

1. Create a directory structure: `Workspace/Projects/2025/Logs/` and list it.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ mkdir -p Workspace/Projects/2025/Logs/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls
Application Data
Contacts
Cookies
Documents
Downloads
Favorites
Links
Local Settings
Music
My Documents
NTUSER.DAT
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TM.blf
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000001.regtrans-ms
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000002.regtrans-ms
NetHood
OneDrive - RxLogix
OneDrive
PrintHood
Recent
Saved Games
Searches
SendTo
Start Menu
Templates
Videos
Workspace
ntuser.dat.LOG1
ntuser.dat.LOG2
ntuser.ini
```

2. Inside `2025/`, create three files: `report.txt`, `data.csv`, `notes.md`. Move `notes.md` to `Logs/`.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace/Projects/2025
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ touch report.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ touch data.csv notes.md
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ ls
data.csv  notes.md  report.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ mv notes.md /logs
mv: cannot create regular file '/logs': Permission denied
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ mv notes.md logs
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ ls
data.csv  report.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ cd Logs
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025/Logs$ ls
notes.md
```

3. Rename all `.txt` files in `Projects/` by adding `_backup` to the filename.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ find Projects/ -type f -name "*.txt" -exec bash -c 'mv "$0" "${0%.txt}_backup.txt"' {} \;
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd Projects/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ ls
2025
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ ls
2025
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ cd 2025
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ ls
Logs  data.csv  report_backup.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$
```

4. Find all `.txt` files inside `Workspace/` and copy them to `Backup/`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -name "*.txt" -exec cp {} Backup/ \;
cp: cannot create regular file 'Backup/': Not a directory
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ mkdir Backup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -name "*.txt" -exec cp {} Backup/ \;
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Backup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ ls
report_backup.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ |

```

5.Create 10 empty files in `Workspace/` and delete every alternate one.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do touch "file_${i}.txt"; done
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ls
file_1.txt file_10.txt file_2.txt file_3.txt file_4.txt file_5.txt file_6.txt file_7.txt file_8.txt file_9.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do if((i%2==0)) touch "file_${i}.txt"; done
-bash: syntax error near unexpected token `touch'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do if [ $((count % 2)) -eq 0 ]; then
rm "$file"
done
-bash: syntax error near unexpected token `done'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do if [ $((count % 2)) -eq 0 ]; then rm "$file" done
>
> ^C
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do
if [ $((count % 2)) -eq 0 ]; then
rm "$file_${i}.txt"
done
-bash: syntax error near unexpected token `done'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do if [ $((count % 2)) -eq 0 ]; then
-bash: syntax error near unexpected token `done'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ for i in {1..10}; do
if [ $((i % 2)) -eq 0 ]; then
rm "$file_${i}.txt"
done
-bash: syntax error near unexpected token `done'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ count=0
for i in {1..10}; do
if [ $((count % 2)) -eq 0 ]; then
rm "file_${i}.txt"
fi
count=$((count + 1))
done
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ls
file_10.txt file_2.txt file_4.txt file_6.txt file_8.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$

```

6)Move all files **older than 7 days** from `Logs/` to `Backup/` .

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025/Logs$ mv * /mnt/c/Users/Amankudiyal/Workspace/Backup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025/Logs$ ls
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025/Logs$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects/2025$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd
Backup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Backup$ ls
notes.md
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Backup$

```

7. Create a compressed archive of `Workspace/` named `workspace_backup.tar.gz`.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ tar -czvf workspace_backup.tar.gz Workspace/
Workspace/
Workspace/Backup/
Workspace/Backup/notes.md
Workspace/file_10.txt
Workspace/file_2.txt
Workspace/file_4.txt
Workspace/file_6.txt
Workspace/file_8.txt
Workspace/Projects/
Workspace/Projects/2025/
Workspace/Projects/2025/data.csv
Workspace/Projects/2025/Logs/
Workspace/Projects/2025/report_backup.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls
Workspace
'Application Data'
Cookies
'Local Settings'
'My Documents'
NTUSER.DAT
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TM.blf
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000001.regtrans-ms
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000002.regtrans-ms
NetHood
Recent
SendTo
Templates
workspace_backup.tar.gz
```

8. Extract the contents of `workspace_backup.tar.gz` into `Restored/`.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ tar -czvf workspace_backup.tar.gz Workspace/
Workspace/
Workspace/Backup/
Workspace/Backup/notes.md
Workspace/file_10.txt
Workspace/file_2.txt
Workspace/file_4.txt
Workspace/file_6.txt
Workspace/file_8.txt
Workspace/Projects/
Workspace/Projects/2025/
Workspace/Projects/2025/data.csv
Workspace/Projects/2025/Logs/
Workspace/Projects/2025/report_backup.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls
Workspace
'Application Data'
Cookies
'Local Settings'
'My Documents'
NTUSER.DAT
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TM.blf
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000001.regtrans-ms
NTUSER.DAT{11413629-c104-11ef-bae9-8c47be171a1b}.TMContainer000000000000000002.regtrans-ms
NetHood
Recent
SendTo
Templates
workspace_backup.tar.gz
```

