

1. Create user with name Techie and provide sudo access to user.
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.
8. Copy a file to another location.
9. Move a file to another location.
10. Rename a file.
11. Delete a file.
12. Grant or revoke permissions on a file or directory.
13. View the current date and time.
14. Check the system uptime.
15. View the running processes.
16. Kill a running process.
17. Install a package using the package manager (e.g., apt or yum).
18. Update the system packages.
19. Create a symbolic link.
20. Search for files using the find command.
21. Compress and decompress files using tar.
22. Monitor system resources with top or htop.
23. Create and manage user groups.
24. Set up SSH password less authentication.
25. Monitor log files using tail or grep.
26. Set up a web server (e.g., Apache or Nginx).
27. Configure and secure a MySQL Database.
28. Set up a Application Server (e.g.,Apache Tomcat)
29. create a service file for Apache Tomcat.(Should execute by using systemctl command)
30. Print specific columns from a delimited file.
31. Filter and print lines based on a specific pattern or condition.
32. Calculate and print the average, sum, or other statistics of a column.
33. Perform string manipulation, such as extracting substrings or changing case.
34. Count the occurrences of a specific pattern in a file.
35. Sort lines based on a specific field or column.
36. Merge multiple files based on a common field or column.
37. Substitute text in a file using search and replace.
38. Delete specific lines based on a pattern or line number.
39. Append or insert text before or after a specific pattern or line.

40. Print only specific lines from a file.
41. Copy file from linux to windows machine
42. 5 use cases for AWK and 5 use cases for sed

Task star from here:

- 2),Navigated to home directory
- 3) created a new directory
- 4) list out contents of the directory

```
[waseemakram@waseem ~ % cd ~
[waseemakram@waseem ~ % pwd
/Users/waseemakram
[waseemakram@waseem ~ % cd
[waseemakram@waseem ~ % mkdir waseem_dir
[waseemakram@waseem ~ % ls
7095328761.pub Applications cse Desktop devops Documents farhan first Library mohd2 Movies mt Music mydir myfolder Pictures Public test_link.txt wase waseem waseem_dir
[waseemakram@waseem ~ % ]
```

List of contents of directory

- 5) change the directory

```
[waseemakram@waseem waseem_dir % cd ..
[waseemakram@waseem ~ % ls -l
total 24
-rw-r--r-- 1 waseemakram staff 572 11 Oct 00:37 7095328761.pub
-rw-r--r-- 1 waseemakram staff 14 29 Oct 12:43 alphabet
drwx-----@ 4 waseemakram staff 128 22 Oct 2024 Applications
-rwxr-xr-x 1 waseemakram staff 45 27 Oct 10:55 bash
drwxr-xr-x 2 waseemakram staff 64 29 Oct 13:03 cse
drwx-----+ 47 waseemakram staff 1504 29 Oct 14:43 Desktop
drwxr-xr-x 4 waseemakram staff 128 28 Oct 14:56 devops
drwx-----+ 14 waseemakram staff 448 21 Oct 23:49 Documents
drwx-----@ 67 waseemakram staff 2144 29 Oct 10:45 Downloads
drwxr-xr-x 9 waseemakram staff 288 24 Oct 22:32 farhan
drwxr-xr-x 7 waseemakram staff 224 30 Aug 16:07 first
drwxr-xr-x 2 waseemakram staff 64 29 Oct 13:03 it
drwx-----@ 92 waseemakram staff 2944 7 Oct 12:43 Library
-rw-r--r--@ 1 waseemakram staff 0 10 Oct 14:36 mohd2
drwx----- 4 waseemakram staff 128 8 Feb 2025 Movies
drwxr-xr-x 3 waseemakram staff 96 29 Oct 13:04 mt
drwx-----+ 4 waseemakram staff 128 18 Aug 2024 Music
drwxr-xr-x 3 waseemakram staff 96 10 Oct 14:47 mydir
drwxr-xr-x 2 waseemakram staff 64 10 Oct 12:45 myfolder
drwx-----+ 5 waseemakram staff 160 27 Oct 15:43 Pictures
drwxr-xr-x+ 3 waseemakram staff 96 21 Oct 23:47 Public
lrwxr-xr-x 1 waseemakram staff 8 10 Oct 14:57 test_link.txt -> test.txt
drwxr-xr-x 8 waseemakram staff 256 28 Oct 12:38 wase
drwxr-xr-x 8 waseemakram staff 256 28 Oct 18:30 waseem
drwxr-xr-x 2 waseemakram staff 64 29 Oct 14:41 waseem_dir
[waseemakram@waseem ~ % cd waseem_dir
[waseemakram@waseem waseem_dir % pwd
/Users/waseemakram/waseem_dir
```

6)created a file

7) View the contents of a file

8)Copy a file to another location

```
/Users/waseemkram/waseem_dir  
[waseemkram@waseem waseem_dir % touch techie  
[waseemkram@waseem waseem_dir % ls  
techie  
[waseemkram@waseem waseem_dir % cat techie  
[waseemkram@waseem waseem_dir % echo "hello world" > techie  
[waseemkram@waseem waseem_dir % cat techie  
hello world  
[waseemkram@waseem waseem_dir % cp techie techie2  
[waseemkram@waseem waseem_dir % ls  
techie techie2  
[waseemkram@waseem waseem_dir %  
[waseemkram@waseem waseem_dir % cat techie2  
hello world  
waseemkram@waseem waseem_dir %
```

9)Move a file to another location

10) rename the file

```
hello world  
[waseemkram@waseem waseem_dir % mkdir waseem_dir2  
[waseemkram@waseem waseem_dir % mv techie2 waseem_dir2  
[waseemkram@waseem waseem_dir % ls  
techie waseem_dir2  
[waseemkram@waseem waseem_dir % mv techie techie1  
[waseemkram@waseem waseem_dir % ls  
techie1 waseem_dir2  
[waseemkram@waseem waseem_dir % cd waseem_dir2  
[waseemkram@waseem waseem_dir2 % ls  
techie2  
waseemkram@waseem waseem_dir2 %
```

11) remove a file

```
[waseemkram@waseem waseem_dir2 % cd ..  
[waseemkram@waseem waseem_dir % ls  
techie1 waseem_dir2  
[waseemkram@waseem waseem_dir % rm techie2  
rm: techie2: No such file or directory  
[waseemkram@waseem waseem_dir % cd waseem_dir2  
[waseemkram@waseem waseem_dir2 % rm techie2  
[waseemkram@waseem waseem_dir2 % ls
```

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

Checking file permissions first and then giving it different permissions

13) Viewing the current date and time.

