00:00
(3/12): apr-util-1.6.3-1.amzn2023.0.1.x86_64.rpm           1.6 MB/s |  98 kB  00:00
(4/12): generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch.rpm 809 kB/s |  19 kB  00:00
(5/12): httpd-2.4.62-1.amzn2023.x86_64.rpm                 2.3 MB/s |  48 kB  00:00
REGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
```

Q23: How can you move back one directory in the file system?

A23: `cd ..` moves you to the parent directory.

```
[ec2-user@ip-172-31-28-140 opt]$ cd ..
[ec2-user@ip-172-31-28-140 /]$
```

Q24: What does awk do?

A24: `awk` is a text processing tool for searching, extracting, and manipulating text.

```
[root@ip-172-31-28-140 opt]# awk
Usage: awk [POSIX or GNU style options] -f progfile [--] file ...
Usage: awk [POSIX or GNU style options] [--] 'program' file ...
POSIX options:          GNU long options: (standard)
        -f progfile             --file=progfile
        -F fs                   --field-separator=fs
        -v var=val              --assign=var=val
Short options:          GNU long options: (extensions)
        -b                      --characters-as-bytes
        -c                      --traditional
        -C                      --copyright
        -d[file]                --dump-variables[=file]
        -D[file]                --debug[=file]
        -e 'program-text'       --source='program-text'
        -E file                 --exec=file
        -g                      --gen-pot
        -h                      --help
        -i includefile          --include=includefile
        -l library              --load=library
        -L[fatal|invalid|no-ext]        --lint[=fatal|invalid|no-ext]
        -M                      --bignum
        -N                      --use-lc-numeric
        -n                      --non-decimal-data
        -o[file]                --pretty-print[=file]
        -O                      --optimize
        -p[file]                --profile[=file]
        -P                      --posix
        -r                      --re-interval
        -s                      --no-optimize
        -S                      --sandbox
        -t                      --lint-old
        -V                      --version

To report bugs, see node `Bugs' in `gawk.info'
which is section `Reporting Problems and Bugs' in the
printed version.  This same information may be found at
https://www.gnu.org/software/gawk/manual/html_node/Bugs.html.
PLEASE do NOT try to report bugs by posting in comp.lang.awk,
or by using a web forum such as Stack Overflow.

gawk is a pattern scanning and processing language.
By default it reads standard input and writes standard output.

Examples:
        awk '{ sum += $1 }; END { print sum }' file
        awk -F: '{ print $1 }' /etc/passwd
[root@ip-172-31-28-140 opt]#
```

Q25: How can you extract specific columns from a file?

A25: `cut -d '<delimiter>' -f<field_number> <file>` extracts specific columns from a file.

```
[root@ip-172-31-12-59 opt]# vim example.txt
[root@ip-172-31-12-59 opt]# cat example.txt
John,25,Engineer
Alice,30,Doctor
Bob,22,Artist
[root@ip-172-31-12-59 opt]# cut -d ',' -f1 example.txt
John
Alice
Bob
[root@ip-172-31-12-59 opt]#
```

Q26: How do you search for running processes and system resource usage?

A26: `top` or `htop` monitors running processes and resource usage.

```
[root@ip-172-31-28-140 opt]# top
top - 06:46:32 up  1:10,  2 users,  load average: 0.00, 0.00, 0.00
Tasks: 104 total,   1 running, 103 sleeping,   0 stopped,   0 zombie
%Cpu(s):  0.0 us,  0.0 sy,  0.0 ni, 76.5 id,  0.0 wa,  0.0 hi,  0.0 si, 23.5 st
MiB Mem :    949.5 total,    488.2 free,    130.6 used,    330.7 buff/cache
MiB Swap:      0.0 total,      0.0 free,      0.0 used.    676.4 avail Mem

    PID USER      PR  NI    VIRT    RES    SHR S  %CPU  %MEM     TIME+ COMMAND
      1 root      20   0  105904  17048  10492 S   0.0   1.8   0:00.94 systemd
      2 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kthreadd
      3 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_gp
      4 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 rcu_par_gp
      5 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 slub_flushwq
      6 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 netns
      8 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kworker/0:0H-events_highpri
     10 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 mm_percpu_wq
     11 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_kthread
     12 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_rude_kthread
     13 root      20   0       0      0      0 I   0.0   0.0   0:00.00 rcu_tasks_trace_kthread
     14 root      20   0       0      0      0 S   0.0   0.0   0:00.16 ksoftirqd/0
     15 root      20   0       0      0      0 I   0.0   0.0   0:00.06 rcu_preempt
     16 root      rt   0       0      0      0 S   0.0   0.0   0:00.02 migration/0
     18 root      20   0       0      0      0 S   0.0   0.0   0:00.00 cpuhp/0
     20 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kdevtmpfs
     21 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 inet_frag_wq
     22 root      20   0       0      0      0 S   0.0   0.0   0:00.00 kauditd
     23 root      20   0       0      0      0 S   0.0   0.0   0:00.00 khungtaskd
     24 root      20   0       0      0      0 S   0.0   0.0   0:00.00 oom_reaper
     27 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 writeback
     28 root      20   0       0      0      0 S   0.0   0.0   0:00.11 kcompactd0
     29 root      39  19       0      0      0 S   0.0   0.0   0:00.00 khugepaged
     30 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 cryptd
     31 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kintegrityd
     32 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 kblockd
     33 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 blkcg_punt_bio
     34 root      20   0       0      0      0 S   0.0   0.0   0:00.00 xen-balloon
     35 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 tpm_dev_wq
     36 root       0 -20       0      0      0 I   0.0   0.0   0:00.00 md
```

Q27: How can you view the last 10 lines of a file?

A27: `tail <filename>` shows the last 10 lines of a file.

```
-rw-r--r--. 1 root root 155 Dec 23 06:51 file1
[root@ip-172-31-28-140 opt]# tail file1

------------------

vc code

----------------------

gc code

------------------------
[root@ip-172-31-28-140 opt]#
```

Q28: Which command shows the current logged-in user?

A28: `whoami` displays the current user.

```
[root@ip-172-31-28-140 opt]# whoami
root
[root@ip-172-31-28-140 opt]#
```

Q29: How do you force quit from a Vim file without saving changes?

A29: In Vim, use `:q!` to exit without saving.

```
hi -
~
~
~
~
~
~
:q!
```

Q30: What is the difference between yum install and wget?

A30:

- **`yum install`:** Installs software packages on Red Hat-based systems.

- **`wget`:** Downloads files from the internet.

```
[root@ip-172-31-28-140 opt]# yum install java
Last metadata expiration check: 0:39:18 ago on Mon Dec 23 06:30:12 2024.
Dependencies resolved.
================================================================================
 Package                    Architecture  Version                    Repository  Size
================================================================================
Installing:
 java-23-amazon-corretto    x86_64        1:23.0.1+8-1.amzn2023.1    amazonlinux 213 k
Installing dependencies:
 alsa-lib                   x86_64        1.2.7.2-1.amzn2023.0.2     amazonlinux 504 k
 cairo                      x86_64        1.18.0-4.amzn2023.0.1      amazonlinux 718 k
 dejavu-sans-fonts          noarch        2.37-16.amzn2023.0.2       amazonlinux 1.3 M
 dejavu-sans-mono-fonts     noarch        2.37-16.amzn2023.0.2       amazonlinux 467 k
 dejavu-serif-fonts         noarch        2.37-16.amzn2023.0.2       amazonlinux 1.0 M
 fontconfig                 x86_64        2.13.94-2.amzn2023.0.2     amazonlinux 273 k
 fonts-filesystem           noarch        1:2.0.5-12.amzn2023.0.2    amazonlinux 9.5 k
 freetype                   x86_64        2.13.2-5.amzn2023.0.1      amazonlinux 423 k
 giflib                     x86_64        5.2.1-9.amzn2023.0.1       amazonlinux  49 k
 google-noto-fonts-common   noarch        20201206-2.amzn2023.0.2    amazonlinux  15 k
 google-noto-sans-vf-fonts  noarch        20201206-2.amzn2023.0.2    amazonlinux 492 k
 graphite2                  x86_64        1.3.14-7.amzn2023.0.2      amazonlinux  97 k
 harfbuzz                   x86_64        7.0.0-2.amzn2023.0.1       amazonlinux 868 k
 java-23-amazon-corretto-headless x86_64  1:23.0.1+8-1.amzn2023.1    amazonlinux 101 M
 javapackages-filesystem    noarch        6.0.0-7.amzn2023.0.6       amazonlinux  12 k
 langpacks-core-font-en     noarch        3.0-21.amzn2023.0.4        amazonlinux  10 k
 libICE                     x86_64        1.1.1-3.amzn2023.0.1       amazonlinux  76 k
 libSM                      x86_64        1.2.4-3.amzn2023.0.1       amazonlinux  45 k
 libX11                     x86_64        1.8.10-2.amzn2023.0.1      amazonlinux 659 k
 libX11-common              noarch        1.8.10-2.amzn2023.0.1      amazonlinux 147 k
 libXau                     x86_64        1.0.11-6.amzn2023.0.1      amazonlinux  33 k
 libXext                    x86_64        1.3.6-1.amzn2023.0.1       amazonlinux  42 k
 libXi                      x86_64        1.8.2-1.amzn2023.0.1       amazonlinux  42 k
 libXinerama                x86_64        1.1.5-6.amzn2023.0.1       amazonlinux  16 k
 libXrandr                  x86_64        1.5.4-3.amzn2023.0.1       amazonlinux  29 k
 libXrender                 x86_64        0.9.11-6.amzn2023.0.1      amazonlinux  29 k
 libXt                      x86_64        1.3.0-3.amzn2023.0.1       amazonlinux 183 k
 libXtst                    x86_64        1.2.5-1.amzn2023.0.1       amazonlinux  22 k
 libbrotli                  x86_64        1.0.9-4.amzn2023.0.2       amazonlinux 315 k
 libjpeg-turbo              x86_64        2.1.4-2.amzn2023.0.5       amazonlinux 190 k
 libpng                     x86_64        2:1.6.37-10.amzn2023.0.6   amazonlinux 128 k
 libxcb                     x86_64        1.17.0-1.amzn2023.0.1      amazonlinux 235 k
 pixman                     x86_64        0.43.4-1.amzn2023.0.4      amazonlinux 296 k
 xml-common                 noarch        0.6.3-56.amzn2023.0.2      amazonlinux  32 k