8. Extract the contents of `workspace_backup.tar.gz` into `Restored/`.

```

oan@L1-ANMBK:/mnt/c/Users/Anankudiyaj$ lsdir Confidential
oan@L1-ANMBK:/mnt/c/Users/Anankudiyaj$ chmod 600 Confidential
chmod: cannot access 'Confidential': No such file or directory
oan@L1-ANMBK:/mnt/c/Users/Anankudiyaj$ chmod 608 Confidential
oan@L1-ANMBK:/mnt/c/Users/Anankudiyaj$ ll -lita
total 28694
dr-xr-xr-x 1 oan oan      512 Feb 18 07:04 ./.
-Lrw-rw-rwx 1 oan oan    3355952 Feb 18 07:04 ntuser.dat.LOG*
```

```

-Lrw-rw-rwx 1 oan oan   3551312 Feb 18 07:04 ntuser.dat.LOG*
```

```

-Lrw-rw-rwx 1 oan oan     524288 Feb 18 07:04 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be17ab1b].TMContainer00000000000000000002.regtrans-ms
```

```

-Lrw-rw-rwx 1 oan oan     524288 Feb 18 07:04 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be17ab1b].TMContainer00000000000000000001.regtrans-ms
```

```

-Lrw-rw-rwx 1 oan oan       66 Feb 18 07:04 [redacted]
-Lrw-rw-rwx 1 oan oan       66 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       69 Feb 18 07:04 "Start Menu" -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       65 Feb 18 07:04 SendTo -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       65 Feb 18 07:04 Recent -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       76 Feb 18 07:04 Primitives -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       76 Feb 18 07:04 NetHood -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       34 Feb 18 07:04 "My Documents" -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       38 Feb 18 07:04 "Local Settings" -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       48 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       20 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan       68 Feb 18 07:04 ntuser.ini
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 Cookies -> [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:04 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 07:41 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 08:13 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 18 08:16 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     65536 Feb 18 08:32 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be17ab1b].TH.blf*
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 19 10:47 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Feb 23 14:43 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan    13107808 Mar 3 12:43 NTUSER.DAT*
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 3 13:01 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 3 13:22 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     356 Mar 3 17:06 workspace_backup.tar.gz*
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 3 17:11 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 3 17:38 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 3 04:02 [redacted]
```

```

-Lrw-rw-rwx 1 oan oan     512 Mar 4 04:06 [redacted]
```

12. Create a file, change its group ownership to `teamwork`, and allow only the group to access.

```

oman@LT-AMAMK:/mnt/c/Users/Amankudiyal$ chmod 770 Confidential
oman@LT-AMAMK:/mnt/c/Users/Amankudiyal$ ll -rlta
total 17468
dr-xr-xr-x 1 oman oman      512 Feb 18 07:04 ../
-rwxrwxrwx 1 oman oman 3452928 Feb 18 07:04 ntuser.dat.LOG2*
-rwxrwxrwx 1 oman oman 212992 Feb 18 07:04 ntuser.dat.LOG1*
-rwxrwxrwx 1 oman oman 524288 Feb 18 07:04 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be171alb].TMContainer000000000000000002.regtrans-ms
-rwxrwxrwx 1 oman oman 524288 Feb 18 07:04 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be171alb].TMContainer000000000000000001.regtrans-ms*
-rwxrwxrwx 1 oman oman 68 Feb 18 07:04 Templates -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/Templates/
-rwxrwxrwx 1 oman oman 69 Feb 18 07:04 'Start Menu' -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/Start Menu/
-rwxrwxrwx 1 oman oman 65 Feb 18 07:04 SendTo -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/SendTo/
-rwxrwxrwx 1 oman oman 65 Feb 18 07:04 Recent -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/Recent/
-rwxrwxrwx 1 oman oman 76 Feb 18 07:04 PrintHood -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/Printer Shortcuts/
-rwxrwxrwx 1 oman oman 76 Feb 18 07:04 NetHood -> /mnt/c/Users/Amankudiyal/AppData/Roaming/Microsoft/Windows/Network Places/
-rwxrwxrwx 1 oman oman 34 Feb 18 07:04 'My Documents' -> /mnt/c/Users/Amankudiyal/Documents/
-rwxrwxrwx 1 oman oman 38 Feb 18 07:04 'Local Settings' -> /mnt/c/Users/Amankudiyal/Application Data/
-rwxrwxrwx 1 oman oman 40 Feb 18 07:04 'Application Data' -> /mnt/c/Users/Amankudiyal/Application Data/
-rwxrwxrwx 1 oman oman 20 Feb 18 07:04 ntuser.ini*
-rwxrwxrwx 1 oman oman 68 Feb 18 07:04 Cookies -> /mnt/c/Users/Amankudiyal/AppData/Local/Microsoft/Windows/Cookies/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/ProgramData/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/ProgramData/Windows/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/ProgramData/Windows/WinSxS/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/
drwxrwxrwx 1 oman oman 512 Feb 18 07:04 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/
drwxrwxrwx 1 oman oman 512 Feb 18 07:41 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Feb 18 08:13 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Feb 18 08:16 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/
-rwxrwxrwx 1 oman oman 65536 Feb 18 08:32 NTUSER.DAT[11413629-c104-11ef-bae9-8c47be171alb].TM.blf*
drwxrwxrwx 1 oman oman 512 Feb 19 10:47 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Feb 23 14:43 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/
-rwxrwxrwx 1 oman oman 13107200 Mar 3 12:43 NTUSER.DAT*
drwxrwxrwx 1 oman oman 512 Mar 3 13:01 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Mar 3 13:22 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
-rwxrwxrwx 1 oman oman 350 Mar 3 17:06 workspace_backup.tar.gz*
drwxrwxrwx 1 oman oman 512 Mar 3 17:11 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Mar 3 17:38 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Mar 4 04:06 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Mar 4 04:06 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/
drwxrwxrwx 1 oman oman 512 Mar 4 04:10 /mnt/c/ProgramData/Windows/WinSxS/x-wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/wwp/