14) system uptime.

```
[waseemakram@waseem waseem_dir2 % cd ..
[waseemakram@waseem waseem_dir % ls -l
total 8
-rw-r--r-- 1 waseemakram staff 12 29 Oct 14:48 techie1
drwxr-xr-x 2 waseemakram staff 64 29 Oct 15:18 waseem_dir2
[waseemakram@waseem waseem_dir % chmod 755 techie1
[waseemakram@waseem waseem_dir % ls -l
total 8
-rwxr-xr-x 1 waseemakram staff 12 29 Oct 14:48 techie1
drwxr-xr-x 2 waseemakram staff 64 29 Oct 15:18 waseem_dir2
[waseemakram@waseem waseem_dir % date
Wed Oct 29 15:20:16 IST 2025
[waseemakram@waseem waseem_dir % uptime
15:20 up 64 days, 9:16, 2 users, load averages: 1.47 1.77 2.06
waseemakram@waseem waseem_dir %]
```

15)for viewing the running processes we can use ps aux and also top command

PID	COMMAND	%CPU	TIME	#TH	#WQ	#PORTS	MEM	PURG	CMPRS	PGRP	PPID	STATE	BOOSTS	%CPU_ME	%CPU_OTHR	UID	FAULTS	COW	MSGSENT	MSGRECV	SYSBSD	SYSMACH	CSW
0	kernel_task	29.6	26:55:15	560/9	0	0	79M+	0B	0B	0	0	running	0[0]	0.00000	0.00000	0	1435003+	0	1102285525+	684401647+	0	0	214
580	WindowsServer	17.4	17:54:17	20	4	7172-	1396M-	32M-	338M+	580	1	sleeping	*[0]	0.07389	0.23921	88	213892143+	1168691	473189100+	547751845+	959155674+	1916504306+	479
12250	com.apple.We	17.3	84:04:29	5/1	3	173	1246M-	0B	933M-	12250	1	running	0[144498]	0.00000	0.00000	501	102111929+	13160	4109715+	2338695+	13372464+	49442901+	196
86136	top	7.0	00:03:47	1/1	0	86-	12M	0B	2720K-	86136	48613	running	*[1]	0.00000	0.00000	0	18217+	100	2139930+	1069977+	80372+	1234042+	211
47014	QEMUlauncher	6.0	04:04:41	16	2	106	7787M	0B	7504M-	47014	46500	sleeping	*[1]	0.00000	0.00000	501	320560668+	501	3256459	2987315	345316260+	3418785	146
86185	deleted	3.1	00:01:47	7	6	88-	5121K-	0B	528K-	86185	1	sleeping	*[5+]	0.01528	2.25024	501	2637+	172	10197+	501+	24608+	9579+	505
49685	ZoomClips	2.8	04:21:21	39	3	406	145M	0B	83M-	49685	49637	sleeping	*[76545]	0.00000	0.00000	501	13376055+	842	64753903+	6120972+	413149174+	221546405+	269
1682	Finder	2.8	30:10:99	9	4	1720	300M	0B	255M+	1682	1	sleeping	*[22757]	0.66797	0.00000	501	42968171+	1010	30907966+	9705271+	18112338+	69467343+	211
7399	UTM	2.6	03:21:11	16	5	641	303M	0B	260M-	7399	1	sleeping	*[62076]	0.00000	0.00000	501	65233594+	776	141930878+	78317288+	271844032+	200433197+	179
49637	zoom.us	2.4	04:39:14	69	4	829	373M	0B	326M-	49637	1	sleeping	*[131842]	0.00000	0.00000	501	48815600+	1563	111266640+	89739016+	23464473+	829525319+	274
83915	Xcode	2.3	04:54:17	7	2	520+	209M	0B	194M-	83915	1	sleeping	*[20460]	0.30065	0.00000	501	12790542+	5502	575285+	395487+	2334985+	2583592+	364
86145	replayd	2.0	00:02:81	51	4	100	8369K-	0B	3920K-	86145	1	sleeping	*[4+]	0.84023	0.00000	501	10804+	222	1264+	552+	23887+	1797+	634
86178	screencaptur	1.2	00:00:40	2	1	66	8930K	0B	3472K	1114	1114	sleeping	*[586+]	0.04632	0.00000	501	3985+	136	3157+	1075+	2521+	9538+	296
33234	com.docker.b	0.9	96:10:83	52	1	353	100M	0B	68M-	33233	33233	sleeping	*[6805]	0.00000	0.00000	501	72071900+	383640	105476	40958	368550879+	259082	240
33346	com.apple.Vi	0.7	02:40:09	22	3	76	1194M	0B	1614M-	33346	1	sleeping	*[3]	0.00000	0.00000	501	255200025+	153	405	139	193198316+	864	137
51086	appstoreagen	0.7	01:57:25	4	2	207+	16M-	0B	19M-	51086	1	sleeping	*[10286]	0.39025	0.00000	501	3523151+	1141	91444+	28055+	160670+	205549+	110
1111	Terminal	0.7	23:31:49	11	4	622	395M-	40M-	162M-	1111	1	sleeping	*[189420]	0.04466	0.00000	501	51004427+	3282	18820015+	291458+	15597887+	34411171+	123
84033	Spotlightkno	0.5	00:02:55	4	2	77+	14M-	0B	11M-	84033	1	sleeping	*[7]	0.31805	0.00000	501	44804+	221	5249+	2293+	51500+	7605+	236
94216	com.apple.We	0.5	67:35:88	46	3	598	197M+	0B	209M-	94216	1	sleeping	*[171143]	0.00000	0.00000	501	123211733+	12621771	29381592+	15637479+	39527347+	80107434+	563
1168	Google Chrom	0.5	47:05:97	16	1	277	66M	0B	43M-	1096	1096	sleeping	*[1514248+17]	0.00000	0.00000	501	41597889+	5048	16356467+	5265022+	68449418+	26107444+	201
3093	Code Helper	0.5	81:01:66	19	1	80	99M	0B	94M+	2645	2645	sleeping	*[38742]	0.00000	0.00000	501	7219716	552	24088280+	118804	271945732+	96545151+	118
40014	Google Chrom	0.5	04:17:61	17	1	282	247M-	0B	227M-	1096	1096	sleeping	*[70648+252]	0.00000	0.00000	501	19799641+	1027	405869+	295025+	664924+	2585274+	222
31818	bluetoothd	0.4	18:03:65	15	9	406	13M-	0B	7424K-	31818	1	sleeping	*[1]	0.30958	0.06994	0	7764249+	232	1859247+	2127433+	31690379+	5120966+	144
76041	Google Chrom	0.4	03:50:48	22	1	236	422M	0B	386M-	1096	1096	sleeping	*[1444]	0.00000	0.00000	501	5792416+	932	401299	228772	3089408+	1630550+	284
675	suheiperd	0.3	00:05:05	3	2	67+	420M-	0B	18M-	675	1	sleeping	*[1077]	0.37628	0.00000	0	249783+	163	15715+	11820+	86102+	40272+	622
1167	Google Chrom	0.3	66:23:96	19	2	592	442M	0B	115M-	1096	1096	sleeping	*[1508]	0.00000	0.00000	501	34147597+	1506	48573419	19813516	45090185+	143278516+	424
1	launchd	0.3	66:34:52	4	3	3968-	22M	0B	10M+	1	0	sleeping	*[0]	0.00000	0.13175	0	14307806+	50	11509524+	11155442+	62672628+	33143267+	163
503	logd	0.2	39:30:34	4	3	1590-	24M	0B	31M-	503	1	sleeping	*[1]	0.00000	0.00000	0	13717286-	122	13154670+	15065081+	76471632+	15170916+	304
579	runningboard	0.2	57:38:50	6	5	654-	11M-	0B	3264K-	579	1	sleeping	*[1]	0.05824	0.07423	0	11251718+	161	9313801	8114905+	112843738+	21444667+	279
83048	systemstatus	0.2	00:00:93	5	4	67+	3313K-	0B	1344K-	83048	1	sleeping	*[202]	0.00000	0.24622	0	39345+	131	1001+	436+	15379+	1676+	635
14095	Code Helper	0.2	32:13:24	19	1	79	43M	0B	37M-	2645	2645	sleeping	*[19131]	0.00000	0.00000	501	4613516+	547	8173527+	18364+	31845959+	32028175+	254

