

MOHD SAIF UDDIN

6300673439

@Task on Linux:

=====

- 1) Create user with name Techie and provide sudo access to user.

```
##
##      user      MACHINE=COMMANDS
##
## The COMMANDS section may have other options added to it.
##
## Allow root to run any commands anywhere
root    ALL=(ALL)        ALL

## Allows members of the 'sys' group to run networking, software,
## service management apps and more.
# %sys ALL = NETWORKING, SOFTWARE, SERVICES, STORAGE, DELEGATING, PROCESSES, LOCATE, DRIVERS

## Allows people in group wheel to run all commands
%wheel  ALL=(ALL)        ALL
%farooq ALL=(ALL)        ALL
## Same thing without a password
# %wheel    ALL=(ALL)        NOPASSWD: ALL
# %newtechi  ALL=(ALL)        NOPASSWD: ALL
## Allows members of the users group to mount and unmount the
## cdrom as root
# %users    ALL=/sbin/mount /mnt/cdrom, /sbin/umount /mnt/cdrom

## Allows members of the users group to shutdown this system
# %users    localhost=/sbin/shutdown -h now

## Read drop-in files from /etc/sudoers.d (the # here does not mean a comment)
#includedir /etc/sudoers.d
"/etc/sudoers" [readonly] 120L, 4437B
```

```

~\  ###          Amazon Linux 2023
~~\  #####\
~~\  #####|
~~\  \#/      https://aws.amazon.com/linux/amazon-linux-2023
~~\  V~'  '--->
~~\  .-.-.-
~~\  /-.-.-
~~\  /m/'
Last login: Sat Aug  2 06:02:04 2025 from 18.206.107.28
[ec2-user@ip-172-31-37-173 ~]$ sudo su
[root@ip-172-31-37-173 ec2-user]# useradd techi
useradd: warning: the home directory /home/techi already exists.
useradd: Not copying any file from skel directory into it.
Creating mailbox file: File exists
[root@ip-172-31-37-173 ec2-user]# useradd newtechi
[root@ip-172-31-37-173 ec2-user]# passwd newtechi
Changing password for user newtechi.
New password:
BAD PASSWORD: The password is shorter than 8 characters
Retype new password:
passwd: all authentication tokens updated successfully.
[root@ip-172-31-37-173 ec2-user]# vi /etc/sudoers
[root@ip-172-31-37-173 ec2-user]# vi /etc/sudoers

```

- 2) Navigate to the home directory.
- 3) Create a new directory.
- 4) List the contents of a directory.
- 5) Change the current directory.
- 6) Create a new empty file.
- 7) View the contents of a file.

```

[root@ip-172-31-37-173 ec2-user]# cd /home
[root@ip-172-31-37-173 home]# mkdir newdir
[root@ip-172-31-37-173 home]# ls
ec2-user  farooq  newdir  newtechi  saif  techi  techie
[root@ip-172-31-37-173 home]# rm -rf farooq newdir saif techi techie
[root@ip-172-31-37-173 home]# ls
ec2-user  newtechi
[root@ip-172-31-37-173 home]# rm -rf newtechi
[root@ip-172-31-37-173 home]# ls
ec2-user
[root@ip-172-31-37-173 home]# mkdir dir1
[root@ip-172-31-37-173 home]# ls
dir1  ec2-user
[root@ip-172-31-37-173 home]# cd dir1
[root@ip-172-31-37-173 dir1]# ls
[root@ip-172-31-37-173 dir1]# echo "hello world" >file1
[root@ip-172-31-37-173 dir1]# ls
file1
[root@ip-172-31-37-173 dir1]# catf
bash: catf: command not found
[root@ip-172-31-37-173 dir1]# cat file
cat: file: No such file or directory
[root@ip-172-31-37-173 dir1]# cat file1
hello world

```

- 8) Copy a file to another location.
- 9) Move a file to another location.
- 10) Rename a file.
- 11) Delete a file.

```

[root@ip-172-31-37-173 dir1]# cat file1
hello world
[root@ip-172-31-37-173 dir1]# cp file /home
cp: cannot stat 'file': No such file or directory
[root@ip-172-31-37-173 dir1]# cp file1 /home
[root@ip-172-31-37-173 dir1]# cd ..
[root@ip-172-31-37-173 home]# ls
dir1  ec2-user  file1
[root@ip-172-31-37-173 home]# mkdir dir2
[root@ip-172-31-37-173 home]# ls
dir1  dir2  ec2-user  file1
[root@ip-172-31-37-173 home]# mv file1 /home/dir2
[root@ip-172-31-37-173 home]# cd dir2
[root@ip-172-31-37-173 dir2]# ls
file1
[root@ip-172-31-37-173 dir2]# mv file1 file2
[root@ip-172-31-37-173 dir2]# ls
file2
[root@ip-172-31-37-173 dir2]# rm -f file2
[root@ip-172-31-37-173 dir2]# ls
[root@ip-172-31-37-173 dir2]# chmod 777 file2
chmod: cannot access 'file2': No such file or directory
[root@ip-172-31-37-173 dir2]# ls
[root@ip-172-31-37-173 dir2]# ls
[root@ip-172-31-37-173 dir2]# cd ..
[root@ip-172-31-37-173 home]# ls
dir1  dir2  ec2-user

```

12) Grant or revoke permissions on a file or directory.

```
[root@ip-172-31-37-173 dir2]# cd..  
bash: cd.: command not found  
[root@ip-172-31-37-173 dir2]# cd ..  
[root@ip-172-31-37-173 home]# chmod 000 newdir  
chmod: cannot access 'newdir': No such file or directory  
[root@ip-172-31-37-173 home]# chmod 000 dir1  
[root@ip-172-31-37-173 home]# ll dir1  
total 4  
-rw-r--r--. 1 root root 12 Aug  2 07:03 file1  
[root@ip-172-31-37-173 home]# chmod 777 dir1  
[root@ip-172-31-37-173 home]# ll -dir1  
8523710 drwxr-xr-x. 5 root root 46 Aug  2 07:06 .  
[root@ip-172-31-37-173 home]#
```