Transaction Summary
================================================================================
Install  35 Packages

Total download size: 110 M
Installed size: 286 M
Is this ok [y/N]: |
```

```
[root@ip-172-31-28-140 ~]# wget https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.2/bin/apache-tomcat-11.0.2.zip
--2024-12-23 06:10:34--  https://dlcdn.apache.org/tomcat/tomcat-11/v11.0.2/bin/apache-tomcat-11.0.2.zip
Resolving dlcdn.apache.org (dlcdn.apache.org)... 151.101.2.132, 2a04:4e42::644
Connecting to dlcdn.apache.org (dlcdn.apache.org)|151.101.2.132|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 14213779 (14M) [application/zip]
Saving to: 'apache-tomcat-11.0.2.zip'

apache-tomcat-11.0.2.zip          100%[=============================================================>]  13.55M  -

2024-12-23 06:10:35 (93.5 MB/s) - 'apache-tomcat-11.0.2.zip' saved [14213779/14213779]

[root@ip-172-31-28-140 ~]# ll
total 13884
-rw-r--r--. 1 root root 14213779 Dec  5 16:43 apache-tomcat-11.0.2.zip
-rw-r--r--. 1 root root        0 Dec 23 06:01 file1
-rw-r--r--. 1 root root        0 Dec 23 06:01 file2
-rw-r--r--. 1 root root        0 Dec 23 06:06 file3
[root@ip-172-31-28-140 ~]#
```

Q31: How can you set or change the server hostname?

A31: Run `hostnamectl set-hostname <name>` to set or change the hostname.

```
[root@ip-172-31-28-140 opt]# hostname
ip-172-31-28-140.ec2.internal
[root@ip-172-31-28-140 opt]# hostnamectl set-hostname Linux_user
[root@ip-172-31-28-140 opt]# sudo su -
Last login: Mon Dec 23 06:44:27 UTC 2024 on pts/1
[root@Linuxuser ~]# hostname
Linuxuser
[root@Linuxuser ~]#
```

Q32: How do you count the total number of lines, words, and characters in a file?

A32: `wc <filename>` counts lines, words, and characters.

```
[root@ip-172-31-28-140 opt]# wc file1
 18  16 155 file1
[root@ip-172-31-28-140 opt]#
```

Q33: How do you edit a file in Vim?

A33: Open Vim with `vim <filename>`. Press `i` to enter insert mode, edit, and save with `:wq`.

```
hi

welcome to aws devops class


----------------------

ac code

------------------

vc code

--------------------

gc code

----------------------
~
~
~
~
~
~
~
~
~
~
-- INSERT --
```

```
hi

welcome to aws devops class


----------------------

ac code

------------------

vc code

--------------------

gc code

----------------------
~
~
~
~
~
~
~
~
~
~
:wq
```

Q34: What does ping do?

A34: `ping` tests the connectivity between your system and a specified host.

```
[root@ip-172-31-28-140 ~]#
[root@ip-172-31-28-140 ~]# ping ip-172-31-28-140
PING ip-172-31-28-140.ec2.internal (172.31.28.140) 56(84) bytes of data.
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=1 ttl=127 time=0.013 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=2 ttl=127 time=0.030 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=3 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=4 ttl=127 time=0.029 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=5 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=6 ttl=127 time=0.029 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=7 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=8 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=9 ttl=127 time=0.030 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=10 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=11 ttl=127 time=0.028 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=12 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=13 ttl=127 time=0.027 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=14 ttl=127 time=0.032 ms
64 bytes from ip-172-31-28-140.ec2.internal (172.31.28.140): icmp_seq=15 ttl=127 time=0.029 ms
```

Q35: Which command shows the CPU configuration?

A35: `lscpu` provides detailed CPU informa

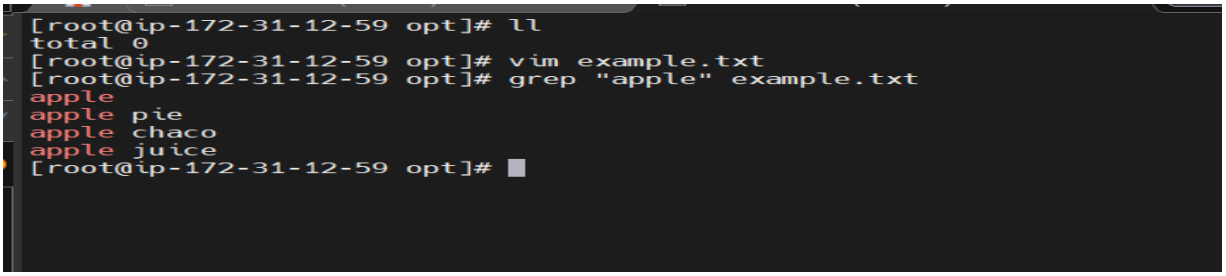
```
[root@ip-172-31-28-140 ~]# lscpu
Architecture:                       x86_64
  CPU op-mode(s):                   32-bit, 64-bit
  Address sizes:                    46 bits physical, 48 bits virtual
  Byte Order:                       Little Endian
CPU(s):                             1
  On-line CPU(s) list:              0
Vendor ID:                          GenuineIntel
  BIOS Vendor ID:                   Intel
  Model name:                       Intel(R) Xeon(R) CPU E5-2686 v4 @ 2.30GHz
    CPU family:                     6
    Model:                          79
    Thread(s) per core:             1
    Core(s) per socket:             1
    Socket(s):                      1
    Stepping:                       1
    BogoMIPS:                       4599.99
    Flags:                          fpu vme de pse tsc msr pae mce cx8 apic sep mtrr pge mca cmov pat pse36 clflu
                                    sh mmx fxsr sse sse2 ht syscall nx rdtscp lm constant_tsc rep_good nopl xtopo
                                    logy cpuid tsc_known_freq pni pclmulqdq ssse3 fma cx16 pcid sse4_1 sse4_2 x2a
                                    pic movbe popcnt tsc_deadline_timer aes xsave avx f16c rdrand hypervisor lahf
                                    _lm abm invpcid_single pti fsgsbase bmi1 avx2 smep bmi2 erms invpcid xsaveopt
Virtualization features:
  Hypervisor vendor:                Xen
  Virtualization type:              full
Caches (sum of all):
  L1d:                              32 KiB (1 instance)
  L1i:                              32 KiB (1 instance)
  L2:                               256 KiB (1 instance)
  L3:                               45 MiB (1 instance)
NUMA:
  NUMA node(s):                     1
  NUMA node0 CPU(s):                0
Vulnerabilities:
  Gather data sampling:             Not affected
  Itlb multihit:                    KVM: Mitigation: VMX unsupported
  L1tf:                             Mitigation; PTE Inversion
  Mds:                              Vulnerable: Clear CPU buffers attempted, no microcode; SMT Host state unknown
  Meltdown:                         Mitigation; PTI
  Mmio stale data:                  Vulnerable: Clear CPU buffers attempted, no microcode; SMT Host state unknown
  Reg file data sampling:           Not affected
  Retbleed:                         Not affected
  Spec rstack overflow:             Not affected
  Spec store bypass:                Vulnerable
  Spectre v1:                       Mitigation; usercopy/swapgs barriers and __user pointer sanitization
  Spectre v2:                       Mitigation; Retpolines; STIBP disabled; RSB filling; PBRSB-eIBRS Not affected
                                    ; BHI Retpoline
  Srbds:                            Not affected
  Tsx async abort:                  Not affected
[root@ip-172-31-28-140 ~]#
```

Q36: How do you remove files or directories without confirmation?

A36: Execute `rm -rf <directory>` to forcefully delete files or directories.

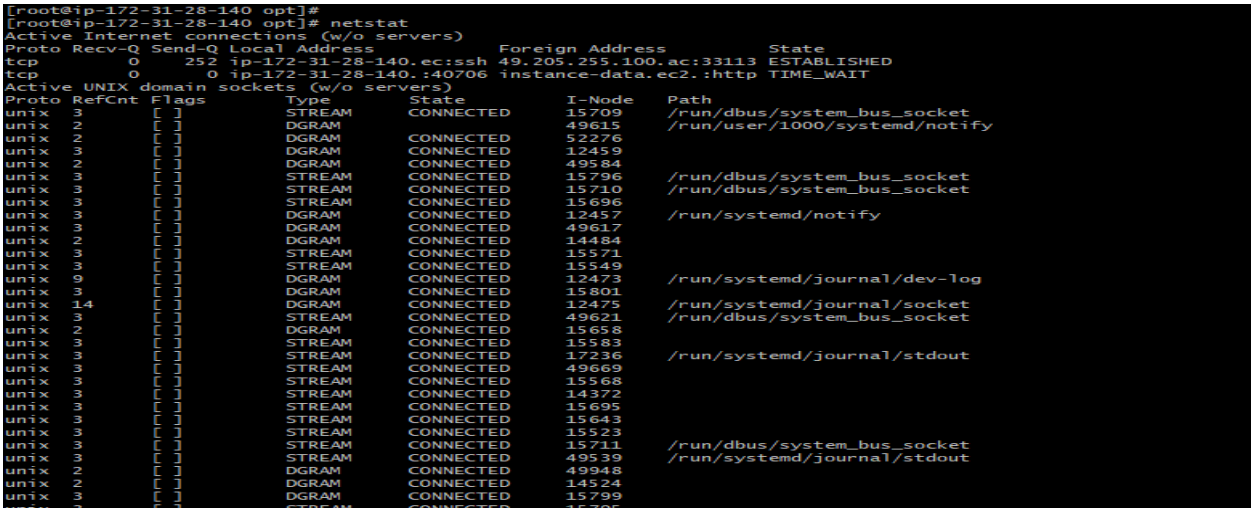
Q37: How can you search for a specific string in a file?

A37: `grep <pattern> <file>` searches for a string within a file.



Q38: Which command allows you to monitor open network connections?

A38: `netstat` displays active network connections.



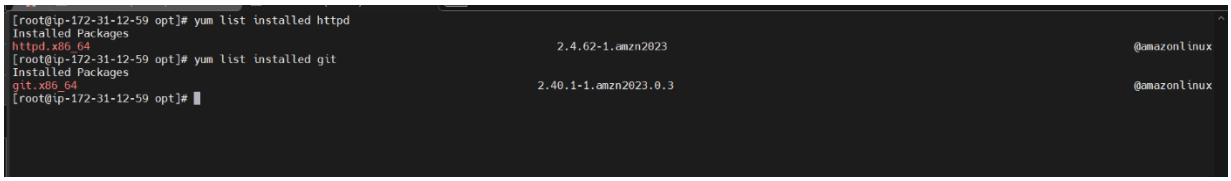
Q39: How do you display the first 10 lines of a file?

A39: `head <filename>` shows the first 10 lines of a file.