```

13. Make a file executable and move it to `/usr/local/bin`.`

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ touch fileexec.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ chmod +x fileexec.sh
chmod: cannot access 'fileexec.sh': No such file or directory
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ chmod +x fileexec.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ mv fileexec.txt /usr/local/bin/
mv: cannot create regular file '/usr/local/bin/fileexec.txt': Permission denied
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo mv fileexec.txt /usr/local/bin/
[sudo] password for oman:
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd /usr/local/bin
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$
oman@LT-AMANK:/usr/local/bin$ ll -rlta
total 8
drwxr-xr-x 10 root root 4096 Feb 15 08:09 ../
-rwxrwxrwx 1 oman oman 0 Mar 4 04:18 fileexec.txt*
drwxr-xr-x 2 root root 4096 Mar 4 04:20 ../
oman@LT-AMANK:/usr/local/bin$

```

14. Create a script, set permissions so the **owner can execute**, but **others cannot**:

```

oman@LT-AMANK:/usr/local/bin$ ll -rlta
total 8
drwxr-xr-x 10 root root 4096 Feb 15 08:09 ../
-rwxrwxrwx 1 oman oman 0 Mar 4 04:18 fileexec.txt*
drwxr-xr-x 2 root root 4096 Mar 4 04:20 ./
oman@LT-AMANK:/usr/local/bin$ chmod 100 fileexec.txt
oman@LT-AMANK:/usr/local/bin$ ll -rlta
total 8
drwxr-xr-x 10 root root 4096 Feb 15 08:09 ../
--x----- 1 oman oman 0 Mar 4 04:18 fileexec.txt*
drwxr-xr-x 2 root root 4096 Mar 4 04:20 ./
oman@LT-AMANK:/usr/local/bin$

```

15. Create a directory, set permissions so only users in a specific group can access it.

```

oman@LT-AMANK:/usr/local/bin$ cd
oman@LT-AMANK:~$ cd
oman@LT-AMANK:~$
oman@LT-AMANK:~$ cd /usr/local/bin
oman@LT-AMANK:/usr/local/bin$ chmod 070 fileexec.txt
oman@LT-AMANK:/usr/local/bin$ ll-rlta
ll-rlta: command not found
oman@LT-AMANK:/usr/local/bin$ ll -rlta
total 8
drwxr-xr-x 10 root root 4096 Feb 15 08:09 ../
---rwx--- 1 oman oman 0 Mar 4 04:18 fileexec.txt*
drwxr-xr-x 2 root root 4096 Mar 4 04:20 ./
oman@LT-AMANK:/usr/local/bin$

```

16. Change ownership of all `.log` files in `Logs/` to `root`.

```

oman@LT-AMANK:/usr/local/bin$ sudo mkdir Logs
[sudo] password for oman:
oman@LT-AMANK:/usr/local/bin$ cd Logs
oman@LT-AMANK:/usr/local/bin/Logs$ touch a.log
touch: cannot touch 'a.log': Permission denied
oman@LT-AMANK:/usr/local/bin/Logs$ sudo a.log
sudo: a.log: command not found
oman@LT-AMANK:/usr/local/bin/Logs$ sudo touch a.log
oman@LT-AMANK:/usr/local/bin/Logs$ cd ..
oman@LT-AMANK:/usr/local/bin$ sudo chown root:root Logs/*.log
oman@LT-AMANK:/usr/local/bin$ cd Logs
oman@LT-AMANK:/usr/local/bin/Logs$ ll -rlta
total 8
drwxr-xr-x 3 root root 4096 Mar 4 04:40 ../
drwxr-xr-x 2 root root 4096 Mar 4 04:40 ./
-rw-r--r-- 1 root root 0 Mar 4 04:40 a.log
oman@LT-AMANK:/usr/local/bin/Logs$

```

17. Change permissions on all `.sh` files in `Workspace/` to be **executable by everyone**.