13) View the current date and time.

```
[root@ip-172-31-37-173 home]# ll -dir1  
8523710 drwxr-xr-x. 5 root root 46 Aug  2 07:06 .  
[root@ip-172-31-37-173 home]# date  
Sat Aug  2 07:13:20 UTC 2025  
[root@ip-172-31-37-173 home]#
```

14) Check the system uptime.

```
[root@ip-172-31-37-173 home]# uptime  
07:14:11 up 1:13, 2 users, load average: 0.00, 0.00, 0.00  
[root@ip-172-31-37-173 home]#
```

15) View the running processes.

```
[root@ip-172-31-37-173 home]# ps -a  
  PID TTY          TIME CMD  
  4361 pts/0      00:00:00 sudo  
  4364 pts/1      00:00:00 su  
  4365 pts/1      00:00:00 bash  
  5042 pts/1      00:00:00 ps  
[root@ip-172-31-37-173 home]#
```

16) Kill a running process.

```

4363 pts/1    00:00:00 bash
5042 pts/1    00:00:00 ps
[root@ip-172-31-37-173 home]# kill -9 4361
Killed
[ec2-user@ip-172-31-37-173 ~]$

```

17) Install a package using the package manager (e.g., apt or yum).

```

Verifyng      : libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64 31/35
Verifyng      : libpng-2:1.6.37-10.amzn2023.0.6.x86_64 32/35
Verifyng      : libxcb-1.17.0-1.amzn2023.0.1.x86_64 33/35
Verifyng      : pixman-0.43.4-1.amzn2023.0.4.x86_64 34/35
Verifyng      : xml-common-0.6.3-56.amzn2023.0.2.noarch 35/35

Installed:
alsa-lib-1.2.7.2-1.amzn2023.0.2.x86_64
dejavu-sans-fonts-2.37.16.amzn2023.0.2.noarch
dejavu-serif-fonts-2.37.16.amzn2023.0.2.noarch
fonts-filestream-1:2.0.5-12.amzn2023.0.2.noarch
giflib-5.2.1-9.amzn2023.0.1.x86_64
google-noto-sans-vf-fonts-20240401-1.amzn2023.0.1.noarch
harfbuzz-7.0.0-2.amzn2023.0.2.x86_64
java-24-amazon-corretto-headless-1:24.0.2+12-1.amzn2023.1.x86_64
langpacks-core-font-en-3.0-21.amzn2023.0.4.noarch
libSM-1.2.4-3.amzn2023.0.1.x86_64
libX11-common-1.8.10-2.amzn2023.0.1.noarch
libXext-1.3.6-1.amzn2023.0.1.x86_64
libXinerama-1.1.5-6.amzn2023.0.1.x86_64
libXrender-0.9.11-6.amzn2023.0.1.x86_64
libXtst-1.2.5-1.amzn2023.0.1.x86_64
libjpeg-turbo-2.1.4-2.amzn2023.0.5.x86_64
libxcb-1.17.0-1.amzn2023.0.1.x86_64
xml-common-0.6.3-56.amzn2023.0.2.noarch
cairo-1.18.0-4.amzn2023.0.2.x86_64
dejavu-sans-mono-fonts-2.37.16.amzn2023.0.2.noarch
fontconfig-2.13.94-2.amzn2023.0.2.x86_64
freetype-2.13.2-5.amzn2023.0.1.x86_64
google-noto-fonts-common-20240401-1.amzn2023.0.1.noarch
graphite2-1.3.14-7.amzn2023.0.2.x86_64
java-24-amazon-corretto-1:24.0.2+12-1.amzn2023.1.x86_64
javapackages-filesystem-6.0.0-7.amzn2023.0.6.noarch
libICE-1.1.1-3.amzn2023.0.1.x86_64
libX11-1.8.10-2.amzn2023.0.1.x86_64
libXau-1.0.11-6.amzn2023.0.1.x86_64
libXi-1.8.2-1.amzn2023.0.1.x86_64
libXrandr-1.5.4-3.amzn2023.0.1.x86_64
libXt-1.3.0-3.amzn2023.0.1.x86_64
libbrotl1-1.0.9-4.amzn2023.0.2.x86_64
libpng-2:1.6.37-10.amzn2023.0.6.x86_64
pixman-0.43.4-1.amzn2023.0.4.x86_64

Complete!
[root@ip-172-31-37-173 ec2-user]# yum install java -y

```

18) Update the system packages.

```

[root@ip-172-31-37-173 ec2-user]# yum update net-tools
Last metadata expiration check: 0:09:46 ago on Sat Aug 2 07:18:08 2025.
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-37-173 ec2-user]#

```

```
[root@ip-172-31-37-173 ec2-user]# yum update
Amazon Linux 2023 Kernel Livepatch repository
Dependencies resolved.
Nothing to do.
Complete!
[root@ip-172-31-37-173 ec2-user]#
```