```
[root@ip-172-31-28-140 opt]# head file1
hi

welcome to aws devops class


----------------------

ac code

-------------------
[root@ip-172-31-28-140 opt]#
```

Q40: How do you check if a particular package is installed using yum?

A40: `yum list installed <package>` checks if a package is installed.



Q41: How do you find the current date and time?

A41: Execute the `date` command. It shows the current system date and time.

```
[root@ip-172-31-28-140 opt]# date
Mon Dec 23 07:12:35 UTC 2024
[root@ip-172-31-28-140 opt]#
```

Q42: How do you find files by name?

A42: Use `find /path -name "filename"` to search for files with a specific name.

```
[root@ip-172-31-12-59 yum.repos.d]# cd /opt/
[root@ip-172-31-12-59 opt]# ll
total 4
-rw-r--r--. 1 root root 61 Dec 23 12:25 example.txt
[root@ip-172-31-12-59 opt]# find / -name "amazonlinux.repo"
/etc/yum.repos.d/amazonlinux.repo
[root@ip-172-31-12-59 opt]#
```

Q43: How do you create a symbolic link to a file?

A43: The command `ln -s /path/to/file linkname` creates a symbolic link to a file.

```
[root@ip-172-31-12-59 opt]# vim example.txt
[root@ip-172-31-12-59 opt]# ll
total 4
-rw-r--r--. 1 root root 131 Dec 23 12:38 example.txt
[root@ip-172-31-12-59 opt]# ln -s /opt/example.txt symlink_example.txt
[root@ip-172-31-12-59 opt]# ls -l
total 4
-rw-r--r--. 1 root root 131 Dec 23 12:38 example.txt
lrwxrwxrwx. 1 root root  16 Dec 23 12:39 symlink_example.txt -> /opt/example.txt
[root@ip-172-31-12-59 opt]#
```

Q44: How do you view system logs?

A44: `journalctl` displays the system logs.

```
lrwxrwxrwx. 1 root root   6 Dec 23 07:13 file_1 -> /file1
[root@ip-172-31-28-140 opt]#
[root@ip-172-31-28-140 opt]# journalctl
Dec 23 05:36:06 localhost kernel: Linux version 6.1.119-129.201.amzn2023.x86_64 (mockbuild@ip-10-0-49-203) (gcc (GCC) 11.>
Dec 23 05:36:06 localhost kernel: Command line: BOOT_IMAGE=(hd0,gpt1)/boot/vmlinuz-6.1.119-129.201.amzn2023.x86_64 root=U>
Dec 23 05:36:06 localhost kernel: KASLR disabled
Dec 23 05:36:06 localhost kernel: BIOS-provided physical RAM map:
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x0000000000000000-0x000000000009dfff] usable
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x000000000009e000-0x000000000009ffff] reserved
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x00000000000e0000-0x00000000000fffff] reserved
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x0000000000100000-0x000000003fffffff] usable
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x00000000fc000000-0x00000000ffffffff] reserved
Dec 23 05:36:06 localhost kernel: NX (Execute Disable) protection: active
Dec 23 05:36:06 localhost kernel: SMBIOS 2.7 present.
Dec 23 05:36:06 localhost kernel: DMI: Xen HVM domU, BIOS 4.11.amazon 08/24/2006
Dec 23 05:36:06 localhost kernel: Hypervisor detected: Xen HVM
Dec 23 05:36:06 localhost kernel: Xen version 4.11.
Dec 23 05:36:06 localhost kernel: platform_pci_unplug: Netfront and the Xen platform PCI driver have been compiled for th>
Dec 23 05:36:06 localhost kernel: platform_pci_unplug: Blkfront and the Xen platform PCI driver have been compiled for th>
                                  You might have to change the root device
                                  from /dev/hd[a-d] to /dev/xvd[a-d]
                                  in your root= kernel command line option
Dec 23 05:36:06 localhost kernel: HVMOP_pagetable_dying not supported
Dec 23 05:36:06 localhost kernel: tsc: Detected 2299.998 MHz processor
Dec 23 05:36:06 localhost kernel: e820: update [mem 0x00000000-0x00000fff] usable ==> reserved
Dec 23 05:36:06 localhost kernel: e820: remove [mem 0x000a0000-0x000fffff] usable
Dec 23 05:36:06 localhost kernel: last_pfn = 0x40000 max_arch_pfn = 0x400000000
Dec 23 05:36:06 localhost kernel: x86/PAT: Configuration [0-7]: WB  WC  UC- UC  WB  WP  UC- WT
Dec 23 05:36:06 localhost kernel: found SMP MP-table at [mem 0x000fbb70-0x000fbb7f]
Dec 23 05:36:06 localhost kernel: RAMDISK: [mem 0x3612d000-0x3708dfff]
Dec 23 05:36:06 localhost kernel: ACPI: Early table checksum verification disabled
Dec 23 05:36:06 localhost kernel: ACPI: RSDP 0x00000000000EA020 000024 (v02 Xen   )
Dec 23 05:36:06 localhost kernel: ACPI: XSDT 0x00000000FC00A250 00005C (v01 Xen    HVM      00000000 HVML 00000000)
Dec 23 05:36:06 localhost kernel: ACPI: FACP 0x00000000FC00A150 0000F4 (v04 Xen    HVM      00000000 HVML 00000000)
Dec 23 05:36:06 localhost kernel: ACPI: DSDT 0x00000000FC001000 008A79 (v02 Xen    HVM      00000000 INTL 20090123)
lines 1-32...skipping...
Dec 23 05:36:06 localhost kernel: Linux version 6.1.119-129.201.amzn2023.x86_64 (mockbuild@ip-10-0-49-203) (gcc (GCC) 11.4.1 20230605>
Dec 23 05:36:06 localhost kernel: Command line: BOOT_IMAGE=(hd0,gpt1)/boot/vmlinuz-6.1.119-129.201.amzn2023.x86_64 root=UUID=3a8023d8>
Dec 23 05:36:06 localhost kernel: KASLR disabled
Dec 23 05:36:06 localhost kernel: BIOS-provided physical RAM map:
Dec 23 05:36:06 localhost kernel: BIOS-e820: [mem 0x0000000000000000-0x000000000009dfff] usable
```

Q45: How do you check disk space usage?

A45: The `df -h` command shows disk usage in a humanreadable format.