16)Kill a running process by using kill -9 command

```
[waseemakram@waseem waseem_dir % ps aux | grep nginx
waseemakram  87214  0.0  0.0 410733616  1552 s002  S+  4:04PM  0:00.01
waseemakram  87207  0.0  0.0 410881968   512 ?? S  4:04PM  0:00.00
waseemakram  87201  0.0  0.0 410749872  3920 ?? S  4:04PM  0:00.03
waseemakram@waseem waseem_dir % kill -9 87201
```

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

18)Update the system packages.

Here we installed git by using home-brew and updated

```
waseemakram@waseem waseem_dir % brew install git
Warning: git 2.51.2 is already installed and up-to-date.
To reinstall 2.51.2, run:
  brew reinstall git
waseemakram@waseem waseem_dir % brew update
brew upgrade

==> Updating Homebrew...
Already up-to-date.
==> Upgrading 26 outdated packages:
vim 9.1.1800 -> 9.1.1850
hashicorp/tap/terraform 1.13.3 -> 1.13.4
simdjson 4.0.7 -> 4.1.0
azure-cli 2.77.0 -> 2.78.0
gh 2.81.0 -> 2.82.1
pycparser 2.23 -> 2.23_1
tomcat 11.0.12 -> 11.0.13
python@3.14 3.14.0 -> 3.14.0_1
cryptography 46.0.2 -> 46.0.3
python@3.13 3.13.8 -> 3.13.9_1
brotli 1.1.0 -> 1.2.0
cffi 2.0.0 -> 2.0.0.1
glib 2.86.0 -> 2.86.1
openjdk@21 21.0.8 -> 21.0.9
awscli 2.31.16 -> 2.31.24
grafana 12.2.0 -> 12.2.1
libnghttp2 1.67.1 -> 1.68.0
ansible 12.1.0 -> 12.1.0_1
openjdk 25 -> 25.0.1
certifi 2025.10.5 -> 2025.10.5_1
nginx 1.29.2 -> 1.29.3
mysql 9.4.0_3 -> 9.5.0
prometheus 3.6.0 -> 3.7.2
jenkins-lts 2.516.3 -> 2.528.1
node 24.10.0 -> 24.10.0_1
libngtcp2 1.16.0 -> 1.17.0
==> Fetching downloads for: glib, openjdk, openjdk@21, simdjson, python@3.13, azure-cli, gh, pycparser, tomcat, python@3.14, cffi, curl, libxml2, libxslt, libcurl, libidn2, libuv, libressl, libressl-openssl, libressl-tls, libressl-sspi, libressl-zlib, libressl-krb5, libressl-krb5-libs, libressl-krb5-libs-openssl, libressl-krb5-libs-tls, libressl-krb5-libs-sspi, libressl-krb5-libs-zlib, libressl-krb5-libs-openssl-libs, libressl-krb5-libs-tls-libs, libressl-krb5-libs-sspi-libs, libressl-krb5-libs-zlib-libs, libressl-krb5-libs-openssl-libs-openssl, libressl-krb5-libs-tls-libs-tls, libressl-krb5-libs-sspi-libs-sspi, libressl-krb5-libs-zlib-libs-zlib, libressl-krb5-libs-openssl-libs-openssl-openssl, libressl-krb5-libs-tls-libs-tls-tls, libressl-krb5-libs-sspi-libs-sspi-sspi, libressl-krb5-libs-zlib-libs-zlib-zlib, libressl-krb5-libs-openssl-libs-openssl-openssl-openssl, libressl-krb5-libs-tls-libs-tls-tls-tls, libressl-krb5-libs-sspi-libs-sspi-sspi-sspi, libressl-krb5-libs-zlib-libs-zlib-zlib-zlib
==> Fetching glib
==> Downloading https://ghcr.io/v2/homebrew/core/glib/blobs/sha256:69180a746a740205498efc9be52f19c6f200c91700bc1743d6e3dce6dc0cb342
#####
==> Fetching openjdk
==> Downloading https://ghcr.io/v2/homebrew/core/openjdk/blobs/sha256:8703b312ccf7a1d45d41e27754c91a189ebbf6f6f203f6dd1b78503b68d63
#####
==> Fetching openjdk@21
==> Downloading https://ghcr.io/v2/homebrew/core/openjdk@21/blobs/sha256:6da1aa9d6eb871aaac17449374b3872bc67a18d3705944ffb3dc3ab838
#####
==> Fetching simdjson
==> Downloading https://ghcr.io/v2/homebrew/core/simdjson/blobs/sha256:9437ea675ec4a4c288876b96c55a2090493bf4d5f40e51ef148bf511ff0a
#####
==> Fetching python@3.13
==> Downloading https://ghcr.io/v2/homebrew/core/python/3.13/blobs/sha256:1e69017b62b04ec5ed8369bd6ea90d0f483187b9e111afdf1c853f22f
#####
==> Fetching azure-cli
```

19)Created a symbolic link by ln -s

```
techie1          waseem_dir2
[waseemakram@waseem waseem_dir % echo "hello waseem" > techie1

[waseemakram@waseem waseem_dir % cat techie1
hello waseem
[waseemakram@waseem waseem_dir % ln -s techie1 techie_link.txt

waseemakram@waseem waseem_dir % ls -l

total 8
lrwxr-xr-x  1 waseemakram  staff   7 29 Oct 16:21 techie_link.txt -> techie1
-rwxr-xr-x  1 waseemakram  staff  13 29 Oct 16:20 techie1
drwxr-xr-x  2 waseemakram  staff  64 29 Oct 15:18 waseem_dir2
waseemakram@waseem waseem_dir %
```

20) Searching for files using the find command we
Use =find / -name and file name which we have to find.

```
[waseemakram@waseem ~ % sudo find / -name "techie1"
zsh: suspended  sudo find / -name "techie1"
[waseemakram@waseem waseem_dir % sudo find / -name "techie1"
find: /Library/Application Support/com.apple.TCC: Operation not permitted
find: /Library/Trial: Operation not permitted
find: /Library/Caches/com.apple.amsengagementd.classicdatavault: Operation not permitted
find: /Library/Caches/com.apple.aneuserd: Operation not permitted
find: /Library/Caches/com.apple.aned: Operation not permitted
find: /System/Library/AssetsV2/com.apple.MobileAsset_UAF_FM_Visual: Operation not permitted
find: /System/Library/AssetsV2/com.apple.MobileAsset_UAF_FM_GenerativeModels: Operation not permitted
find: /System/Library/AssetsV2/com.apple.MobileAsset_UAF_IF_Planner: Operation not permitted
find: /System/Library/AssetsV2/com.apple.MobileAsset_UAF_FM_Overrides: Operation not permitted
find: /System/Library/AssetsV2/com.apple.MobileAsset_UAF_FM_CodeLM: Operation not permitted
find: /System/Volumes/Update/.TemporaryItems: Operation not permitted
find: /System/Volumes/Update/.TemporaryItems: Operation not permitted
```

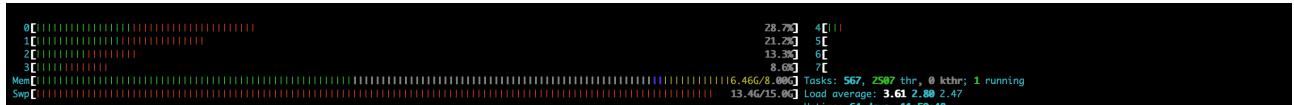
```
find: /System/Volumes/Data/Users/waseemakram/Library/Caches/com.ap
find: /System/Volumes/Data/Users/waseemakram/Library/Caches/com.ap
/System/Volumes/Data/Users/waseemakram/waseem_dir/techie1
find: /System/Volumes/Data/Users/waseemakram/Movies/TV: Operation
find: /System/Volumes/Data/Users/waseemakram/.Trash: Operation not
```

21)compress and decompress the file using tar we use for compressing tar -cvf and tar -xvf for decompressing

```
[waseemakram@waseem john_tar % cd ..
[waseemakram@waseem ~ % tar cvf john2 john_tar
a john_tar
a john_tar/a
a john_tar/c
a john_tar/d
a john_tar/john2
a john_tar/e
a john_tar/b
[waseemakram@waseem ~ % ls
7095328761.pub          bash           devops        Downloads      john_tar
alphabet                 david          dir1         farhan       john2
Applications             Desktop        Documents     first        Library
```

```
[waseemakram@waseem /opt % sudo tar xvf john2
[Password:
x john_tar/
x john_tar/a
x john_tar/c
x john_tar/d
x john_tar/john2
x john_tar/e
x john_tar/b
[waseemakram@waseem /opt % ls
homebrew      john_tar      john2      myfile.txt
[waseemakram@waseem /opt % cd john_tar
[waseemakram@waseem john_tar % ls
a      b      c      d      e      john2
waseemakram@waseem john_tar %
```

22) Monitor system resources with top or htop.



htop output showing system resources and processes. The top section displays CPU, memory, and swap usage. The bottom section shows a detailed list of processes, including their PID, USER, PRI, NI, VIRT, RES, S, CPU%, MEM%, TIME+, and Command. Key processes listed include zoom.us, Docker Helper (Renderer), Google Chrome Helper (Renderer), and various system daemons like Docker Desktop Helper (Renderer) and GitHub Desktop Helper (CPU).