19) Create a symbolic link.

```
[root@ip-172-31-37-173 dir2]# cat file.txt
1.techie horizon
2.devops engineer
3.aws cloud associate
4.jenkins
5.maven
6.sonargube
7.terraform
8.linux
9.ansible playbook
10.git
11.docker
[root@ip-172-31-37-173 dir2]# ls
file.txt
[root@ip-172-31-37-173 dir2]# ln -s file.txt
ln: failed to create symbolic link './file.txt': File exists
[root@ip-172-31-37-173 dir2]# ls -n file.txt
-rw-r--r--. 1 0 0 143 Aug  2 07:45 file.txt
[root@ip-172-31-37-173 dir2]# ln -s file.txt
ln: failed to create symbolic link './file.txt': File exists
[root@ip-172-31-37-173 dir2]# mv file.txt file1.txt
[root@ip-172-31-37-173 dir2]# ln -s file1.txt
ln: failed to create symbolic link './file1.txt': File exists
[root@ip-172-31-37-173 dir2]# cd ..
[root@ip-172-31-37-173 home]# ln -s file.txt
[root@ip-172-31-37-173 home]# ls
dir2  ec2-user  file.txt
[root@ip-172-31-37-173 home]#
```

20) Search for files using the find command.

```
[root@ip-172-31-37-173 /]# find / -type d -name "dir1"
/home/dir1
[root@ip-172-31-37-173 /]# find / -type f -name "file.txt"
[root@ip-172-31-37-173 /]# find / -type f -name "file1.txt"
/home/dir2/file1.txt
[root@ip-172-31-37-173 /]#
```

21) Compress and decompress files using tar.

```
[root@ip-172-31-37-173 home]# ls -R dir2
dir2:
file1.txt
[root@ip-172-31-37-173 home]# tar cvf dir2.tar dir2
dir2/
dir2/file1.txt
[root@ip-172-31-37-173 home]# ls
dir2  dir2.tar  ec2-user  file.txt
[root@ip-172-31-37-173 home]# tar xvf dir2.tar
dir2/
dir2/file1.txt
[root@ip-172-31-37-173 home]#
```

22) Monitor system resources with top or htop.

```
top - 07:54:41 up 1:53, 3 users, load average: 0.00, 0.01, 0.00
Tasks: 107 total, 1 running, 106 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.0 us, 0.0 sy, 0.0 ni, 100.0 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 904.8 total, 160.0 free, 204.5 used, 540.4 buff/cache
MiB Swap: 0.0 total, 0.0 free, 0.0 used, 551.2 avail Mem
```

PID	USER	PR	NI	VIRT	RES	SHR	S	%CPU	%MEM	TIME+	COMMAND
1	root	20	0	172336	17272	10680	S	0.0	1.9	0:01.28	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	0:00.14	ksoftirqd/0
15	root	20	0	0	0	0	I	0.0	0.0	0:00.15	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
19	root	20	0	0	0	0	S	0.0	0.0	0:00.00	cpuhp/1
20	root	rt	0	0	0	0	S	0.0	0.0	0:00.05	migration/1
21	root	20	0	0	0	0	S	0.0	0.0	0:00.15	ksoftirqd/1
23	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	kworker/1:0H-events_highpri
26	root	20	0	0	0	0	S	0.0	0.0	0:00.00	kdevtmpfs
27	root	0	-20	0	0	0	I	0.0	0.0	0:00.00	inet_frag_wq

23) Create and manage user groups.


```
[root@ip-172-31-37-173 ~]# groupadd devops
[root@ip-172-31-37-173 ~]# usermod -aG devops techi
[root@ip-172-31-37-173 ~]# groups
root
[root@ip-172-31-37-173 ~]# tail -n 3 /etc/group
newtechi:x:1002:
devops-group:x:1003:
devops:x:1004:techi
[root@ip-172-31-37-173 ~]#
```

24) Set up SSH password less authentication.

```
save-kp.pem  
test-kp.pem  
ubuntu-24.04.2-desktop-amd64.iso
```

```
DELL@DESKTOP-RCNKJC4 MINGW64 ~/downloads  
$ ssh -i "test-kp.pem" ec2-user@54.144.98.173  
The authenticity of host '54.144.98.173 (54.144.98.173)' can't be established.  
ED25519 key fingerprint is SHA256:MzAjlPvP6K26+MOLItlER67LWy5Xr8T4oUXTdExSbjE.  
This key is not known by any other names  
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes  
Warning: Permanently added '54.144.98.173' (ED25519) to the list of known hosts.
```

The terminal window shows the output of the SSH command. It displays the warning about the new host key, followed by the ASCII art logo for Amazon Linux 2023. The logo consists of several wavy horizontal lines on the left, forming a stylized 'A' shape, and the text 'Amazon Linux 2023' on the right. Below the logo, the URL 'https://aws.amazon.com/linux/amazon-linux-2023' is displayed. At the bottom of the terminal, it shows the last login time as 'Sat Aug 2 06:54:07 2025 from 18.206.107.29' and the current prompt '[ec2-user@ip-172-31-37-173 ~]\$'.

```
#_#_  
~###  
~#####\n~#####|  
~##/  
~#/  
~V'-'>  
~..-./-/-  
~m/'-/-
```

Amazon Linux 2023

<https://aws.amazon.com/linux/amazon-linux-2023>

```
Last login: Sat Aug 2 06:54:07 2025 from 18.206.107.29  
[ec2-user@ip-172-31-37-173 ~]$ |
```

25) Monitor log files using tail or grep.


```
[root@ip-172-31-37-173 dir2]# tail -f /home/dir2/file1.txt
2.devops engineer
3.aws cloud associate
4.jenkins
5.maven
6.sonarqube
7.terraform
8.linux
9.ansible playbook
10.git
11.docker
^C
[root@ip-172-31-37-173 dir2]# tail -n 3 /home/dir2/file1.txt
9.ansible playbook
10.git
11.docker
[root@ip-172-31-37-173 dir2]# head -n 4 /file1.txt
head: cannot open '/file1.txt' for reading: No such file or directory
[root@ip-172-31-37-173 dir2]# head -n 4 /home/dir2/file1.txt
1.techie horizon
2.devops engineer
3.aws cloud associate
4.jenkins
[root@ip-172-31-37-173 dir2]# grep jenkins /home/dir2/file1.txt
4.jenkins
```

26) Set up a web server (e.g., Apache or Nginx).