```
[root@ip-172-31-28-140 opt]# df -h
Filesystem      Size  Used Avail Use% Mounted on
devtmpfs        4.0M     0  4.0M   0% /dev
tmpfs           475M     0  475M   0% /dev/shm
tmpfs           190M  448K  190M   1% /run
/dev/xvda1      8.0G  1.9G  6.1G  24% /
tmpfs           475M     0  475M   0% /tmp
/dev/xvda128     10M  1.3M  8.7M  13% /boot/efi
tmpfs            95M     0   95M   0% /run/user/1000
[root@ip-172-31-28-140 opt]#
```

Q46: How do you compare two files?

A46: The `diff file1 file2` command compares the content of two files line by line.

```
[root@ip-172-31-28-140 opt]# diff file1 file2
1d0
< hi
3c2
< welcome to aws devops class
---
> hi,
6d4
< ------------------------
8d5
< ac code
10,18c7
< --------------------
<
< vc code
<
< ----------------------
<
< gc code
<
< ------------------------
---
> welcome
[root@ip-172-31-28-140 opt]#
```

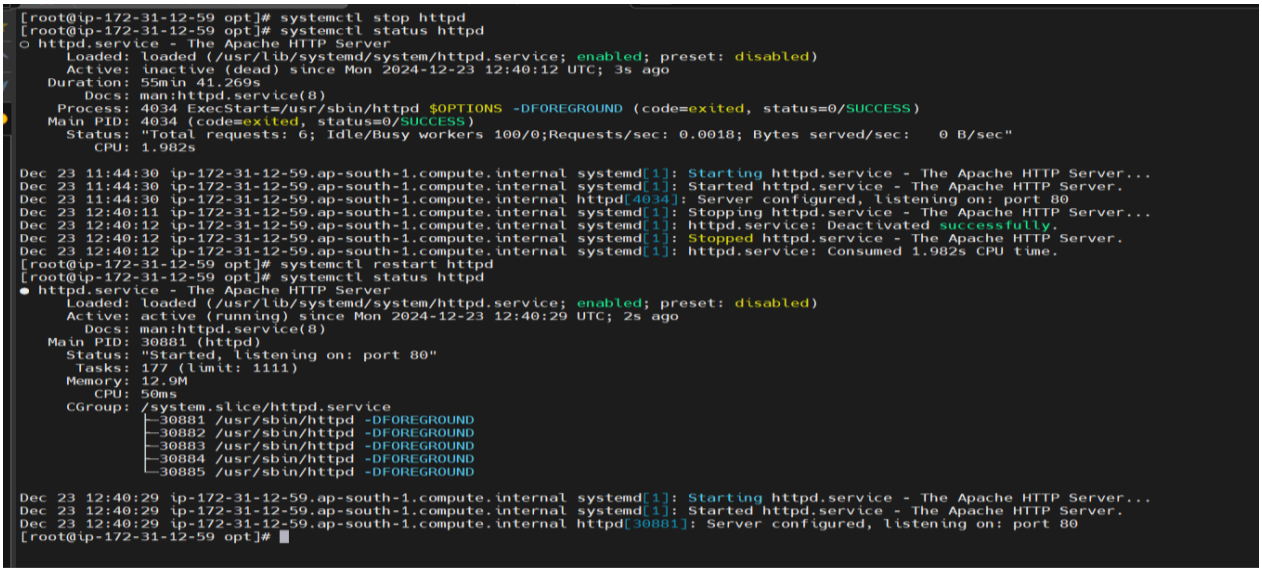
Q47: How do you display the kernel version?

A47: `uname -r` shows the version of the kernel.

```
[root@ip-172-31-28-140 opt]# uname -r
6.1.119-129.201.amzn2023.x86_64
[root@ip-172-31-28-140 opt]#
```

Q48: How do you restart a service?

A48: `systemctl restart servicename` restarts the specified service.



Q49: How do you kill a process by its name?

A49: `pkill processname` terminates processes by name.

```
[root@ip-172-31-12-59 opt]# kill -9 30881
-bash: kill: (30881) - No such process
[root@ip-172-31-12-59 opt]#
```

```
root        1966       1  0 11:33 ?        00:00:10 /usr/sbin/rngd -f -x pkcs11 -x nist
root        1968       1  0 11:33 ?        00:00:00 /usr/lib/systemd/systemd-homed
root        1969       1  0 11:33 ?        00:00:00 /usr/lib/systemd/systemd-logind
dbus        1975       1  0 11:33 ?        00:00:00 /usr/bin/dbus-broker-launch --scope system --audit
systemd+    1976       1  0 11:33 ?        00:00:00 /usr/lib/systemd/systemd-networkd
dbus        1978    1975  0 11:33 ?        00:00:00 dbus-broker --log 4 --controller 9 --machine-id ec2494582d2a28ce1031a513c0149d64 --max-bytes 536870912 --max-fds 4096 --max-matches 1
root        1994    1961  0 11:33 ?        00:00:00 /usr/sbin/acpid -f
root        1999       1  0 11:33 ?        00:00:00 /usr/sbin/gssproxy -D
root        2165       1  0 11:33 ?        00:00:00 /usr/bin/amazon-ssm-agent
root        2169       1  0 11:33 ?        00:00:00 sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups
root        2176       1  0 11:33 ?        00:00:00 /usr/sbin/atd -f
root        2182       1  0 11:33 tty1     00:00:00 /sbin/agetty -o -p -- \u --noclear - linux
root        2183       1  0 11:33 ttyS0    00:00:00 /sbin/agetty -o -p -- \u --keep-baud 115200,57600,38400,9600 - vt220
chrony      2198       1  0 11:33 ?        00:00:00 /usr/sbin/chronyd -F 2
root        2320       1  0 11:34 ?        00:00:00 /usr/lib/systemd/systemd-userdbd
ec2-user    2325       1  0 11:34 ?        00:00:00 /usr/lib/systemd/systemd --user
ec2-user    2327    2325  0 11:34 ?        00:00:00 (sd-pam)
root        2390    2169  0 11:34 ?        00:00:00 sshd: ec2-user [priv]
ec2-user    2395    2390  0 11:34 ?        00:00:00 sshd: ec2-user@pts/1
ec2-user    2396    2395  0 11:34 pts/1    00:00:00 -bash
root        2432    2396  0 11:34 pts/1    00:00:00 sudo su -
root        2434    2432  0 11:34 pts/2    00:00:00 sudo su -
root        2435    2434  0 11:34 pts/2    00:00:00 su -
root        2436    2435  0 11:34 pts/2    00:00:00 -bash
root       29265       2  0 12:10 ?        00:00:00 [kworker/u30:2-events_unbound]
root       30173       2  0 12:27 ?        00:00:00 [kworker/0:0-events_power_efficient]
root       30303       2  0 12:30 ?        00:00:00 [kworker/u30:1-events_unbound]
root       30492       2  0 12:33 ?        00:00:00 [kworker/0:2-events]
root       30747       2  0 12:38 ?        00:00:00 [kworker/0:1-cgroup_destroy]
root       30812       2  0 12:40 ?        00:00:00 [kworker/u30:0-events_unbound]
root       30813       2  0 12:40 ?        00:00:00 [kworker/u30:3]
root       30881       1  0 12:40 ?        00:00:00 /usr/sbin/httpd -DFOREGROUND
apache     30882   30881  0 12:40 ?        00:00:00 /usr/sbin/httpd -DFOREGROUND
apache     30883   30881  0 12:40 ?        00:00:00 /usr/sbin/httpd -DFOREGROUND
apache     30884   30881  0 12:40 ?        00:00:00 /usr/sbin/httpd -DFOREGROUND
apache     30885   30881  0 12:40 ?        00:00:00 /usr/sbin/httpd -DFOREGROUND
root       31064    2320  0 12:41 ?        00:00:00 systemd-userwork: waiting...
root       31065    2320  0 12:41 ?        00:00:00 systemd-userwork: waiting...
root       31066    2320  0 12:41 ?        00:00:00 systemd-userwork: waiting...
root       31126       2  0 12:41 ?        00:00:00 [kworker/0:3-events]
root       31127    2436  0 12:42 pts/2    00:00:00 ps -ef
[root@ip-172-31-12-59 opt]#
```

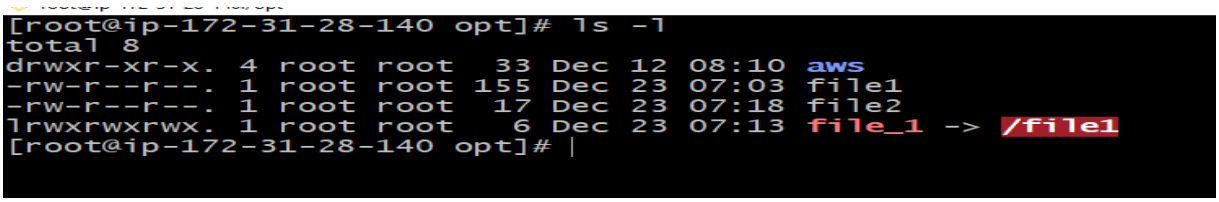
Q50: How do you display environment variables?

A50: `printenv` lists all environment variables.