PID	USER	PRI	NI	VIRT	RES	S	CPU%	MEM%	TIME+	Command
3520	waseemakram	17	0	3926	16928	S	0.1	0.2	0:00.00	/usr/bin/screencapture -ndi -> keyboard selection
7014	waseemakram	24	0	3976	68368	S	0.1	0.8	5:58.53	/Applications/UTM.app/Contents/XPCServices/QEMUHelper.xpc/Contents/MacOS/QEMULauncher.app/Contents/UTM.app/Contents/Frameworks/qemu-aarch64-helper
9685	waseemakram	17	0	3916	19040	S	0.1	0.2	6:20.46	/Applications/zoom.us.app/Contents/Frameworks/ZoomClips.app/Contents/MacOS/ZoomClips --runasps=TRUE --parentbundlename=zoom.us --action=preload --ClipsRecordingType=Unknown
1111	waseemakram	17	0	3936	71552	S	0.1	0.9	0:36.29	/System/Applications/Utilities/Terminal.app/Contents/MacOS/Terminal
7399	waseemakram	17	0	3936	47952	S	0.1	0.6	4:54.66	/Applications/UTM.app/Contents/MacOS/UTM
9637	waseemakram	17	0	3966	53280	S	0.1	0.6	6:46.39	/Applications/zoom.us.app/Contents/MacOS/zoom.us
2969	waseemakram	17	0	4076	10208	S	0.0	0.1	0:00.12	/usr/libexec/replayd
3346	waseemakram	17	0	3956	13236	S	0.0	1.6	3:55.07	/System/Library/Virtualization/Frameworks/VirtualMachine.framework/Versions/A/XPCServices/com.apple.VirtualMachine.xpc/Contents/MacOS/com.apple.Virtualization.VirtualMachine
3234	waseemakram	0	0	3936	88064	S	0.0	1.0	2:20.88	/Applications/Docker.app/Contents/MacOS/com.docker.backend
3093	waseemakram	24	0	17826	9008	S	0.0	0.1	0:57.71	/private/var/folders/g7/djy8pd145ss352fg6t4m0000gn/T/AppTranslocation/8962256E-156C-4095-98F3-3D802459002D/com/Visual Studio Code.app/Contents/Frameworks/Code Helper (CPU)
6747	waseemakram	17	0	17796	32224	S	0.0	0.4	0:01.75	/Applications/Google Chrome.app/Contents/Frameworks/Google Chrome Framework.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper (Renderer).app/Contents/MacOS/Google Chrome Helper (Renderer)
4216	waseemakram	17	0	4146	29472	S	0.0	0.4	1:38.80	/System/Library/Frameworks/XPCServices/com.apple.WebKit.GPU.xpc/Contents/MacOS/com.apple.WebKit.GPU
3527	waseemakram	17	0	3916	23104	S	0.0	0.2	0:00.00	/System/Library/CoreServices/screencaptureutil.app/Contents/MacOS/screencaptureutil
1005	waseemakram	17	0	3936	11914	S	0.0	0.4	3:18.88	/System/Library/Frameworks/Google Chrome.app/Contents/MacOS/google-chrome
3410	waseemakram	17	0	17796	58656	S	0.0	0.7	1:14.35	/Applications/zoom.us.app/Contents/MacOS/google-chrome
3517	waseemakram	24	0	3926	7792	R	0.0	0.1	0:00.00	httpd
6041	waseemakram	17	0	17826	45572	S	0.0	0.5	0:06.53	/Applications/Google Chrome.app/Contents/Frameworks/Google Chrome Framework.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper (Renderer).app/Contents/MacOS/Google Chrome Helper (Renderer)
4095	waseemakram	24	0	17806	9689	S	0.0	0.1	0:46.84	/private/var/folders/g7/djy8pd145ss352fg6t4m0000gn/T/AppTranslocation/8962256E-156C-4095-98F3-3D802459002D/com/Visual Studio Code.app/Contents/Frameworks/Code Helper (CPU)
7568	waseemakram	17	0	4776	15600	S	0.0	0.2	0:00.86	/System/Library/Frameworks/Webkit.framework/Versions/A/XPCServices/com.apple.WebKit.WebContent.xpc/Contents/MacOS/com.apple.WebKit.WebContent
2250	waseemakram	17	0	4796	1000	S	0.0	1.2	2:03.03	/System/Library/Frameworks/Webkit.framework/Versions/A/XPCServices/com.apple.WebKit.WebContent.xpc/Contents/MacOS/com.apple.WebKit.WebContent
2965	waseemakram	17	0	4076	7264	S	0.0	0.1	0:00.01	/System/Library/Frameworks/CoreTelephony.framework/Support/CommCenter-L
9951	waseemakram	17	0	16116	12024	S	0.0	1.5	16:09.37	/Applications/Slack.app/Contents/MacOS/Slack Helper (Renderer).app/Contents/MacOS/Slack Helper (Renderer) --type-renderer --user-data-dir=/Users/waseemakram/Library/Application Support/Slack/
3332	waseemakram	24	0	17796	39232	S	0.0	0.5	25:30	/Applications/Docker.app/Contents/MacOS/Docker Desktop.app/Contents/MacOS/Docker Desktop --reason-open-tray --analytics-enabled=true --name-dashboard
9932	waseemakram	17	0	16116	60576	S	0.0	0.7	1:09.37	/Applications/Slack.app/Contents/MacOS/Slack
2645	waseemakram	24	0	17816	31888	S	0.0	0.4	0:30.06	/private/var/folders/g7/djy8pd145ss352fg6t4m0000gn/T/AppTranslocation/8962256E-156C-4095-98F3-3D802459002D/com/Visual Studio Code.app/Contents/MacOS/Electron
7498	waseemakram	17	0	17796	14416	S	0.0	0.2	0:08.93	/Users/waseemakram/Desktop/Github Desktop.app/Contents/MacOS/Github Desktop
3092	waseemakram	24	0	17806	7296	S	0.0	0.1	0:07.02	/private/var/folders/g7/djy8pd145ss352fg6t4m0000gn/T/AppTranslocation/8962256E-156C-4095-98F3-3D802459002D/com/Visual Studio Code.app/Contents/Frameworks/Code Helper (CPU)
892	waseemakram	17	0	4076	6168	S	0.0	0.3	2:17.77	/Applications/Slack.app/Contents/MacOS/Slack Helper (GPU) --type-gpu-process --user-data-dir=/Users/waseemakram/Library/Application Support/Slack/
899	waseemakram	17	0	4236	25616	S	0.0	0.2	0:00.77	/System/Library/Frameworks/IMCore.framework/IMCore
1103	waseemakram	17	0	3926	17824	S	0.0	0.2	0:00.77	/Applications/Slack.app/Contents/MacOS/Notes
1011	waseemakram	17	0	4076	2448	S	0.0	0.1	0:02.42	/System/Library/PrivateFrameworks/PrintImage.framework/PrintImage
4214	waseemakram	17	0	4116	12396	S	0.0	0.2	0:22.88	/System/Library/PrivateFrameworks/IMCore.framework/IMCore
6565	waseemakram	17	0	4076	18224	S	0.0	0.2	0:03.92	/usr/libexec/duetxpertd
8351	waseemakram	17	0	17796	69456	S	0.0	0.8	0:02.54	/Applications/Google Chrome.app/Contents/Frameworks/Google Chrome Framework.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper (Renderer).app/Contents/MacOS/Google Chrome Helper (Renderer)
2960	waseemakram	17	0	4076	3920	S	0.0	0.0	0:00.00	/usr/libexec/gamecontrolleragentd
1113	waseemakram	17	0	3936	16144	S	0.0	0.2	0:47.26	/System/Library/CoreServices/Dock.app/Contents/MacOS/Dock
889	waseemakram	17	0	4076	5648	S	0.0	0.1	0:00.29	/usr/libexec/pboard
2424	waseemakram	17	0	17806	74144	S	0.0	0.9	0:06.01	/Applications/Google Chrome.app/Contents/Frameworks/Google Chrome Framework.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper (Renderer).app/Contents/MacOS/Google Chrome Helper (Renderer)
7509	waseemakram	17	0	4236	6592	S	0.0	0.1	0:03.97	/Users/waseemakram/Desktop/Github Desktop.app/Contents/Github Desktop Helper (CPU)
9944	waseemakram	17	0	4236	20736	S	0.0	0.2	0:13.16	/Applications/Slack.app/Contents/Frameworks/Slack Helper.app/Contents/MacOS/Slack Helper --type-utility --utility-sub-type-network.mojom.NetworkService --lang=en-GB --seed=1234567890
9663	waseemakram	17	0	3916	2688	S	0.0	0.0	0:02.55	/Applications/zoom.us.app/Contents/Frameworks/caphost.app/Contents/MacOS/caphost -pid 49637 -evntname caphos49637 -key rpc
0582	waseemakram	17	0	17806	34326	S	0.0	0.4	0:07.02	/Applications/Google Chrome.app/Contents/Frameworks/Google Chrome Framework.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper (Renderer).app/Contents/MacOS/Google Chrome Helper (Renderer)
2685	waseemakram	17	0	3936	72672	S	0.0	0.9	0:16.88	/Applications/Pages.app/Contents/MacOS/Pages
1198	waseemakram	17	0	3976	11824	S	0.0	0.1	0:10.16	/System/Applications/Music.app/Contents/Music
6510	waseemakram	17	0	4076	9312	S	0.0	0.1	0:01.00	/System/Library/PrivateFrameworks/CoreDuetContext.framework/Resources/ContextStoreAgent
5780	waseemakram	17	0	4236	6112	S	0.0	0.1	0:01.99	/Applications/Slack.app/Contents/MacOS/Slack Helper --type-utility --utility-sub-type-network.mojom.NetworkService --lang=en-GB --seed=1234567890
7510	waseemakram	17	0	3936	20440	S	0.0	0.1	0:03.97	/Users/waseemakram/Desktop/Github Desktop Helper.app/Contents/MacOS/Github Desktop Helper --type-utility --utility-sub-type-network.mojom.NetworkService --lang=en-GB --seed=1234567890
1168	waseemakram	17	0	4236	53356	S	0.0	0.6	1:09.24	/Applications/google Chrome.app/Contents/Frameworks/google Chrome.framework/Versions/139.0.7258.139/Helpers/Google Chrome Helper.app/Contents/MacOS/google Chrome Helper (GPU)

23) Create and manage user groups.

We created group name techiegroup and added John as user

```
techie waseem waseem_ali
[ec2-user@ip-172-31-7-102 ~]$ sudo groupadd techiegroup
[ec2-user@ip-172-31-7-102 ~]$ sudo useradd john
[ec2-user@ip-172-31-7-102 ~]$ cat /etc/group | grep techiegroup
techiegroup:x:1001:
[ec2-user@ip-172-31-7-102 ~]$ usermod -aG techiegroup john
usermod: Permission denied.
usermod: cannot lock /etc/passwd; try again later.
[ec2-user@ip-172-31-7-102 ~]$ sudo usermod -aG techiegroup john
[ec2-user@ip-172-31-7-102 ~]$ cat /etc/group | grep techiegroup
techiegroup:x:1001:john
[ec2-user@ip-172-31-7-102 ~]$
```

Web server downloading

```

unit httpd.service could not be found.
[root@ip-172-31-7-102 ~]# systemctl start httpd
Failed to start httpd.service: Unit httpd.service not found.
[root@ip-172-31-7-102 ~]# yum install httpd
last metadata expiration check: 1 day, 3:59:51 ago on Tue Oct 28 09:07:27 2025.
Dependencies resolved.

=====
Package           Architecture      Version            Repository
=====
Installing:
httpd             x86_64          2.4.65-1.amzn2023.0.1    amazonlinux
Installing dependencies:
apr               x86_64          1.7.5-1.amzn2023.0.4    amazonlinux
apr-util          x86_64          1.6.3-1.amzn2023.0.1    amazonlinux
httpd-core        x86_64          2.4.65-1.amzn2023.0.1    amazonlinux
httpd-filesystem  noarch         2.4.65-1.amzn2023.0.1    amazonlinux
httpd-tools       x86_64          2.4.65-1.amzn2023.0.1    amazonlinux
libbrotli         x86_64          1.0.9-4.amzn2023.0.2    amazonlinux
mailcap           noarch         2.1.49-3.amzn2023.0.3    amazonlinux
Installing weak dependencies:
apr-util-openssl x86_64          1.6.3-1.amzn2023.0.1    amazonlinux
mod_http2         x86_64          2.0.27-1.amzn2023.0.3    amazonlinux
mod_lua           x86_64          2.4.65-1.amzn2023.0.1    amazonlinux

Transaction Summary
Install 11 Packages

Oct 29 13:13:46 ip-172-31-7-102.eu-north-1.compute.internal systemd[1]: Starting httpd service...
Oct 29 13:13:46 ip-172-31-7-102.eu-north-1.compute.internal systemd[1]: Started httpd service.
Oct 29 13:13:46 ip-172-31-7-102.eu-north-1.compute.internal httpd[27315]: Server ...
[root@ip-172-31-7-102 ~]# sudo systemctl status httpd
● httpd.service - The Apache HTTP Server
   Loaded: loaded (/usr/lib/systemd/system/httpd.service; disabled; preset: disabled)
   Active: active (running) since Wed 2025-10-29 13:13:46 UTC; 39s ago
     Docs: man:httpd.service(8)
 Main PID: 27315 (httpd)
   Status: "Total requests: 0; Idle/Busy workers 100/0; Requests/sec: 0; Bytes se...
      Tasks: 177 (limit: 2248)
     Memory: 13.4M
        CPU: 97ms
      CGroup: /system.slice/httpd.service
              └─27315 /usr/sbin/httpd -DFOREGROUND
                  ├─27316 /usr/sbin/httpd -DFOREGROUND
                  ├─27317 /usr/sbin/httpd -DFOREGROUND
                  ├─27318 /usr/sbin/httpd -DFOREGROUND
                  ├─27319 /usr/sbin/httpd -DFOREGROUND

```

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

We have installed nginx and httpd and started it



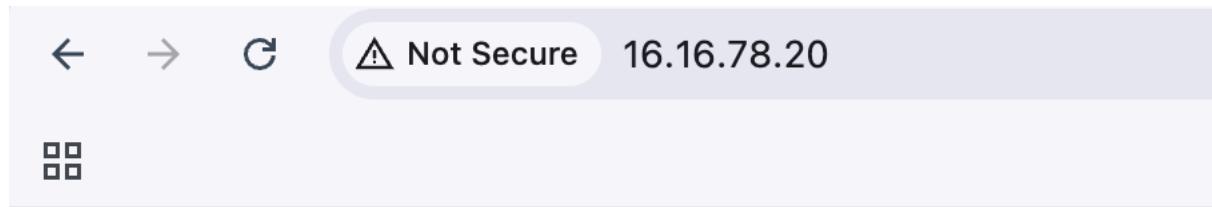
Welcome to nginx!

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.

Nginx running
Httpd running



It works!

24) Set up SSH password less authentication.

```
[1]+ Stopped                  sudo tail -f /var/log/httpd/error_log
[ec2-user@ip-172-31-7-102 ~]$ ssh-keygen -t rsa -b 4096
Generating public/private rsa key pair.
Enter file in which to save the key (/home/ec2-user/.ssh/id_rsa):
Enter passphrase (empty for no passphrase):
Enter same passphrase again:
Your identification has been saved in /home/ec2-user/.ssh/id_rsa
Your public key has been saved in /home/ec2-user/.ssh/id_rsa.pub
The key fingerprint is:
SHA256:7+EuZ7pMRZO/sZDdt7LwrjTWFtrcHEwvMg1yTtyvE ec2-user@ip-172-31-7-102.eu-north-1.compute.internal
The key's randomart image is:
+---[RSA 4096]----+
|          .         |
|          . + o     |
|          + . B .   |
|          . B O =.  |
|          S + O @.  |
|          o o X.E.  |
|          . o % o.. |
|          o.oo= B. . |
|          +B+.+ .o  |
+---[SHA256]----+
[ec2-user@ip-172-31-7-102 ~]$ █
CPU: 57ms
CGroup: /system.slice/nginx.service
└─3450 "nginx: master process /usr/sbin/nginx"
  ├─3451 "nginx: worker process"
  └─3452 "nginx: worker process"

Oct 29 13:05:27 ip-172-31-7-102.eu-north-1.compute.internal systemd[1]: Starting nginx.service - The nginx HTTP and re
Oct 29 13:05:27 ip-172-31-7-102.eu-north-1.compute.internal nginx[3448]: nginx: the configuration file /etc/nginx/nginx
Oct 29 13:05:27 ip-172-31-7-102.eu-north-1.compute.internal nginx[3448]: nginx: configuration file /etc/nginx/nginx.co
Oct 29 13:05:27 ip-172-31-7-102.eu-north-1.compute.internal systemd[1]: Started nginx.service - The nginx HTTP and rev
```

27) Configure and secure a MySQL Database.

We have first installed mysql and later started it and secured it using mysql_secure_installation command

```
brew reinstall mysql
waseemakram@waseem ~ % brew install mysql

Warning: mysql 9.5.0 is already installed and up-to-date.
To reinstall 9.5.0, run:
  brew reinstall mysql
waseemakram@waseem ~ % brew services start mysql

==> Successfully started `mysql` (label: homebrew.mxcl.mysql)
waseemakram@waseem ~ % brew services list
Name      Status  User      File
grafana   none
httpd     none
jenkins-lts none
mysql     started waseemakram ~/Library/LaunchAgents/homebrew.mxcl.mysql.plist
nginx     none
prometheus none
tomcat    none
waseemakram@waseem ~ % mysql_secure_installation

Securing the MySQL server deployment.

Connecting to MySQL using a blank password.

VALIDATE PASSWORD COMPONENT can be used to test passwords
and improve security. It checks the strength of password
and allows the users to set only those passwords which are
secure enough. Would you like to setup VALIDATE PASSWORD component?

Press y\Y for Yes, any other key for No: no
Please set the password for root here.

New password:
Re-enter new password:
By default, a MySQL installation has an anonymous user,
allowing anyone to log into MySQL without having to have
a user account created for them. This is intended only for
testing, and to make the installation go a bit smoother.
You should remove them before moving into a production
environment.

Remove anonymous users? (Press y\Y for Yes, any other key for No) : yes
Success.

Normally, root should only be allowed to connect from
'localhost'. This ensures that someone cannot guess at
the root password from the network.

Disallow root login remotely? (Press y\Y for Yes, any other key for No) : yes
Success.

By default, MySQL comes with a database named 'test' that
anyone can access. This is also intended only for testing,
and should be removed before moving into a production
environment.

Remove test database and access to it? (Press y\Y for Yes, any other key for No) : yes
- Dropping test database...
Success.

- Removing privileges on test database...
Success.

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

```
All done!
waseemakram@waseem ~ % brew services start mysql
Service `mysql` already started, use `brew services restart mysql` to restart.
[waseemakram@waseem ~ % brew services list
Name      Status  User       File
grafana   none
httpd     none
jenkins-lts none
mysql     started waseemakram ~/Library/LaunchAgents/homebrew.mxcl.mysql.plist
nginx     none
prometheus none
tomcat    none
waseemakram@waseem ~ % mysql -u root -p
```

```
[Enter password:
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 13
Server version: 9.5.0 Homebrew

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> SHOW DATABASES;
+-----+
| Database      |
+-----+
| information_schema |
| mysql          |
| performance_schema |
| sys            |
+-----+
4 rows in set (0.061 sec)
```

Mysql started and is secured

30)Print specific columns from a delimited file

```
waseemakram@waseem devops % cd
waseemakram@waseem ~ % vi david
waseemakram@waseem ~ % awk -F',' '{print $1, $3}' david
name city
Akram Hyderabad
Farhan Chennai
Waseem Delhi
waseemakram@waseem ~ % awk -F',' '{print "Name: "$1 " | City: "$3}' david
Name: name | City: city
Name: Akram | City: Hyderabad
Name: Farhan | City: Chennai
Name: Waseem | City: Delhi
waseemakram@waseem ~ %
```

31) Filter and print lines based on a specific pattern or condition.
In vi David file we have row 3 city list

```
Name: Waseem | City: Delhi  
[waseemakram@waseem ~ % awk -F',' '$3=="Hyderabad" {print $0}' david  
  
Akram,21,Hyderabad,50000  
[waseemakram@waseem ~ % grep "Hyderabad" david  
  
Akram,21,Hyderabad,50000  
waseemakram@waseem ~ %
```

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

```
Akram,21,Hyderabad,50000  
[waseemakram@waseem ~ % awk -F',' 'NR>1 {sum += $4} END {print "Total Salary =", sum}' david  
  
Total Salary = 165000  
[waseemakram@waseem ~ % awk -F',' 'NR>1 {sum += $4; count++} END {print "Average Salary =", sum/count}' david  
  
Average Salary = 55000  
waseemakram@waseem ~ %
```

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

By using awk -f','

```
Average Salary = 55000
[waseemakram@waseem ~ % awk -F',' '{print substr($1, 1, 3)}' david

nam
Akr
Far
Was
[waseemakram@waseem ~ % awk -F',' '{print toupper($1)}' david

NAME
AKRAM
FARHAN
WASEEM
[waseemakram@waseem ~ % awk -F',' '{print tolower($2)}' david

age
21
25
23
```

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

```
[waseemakram@waseem ~ % cat david
name,age,city,salary
Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
Waseem,23,Delhi,55000
[waseemakram@waseem ~ % grep -o "name" david | wc -l

1
[waseemakram@waseem ~ % grep -o "Waseem" david | wc -l

1
waseemakram@waseem ~ % ]
```

35)Sort lines based on a specific field or column.
We can change rows in a file

```
[waseemakram@waseem ~ % cat david
name,age,city,salary
Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
Waseem,23,Delhi,55000
[waseemakram@waseem ~ % grep -o "name" david | wc -l

1
[waseemakram@waseem ~ % grep -o "Waseem" david | wc -l

1
[waseemakram@waseem ~ % sort -k2 -n david

Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
name,age,city,salary
Waseem,23,Delhi,55000
```

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

We have created two files were each file a row and then we used sort -k1 both files are sorted by the common field

And later we used join command to merge them

```
[waseemakram@waseem ~ % vi students.txt
[waseemakram@waseem ~ % vi marks.file
[waseemakram@waseem ~ % sort -k1,1 students.txt -o students.txt
[sort -k1,1 marks.file -o marks.file

[waseemakram@waseem ~ % join students.txt marks.file

1 Waseem 90
2 Farhan 85
3 Imran 88
waseemakram@waseem ~ %
```

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

We have replaced using sed

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

```
waseemakram@waseem ~ % join students.txt marks.file

1 Waseem 90
2 Farhan 85
3 Imran 88
[waseemakram@waseem ~ % echo 'hello my name is farhan' > replace.file
[waseemakram@waseem ~ % cat repalce.file
cat: repalce.file: No such file or directory
[waseemakram@waseem ~ % cat replace.file
hello my name is farhan
[waseemakram@waseem ~ % sed 's/Farhan/Waseem/g' replace.file

hello my name is farhan
[waseemakram@waseem ~ % sed 's/farhan/Waseem/g' replace.file

hello my name is Waseem
[waseemakram@waseem ~ % sed '2d' student.txt

sed: student.txt: No such file or directory
[waseemakram@waseem ~ % sed '2d' students.txt

2 Farhan
3 Imran
waseemakram@waseem ~ %
```

39)Append or insert text before or after a specific pattern or line.
By using I in sed we can insert any word in file

```
3 Imran
[waseemakram@waseem ~ % sed '/Farhan/i\
mango
' students.txt

1 Waseem
mango
2 Farhan
3 Imran
waseemakram@waseem ~ %
```

25)Monitor log files using tail or grep.
By using tail we can see last lines of file

```
[waseemakram@waseem ~ % tail -3 students.txt
1 Waseem
2 Farhan
3 Imran
[waseemakram@waseem ~ % tail -1 students.txt
3 Imran
waseemakram@waseem ~ % ]
```

40)Print only specific lines from a file.
By grep we can look for that context

```
[waseemakram@waseem ~ % tail -3 students.txt
1 Waseem
2 Farhan
3 Imran
[waseemakram@waseem ~ % tail -1 students.txt
3 Imran
waseemakram@waseem ~ % grep "farhan" students.txt
[waseemakram@waseem ~ % grep "Farhan" students.txt
2 Farhan
waseemakram@waseem ~ % ]
```

41)Copy file from my Mac to aws linux

We used command scp for secure copy of file named firdous resume.pdf