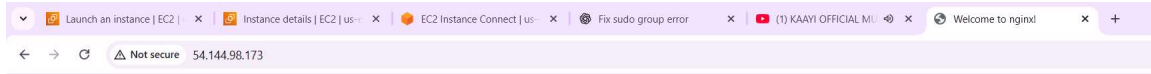


It works!

```
Installing      : mod_http2-2.0.27-1.amzn2023.0.3.x86_64      8/11
Installing      : mod_lua-2.4.62-1.amzn2023.x86_64          9/11
Installing      : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 10/11
Installing      : httpd-2.4.62-1.amzn2023.x86_64            11/11
Running scriptlet: httpd-2.4.62-1.amzn2023.x86_64            11/11
Verifying       : apr-1.7.5-1.amzn2023.0.4.x86_64           1/11
Verifying       : apr-util-1.6.3-1.amzn2023.0.1.x86_64       2/11
Verifying       : apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64 3/11
Verifying       : generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch 4/11
Verifying       : httpd-2.4.62-1.amzn2023.x86_64             5/11
Verifying       : httpd-core-2.4.62-1.amzn2023.x86_64        6/11
Verifying       : httpd-filesystem-2.4.62-1.amzn2023.noarch   7/11
Verifying       : httpd-tools-2.4.62-1.amzn2023.x86_64       8/11
Verifying       : mailcap-2.1.49-3.amzn2023.0.3.noarch        9/11
Verifying       : mod_http2-2.0.27-1.amzn2023.0.3.x86_64     10/11
Verifying       : mod_lua-2.4.62-1.amzn2023.x86_64           11/11

Installed:
  apr-1.7.5-1.amzn2023.0.4.x86_64      apr-util-1.6.3-1.amzn2023.0.1.x86_64      apr-util-openssl-1.6.3-1.amzn2023.0.1.x86_64
  generic-logos-httpd-18.0.0-12.amzn2023.0.3.noarch  httpd-2.4.62-1.amzn2023.x86_64      httpd-core-2.4.62-1.amzn2023.x86_64
  httpd-filesystem-2.4.62-1.amzn2023.noarch      httpd-tools-2.4.62-1.amzn2023.x86_64      mailcap-2.1.49-3.amzn2023.0.3.noarch
  mod_http2-2.0.27-1.amzn2023.0.3.x86_64      mod_lua-2.4.62-1.amzn2023.x86_64

Complete!
[root@ip-172-31-37-173 dir2]# systemctl start httpd
[root@ip-172-31-37-173 dir2]# systemctl enable httpd
Created symlink /etc/systemd/system/multi-user.target.wants/httpd.service → /usr/lib/systemd/system/httpd.service.
[root@ip-172-31-37-173 dir2]#
```



Welcome to nginx!

If you see this page, the nginx web server is successfully installed and working. Further configuration is required.

For online documentation and support please refer to nginx.org.
Commercial support is available at nginx.com.

Thank you for using nginx.

```
Preparing : 1/1
Running scriptlet: nginxfilesystem-1:1.28.0-1.amzn2023.0.1.noarch 1/6
Installing : nginxfilesystem-1:1.28.0-1.amzn2023.0.1.noarch 1/6
Installing : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch 2/6
Installing : libunwind-1.4.0-5.amzn2023.0.2.x86_64 3/6
Installing : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64 4/6
Installing : nginx-core-1:1.28.0-1.amzn2023.0.1.x86_64 5/6
Installing : nginx-1:1.28.0-1.amzn2023.0.1.x86_64 6/6
Running scriptlet: nginx-1:1.28.0-1.amzn2023.0.1.x86_64 6/6
Verifying : gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64 1/6
Verifying : libunwind-1.4.0-5.amzn2023.0.2.x86_64 2/6
Verifying : nginx-1:1.28.0-1.amzn2023.0.1.x86_64 3/6
Verifying : nginx-core-1:1.28.0-1.amzn2023.0.1.x86_64 4/6
Verifying : nginxfilesystem-1:1.28.0-1.amzn2023.0.1.noarch 5/6
Verifying : nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch 6/6

Installed:
gperftools-libs-2.9.1-1.amzn2023.0.3.x86_64      libunwind-1.4.0-5.amzn2023.0.2.x86_64      nginx-1:1.28.0-1.amzn2023.0.1.x86_64
nginx-core-1:1.28.0-1.amzn2023.0.1.x86_64      nginxfilesystem-1:1.28.0-1.amzn2023.0.1.noarch  nginx-mimetypes-2.1.49-3.amzn2023.0.3.noarch

Complete!
[root@ip-172-31-37-173 dir2]# systemctl stop httpd
[root@ip-172-31-37-173 dir2]# systemctl start nginx
[root@ip-172-31-37-173 dir2]# systemctl enable nginx
Unknown command verb enable.
[root@ip-172-31-37-173 dir2]# systemctl enable nginx
Created symlink /etc/systemd/system/multi-user.target.wants/nginx.service - /usr/lib/systemd/system/nginx.service.
[root@ip-172-31-37-173 dir2]#
```

27) Configure and secure a MySQL Database.

```
Remove test database and access to it? (Press y|Y for Yes, any other key for No) : n
```

```
... skipping.
```

```
Reloading the privilege tables will ensure that all changes
made so far will take effect immediately.
```

```
Reload privilege tables now? (Press y|Y for Yes, any other key for No) : y
Success.
```

```
All done!
```

```
[root@ip-172-31-37-173 ec2-user]# sudo systemctl start mysqld
```

```
[root@ip-172-31-37-173 ec2-user]# mysql -u root -p
```

```
Enter password:
```

```
Welcome to the MySQL monitor. Commands end with ; or \g.
```

```
Your MySQL connection id is 20
```

```
Server version: 8.0.43 MySQL Community Server - GPL
```

```
Copyright (c) 2000, 2025, Oracle and/or its affiliates.
```

```
Oracle is a registered trademark of Oracle Corporation and/or its
affiliates. Other names may be trademarks of their respective
owners.
```

```
Type 'help;' or '\h' for help. Type '\c' to clear the current input statement.
```

```
mysql>
```