```
[root@ip-172-31-28-140 opt]# printenv
SHELL=/bin/bash
HISTCONTROL=ignoredups
SYSTEMD_COLORS=false
HISTSIZE=1000
HOSTNAME=ip-172-31-28-140.ec2.internal
PWD=/opt
LOGNAME=root
HOME=/root
LANG=C.UTF-8
LS_COLORS=rs=0:di=01;34:ln=01;36:mh=00:pi=40;33:so=01;35:do=01;35:bd=40;33;01:cd=40;33;01:or=40;31;01:mi=01;37;4
1:su=37;41:sg=30;43:ca=30;41:tw=30;42:ow=34;42:st=37;44:ex=01;32:*.tar=01;31:*.tgz=01;31:*.arc=01;31:*.arj=01;31
:*.taz=01;31:*.lha=01;31:*.lz4=01;31:*.lzh=01;31:*.lzma=01;31:*.tlz=01;31:*.txz=01;31:*.tzo=01;31:*.t7z=01;31:*.
zip=01;31:*.z=01;31:*.dz=01;31:*.gz=01;31:*.lrz=01;31:*.lz=01;31:*.lzo=01;31:*.xz=01;31:*.zst=01;31:*.tzst=01;31
:*.bz2=01;31:*.bz=01;31:*.tbz=01;31:*.tbz2=01;31:*.tz=01;31:*.deb=01;31:*.rpm=01;31:*.jar=01;31:*.war=01;31:*.ea
r=01;31:*.sar=01;31:*.rar=01;31:*.alz=01;31:*.ace=01;31:*.zoo=01;31:*.cpio=01;31:*.7z=01;31:*.rz=01;31:*.cab=01;
31:*.wim=01;31:*.swm=01;31:*.dwm=01;31:*.esd=01;31:*.jpg=01;35:*.jpeg=01;35:*.mjpg=01;35:*.mjpeg=01;35:*.gif=01;
35:*.bmp=01;35:*.pbm=01;35:*.pgm=01;35:*.ppm=01;35:*.tga=01;35:*.xbm=01;35:*.xpm=01;35:*.tif=01;35:*.tiff=01;35:
*.png=01;35:*.svg=01;35:*.svgz=01;35:*.mng=01;35:*.pcx=01;35:*.mov=01;35:*.mpg=01;35:*.mpeg=01;35:*.m2v=01;35:*.
mkv=01;35:*.webm=01;35:*.webp=01;35:*.ogm=01;35:*.mp4=01;35:*.m4v=01;35:*.mp4v=01;35:*.vob=01;35:*.qt=01;35:*.nu
v=01;35:*.wmv=01;35:*.asf=01;35:*.rm=01;35:*.rmvb=01;35:*.flc=01;35:*.avi=01;35:*.fli=01;35:*.flv=01;35:*.gl=01;
35:*.dl=01;35:*.xcf=01;35:*.xwd=01;35:*.yuv=01;35:*.cgm=01;35:*.emf=01;35:*.ogv=01;35:*.ogx=01;35:*.aac=01;36:*.
au=01;36:*.flac=01;36:*.m4a=01;36:*.mid=01;36:*.midi=01;36:*.mka=01;36:*.mp3=01;36:*.mpc=01;36:*.ogg=01;36:*.ra=
01;36:*.wav=01;36:*.oga=01;36:*.opus=01;36:*.spx=01;36:*.xspf=01;36:
TERM=xterm
LESSOPEN=||/usr/bin/lesspipe.sh %s
USER=root
SHLVL=1
S_COLORS=auto
which_declare=declare -f
PATH=/root/.local/bin:/root/bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin
MAIL=/var/spool/mail/root
BASH_FUNC_which%%=() {  ( alias;
 eval ${which_declare} ) | /usr/bin/which --tty-only --read-alias --read-functions --show-tilde --show-dot "$@"
}
_=/usr/bin/printenv
OLDPWD=/root
[root@ip-172-31-28-140 opt]# --
```

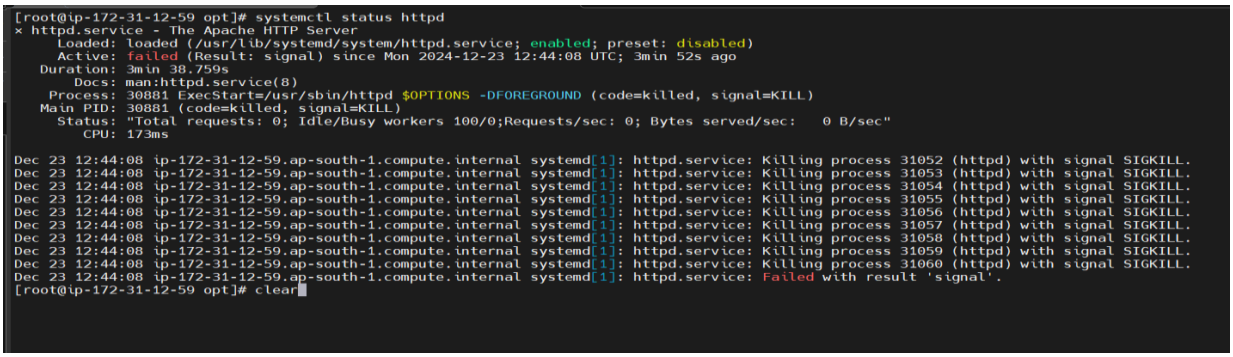
Q51: How do you view the contents of a directory in detail?

A51: `ls -l` lists directory contents in long format, showing details.



Q52: How do you clear the terminal screen?

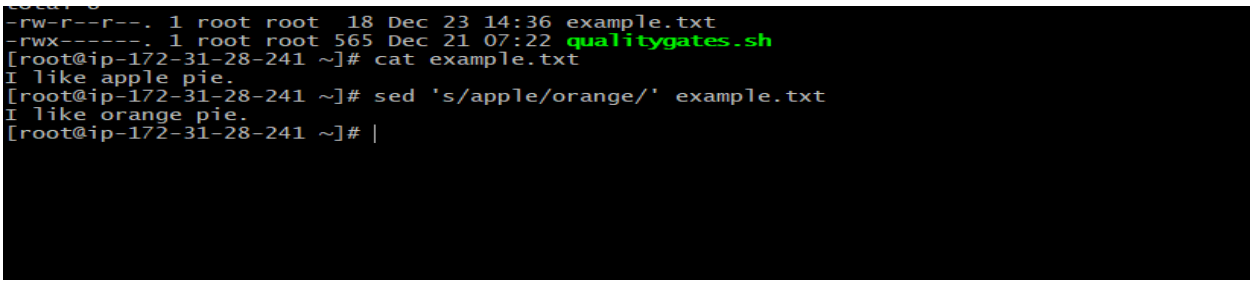
A52: The `clear` command clears the terminal screen.



Q53: What is sed command and example?

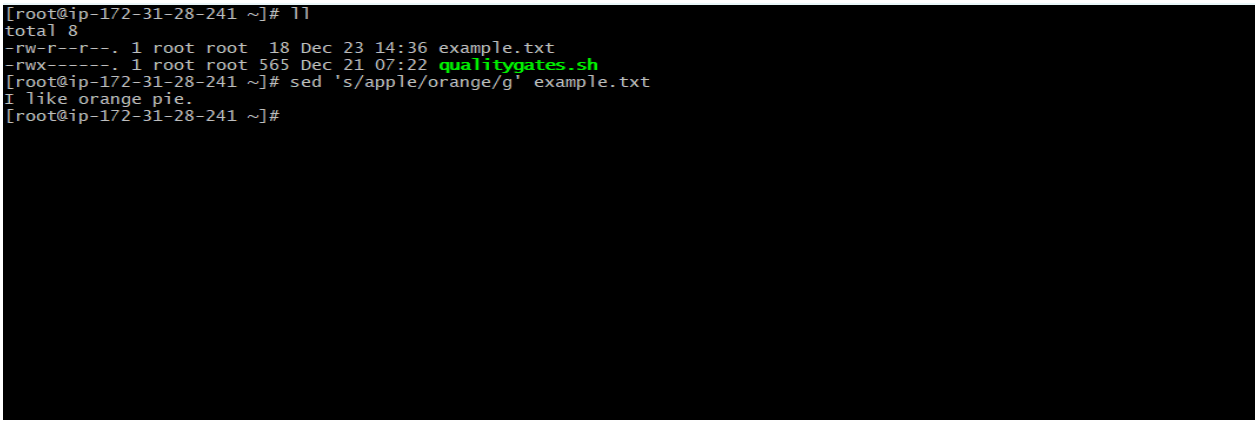
A53: **sed** is a command-line tool used for text manipulation. Here's a simple example

sed 's/apple/orange/' example.txt



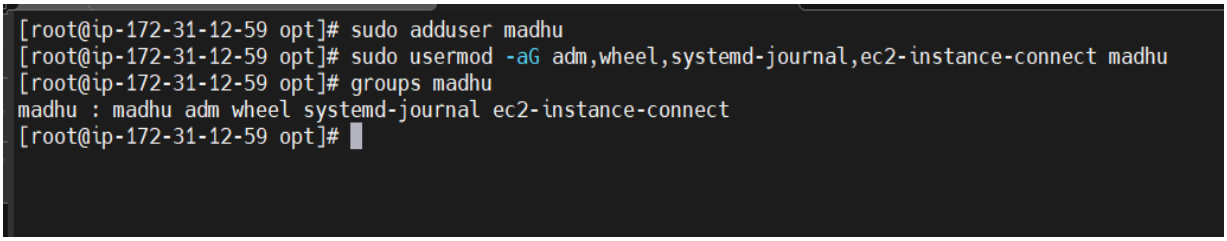
Q54: How can you use the sed command to replace all occurrences of a specific word in a file??

A54: sed 's/apple/orange/g' example.txt



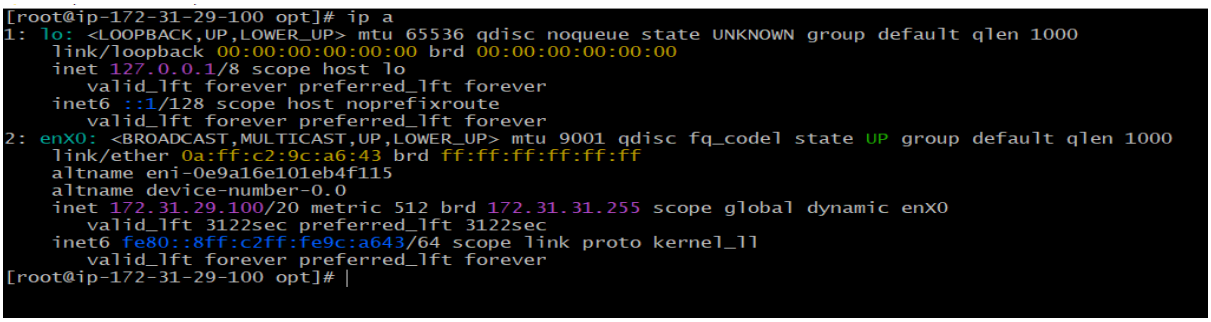
Q55: How do you add a new user to a group?

A55: `usermod -aG groupname username` adds a user to a specified group.



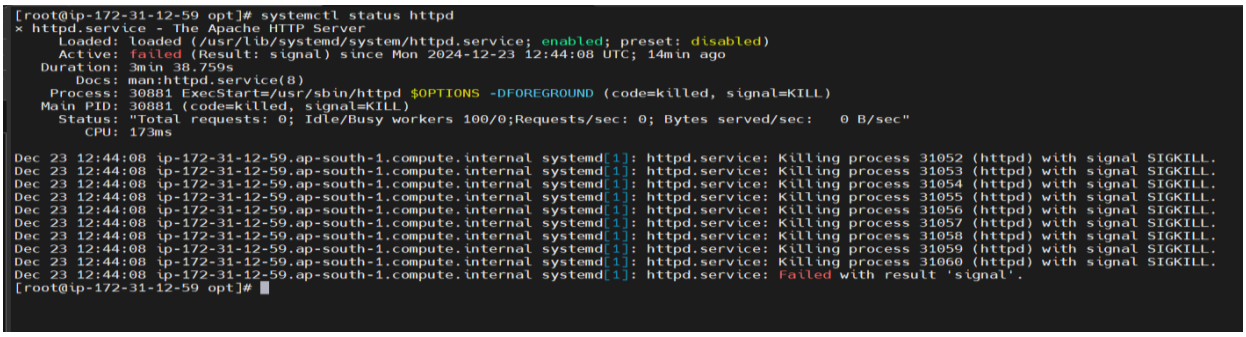
Q56: How do you display your network interfaces?

A56: `ip a` shows the network interfaces on your system.



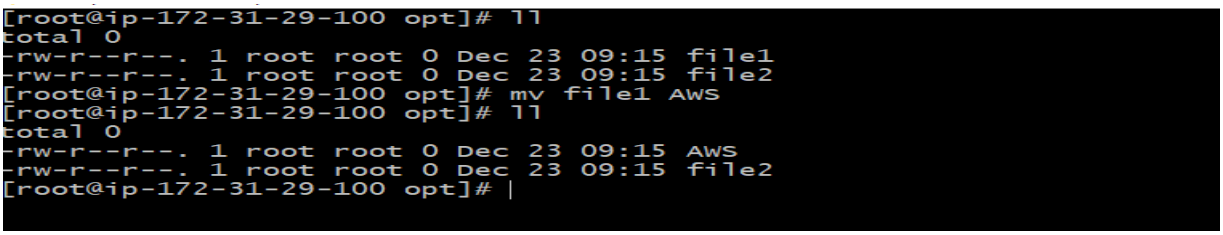
Q57: How do you check the status of a service?

A57: `systemctl status servicename` checks the current status of a service.



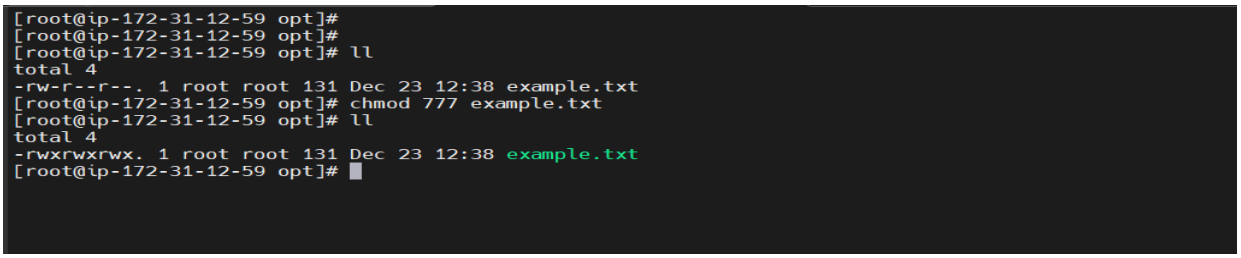
Q58: How do you rename a file?

A58: The `mv oldname newname` command renames a file.



Q59: How do you change the permissions of a file?

A59: `chmod 755 filename` changes the file permissions to 755.



Q60: How do you switch to another user?

A60: Use `su username` to switch to a different user account.