```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ touch tx.sh
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd Projects/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ touch tx1.xh
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ touch tx1.sh
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace/Projects$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ chmod 111 Workspace/*.sh
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ll -rlta
total 0
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_10.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_2.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_4.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_6.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_8.txt*
drwxrwxrwx 1 oman oman 512 Mar  3 17:38 Backup/
drwxrwxrwx 1 oman oman 512 Mar  4 04:20 /
-r-xr-xr-x 1 oman oman  0 Mar  4 04:46 tx.sh*
drwxrwxrwx 1 oman oman 512 Mar  4 04:46 /
drwxrwxrwx 1 oman oman 512 Mar  4 04:46 Projects/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$

```

18. Find files with ****777 permissions**** and change them to ****750****.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -perm 777 -exec chown 750 {} \;
chown: changing ownership of 'Workspace/': Operation not permitted
chown: changing ownership of 'Workspace/Backup': Operation not permitted
chown: changing ownership of 'Workspace/Backup/notes.md': Operation not permitted
chown: changing ownership of 'Workspace/file_10.txt': Operation not permitted
chown: changing ownership of 'Workspace/file_2.txt': Operation not permitted
chown: changing ownership of 'Workspace/file_4.txt': Operation not permitted
chown: changing ownership of 'Workspace/file_6.txt': Operation not permitted
chown: changing ownership of 'Workspace/file_8.txt': Operation not permitted
chown: changing ownership of 'Workspace/Projects': Operation not permitted
chown: changing ownership of 'Workspace/Projects/2025': Operation not permitted
chown: changing ownership of 'Workspace/Projects/2025/data.csv': Operation not permitted
chown: changing ownership of 'Workspace/Projects/2025/report_backup.txt': Operation not permitted
chown: changing ownership of 'Workspace/Projects/tx1.sh': Operation not permitted
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo find Workspace/ -perm 777 -exec chown 750 {} \;
[sudo] password for oman:
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace ll -rlata
-bash: cd: too many arguments
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ll -rlta
total 0
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_10.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_2.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_4.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_6.txt*
-rwxrwxrwx 1 oman oman  0 Mar  3 17:38 file_8.txt*
drwxrwxrwx 1 oman oman 512 Mar  3 17:38 Backup/
drwxrwxrwx 1 oman oman 512 Mar  4 04:20 /
-r-xr-xr-x 1 oman oman  0 Mar  4 04:46 tx.sh*
drwxrwxrwx 1 oman oman 512 Mar  4 04:46 /
drwxrwxrwx 1 oman oman 512 Mar  4 04:46 Projects/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$

```

19. Find and archive all files ****larger than 100MB**** in ``Workspace/``.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -size>100MB -exec tar -cvzf test.tar {} \;
find: Invalid argument '-exec' to -size
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -size +100MB -exec tar -cvzf test.tar.gz {} \;
find: invalid -size type 'B'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/-type f -size +100MB -exec tar -cvzf test.tar.gz {} \;
find: invalid -size type 'B'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/-type f -size +100M -exec tar -cvzf test.tar.gz {} \;
find: 'Workspace/-type': No such file or directory
find: 'f': No such file or directory
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -type f -size +100M -exec tar -cvzf test.tar.gz {} \;
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

20. Find all files that contain the word `**error**`, save the results to ``error_summary.txt``.

21. Count the number of times the word 'critical' appears in ``Logs/system.log``.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ mkdir Lofs
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ mkdir Logs
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Logs
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Logs$ touch system.log
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Logs$ echo "hehe critical hehe hehe critical cirtal" >> system.log
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Logs$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ wc -l Logs/system.log
1 Logs/system.log
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ wc -w Logs/system.log
6 Logs/system.log
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ echo "critical" | wc -w Logs/system.log
6 Logs/system.log
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ grep -o "critical" Logs/system.log | wc -w
1
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$
```

22. Display all ``*.txt`` files modified `**in the last 2 days**`.

```
1
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find /Workspace -type f -mtime 2
find: '/Workspace': No such file or directory
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Workspace
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find /Workspace/ -type f -mtime 2
find: '/Workspace/': No such file or directory
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -type f -mtime 2
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$
```

23. Find files owned by ``newuser`` in ``Workspace/``.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ll -ltra
total 0
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_10.txt*
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_2.txt*
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_4.txt*
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_6.txt*
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_8.txt*
drwxrwxrwx 1 oman oman 512 Mar 3 17:38 backup/
-r-xr-xr-x 1 oman oman 0 Mar 4 04:46 tx.sh*
drwxrwxrwx 1 oman oman 512 Mar 4 04:46 /
drwxrwxrwx 1 oman oman 512 Mar 4 04:46 Projects/
drwxrwxrwx 1 oman oman 512 Mar 4 05:39 /
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ls -l file_2.txt
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_2.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ sudo chown newuser:newuser file_2.txt file_10.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ ls -l file_2.txt
-rwxrwxrwx 1 oman oman 0 Mar 3 17:38 file_2.txt
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ find Workspace/ -type f -user newuser|wc -l
find: 'Workspace/': No such file or directory
0
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ find Workspace/ -type f -user newuser|wc -l
0
```

Not working

24. List all open files in the system using ``lsof``.


```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ lsuf
COMMAND PID TID TASKCMD USER FD TYPE DEVICE SIZE/OFF NODE NAME
systemd 1 root cwd unknown /proc/1/cwd (readlink: Permission denied)
systemd 1 root rtd unknown /proc/1/root (readlink: Permission denied)
systemd 1 root txt unknown /proc/1/exe (readlink: Permission denied)
systemd 1 root NOFD unknown /proc/1/fd (opendir: Permission denied)
init 6 root cwd unknown /proc/6/cwd (readlink: Permission denied)
init 6 root rtd unknown /proc/6/root (readlink: Permission denied)
init 6 root txt unknown /proc/6/exe (readlink: Permission denied)
init 6 root NOFD unknown /proc/6/fd (opendir: Permission denied)
init 6 7 init root cwd unknown /proc/6/task/7/cwd (readlink: Permission denied)
init 6 7 init root rtd unknown /proc/6/task/7/root (readlink: Permission denied)
init 6 7 init root txt unknown /proc/6/task/7/exe (readlink: Permission denied)
init 6 7 init root NOFD unknown /proc/6/task/7/fd (opendir: Permission denied)
systemd-j 54 root cwd unknown /proc/54/cwd (readlink: Permission denied)
systemd-j 54 root rtd unknown /proc/54/root (readlink: Permission denied)
systemd-j 54 root txt unknown /proc/54/exe (readlink: Permission denied)
systemd-j 54 root NOFD unknown /proc/54/fd (opendir: Permission denied)
systemd-u 99 root cwd unknown /proc/99/cwd (readlink: Permission denied)
systemd-u 99 root rtd unknown /proc/99/root (readlink: Permission denied)
systemd-u 99 root txt unknown /proc/99/exe (readlink: Permission denied)
systemd-u 99 root NOFD unknown /proc/99/fd (opendir: Permission denied)
systemd-r 109 systemd-resolve root cwd unknown /proc/109/cwd (readlink: Permission denied)
systemd-r 109 systemd-resolve root rtd unknown /proc/109/root (readlink: Permission denied)
systemd-r 109 systemd-resolve root txt unknown /proc/109/exe (readlink: Permission denied)
systemd-r 109 systemd-resolve root NOFD unknown /proc/109/fd (opendir: Permission denied)
systemd-t 110 systemd-timesync root cwd unknown /proc/110/cwd (readlink: Permission denied)
systemd-t 110 systemd-timesync root rtd unknown /proc/110/root (readlink: Permission denied)
systemd-t 110 systemd-timesync root txt unknown /proc/110/exe (readlink: Permission denied)
systemd-t 110 systemd-timesync root NOFD unknown /proc/110/fd (opendir: Permission denied)
systemd-t 110 166 sd-resolv systemd-timesync root cwd unknown /proc/110/task/166/cwd (readlink: Permission denied)
systemd-t 110 166 sd-resolv systemd-timesync root rtd unknown /proc/110/task/166/root (readlink: Permission denied)
systemd-t 110 166 sd-resolv systemd-timesync root txt unknown /proc/110/task/166/exe (readlink: Permission denied)
systemd-t 110 166 sd-resolv systemd-timesync root NOFD unknown /proc/110/task/166/fd (opendir: Permission denied)
cron 168 root cwd unknown /proc/168/cwd (readlink: Permission denied)
cron 168 root rtd unknown /proc/168/root (readlink: Permission denied)
cron 168 root txt unknown /proc/168/exe (readlink: Permission denied)
cron 168 root NOFD unknown /proc/168/fd (opendir: Permission denied)
dbus-daem 169 messagebus root cwd unknown /proc/169/cwd (readlink: Permission denied)
dbus-daem 169 messagebus root rtd unknown /proc/169/root (readlink: Permission denied)
dbus-daem 169 messagebus root txt unknown /proc/169/exe (readlink: Permission denied)
dbus-daem 169 messagebus root NOFD unknown /proc/169/fd (opendir: Permission denied)
systemd-l 187 root cwd unknown /proc/187/cwd (readlink: Permission denied)
systemd-l 187 root rtd unknown /proc/187/root (readlink: Permission denied)
systemd-l 187 root txt unknown /proc/187/exe (readlink: Permission denied)
systemd-l 187 root NOFD unknown /proc/187/fd (opendir: Permission denied)
wsl-pro-s 194 root cwd unknown /proc/194/cwd (readlink: Permission denied)
wsl-pro-s 194 root rtd unknown /proc/194/root (readlink: Permission denied)
wsl-pro-s 194 root txt unknown /proc/194/exe (readlink: Permission denied)
wsl-pro-s 194 root NOFD unknown /proc/194/fd (opendir: Permission denied)
wsl-pro-s 194 272 wsl-pro-s root cwd unknown /proc/194/task/272/cwd (readlink: Permission denied)
wsl-pro-s 194 272 wsl-pro-s root rtd unknown /proc/194/task/272/root (readlink: Permission denied)
wsl-pro-s 194 272 wsl-pro-s root txt unknown /proc/194/task/272/exe (readlink: Permission denied)
wsl-pro-s 194 272 wsl-pro-s root NOFD unknown /proc/194/task/272/fd (opendir: Permission denied)
wsl-pro-s 194 273 wsl-pro-s root cwd unknown /proc/194/task/273/cwd (readlink: Permission denied)
wsl-pro-s 194 273 wsl-pro-s root rtd unknown /proc/194/task/273/root (readlink: Permission denied)
wsl-pro-s 194 273 wsl-pro-s root txt unknown /proc/194/task/273/exe (readlink: Permission denied)
wsl-pro-s 194 273 wsl-pro-s root NOFD unknown /proc/194/task/273/fd (opendir: Permission denied)

```

25. Create a new user `devuser`, assign them to `developers` group.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo adduser devuser
[sudo] password for oman:
info: Adding user `devuser' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `devuser' (1002) ...
info: Adding new user `devuser' (1002) with group `devuser (1002)' ...
info: Creating home directory `/home/devuser' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devuser
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] Y
info: Adding new user `devuser' to supplemental / extra groups `users' ...
info: Adding user `devuser' to group `users' ...
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo groupadd developers
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo usermod -aG developers devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ getent group devgroup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ getent group developers
developers:x:1003:devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

26. Set a password for `devuser` and lock their account.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo adduser devuser
[sudo] password for oman:
info: Adding user `devuser' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `devuser' (1002) ...
info: Adding new user `devuser' (1002) with group `devuser (1002)' ...
info: Creating home directory `/home/devuser' ...
info: Copying files from `/etc/skel' ...
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for devuser
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] Y
info: Adding new user `devuser' to supplemental / extra groups `users' ...
info: Adding user `devuser' to group `users' ...
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo groupadd developers
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo usermod -aG developers devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ getent group devgroup
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ getent group developers
developers:x:1003:devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$
```

27. Create a shared directory `/shared_data/``, ensuring only ``developers`` group can access it.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls
100MB  Desktop  Local Settings  NetHood  Templates
Application Data  My Documents  PrintHood  Recent  error_summary.txt
Cookies  NTUSER.DAT  Recent  error_summary.txt  ntuser.dat.LOG1
NTUSER.DAT  NTUSER.DAT  Recent  error_summary.txt  ntuser.dat.LOG2
NTUSER.DAT  NTUSER.DAT  Recent  error_summary.txt  ntuser.ini
NTUSER.DAT  NTUSER.DAT  Recent  error_summary.txt  workspace_backup.tar

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo chown :developers shared_data
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls -ld shared_data
drwxrwxrwx 1 oman oman 512 Mar 4 06:59 shared_data

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo chmod 770 /shared_data
chmod: cannot access '/shared_data': No such file or directory

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo chmod 770 shared_data
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls -ld shared_data
drwxrwxrwx 1 oman oman 512 Mar 4 06:59 shared_data

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls -ld /shared_data
ls: cannot access '/shared_data': No such file or directory

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ls -ld shared_data
drwxrwxrwx 1 oman oman 512 Mar 4 06:59 shared_data

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

not working (issue in wsl)

28. List all users in the system and find those belonging to `developers`.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ grep developers /etc/group
developers:x:1003:devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$
```

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cat /etc/passwd
root:x:0:0:root:/root:/bin/bash
daemon:x:1:1:daemon:/usr/sbin:/usr/sbin/nologin
bin:x:2:2:bin:/bin:/usr/sbin/nologin
sys:x:3:3:sys:/dev:/usr/sbin/nologin
sync:x:4:65534:sync:/bin:/bin/sync
games:x:5:60:games:/usr/games:/usr/sbin/nologin
man:x:6:12:man:/var/cache/man:/usr/sbin/nologin
lp:x:7:7:lp:/var/spool/lpd:/usr/sbin/nologin
mail:x:8:8:mail:/var/mail:/usr/sbin/nologin
news:x:9:9:news:/var/spool/news:/usr/sbin/nologin
uucp:x:10:10:uucp:/var/spool/uucp:/usr/sbin/nologin
proxy:x:13:13:proxy:/bin:/usr/sbin/nologin
www-data:x:33:33:www-data:/var/www:/usr/sbin/nologin
backup:x:34:34:backup:/var/backups:/usr/sbin/nologin
list:x:38:38:Mailing List Manager:/var/list:/usr/sbin/nologin
irc:x:39:39:ircd:/run/ircd:/usr/sbin/nologin
_apt:x:42:65534::/nonexistent:/usr/sbin/nologin
nobody:x:65534:65534:nobody:/nonexistent:/usr/sbin/nologin
systemd-network:x:998:998:systemd Network Management:/:/usr/sbin/nologin
systemd-timesync:x:996:996:systemd Time Synchronization:/:/usr/sbin/nologin
dhcpcd:x:100:65534:DHCP Client Daemon,,,:/usr/lib/dhcpcd:/bin/false
messagebus:x:101:101::/nonexistent:/usr/sbin/nologin
syslog:x:102:102::/nonexistent:/usr/sbin/nologin
systemd-resolve:x:991:991:systemd Resolver:/:/usr/sbin/nologin
uidd:x:103:103::/run/uidd:/usr/sbin/nologin
landscape:x:104:105::/var/lib/landscape:/usr/sbin/nologin
polkitd:x:990:990:User for polkitd:/:/usr/sbin/nologin
oman:x:1000:1000::,/home/oman:/bin/bash
newuser:x:1001:1001::/home/newuser:/bin/sh
devuser:x:1002:1002::,/home/devuser:/bin/bash

```

29. Delete user `testuser` along with their home directory.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo adduser testuser
info: Adding user 'testuser' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group 'testuser' (1004) ...
info: Adding new user 'testuser' (1004) with group 'testuser (1004)' ...
info: Creating home directory '/home/testuser' ...
info: Copying files from '/etc/skel' ...
New password:
Retype new password:
No password has been supplied.
New password:
Retype new password:
No password has been supplied.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for testuser
Enter the new value, or press ENTER for the default
  Full Name []:
  Room Number []:
  Work Phone []:
  Home Phone []:
  Other []:
Is the information correct? [Y/n] Y
info: Adding new user 'testuser' to supplemental / extra groups 'users' ...
info: Adding user 'testuser' to group 'users' ...
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo userdel testuser

```

30. Change the default shell of `devuser` to `/bin/bash`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo userdel testuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo chsh -s /bin/bash devuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ which ls /bin/bash
/usr/bin/ls
/bin/bash
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ grep devuser /etc/passwd
devuser:x:1002:1002:,,,:/home/devuser:/bin/bash
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