28) Set up a Application Server (e.g.,Apache Tomcat)


```
[root@ip-172-31-87-197 tomcat]# ls
apache-tomcat-9.0.107  apache-tomcat-9.0.107.tar.gz
[root@ip-172-31-87-197 tomcat]# mv apache-tomcat-9.0.107 tomcat
[root@ip-172-31-87-197 tomcat]# ls
apache-tomcat-9.0.107.tar.gz  tomcat
[root@ip-172-31-87-197 tomcat]# cd tomcat
[root@ip-172-31-87-197 tomcat]# ls
BUILDING.txt  CONTRIBUTING.md  LICENSE  NOTICE  README.md  RELEASE-NOTES  RUNNING.txt  bin  conf  lib  logs  temp  webapps  work
[root@ip-172-31-87-197 tomcat]# cd bin
[root@ip-172-31-87-197 bin]# ls
bootstrap.jar  catalina.sh  commons-daemon-native.tar.gz  configtest.sh  digest.sh  setclasspath.bat  shutdown.sh  tomcat-juli.jar  tool-wrapper.sh
catalina-tasks.xml  ciphers.bat  commons-daemon.jar  daemon.sh  makebase.bat  setclasspath.sh  startup.bat  tomcat-native.tar.gz  version.bat
catalina.bat  ciphers.sh  configtest.bat  digest.bat  makebase.sh  shutdown.bat  startup.sh  tool-wrapper.bat  version.sh
[root@ip-172-31-87-197 bin]# startup.sh
bash: startup.sh: command not found
[root@ip-172-31-87-197 bin]# startup.sh tomcat
bash: startup.sh: command not found
[root@ip-172-31-87-197 bin]# startup.sh /tomcat
bash: startup.sh: command not found
[root@ip-172-31-87-197 bin]# ./startup.sh tomcat
Using CATALINA_BASE:   /opt/tomcat/tomcat
Using CATALINA_HOME:   /opt/tomcat/tomcat
Using CATALINA_TMPDIR: /opt/tomcat/tomcat/temp
Using JRE_HOME:        /usr
Using CLASSPATH:       /opt/tomcat/tomcat/bin/bootstrap.jar:/opt/tomcat/tomcat/bin/tomcat-juli.jar
Using CATALINA_OPTS:
```

← → ↻ Not secure 34.235.147.203:8080 ☆

Home Documentation Configuration Examples Wiki Mailing Lists Find Help

Apache Tomcat/9.0.107

If you're seeing this, you've successfully installed Tomcat. Congratulations!



Recommended Reading:

- [Security Considerations How-To](#)
- [Manager Application How-To](#)
- [Clustering/Session Replication How-To](#)

Server Status
Manager App
Host Manager

Developer Quick Start

- Tomcat Setup
- First Web Application
- Realms & AAA
- JDBC DataSources
- Examples
- Servlet Specifications
- Tomcat Versions

Managing Tomcat

For security, access to the `manager.webapp` is restricted. Users are defined in:

```
$CATALINA_HOME/conf/tomcat-users.xml
```

In Tomcat 9.0 access to the manager application is split between different users. [Read more...](#)

[Release Notes](#)
[Changelog](#)
[Migration Guide](#)
[Security Notices](#)

Documentation

[Tomcat 9.0 Documentation](#)
[Tomcat 9.0 Configuration](#)
[Tomcat Wiki](#)

Find additional important configuration information in:

```
$CATALINA_HOME/RUNNING.txt
```

Developers may be interested in:

- [Tomcat 9.0 Bug Database](#)
- [Tomcat 9.0 JavaDocs](#)
- [Tomcat 9.0 Git Repository at GitHub](#)

Getting Help


[FAQ and Mailing Lists](#)

The following mailing lists are available:

- [tomcat-announce](#)
Important announcements, releases, security vulnerability notifications. (Low volume).
- [tomcat-users](#)
User support and discussion
- [taglibs-user](#)
User support and discussion for [Apache Taglibs](#)
- [tomcat-dev](#)
Development mailing list, including commit messages

29) create a service file for Apache Tomcat.(Should execute by using systemctl command)

← → ↻ Not secure 34.235.147.203:8080/sample/



Sample "Pappa ki haleem" Application

This is the home page for a sample application used to illustrate the source directory organization of a web application utilizing the principles outlined in the Application Developer's Guide.

To prove that they work, you can execute either of the following links:

- To a [JSP page](#).
- To a [servlet](#).