```
[root@ip-172-31-29-100 opt]# whoami
root
[root@ip-172-31-29-100 opt]# su Linux_user
[Linux_user@ip-172-31-29-100 opt]$ whoami
Linux_user
[Linux_user@ip-172-31-29-100 opt]$
```

Q61: How do you display the manual for a command?

A61: The `man command` shows the manual page for the specified command.

```
BASH_BUILTINS(1)                General Commands Manual                BASH_BUILTINS(1)

NAME
       :, ., [, alias, bg, bind, break, builtin, caller, cd, command, compgen, complete, com-
       popt, continue, declare, dirs, disown, echo, enable, eval, exec, exit, export,  false,
       fc,  fg,  getopts, hash, help, history, jobs, kill, let, local, logout, mapfile, popd,
       printf, pushd, pwd, read, readarray, readonly, return, set, shift, shopt, source, sus-
       pend,  test,  times,  trap, true, type, typeset, ulimit, umask, unalias, unset, wait -
       bash built-in commands, see bash(1)

BASH BUILTIN COMMANDS
       Unless otherwise noted, each builtin command documented in this section  as  accepting
       options  preceded  by  -  accepts  -- to signify the end of the options.  The :, true,
       false, and test/[ builtins do not accept options and do not treat --  specially.   The
       exit,  logout, return, break, continue, let, and shift builtins accept and process ar-
       guments beginning with - without requiring --.  Other builtins that  accept  arguments
       but are not specified as accepting options interpret arguments beginning with - as in-
       valid options and require -- to prevent this interpretation.
       : [arguments]
              No effect; the command does nothing beyond expanding arguments  and  performing
              any specified redirections.  The return status is zero.

         .  filename [arguments]
       source filename [arguments]
              Read  and  execute  commands from filename in the current shell environment and
              return the exit status of the last command executed from filename.  If filename
              does not contain a slash, filenames in PATH are used to find the directory con-
              taining filename, but filename does  not  need  to  be  executable.   The  file
              searched  for  in  PATH need not be executable.  When bash is not in posix mode,
              it searches the current directory if no file is found in PATH.   If  the  sour-
 Manual page command(1) line 1 (press h for help or q to quit)
```

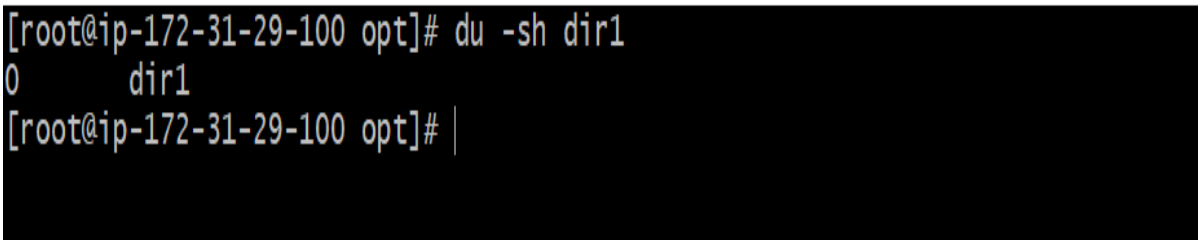
Q62: How do you check your IP address?

A62: `hostname -I` displays the IP address of the system.

```
Linux_user@ip-172-31-29-100:/opt
[Linux_user@ip-172-31-29-100 opt]$ hostname -I
172.31.29.100
[Linux_user@ip-172-31-29-100 opt]$
```

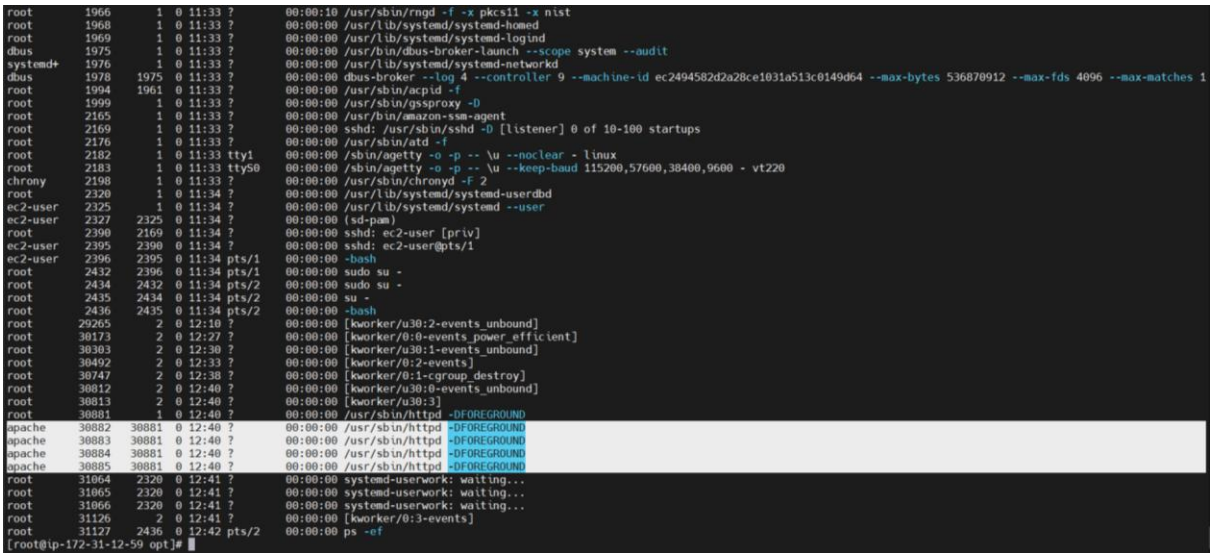
Q63: How do you display the size of a directory?

A63: `du -sh directory` shows the total size of a directory.



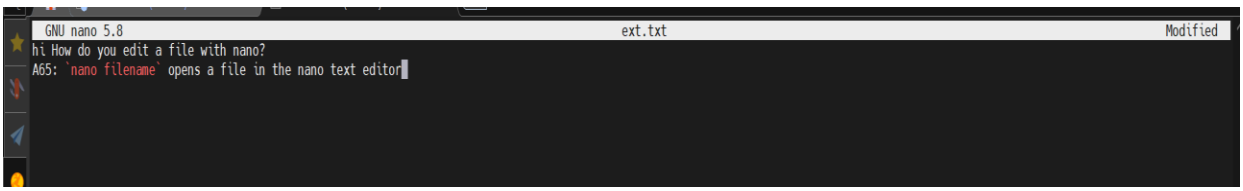
Q64: How do you terminate a process by its ID?

A64: `kill PID` terminates a process by its process ID.



Q65: How do you edit a file with nano?

A65: `nano filename` opens a file in the nano text editor.



Q66: How do you display active network connections?

A66: `ss -tuln` shows active network connections.

```
[root@ip-172-31-29-100 opt]# ss -tuln
Netid     State      Recv-Q     Send-Q                          Local Address:Port          Peer Address:Port
udp       UNCONN     0          0                                   127.0.0.1:323              0.0.0.0:*
udp       UNCONN     0          0                            172.31.29.100%enX0:68             0.0.0.0:*
udp       UNCONN     0          0                                       [::1]:323                 [::]:*
udp       UNCONN     0          0                  [fe80::8ff:c2ff:fe9c:a643]%enX0:546             [::]:*
tcp       LISTEN     0          128                                   0.0.0.0:22             0.0.0.0:*
tcp       LISTEN     0          128                                      [::]:22                [::]:*
[root@ip-172-31-29-100 opt]#
```

Q67: How do you check the listening ports?

A67: `netstat -tuln` displays listening network ports.

```
[root@ip-172-31-29-100 opt]# netstat -tuln
Active Internet connections (only servers)
Proto Recv-Q Send-Q Local Address           Foreign Address         State
tcp        0      0 0.0.0.0:22              0.0.0.0:*               LISTEN
tcp6       0      0 :::22                   :::*                    LISTEN
udp        0      0 127.0.0.1:323           0.0.0.0:*
udp        0      0 172.31.29.100:68        0.0.0.0:*
udp6       0      0 ::1:323                 :::*
udp6       0      0 fe80::8ff:c2ff:fe9c:546 :::*
[root@ip-172-31-29-100 opt]#
```

Q68: How do you display the currently logged-in users?

A68: The `who` command lists all users currently logged in.

```
[root@ip-172-31-29-100 opt]# who
ec2-user pts/0        2024-12-23 09:07 (49.205.255.100)
ec2-user pts/1        2024-12-23 09:07 (49.205.255.100)
[root@ip-172-31-29-100 opt]#
```

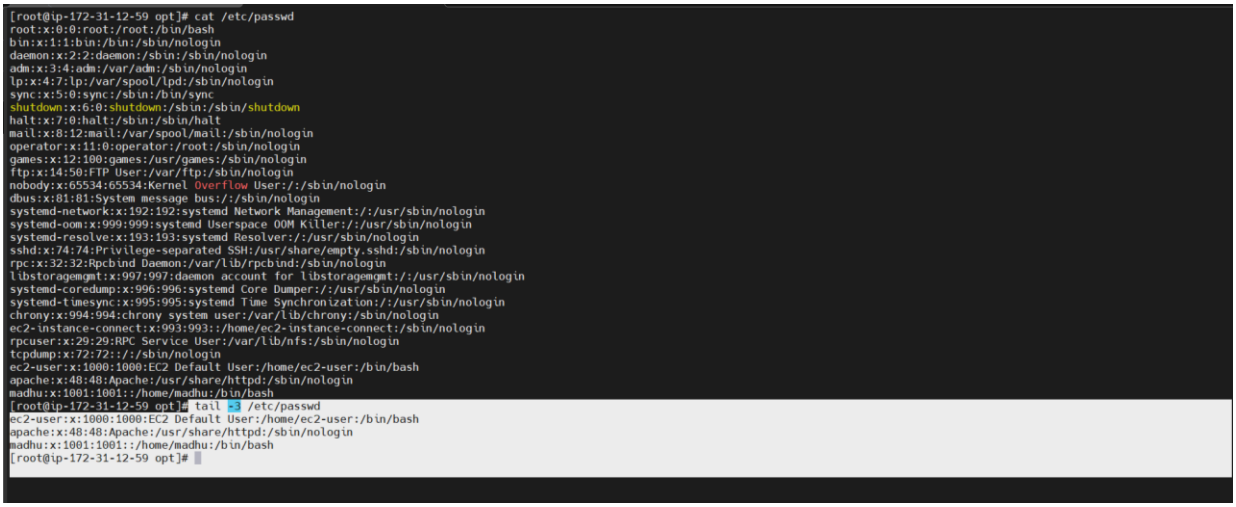
Q69: How do you display the last login information?

A69: The `last` command shows a list of last logins.

```
[root@ip-172-31-29-100 opt]# last
ec2-user pts/0        49.205.255.100   Mon Dec 23 09:07   still logged in
reboot   system boot  6.1.119-129.201. Mon Dec 23 09:06   still running

wtmp begins Mon Dec 23 09:06:28 2024
[root@ip-172-31-29-100 opt]#
```

Q70: How do you monitor real-time log updates?

A70: `tail -f filename` follows and displays real-time updates to a file.



Q71: How do you list all users on the system?

A71: cat /etc/passwd lists all user accounts.

```
[root@ip-172-31-29-100 opt]# cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
bin:x:1:1:bin:/bin:/sbin/nologin
daemon:x:2:2:daemon:/sbin:/sbin/nologin
adm:x:3:4:adm:/var/adm:/sbin/nologin
lp:x:4:7:lp:/var/spool/lpd:/sbin/nologin
sync:x:5:0:sync:/sbin:/bin/sync
shutdown:x:6:0:shutdown:/sbin:/sbin/shutdown
halt:x:7:0:halt:/sbin:/sbin/halt
mail:x:8:12:mail:/var/spool/mail:/sbin/nologin
operator:x:11:0:operator:/root:/sbin/nologin
games:x:12:100:games:/usr/games:/sbin/nologin
ftp:x:14:50:FTP User:/var/ftp:/sbin/nologin
nobody:x:65534:65534:Kernel Overflow User:/:/sbin/nologin
dbus:x:81:81:System message bus:/:/sbin/nologin
systemd-network:x:192:192:systemd Network Management:/:/usr/sbin/nologin
systemd-oom:x:999:999:systemd Userspace OOM Killer:/:/usr/sbin/nologin
systemd-resolve:x:193:193:systemd Resolver:/:/usr/sbin/nologin
sshd:x:74:74:Privilege-separated SSH:/usr/share/empty.sshd:/sbin/nologin
rpc:x:32:32:Rpcbind Daemon:/var/lib/rpcbind:/sbin/nologin
libstoragemgmt:x:997:997:daemon account for libstoragemgmt:/:/usr/sbin/nologin
systemd-coredump:x:996:996:systemd Core Dumper:/:/usr/sbin/nologin
systemd-timesync:x:995:995:systemd Time Synchronization:/:/usr/sbin/nologin
chrony:x:994:994:chrony system user:/var/lib/chrony:/sbin/nologin
ec2-instance-connect:x:993:993::/home/ec2-instance-connect:/sbin/nologin
rpcuser:x:29:29:RPC Service User:/var/lib/nfs:/sbin/nologin
tcpdump:x:72:72::/:/sbin/nologin
ec2-user:x:1000:1000:EC2 Default User:/home/ec2-user:/bin/bash
Linux_user:x:1001:1001::/home/Linux_user:/bin/bash
tomcat_user:x:1002:1002::/home/tomcat_user:/bin/bash
[root@ip-172-31-29-100 opt]#
```

Q72: How do you display the disk usage of the current directory?

A72: du -sh . shows the disk usage of the current directory.