```
[waseemakram@waseem downloads % scp -i waseem.pem /Users/waseemakram/Downloads/FIRDOUS\ RESUME.pdf ec2-user@13.50.240.232:/tmp
The authenticity of host '13.50.240.232 (13.50.240.232)' can't be established.
ED25519 key fingerprint is SHA256:oB2OPQtk8A63sEMsYRrovUz030NbS1PZxJZa0mLBMyS.
This host key is known by the following other names/addresses:
 ~/ssh/known_hosts:13: ec2-16-16-99-1.eu-north-1.compute.amazonaws.com
 ~/ssh/known_hosts:15: ec2-16-16-115-165.eu-north-1.compute.amazonaws.com
 ~/ssh/known_hosts:19: ec2-13-49-148-41.eu-north-1.compute.amazonaws.com
 ~/ssh/known_hosts:20: ec2-13-48-85-165.eu-north-1.compute.amazonaws.com
 ~/ssh/known_hosts:21: ec2-13-48-127-19.eu-north-1.compute.amazonaws.com
 ~/ssh/known_hosts:22: ec2-13-50-240-232.eu-north-1.compute.amazonaws.com
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '13.50.240.232' (ED25519) to the list of known hosts.
FIRDOUS RESUME.pdf
```

Now checked the ec2 server

1.

```
waseemakram@waseem ~% ssn -i waseem.pem ec2-user@13.50.240.232
```

```
A newer release of "Amazon Linux" is available.
```

```
Version 2023.9.20251020:
```

```
Version 2023.9.20251027:
```

```
Run "/usr/bin/dnf check-release-update" for full release and version update info
```

```
,      #_
~\_ #####_      Amazon Linux 2023
~~ \#####\
~~  \###|
~~   \#/ ___  https://aws.amazon.com/linux/amazon-linux-2023
~~   V~' '-->
~~~   /
~~.~.  /
~/  /
~/m/'
```

```
Last login: Thu Oct 30 11:44:21 2025 from 13.48.4.203
```

```
[[ec2-user@ip-172-31-7-102 ~]$ ls
horizon  techie  waseem  waseem_dir
[[ec2-user@ip-172-31-7-102 ~]$ cd /tmp
[[ec2-user@ip-172-31-7-102 tmp]$ ls
'FIRDOUS RESUME.pdf'  systemd-private-d83bc684ac53400bb9c3fdc36942ff66-chronyd.service-Sjfk05
hsperfdata_root  systemd-private-d83bc684ac53400bb9c3fdc36942ff66-dbus-broker.service-of
[[ec2-user@ip-172-31-7-102 tmp]$
```

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

```
waseemakram@waseem ~% awk '{print $1, $3}' david
Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
name,age,city,salary
Waseem,23,Delhi,55000
waseemakram@waseem ~% awk '$3 > 50' david
waseemakram@waseem ~% awk '$4 >$2 ' david
waseemakram@waseem ~% awk '$4 >$2' david
waseemakram@waseem ~% touch sales
waseemakram@waseem ~% vi sales
waseemakram@waseem ~% awk '{sum += $2} END {print "Total:", sum}' sales

Total: 600
waseemakram@waseem ~% awk '$2 > 60' sales

Product1 100
Product2 200
Product3 300
waseemakram@waseem ~% awk '$2 > 150' sales

Product2 200
Product3 300
waseemakram@waseem ~% awk '{print toupper($1)}' sales

PRODUCT1
PRODUCT2
PRODUCT3

waseemakram@waseem ~% awk '{print NR, $0}' sales

1 Product1 100
2 Product2 200
3 Product3 300
4
waseemakram@waseem ~%
```

cases for sed

We have switched the line

```
[waseemakram@waseem ~ % cat david
name,age,city,salary
Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
Waseem,23,Delhi,55000
[waseemakram@waseem ~ % grep -o "name" david | wc -l

1
[waseemakram@waseem ~ % grep -o "Waseem" david | wc -l

1
[waseemakram@waseem ~ % sort -k2 -n david

Akram,21,Hyderabad,50000
Farhan,25,Chennai,60000
name,age,city,salary
Waseem,23,Delhi,55000
```

Changed name and deleted a line

```
[waseemakram@waseem ~ % join students.txt marks.file

1 Waseem 90
2 Farhan 85
3 Imran 88
[waseemakram@waseem ~ % echo 'hello my name is farhan' > replace.file
[waseemakram@waseem ~ % cat repalce.file
cat: repalce.file: No such file or directory
[waseemakram@waseem ~ % cat replace.file
hello my name is farhan
[waseemakram@waseem ~ % sed 's/Farhan/Waseem/g' replace.file

hello my name is farhan
[waseemakram@waseem ~ % sed 's/farhan/Waseem/g' replace.file

hello my name is Waseem
[waseemakram@waseem ~ % sed '2d' student.txt

sed: student.txt: No such file or directory
[waseemakram@waseem ~ % sed '2d' students.txt

2 Farhan
3 Imran
[waseemakram@waseem ~ %
```

Inserted text in file

```
3 Imran
[waseemakram@waseem ~ % sed '/Farhan/i\
mango
' students.txt

1 Waseem
mango
2 Farhan
3 Imran
waseemakram@waseem ~ %
```

41) copy file from linux to Mac OS

```
'`#_###`          Amazon Linux 2023
~~\_\_#\#\#\#\`_
~~      \#\#\#|`
~~          \#/   https://aws.amazon.com/linux/amazon-linux-2023
~~          v~'__->
~~~           /
~~.~. /_/_/`_
/_m/'`_
Last login: Fri Oct 31 06:41:18 2025 from 13.48.4.203
[ec2-user@ip-172-31-14-72 ~]$ sudo yum update -y
Last metadata expiration check: 0:18:24 ago on Fri Oct 31 06:57:55 2025.
Dependencies resolved.
Nothing to do.
Complete!
[ec2-user@ip-172-31-14-72 ~]$ ls
[ec2-user@ip-172-31-14-72 ~]$ vi file1
[ec2-user@ip-172-31-14-72 ~]$ ls
file1
[ec2-user@ip-172-31-14-72 ~]$ █
```

We used command scp -l

```
peakpx_2.jpg  
waseemakram@waseem downloads % scp -i ~/Downloads/waseem.pem ec2-user@13.50.105.48:/home/ec2-user/file1 ~/Downloads/project-folder/  
  
file1  
[waseemakram@waseem downloads % ls  
01-Devs_Introduction.mp4  
305290863_769247980843493_2396714656254633878_n_597852462321174.jpg  
IMG_20220516_134649 (1).jpg  
IMG_20220516_134649.jpg  
peakpx.jpg  
project-folder  
peakpx_1.jpg
```

Now the file from aws linux is can bee seen in my macOS

```
cd: no such file or directory: project-folder
waseemakram@waseem downloads % cd project-folder
waseemakram@waseem project-folder % ls
file1
waseemakram@waseem project-folder %
```