30) Print specific columns from a delimited file.

```
[root@ip-172-31-37-233 saif]# awk -F ',' '{print $3}' devops.txt
room1.12
room1.22
room2.33
room2.44
room3.55
room3.66
room3.77
room4.8
room4.99
room4.110
room5.121
[root@ip-172-31-37-233 saif]#
```

31) Filter and print lines based on a specific pattern or condition.

```
[root@ip-172-31-37-233 saif]# grep "room" devops.txt
1.kubernetes,2,room1.12
2.terraform,2,room1.22
3.jenkins,2,room2.33
4.ansible,2,room2.44
5.docker,2,room3.55
6.git,1,room3.66
7.aws,1,room3.77
9.route,53,room4.99
10.linux,4,room4.110
11.ubuntu,4,room5.121
[root@ip-172-31-37-233 saif]# grep devops.txt
```

32) Calculate and print the average, sum, or other statistics of a column.

```

[roo@ip-172-31-37-233 saif]#
[roo@ip-172-31-37-233 saif]# cat devops.txt
1.kubernetes,2,room1.12
2.terraform,2,room1.22
3.jenkins,2,room2.33
4.ansible,2,room2.44
5.docker,2,room3.55
6.git,1,room3.66
7.aws,1,room3.77
8.cloud,watch,room4.8
9.route,53,room4.99
10.linux,4,room4.110
11.ubuntu,4,room5.121
[roo@ip-172-31-37-233 saif]# awk -F ',' '{sum += $2} END {print sum}' devops.txt
73
[roo@ip-172-31-37-233 saif]#

```

33) Perform string manipulation, such as extracting substrings or changing case.

```

[roo@ip-172-31-37-233 saif]# cat devops.txt
1.kubernetes,2,room1.12
2.terraform,2,room1.22
3.jenkins,2,room2.33
4.ansible,2,room2.44
5.docker,2,room3.55
6.git,1,room3.66
7.aws,1,room3.77
8.cloud,watch,room4.8
9.route,53,room4.99
10.linux,4,room4.110
11.ubuntu,4,room5.121
[roo@ip-172-31-37-233 saif]# sed 's/room/batch/' devops.txt
1.kubernetes,2,batch1.12
2.terraform,2,batch1.22
3.jenkins,2,batch2.33
4.ansible,2,batch2.44
5.docker,2,batch3.55
6.git,1,batch3.66
7.aws,1,batch3.77
8.cloud,watch,room4.8
9.route,53,batch4.99
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
[roo@ip-172-31-37-233 saif]#

```

```
[root@ip-172-31-37-233 saif]# cat devops.txt
1.kubernetes,2,room1.12
2.terraform,2,room1.22
3.jenkins,2,room2.33
4.ansible,2,room2.44
5.docker,2,room3.55
6.git,1,room3.66
7.aws,1,room3.77
8.cloud,watch,room4.8
9.route,53,room4.99
10.linux,4,room4.110
11.ubuntu,4,room5.121
[root@ip-172-31-37-233 saif]# sed -i 's/room/batch/g' devops.txt
[root@ip-172-31-37-233 saif]# cat devops.txt \
> ^C
[root@ip-172-31-37-233 saif]# cat devops.txt
1.kubernetes,2,batch1.12
2.terraform,2,batch1.22
3.jenkins,2,batch2.33
4.ansible,2,batch2.44
5.docker,2,batch3.55
6.git,1,batch3.66
7.aws,1,batch3.77
8.cloud,watch,room4.8
9.route,53,batch4.99
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
[root@ip-172-31-37-233 saif]#
```

34) Count the occurrences of a specific pattern in a file.

```
[root@ip-172-31-37-233 saif]# grep -c "batch" devops.txt
10
[root@ip-172-31-37-233 saif]# grep -n "batch" devops.txt
1:1.kubernetes,2,batch1.12
2:2.terraform,2,batch1.22
3:3.jenkins,2,batch2.33
4:4.ansible,2,batch2.44
5:5.docker,2,batch3.55
6:6.git,1,batch3.66
7:7.aws,1,batch3.77
9:9.route,53,batch4.99
10:10.linux,4,batch4.110
11:11.ubuntu,4,batch5.121
[root@ip-172-31-37-233 saif]# grep -o "batch" devops.txt
batch
batch
batch
batch
batch
batch
batch
batch
batch
batch
[root@ip-172-31-37-233 saif]# grep -o "batch" devops.txt |wc
      10      10      60
[root@ip-172-31-37-233 saif]#
```



```

3:3.jenkins,2,batch2.33
4:4.ansible,2,batch2.44
5:5.docker,2,batch3.55
6:6.git,1,batch3.66
7:7.aws,1,batch3.77
9:9.route,53,batch4.99
10:10.linux,4,batch4.110
11:11.ubuntu,4,batch5.121
[root@ip-172-31-37-233 saif]# grep -o "batch" devops.txt
batch
batch
batch
batch
batch
batch
batch
batch
batch
batch
[roo@ip-172-31-37-233 saif]# grep -o "batch" devops.txt |wc
    10     10     60
[roo@ip-172-31-37-233 saif]# grep -wc devops.txt

^C
[roo@ip-172-31-37-233 saif]# grep -c "batch" devops.txt | wc
     1      1      3

```

35) Sort lines based on a specific field or column.

```
[root@ip-172-31-37-233 saif]# sort -k 2 devops.txt
1.kubernetes,2,batch1.12
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
2.terraform,2,batch1.22
3.jenkins,2,batch2.33
4.ansible,2,batch2.44
5.docker,2,batch3.55
6.git,1,batch3.66
7.aws,1,batch3.77
8.cloud,watch,ro8om4.8
9.route,53,batch4.99
[root@ip-172-31-37-233 saif]# sort -k 3 devops.txt
1.kubernetes,2,batch1.12
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
2.terraform,2,batch1.22
3.jenkins,2,batch2.33
4.ansible,2,batch2.44
5.docker,2,batch3.55
6.git,1,batch3.66
7.aws,1,batch3.77
8.cloud,watch,ro8om4.8
9.route,53,batch4.99
[root@ip-172-31-37-233 saif]# sort -k 4 devops.txt
1.kubernetes,2,batch1.12
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
```

```

sort: stray character in field spec: invalid field speci
[root@ip-172-31-37-233 saif]# sort -k2 -n devops.txt
sort: cannot read: n: No such file or directory
[root@ip-172-31-37-233 saif]# sort -k2 -n devops.txt
1.kubernetes,2,batch1.12
10.linux,4,batch4.110
11.ubuntu,4,batch5.121
2.terraform,2,batch1.22
3.jenkins,2,batch2.33
4.ansible,2,batch2.44
5.docker,2,batch3.55
6.git,1,batch3.66
7.aws,1,batch3.77
8.cloud,watch,ro8om4.8
9.route,53,batch4.99
[root@ip-172-31-37-233 saif]# sort -k2 -nr devops.txt
9.route,53,batch4.99
8.cloud,watch,ro8om4.8
7.aws,1,batch3.77
6.git,1,batch3.66
5.docker,2,batch3.55
4.ansible,2,batch2.44
3.jenkins,2,batch2.33
2.terraform,2,batch1.22
11.ubuntu,4,batch5.121
10.linux,4,batch4.110
1.kubernetes,2,batch1.12
[root@ip-172-31-37-233 saif]#