```
[root@ip-172-31-29-100 opt]# du -sh
4.0K    .
[root@ip-172-31-29-100 opt]#
```

Q73: How do you set a password for a user?

A73: passwd username sets or changes the password for a user.

```
[root@ip-172-31-29-100 opt]# passwd tomcat_user
Changing password for user tomcat_user.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ip-172-31-29-100 opt]#
```

Q74: How do you compress a file?

A74: gzip filename compresses a file.

```
[root@ip-172-31-29-100 opt]# ll
total 20
-rw-r--r--. 1 root root     0 Dec 23 09:15 AWS
drwxr-xr-x. 9 root root 16384 Dec  5 15:19 apache-tomcat-11.0.2
-rw-r--r--. 1 root root     2 Dec 23 09:42 aws
drwxr-xr-x. 2 root root     6 Dec 23 09:39 dir1
-rw-r--r--. 1 root root     0 Dec 23 09:34 file1
-rw-r--r--. 1 root root     0 Dec 23 09:15 file2
[root@ip-172-31-29-100 opt]# zip -r tomcat apache-tomcat-11.0.2/
```

```
[root@ip-172-31-29-100 opt]# ll
total 13916
-rw-r--r--. 1 root root        0 Dec 23 09:15 AWS
drwxr-xr-x. 9 root root    16384 Dec  5 15:19 apache-tomcat-11.0.2
-rw-r--r--. 1 root root        2 Dec 23 09:42 aws
drwxr-xr-x. 2 root root        6 Dec 23 09:39 dir1
-rw-r--r--. 1 root root        0 Dec 23 09:34 file1
-rw-r--r--. 1 root root        0 Dec 23 09:15 file2
-rw-r--r--. 1 root root 14227810 Dec 23 10:09 tomcat.zip
[root@ip-172-31-29-100 opt]#
```

Q75: How do you extract a tar.gz file?

A75: tar -xvf file.tar.gz extracts the contents of a tar.gz file.

```
[root@ip-172-31-29-100 opt]# ll
total 13356
-rw-r--r--. 1 root root        0 Dec 23 09:15 AWS
-rw-r--r--. 1 root root 13671357 Dec  5 16:43 apache-tomcat-11.0.2.tar.gz
-rw-r--r--. 1 root root        2 Dec 23 09:42 aws
drwxr-xr-x. 2 root root        6 Dec 23 09:39 dir1
-rw-r--r--. 1 root root        0 Dec 23 09:34 file1
-rw-r--r--. 1 root root        0 Dec 23 09:15 file2
[root@ip-172-31-29-100 opt]# tar -xvf apache-tomcat-11.0.2.tar.gz
```

```
[root@ip-172-31-29-100 opt]# ll
total 13372
-rw-r--r--. 1 root root        0 Dec 23 09:15 AWS
drwxr-xr-x. 9 root root    16384 Dec 23 10:05 apache-tomcat-11.0.2
-rw-r--r--. 1 root root 13671357 Dec  5 16:43 apache-tomcat-11.0.2.tar.gz
-rw-r--r--. 1 root root        2 Dec 23 09:42 aws
drwxr-xr-x. 2 root root        6 Dec 23 09:39 dir1
-rw-r--r--. 1 root root        0 Dec 23 09:34 file1
-rw-r--r--. 1 root root        0 Dec 23 09:15 file2
[root@ip-172-31-29-100 opt]#
```

Q76: How do you view the command history?

A76: history displays the list of previously executed commands.

```
[root@ip-172-31-29-100 opt]#
[root@ip-172-31-29-100 opt]# history
    1  ll
    2  cd /opt
    3  ll
    4  rm -rf aws
    5  ll
    6  ip a
    7  ll
    8  touch file1 file2
    9  ll
   10  mv file1 AWS
   11  ll
   12  chmod 755 aws
   13  useradd Linux_user
   14  tail -3 /etc/passwd
   15  cat /etc/passwd
   16  su Linux_user
   17  whoami
   18  su Linux_user
   19  touch file1
   20  ll
   21  passwd Linux_server
   22  cat /etc/passwd
   23  useradd tomcat_user
   24  passwd tomcat_user
   25  su - tomcat_user
   26  ll
   27  mkdir dir1
   28  ll
   29  du -sh dir1
   30  ll
   31  nano aws
   32  su -tuln
   33  su --tuln
   34  ss -tuln
   35  netstat -tuln
   36  who
   37  last
```

SCENARIO-BASED QUESTIONS AND ANSWERS

1. A new employee joins your team. How would you create a new user with a home directory and set the appropriate permissions?

A. *for example*: madhu has joined your company. You got a ticket to create user credentials for madhu.

Steps to follow:

- sudo useradd -m -s /bin/bash madhu
- sudo passwd madhu

2. You receive a notification that a server is running out of disk space. How would you identify the cause and free up space?

A. for example: If /var/log is full due to old logs, delete unnecessary files to free up space.

Steps to follow:

- df -h # Check disk usage
- du -sh /var/log/* # Check large files
- sudo rm -rf /var/log/old_logs

3. A web server service fails unexpectedly. How would you troubleshoot and bring it back online?

A. for example*:* In your project suddenly Httpd server is down.

Steps to follow:

- Sudo systemctl status httpd

- **If httpd is stopped/inactive then use :** sudo systemctl start httpd

Or

Check Port Conflicts: Verify if another service is using Httpd's default port (80/443):

- sudo netstat -tuln | grep :80

4.A developer complains they can't access a directory despite being in the correct group. How would you troubleshoot file permissions?

A. for example : While connecting to your ec2 instance Via Gitbash using Pem.file, but it rejects when you logging without giving permissions to it.

- So "sudo chmod 400 yourpemfilename.pem"

5. You notice high CPU usage on a server. What steps would you take to identify and resolve the issue?

A. for example : you have installed linux O/S in that you have installed **java, git, httpd……etc.** it creates sudden load increase on your linux O/S. **it causes you trouble while using your O/S.** To check which process has creating load on O/S, by using below commands you can find it.

- **htop ,top**

6. A server can't access the internet, but other devices on the network work fine. How would you troubleshoot this?

A. When a server can't access the internet, here are the steps to identify and resolve the issue with a practical example:

Steps:

1. **Check Internet Connectivity:**

- ping 8.8.8.8 **# Check internet connectivity**

2. Check IP Address:

- ip a **# Check IP address**

3. Restart Networking Service:

- systemctl restart networking **# Restart networking service**

7. Users can't SSH into a server. What steps would you take to fix this?

A. If SSH service is down or port 22 is blocked, enable the service and open the firewall.

Use the following commands:

- **sudo systemctl status ssh**
- **sudo ufw allow ssh**

8. A server can't resolve domain names, but IP addresses work fine. How would you resolve this issue?

A. please check : cat /etc/resolv.conf

Example: If 8.8.8.8 is missing from DNS nameservers, add it to /etc/resolv.conf

9. You experience intermittent packet loss between two servers. What diagnostic tools would you use?

A. If packets drop frequently, investigate the network path using **traceroute**.

Steps to follow :

- ping -c 10 google.com
- traceroute google.com

10. A service isn't accessible remotely. How would you check and fix firewall rules?

A. example : If a web app runs on port **8080** but is **inaccessible**, allow the port using ufw.

Steps :

- **sudo ufw status**
- **sudo ufw allow 8080/tcp**

11. A network file system mount fails during boot. How would you troubleshoot this problem?

A. Example: If **/etc/fstab** is misconfigured, fix the entry and run **mount -a** to apply it

Steps :

- **sudo mount –a**

12. A server's file system becomes read-only. How would you fix it without data loss?

A. Example: Use fsck on the affected partition to repair file system errors.

- **sudo fsck /dev/sda1**

13. You accidentally delete important files. How would you recover them if backups are in place?

A. Example: If **/var/www** is deleted, restore it from the **/backup** folder using **rsync.**

- **rsync -av /backup /restore_location**

14. System logs are filling up the disk space. How would you configure log rotation?

A. Set automatic log rotation in **logrotate.conf** to prevent logs from growing indefinitely.

- **cat /etc/logrotate.conf**