31. Find the top 5 processes consuming the most CPU and save the output.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ps aux --sort=-%cpu | head -n 6
USER      PID %CPU %MEM    VSZ   RSS TTY      STAT START   TIME COMMAND
root         1  0.0  0.1 21492 12872 ?        Ss   04:12   0:02 /sbin/init
root        54  0.0  0.2 66832 18192 ?        S<s  04:12   0:01 /usr/lib/systemd/systemd-journald
oman       344  0.0  0.0   6204   5476 pts/0    Ss   04:12   0:01 -bash
systemd+   110  0.0  0.0   91020 6524 ?        Ssl  04:12   0:00 /usr/lib/systemd/systemd-timesyncd
root       194  0.0  0.1 1756096 13944 ?        Ssl  04:12   0:00 /usr/libexec/wsl-pro-service -vv

```

32. Find and terminate all processes running by `testuser`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo pkill -u testuser
pkill: invalid user name: testuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo adduser testuser
info: Adding user `testuser' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `testuser' (1004) ...
info: Adding new user `testuser' (1004) with group `testuser (1004)' ...
warn: The home directory `/home/testuser' already exists. Not touching this directory.
New password:
Retype new password:
passwd: password updated successfully
Changing the user information for testuser
Enter the new value, or press ENTER for the default
    Full Name []:
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []:
Is the information correct? [Y/n] Y
info: Adding new user `testuser' to supplemental / extra groups `users' ...
info: Adding user `testuser' to group `users' ...
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo pkill -u testuser
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

33. Display only processes related to `apache` and restart the service.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ps aux | grep apache2
oman      1215  0.0  0.0   4088   1976 pts/0    S+   07:29   0:00 grep --color=auto apache2
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo systemctl restart apache2
Failed to restart apache2.service: Unit apache2.service not found.
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo systemd restart apache2
sudo: systemd: command not found
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo systemctl restart apache2
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ps aux | grep apache2
oman      1231  0.0  0.0   4088   2016 pts/0    S+   07:30   0:00 grep --color=auto apache2
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

34. Monitor real-time CPU and memory usage for 10 seconds.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ top -d 1 -n 10
top - 07:31:26 up 3:18, 1 user, load average: 0.00, 0.00, 0.00
Tasks: 23 total, 1 running, 22 sleeping, 0 stopped, 0 zombie
%Cpu(s): 0.2 us, 0.2 sy, 0.0 ni, 99.7 id, 0.0 wa, 0.0 hi, 0.0 si, 0.0 st
MiB Mem : 7789.2 total, 7203.0 free, 611.7 used, 203.5 buff/cache
MiB Swap: 2048.0 total, 2048.0 free, 0.0 used, 7177.5 avail Mem

  PID USER      PR  NI   VIRT   RES   SHR  S  %CPU  %MEM    TIME+  COMMAND
 1233 oman       20   0   9300   5104   2960  R   1.0   0.1   0:00.03 top
    1 root       20   0  21492  12876  9604  S   0.0   0.2   0:02.16 systemd
    2 root       20   0   2776   1924   1796  S   0.0   0.0   0:00.03 init-systemd(Ub
    6 root       20   0   2796    132    132  S   0.0   0.0   0:00.11 init
   54 root       19  -1  66832  18220  17076  S   0.0   0.2   0:01.94 systemd-journal
   99 root       20   0  23992   6064   4868  S   0.0   0.1   0:00.92 systemd-udev
  109 systemd+   20   0  21452  11940   9744  S   0.0   0.1   0:00.55 systemd-resolve
  110 systemd+   20   0   91020  6524   5676  S   0.0   0.1   0:01.00 systemd-timesyn
  168 root       20   0   4236   2660   2424  S   0.0   0.0   0:00.08 cron
  169 message+   20   0   9532   5236   4600  S   0.0   0.1   0:00.74 dbus-daemon
  187 root       20   0   17976   8432   7416  S   0.0   0.1   0:00.40 systemd-logind
  194 root       20   0  1756096  15992   9396  S   0.0   0.2   0:00.97 wsl-pro-service
  207 root       20   0    3160   1144   1060  S   0.0   0.0   0:00.01 agetty
  234 syslog     20   0  222508   7256   4424  S   0.0   0.1   0:00.39 rsyslogd
  240 root       20   0    3116   1236   1144  S   0.0   0.0   0:00.00 agetty
  268 root       20   0  107012  22380  12976  S   0.0   0.3   0:00.16 unattended-upgr
  333 root       20   0    2784    208     80  S   0.0   0.0   0:00.00 SessionLeader
  338 root       20   0    2784    212     80  S   0.0   0.0   0:00.84 Relay(344)
  344 oman       20   0    6204   5476   3600  S   0.0   0.1   0:01.12 bash
  345 root       20   0    6692   4672   3888  S   0.0   0.1   0:00.00 login
  436 oman       20   0   20260  11444   9364  S   0.0   0.1   0:00.37 systemd
  439 oman       20   0   21148   1728     0  S   0.0   0.0   0:00.00 (sd-pam)
  457 oman       20   0    6056   4948   3440  S   0.0   0.1   0:00.02 bash

```

35. Kill a process by name instead of PID.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ sudo pkill apache2
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ps aux | grep apache2
oman                1248  0.0  0.0  4088  1928 pts/0    S+   07:33   0:00 grep --color=auto apache2

```

36. List all running processes and filter for the ones using more than 50% memory.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ps aux --sort=-%mem | awk '$4 > 10'
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$

```

Not working

40. Download a file from `example.com` using `wget`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ wget https://www.win-rar.com/fileadmin/winrar-versions/rarlinux-x64-710.tar.gz
--2025-03-04 08:43:24-- https://www.win-rar.com/fileadmin/winrar-versions/rarlinux-x64-710.tar.gz
Resolving www.win-rar.com (www.win-rar.com)... 51.195.68.163
Connecting to www.win-rar.com (www.win-rar.com)|51.195.68.163|:443... connected.
ERROR: cannot verify www.win-rar.com's certificate, issued by 'CN=Zscaler Intermediate Root CA (zscalerthree.net) (t)\
\,OU=Zscaler Inc.,O=Zscaler Inc.,ST=California,C=US':
  Unable to locally verify the issuer's authority.
To connect to www.win-rar.com insecurely, use '--no-check-certificate'.
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ wget --no-check-certificatehttps://www.win-rar.com/fileadmin/winrar-versions/rar
linux-x64-710.tar.gz
wget: unrecognized option '--no-check-certificatehttps://www.win-rar.com/fileadmin/winrar-versions/rarlinux-x64-710.tar
gz'
Usage: wget [OPTION]... [URL]...

Try 'wget --help' for more options.
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ wget --no-check-certificate https://www.win-rar.com/fileadmin/winrar-versions/rar
linux-x64-710.tar.gz
--2025-03-04 08:43:57-- https://www.win-rar.com/fileadmin/winrar-versions/rarlinux-x64-710.tar.gz
Resolving www.win-rar.com (www.win-rar.com)... 51.195.68.163
Connecting to www.win-rar.com (www.win-rar.com)|51.195.68.163|:443... connected.
WARNING: cannot verify www.win-rar.com's certificate, issued by 'CN=Zscaler Intermediate Root CA (zscalerthree.net) (t)\
\,OU=Zscaler Inc.,O=Zscaler Inc.,ST=California,C=US':
  Unable to locally verify the issuer's authority.
HTTP request sent, awaiting response... 403 Forbidden
2025-03-04 08:43:59 ERROR 403: Forbidden.

```



```

HTTP request sent, awaiting response... 200 OK
Length: 21734374 (21M) [application/octet-stream]
Saving to: 'php-8.4.4.tar.gz'

php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s
php-8.4.4.tar.gz      99%[=====>] 20.73M  --.-KB/s  eta 0s

```

41. Check network connectivity by pinging `8.8.8.8`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ping 8.8.8.8
PING 8.8.8.8 (8.8.8.8) 56(84) bytes of data.
64 bytes from 8.8.8.8: icmp_seq=1 ttl=57 time=10.2 ms
64 bytes from 8.8.8.8: icmp_seq=2 ttl=57 time=8.36 ms
64 bytes from 8.8.8.8: icmp_seq=3 ttl=57 time=9.14 ms
64 bytes from 8.8.8.8: icmp_seq=4 ttl=57 time=17.8 ms

```

42. Display the system's **IP address and default gateway**.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ ip route
default via 172.28.144.1 dev eth0 proto kernel
172.28.144.0/20 dev eth0 proto kernel scope link src 172.28.147.182

```

43. Write a script that compresses `Workspace/` daily and stores it in `Backup/`.

```

oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Workspace$ cd ..
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ cd Backup/
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ tar -czvf workspa
ce_backup.tar.gz Workspace/
tar: Workspace: Cannot stat: No such file or directory
tar: Exiting with failure status due to previous errors
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ tar -czvf workspa
ce_backup.tar.gz ../Workspace/
tar: Removing leading `../' from member names
../Workspace/
../Workspace/Backup/
../Workspace/Backup/notes.md
../Workspace/file_10.txt
../Workspace/file_2.txt
../Workspace/file_4.txt
../Workspace/file_6.txt
../Workspace/file_8.txt
../Workspace/Projects/
../Workspace/Projects/2025/
../Workspace/Projects/2025/data.csv
../Workspace/Projects/2025/report_backup.txt
../Workspace/Projects/tx1.sh
../Workspace/Projects/tx1.xh
../Workspace/tx.sh
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ ls
report_backup.txt  workspace_backup.tar.gz
oman@LT-AMANK:/mnt/c/Users/Amankudiyal/Backup$ |

```


44. Schedule a cron job that cleans logs older than 7 days every Sunday at midnight.

```
GNU nano 7.2 /tmp/crontab.x11ZM9/crontab *
# Edit this file to introduce tasks to be run by cron.
#
# Each task to run has to be defined through a single line
# indicating with different fields when the task will be run
# and what command to run for the task
#
# To define the time you can provide concrete values for
# minute (m), hour (h), day of month (dom), month (mon),
# and day of week (dow) or use '*' in these fields (for 'any').
#
# Notice that tasks will be started based on the cron's system
# daemon's notion of time and timezones.
#
# Output of the crontab jobs (including errors) is sent through
# email to the user the crontab file belongs to (unless redirected).
#
# For example, you can run a backup of all your user accounts
# at 5 a.m every week with:
# 0 5 * * 1 tar -zcf /var/backups/home.tgz /home/
#
# For more information see the manual pages of crontab(5) and cron(8)
#
# m h dom mon dow  command
0 0 * * 0 /usr/bin/find Workspace/Logs
-type f -name "*.log" -mtime +7 -exec /bin/rm -f {} \;
```

45. Write a script to monitor disk usage and send an alert if usage exceeds 90%.

46. Create a script that prints system uptime, CPU usage, and memory stats.

```
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ uptime
12:48:50 up 9 min, 1 user, load average: 0.00, 0.00, 0.00
oman@LT-AMANK:/mnt/c/Users/Amankudiyal$ free -h
              total        used        free      shared  buff/cache   available
Mem:          7.6Gi         592Mi        6.9Gi         3.1Mi        320Mi        7.0Gi
Swap:         2.0Gi           0B         2.0Gi
```