```

36) Merge multiple files based on a common field or column.

```

[root@ip-172-31-37-233 saif]# touch student.txt
[root@ip-172-31-37-233 saif]# mv student.txt students.txt
[root@ip-172-31-37-233 saif]# touch scores.txt
[root@ip-172-31-37-233 saif]# ls
scores.txt  students.txt
[root@ip-172-31-37-233 saif]# vi students.txt
[root@ip-172-31-37-233 saif]# vi scores.txt
[root@ip-172-31-37-233 saif]# sort students.txt > students_sorted.txt
sort scores.txt > scores_sorted.txt

join students_sorted.txt scores_sorted.txt

101 Alice 85
102 Bob 90
103 Charlie 88
[root@ip-172-31-37-233 saif]# █

```

37) Substitute text in a file using search and replace.

```

[root@ip-172-31-37-233 saif]# cat students.txt
101 Alice
102 Bob
103 Charlie

[root@ip-172-31-37-233 saif]# sed -i 's/saif/alice/g' students.txt
[root@ip-172-31-37-233 saif]# cat students.txt
101 Alice
102 Bob
103 Charlie

[root@ip-172-31-37-233 saif]# rm -rf *
[root@ip-172-31-37-233 saif]# ls
[root@ip-172-31-37-233 saif]# touch file.txt
[root@ip-172-31-37-233 saif]# vi file.txt
[root@ip-172-31-37-233 saif]# sed -i 's/batch/room/g' file.txt
[root@ip-172-31-37-233 saif]# cat file.txt
room1 mujahed
room2 saif
room3 omer
room4 mohammed
[root@ip-172-31-37-233 saif]# sed -i 's/room/batch/g' file.txt
[root@ip-172-31-37-233 saif]# cat file.txt
batch1 mujahed
batch2 saif
batch3 omer
batch4 mohammed
[root@ip-172-31-37-233 saif]# █

```

38) Delete specific lines based on a pattern or line number.

```
saif 630000000 2 500
omer 5000000 2 600
qayyum 40000 2 700
[root@ip-172-31-37-233 saif]# sed '/fees/d' file.txt
saif 630000000 2 500
omer 5000000 2 600
qayyum 40000 2 700
[root@ip-172-31-37-233 saif]# sed '/name/d' file.txt
saif 630000000 2 500
omer 5000000 2 600
qayyum 40000 2 700
[root@ip-172-31-37-233 saif]# sed '/qayyum/d' file.txt
name mobile room fees
saif 630000000 2 500
omer 5000000 2 600
[root@ip-172-31-37-233 saif]# sed '/k -qayyum/d' file.txt
name mobile room fees
saif 630000000 2 500
omer 5000000 2 600
qayyum 40000 2 700
[root@ip-172-31-37-233 saif]# sed i '/qayyum/d' file.txt
sed: -e expression #1, char 1: expected \ after `a', `c' or `i'
[root@ip-172-31-37-233 saif]# sed -i '/qayyum/d' file.txt
[root@ip-172-31-37-233 saif]# cat file.txt
name mobile room fees
saif 630000000 2 500
omer 5000000 2 600
[root@ip-172-31-37-233 saif]#
```

39) Append or insert text before or after a specific pattern or line.

```
[root@ip-172-31-37-233 saif]# cat file.txt
name mobile room fees
saif 630000000 2 500
omer 5000000 2 600
[root@ip-172-31-37-233 saif]# sed -i '/omer/i\farooq' file.txt
[root@ip-172-31-37-233 saif]# cat file.txt
name mobile room fees
saif 630000000 2 500
farooq
omer 5000000 2 600
[root@ip-172-31-37-233 saif]#
```

40) Print only specific lines from a file.

```
[root@ip-172-31-37-233 saif]# sed -n '2p' file.txt
saif 630000000 2 500
[root@ip-172-31-37-233 saif]# head -2 file.txt
name mobile room fees
saif 630000000 2 500
[root@ip-172-31-37-233 saif]# tail -2 file.txt
farooq
omer 5000000 2 600
[root@ip-172-31-37-233 saif]#
```

41) Copy file from linux to windows machine

```
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ ls
AnsCLV2.msi 'Brainwave Free Website Template - Free-CSS.com.zip' 'MohdSaifuddinResume.pdf' 'Quotation 16-03-25 (1).pdf' 'Quotation 16-03-25.pdf' 'Quotation 26-04-2025.pdf' 'SmartApply (1).exe' 'SmartApply.exe' 'WhatsApp Image 2025-07-19 at 4.43.08 PM (1).jpeg' 'project-llp.pem' 'putty-64bit-0.81-installer.msi' 'saif-kp.pem' 'sample.war' 'task 1.rtf' 'test-kp.pem' 'ubuntu-24.04.2-desktop-amd64.iso'
$ scp -i test-kp.pem ec2-user@54.224.165.250:/home/saif/file.txt file.txt
usage: scp [-346ABCPqRrsTV] [-c cipher] [-O sftp_server_path] [-F ssh_config]
           [-i identity_file] [-J destination] [-l limit]
           [-o ssh_option] [-P port] [-S program] source ... target
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem ec2-user@54.224.165.250:/home/saif/file.txt file.txt
file.txt 100% 69 0.1KB/s 00:00
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ ls
AnsCLV2.msi 'Brainwave Free Website Template - Free-CSS.com.zip' 'MohdSaifuddinResume.pdf' 'Quotation 16-03-25 (1).pdf' 'Quotation 16-03-25.pdf' 'Quotation 26-04-2025.pdf' 'SmartApply (1).exe' 'SmartApply.exe' 'WhatsApp Image 2025-07-19 at 4.43.08 PM (1).jpeg' 'project-llp.pem' 'putty-64bit-0.81-installer.msi' 'saif-kp.pem' 'sample.war' 'task 1.rtf' 'test-kp.pem' 'ubuntu-24.04.2-desktop-amd64.iso'
$ scp -i test-kp.pem /c/Users/Dell/downloads/MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
ec2-user@54.224.165.250: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
scp: Connection closed
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /c/Users/Dell/downloads/MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
MohdSaifuddinResume.pdf 100% 204KB 181.3KB/s 00:01
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ ls
AnsCLV2.msi 'Brainwave Free Website Template - Free-CSS.com.zip' 'MohdSaifuddinResume.pdf' 'Quotation 16-03-25 (1).pdf' 'Quotation 16-03-25.pdf' 'Quotation 26-04-2025.pdf' 'SmartApply (1).exe' 'SmartApply.exe' 'WhatsApp Image 2025-07-19 at 4.43.08 PM (1).jpeg' 'project-llp.pem' 'putty-64bit-0.81-installer.msi' 'saif-kp.pem' 'sample.war' 'task 1.rtf' 'test-kp.pem' 'ubuntu-24.04.2-desktop-amd64.iso'
$ scp -i test-kp.pem /MohdSaifuddinResume.pdf ec2-user@
cp: cannot stat '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /MohdSaifuddinResume.pdf ec2-user@
cp: cannot stat '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
scp: stat local '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
MohdSaifuddinResume.pdf 100% 204KB 186.9KB/s 00:01
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$
```

(copy a file from windows to linux)

```
[~] [identity_file] [-J destination] [-l limit]
[-o ssh_option] [-P port] [-S program] source ... target
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /c/Users/Dell/downloads/MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
ec2-user@54.224.165.250: Permission denied (publickey,gssapi-keyex,gssapi-with-mic).
scp: Connection closed
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /c/Users/Dell/downloads/MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
MohdSaifuddinResume.pdf 100% 204KB 181.3KB/s 00:01
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ ls
AnsCLV2.msi 'Brainwave Free Website Template - Free-CSS.com.zip' 'MohdSaifuddinResume.pdf' 'Quotation 16-03-25 (1).pdf' 'Quotation 16-03-25.pdf' 'Quotation 26-04-2025.pdf' 'SmartApply (1).exe' 'SmartApply.exe' 'WhatsApp Image 2025-07-19 at 4.43.08 PM (1).jpeg' 'project-llp.pem' 'putty-64bit-0.81-installer.msi' 'saif-kp.pem' 'sample.war' 'task 1.rtf' 'test-kp.pem' 'ubuntu-24.04.2-desktop-amd64.iso'
$ scp -i test-kp.pem /c/Users/Dell/downloads/MohdSaifuddinResume.pdf ec2-user@
cp: cannot stat '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /MohdSaifuddinResume.pdf ec2-user@
cp: cannot stat '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem /MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
scp: stat local '/MohdSaifuddinResume.pdf': No such file or directory
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$ scp -i test-kp.pem MohdSaifuddinResume.pdf ec2-user@54.224.165.250:/tmp
MohdSaifuddinResume.pdf 100% 204KB 186.9KB/s 00:01
DELLDESKTOP-RCNKC4 MINGW64 ~/Downloads
$
```

```
[root@ip-172-31-37-233 tmp]# ls
systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-chronyd.service-kA7HVT      systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-systemd-logind.service-v9YA0Y
systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-dbus-broker.service-XNfajt    systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-systemd-resolved.service-9ufBou
systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-policy-routes@ens5.service-5DJHw6
[root@ip-172-31-37-233 tmp]# ls
MohdSaifUddinResume.pdf      systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-policy-routes@ens5.service-5DJHw6
systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-chronyd.service-kA7HVT      systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-systemd-logind.service-v9YA0Y
systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-dbus-broker.service-XNfajt    systemd-private-91ef76f63ca3466997e74f4d8cc1c26d-systemd-resolved.service-9ufBou
[root@ip-172-31-37-233 tmp]#
```

42) 5 use cases for AWK and 5 use cases for sed

AWK USE CASE

Print specific columns{awk '{print \$2, \$4}' filename}

Filter lines based on condition{awk '\$3 > 100' filename}

Calculate sum or average of a column{awk '{sum += \$2} END {print sum}' filename}

Find and print lines matching a pattern{awk '/ERROR/' filename}

Modify specific fields and print{awk '{\$3 = \$3 + 10; print}' filename}

SED USE CASE

Search and replace text{sed 's/apple/orange/g' filename}

Delete lines matching a pattern{sed '/DEBUG/d' filename}

Insert a line before a pattern{sed '/Title/i\Header line' filename}

Append a line after a pattern{sed '/End/a\Footer line' filename}

Print only specific lines{sed -n '10,20p' filename}

:drawing_pin: Note:

Please document all task executions along with a brief description based on your understanding, and share the .doc file in the #devops-cloud-status-14 channel. :memo::white_tick: