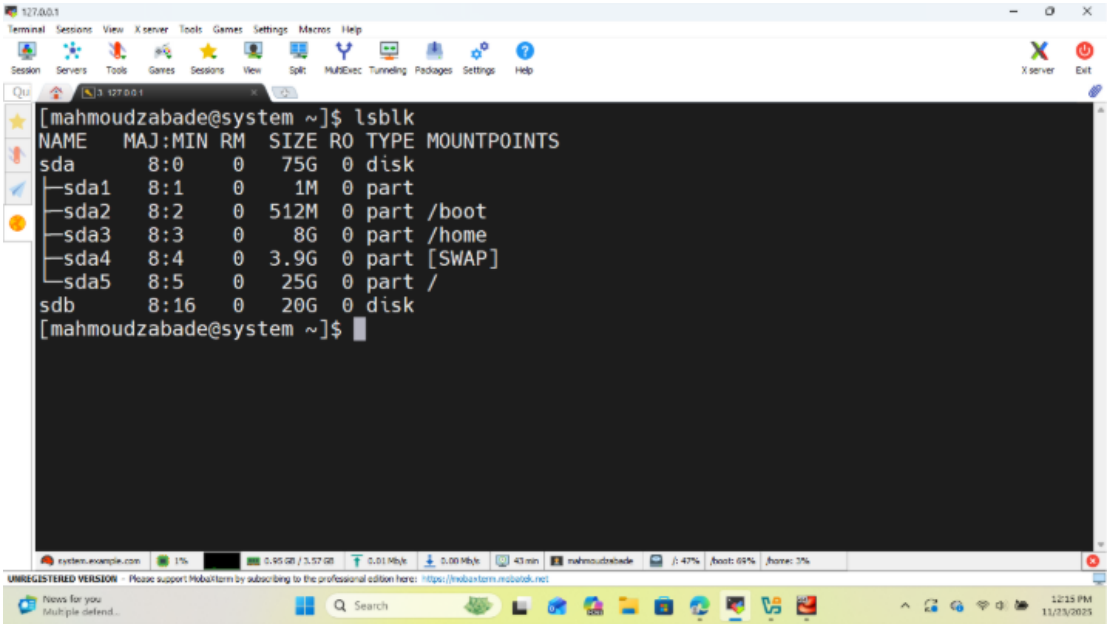
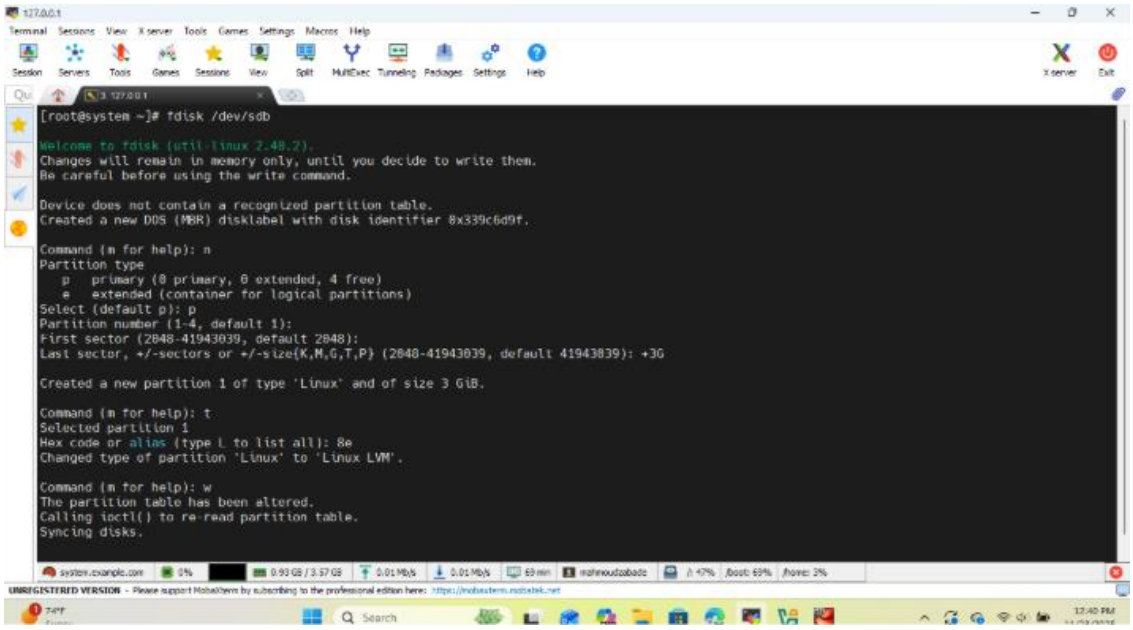
Task1

Part1: LVM

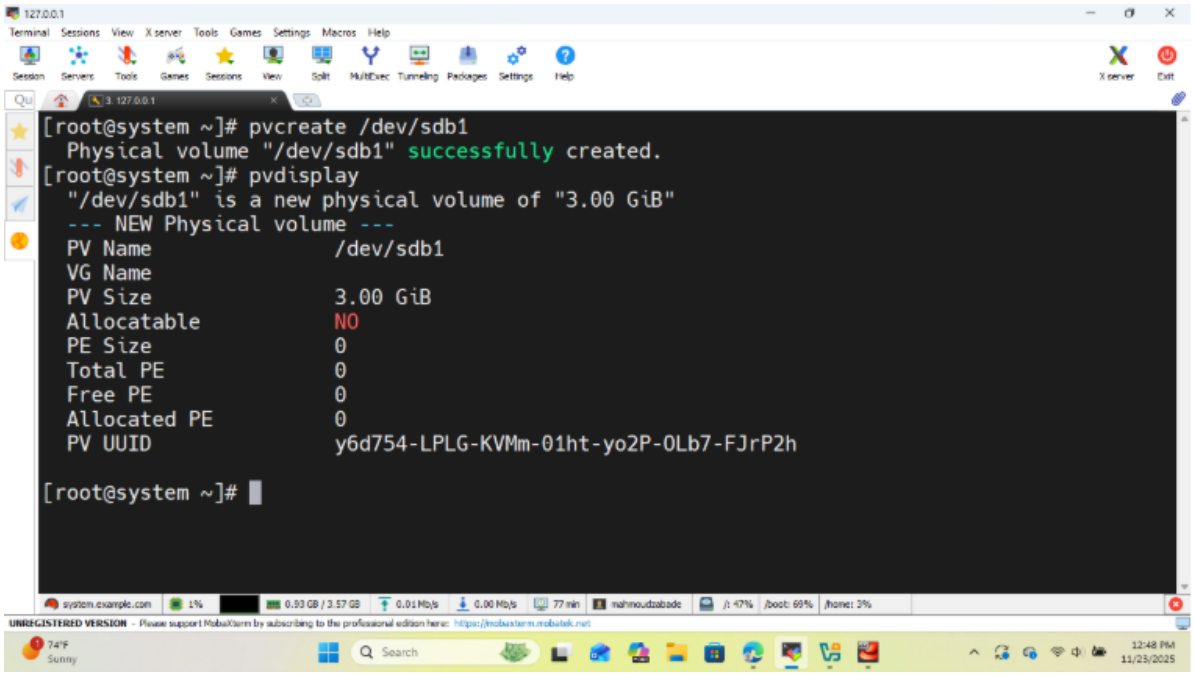
1- Prepare the Disk



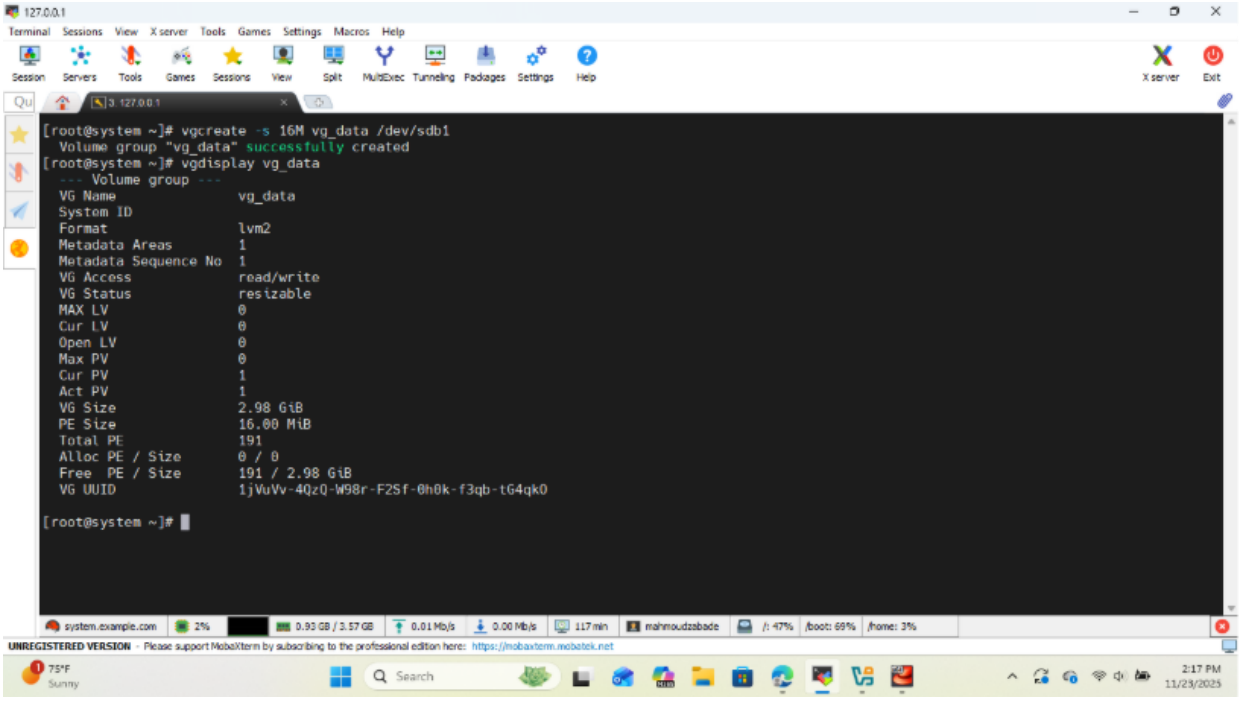
2- Create a partition



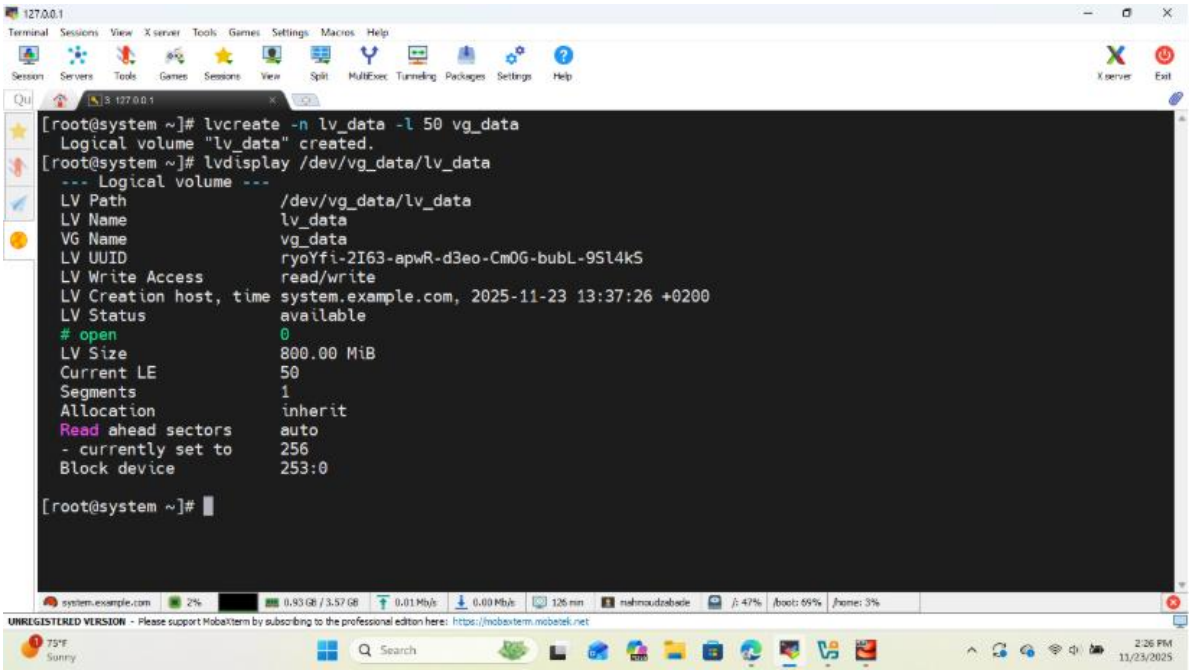
3- Create Physical Volume (PV)



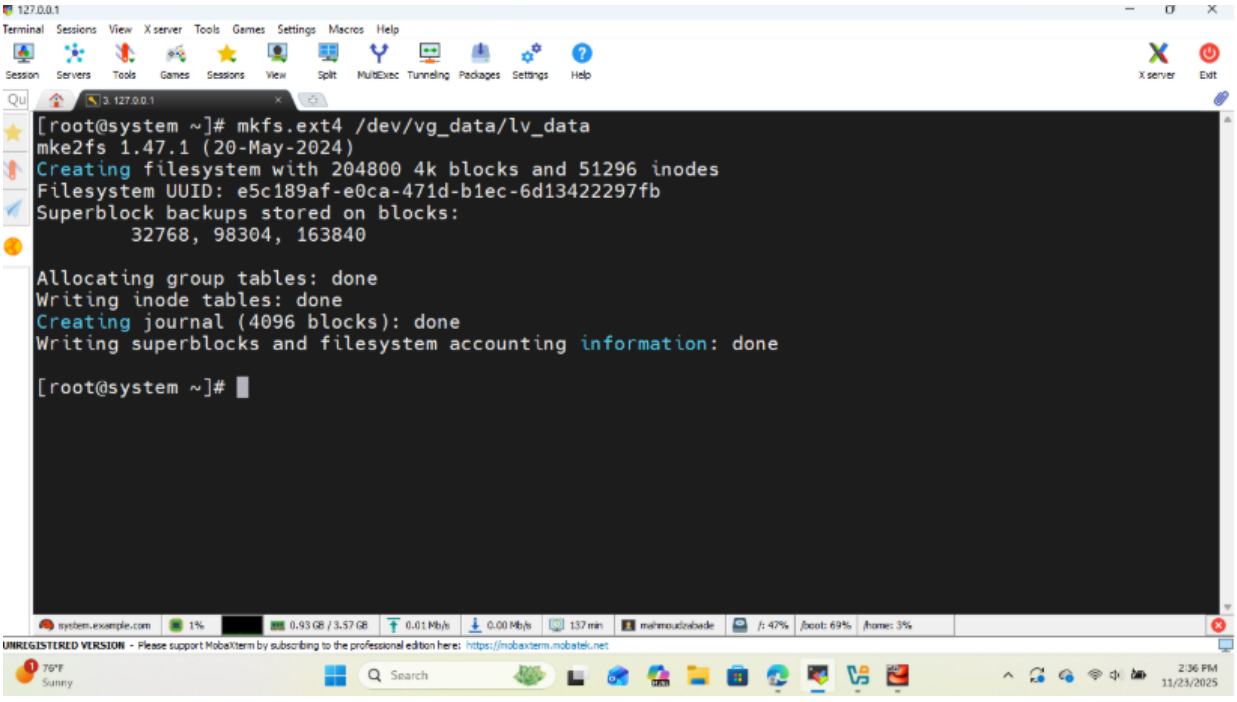
4- Create Volume Group (VG)



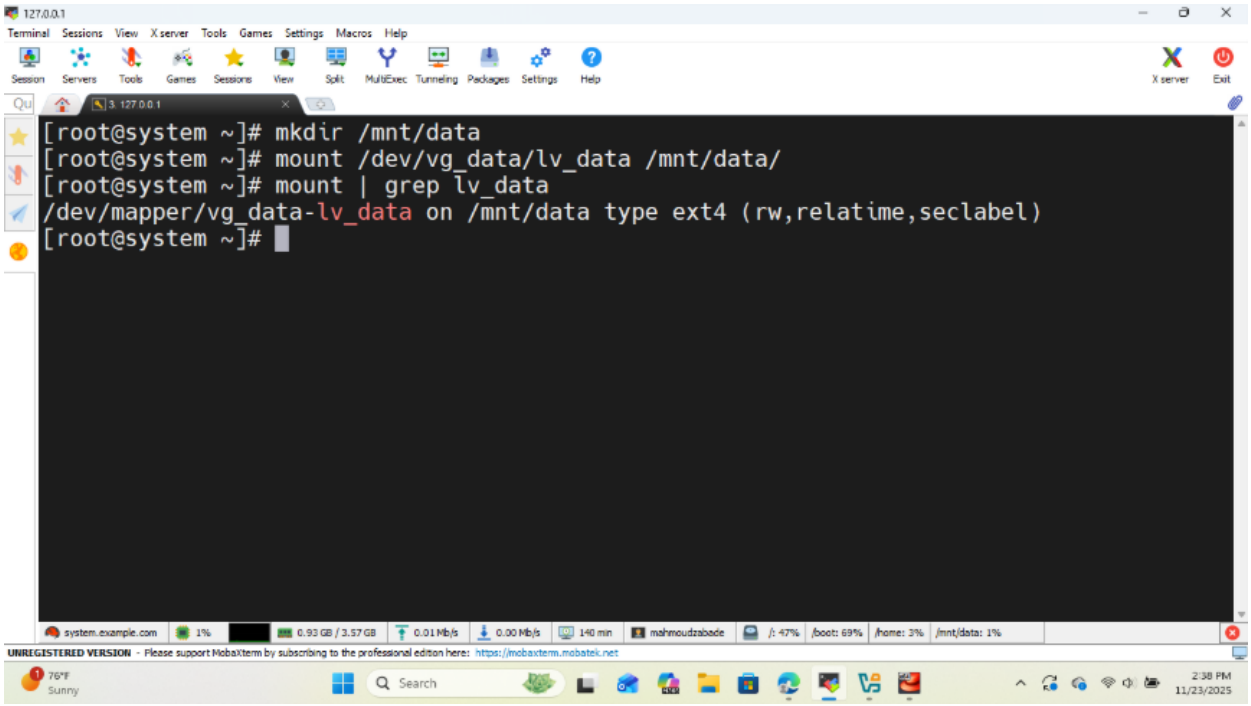
5- Create Logical Volume (LV)



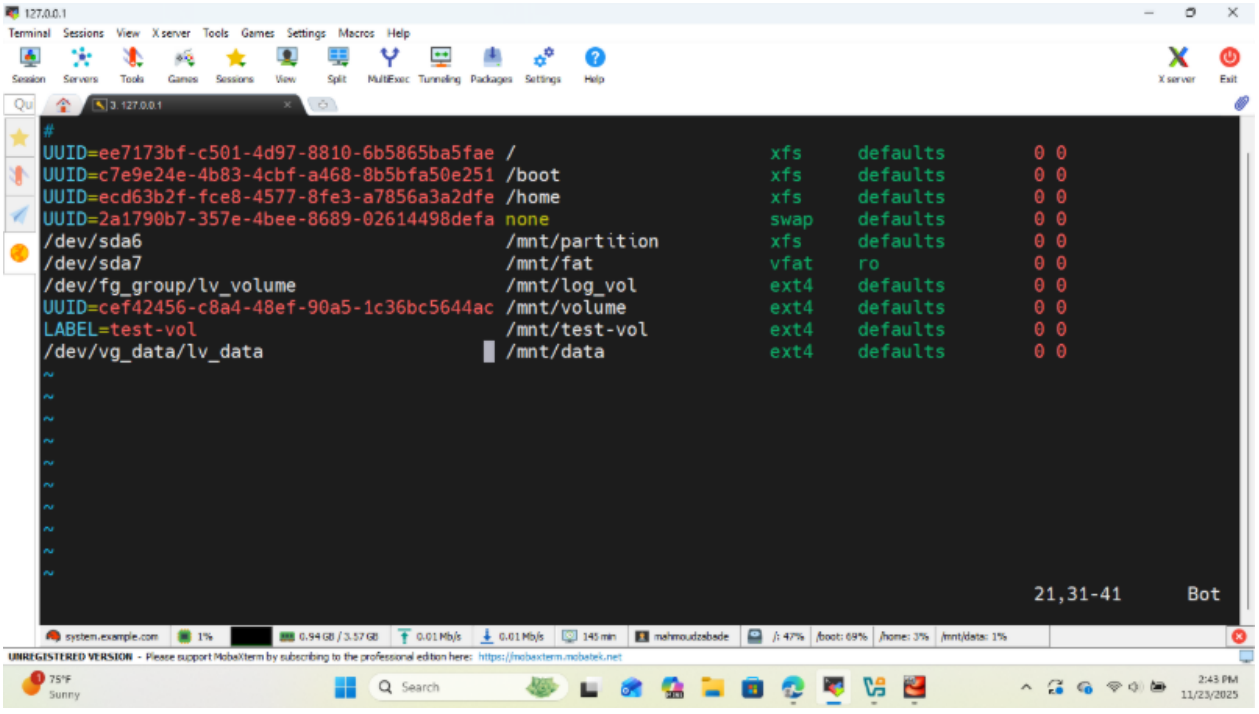
6- Create Ext4 Filesystem



7- Mount the LV

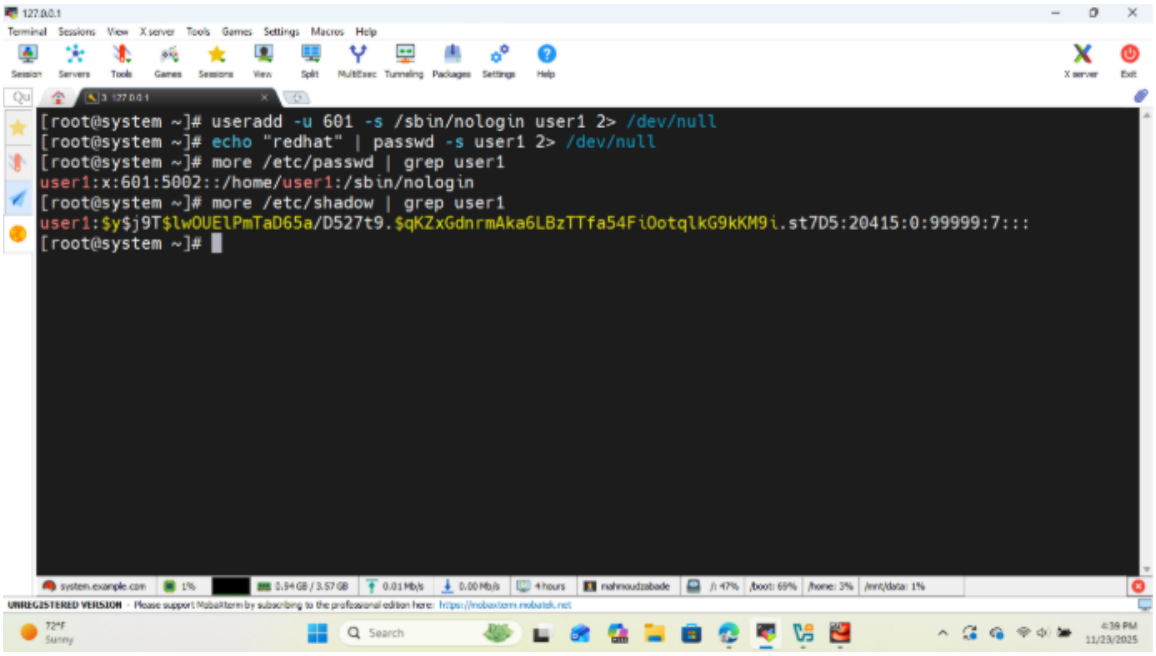


8- Configure Automatic Mount

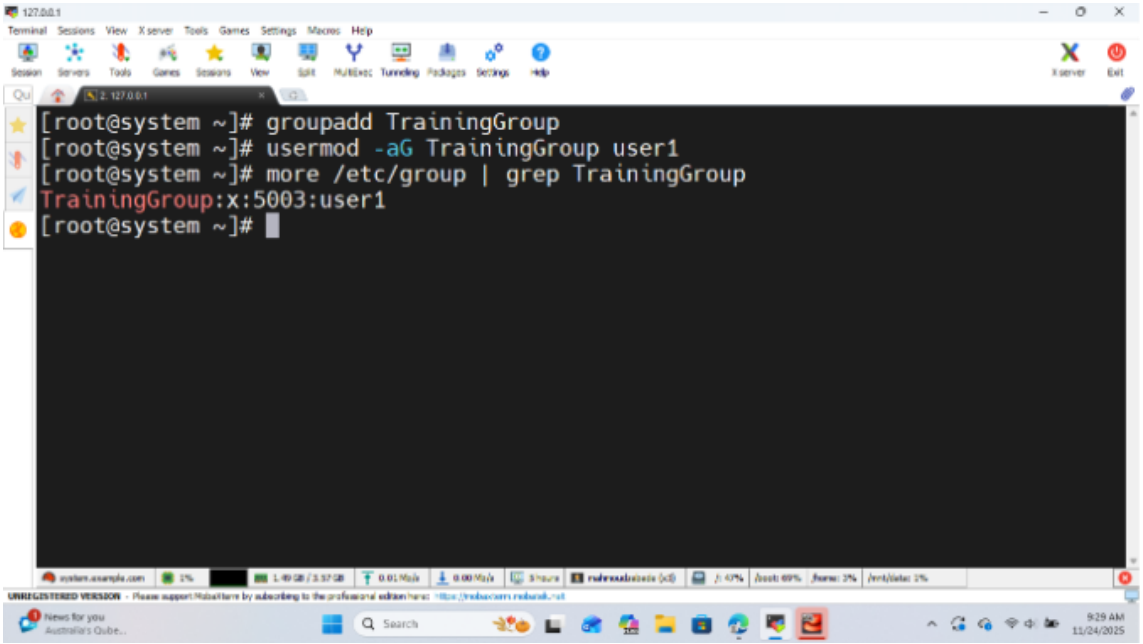


Part2: Users, Groups and Permissions

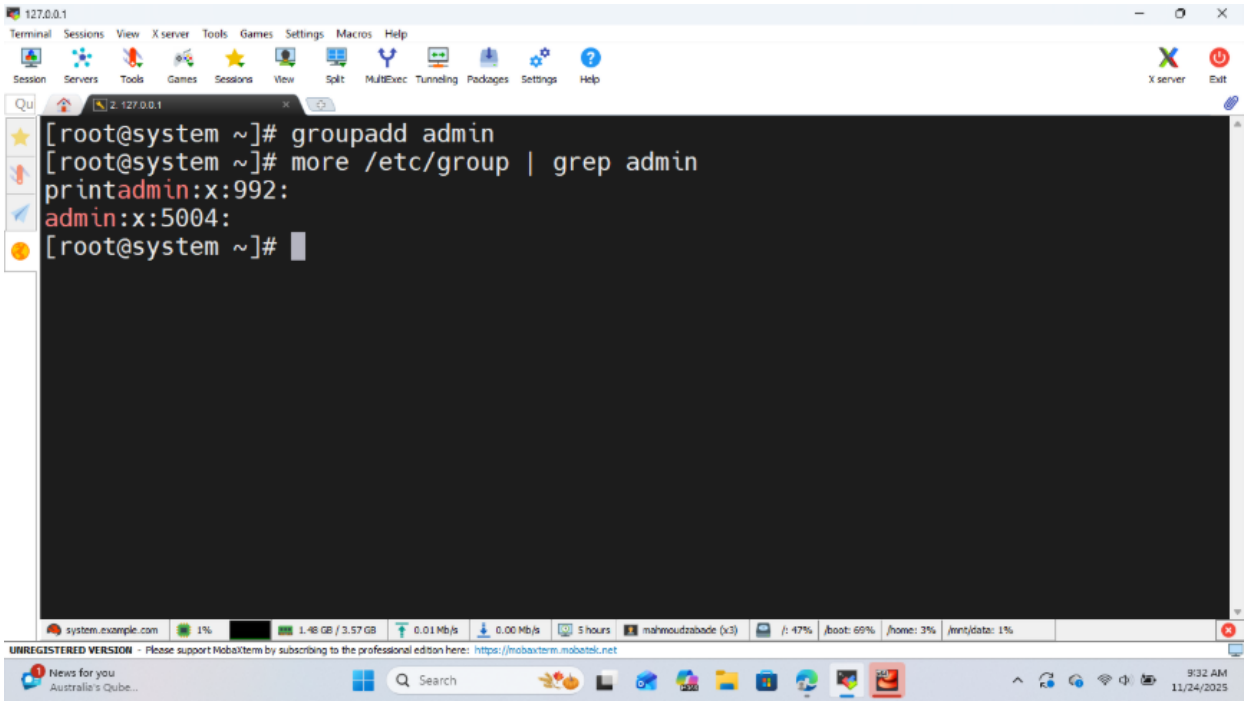
1- Create user1



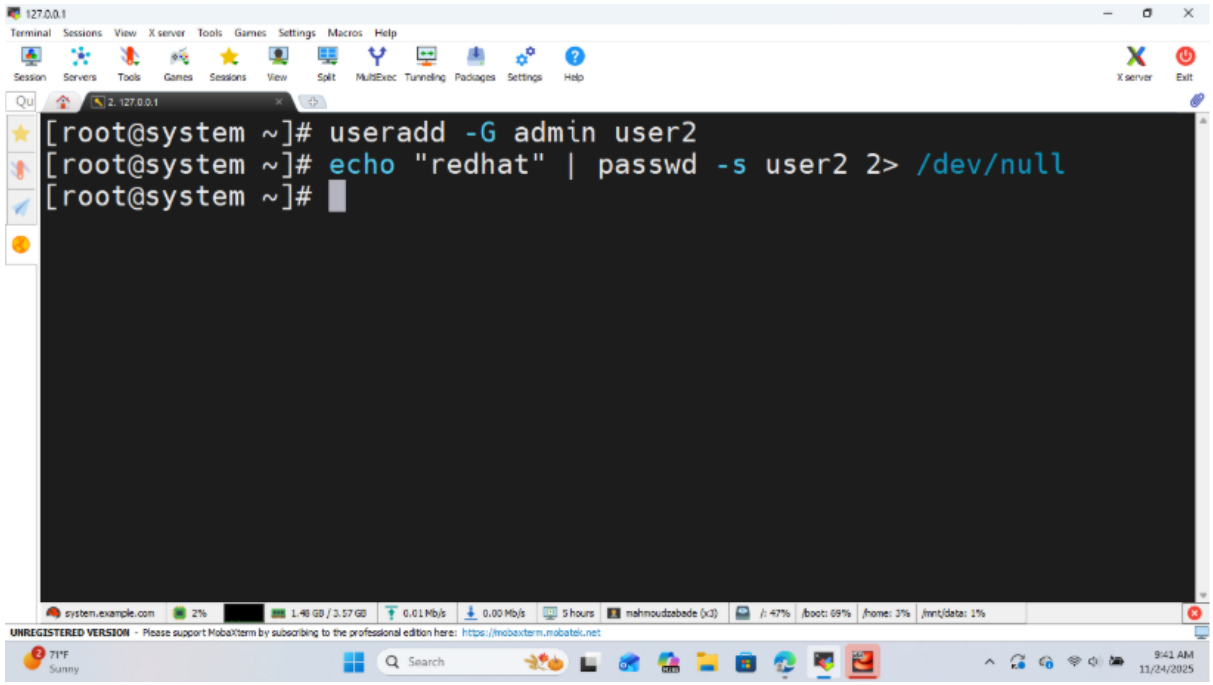
2- Create TrainingGroup and add user1 into it



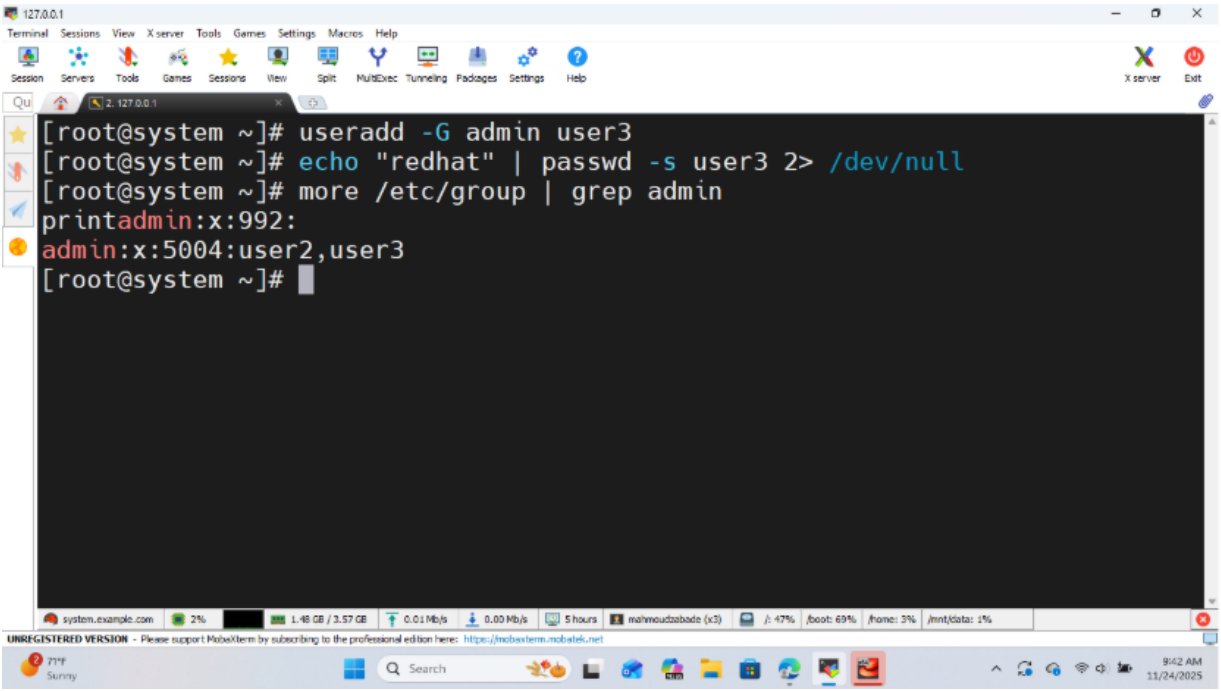
3- Create admin group



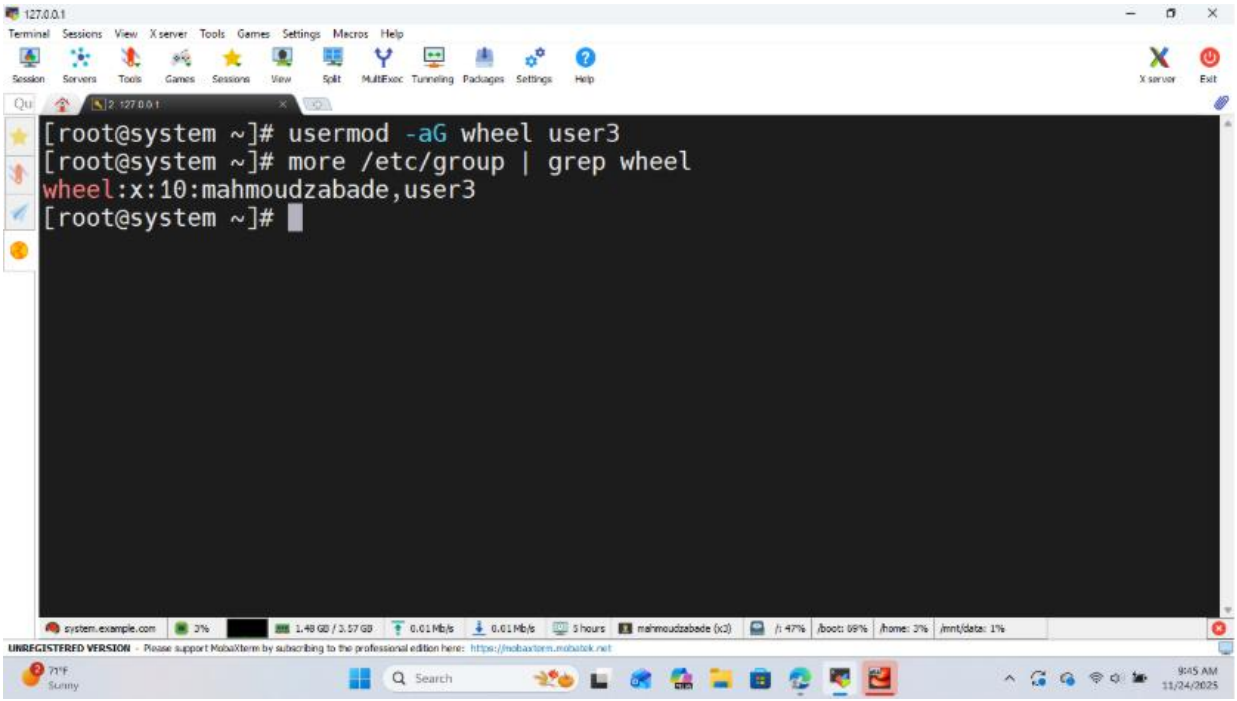
4- Create user2 and assign it to admin group



5- Create user3 and assign it to admin group

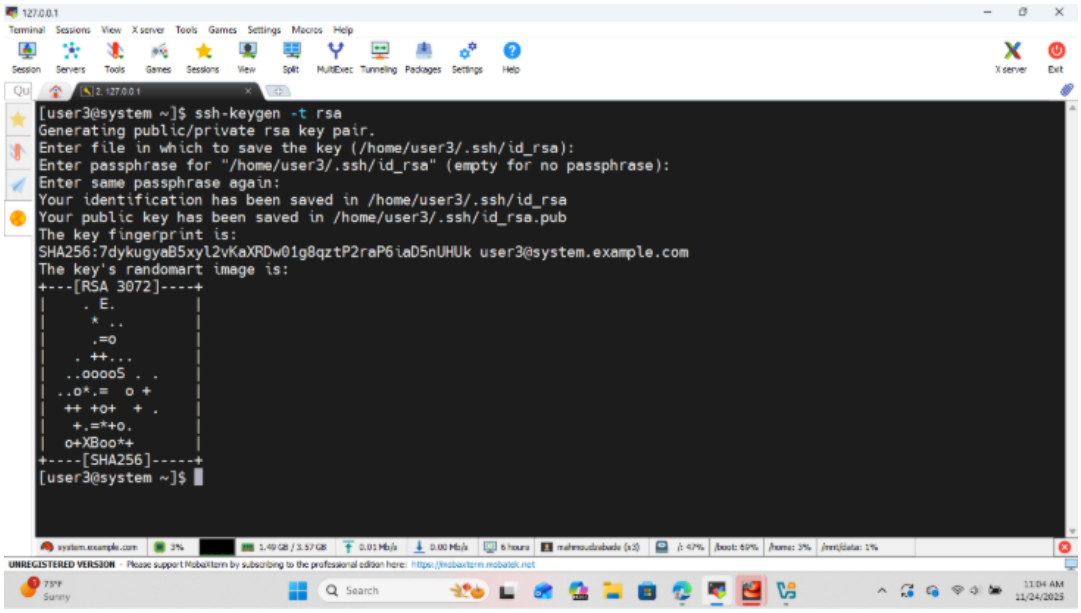


6- Give user3 root permissions

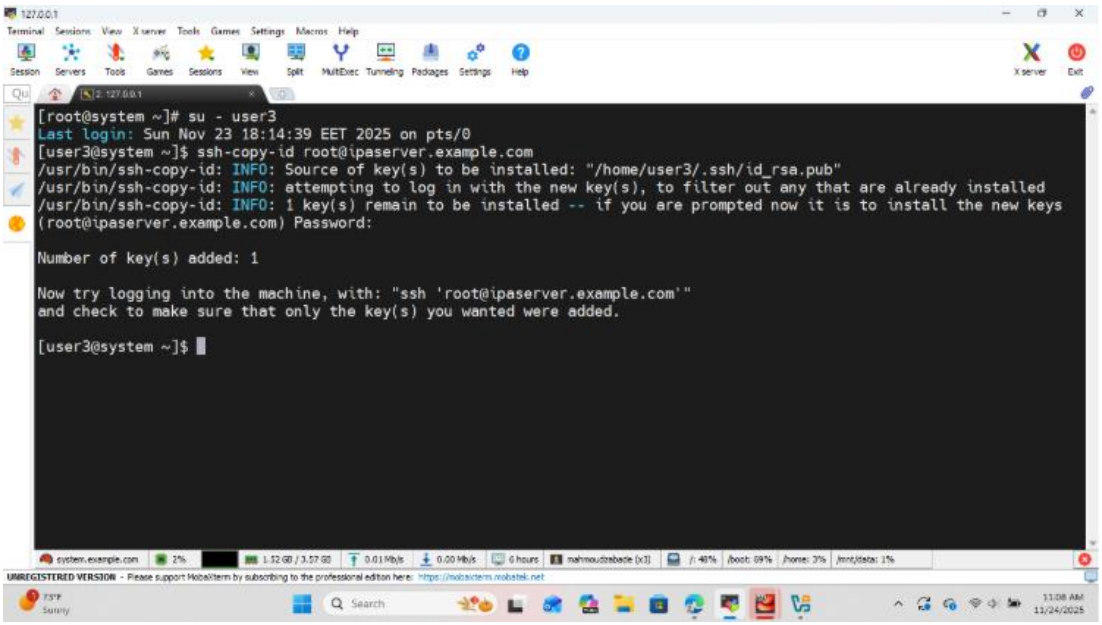


Part3: SSH

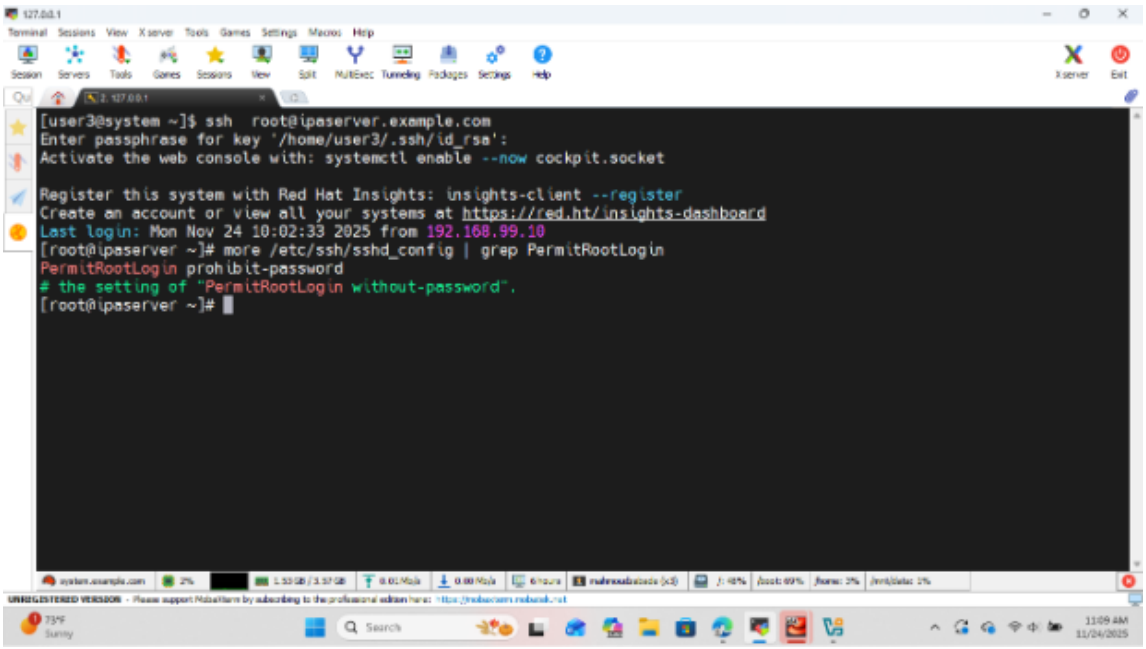
1- Generate SSH Key on Local VM



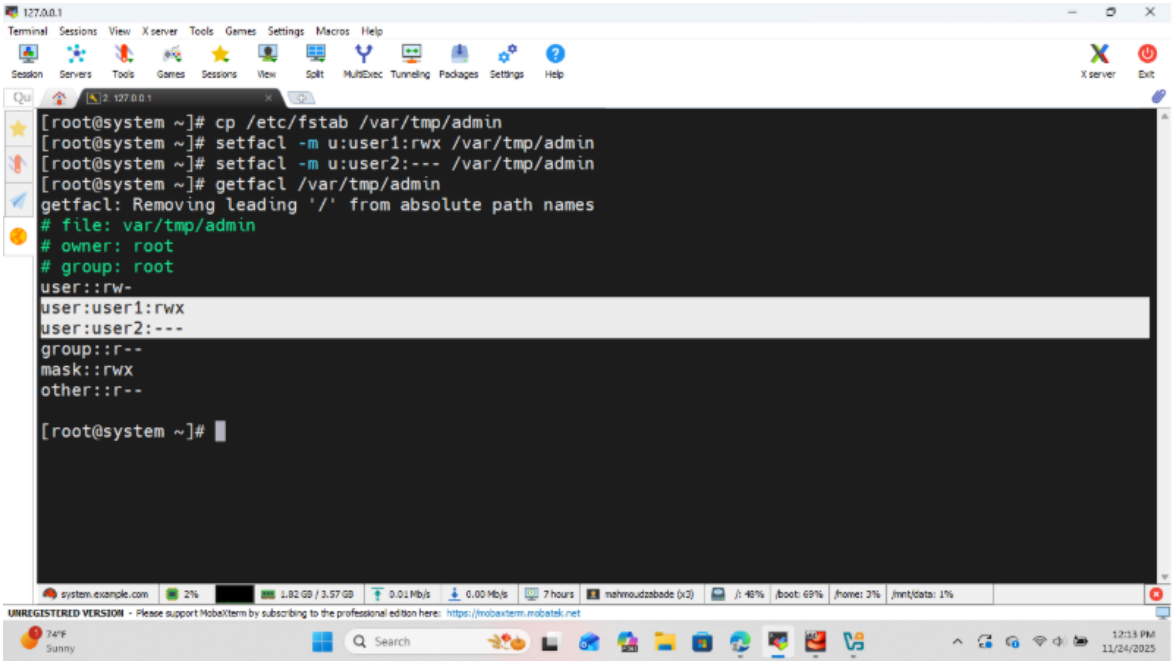
2- Copy Public Key to Remote VM



3- Test Password less SSH

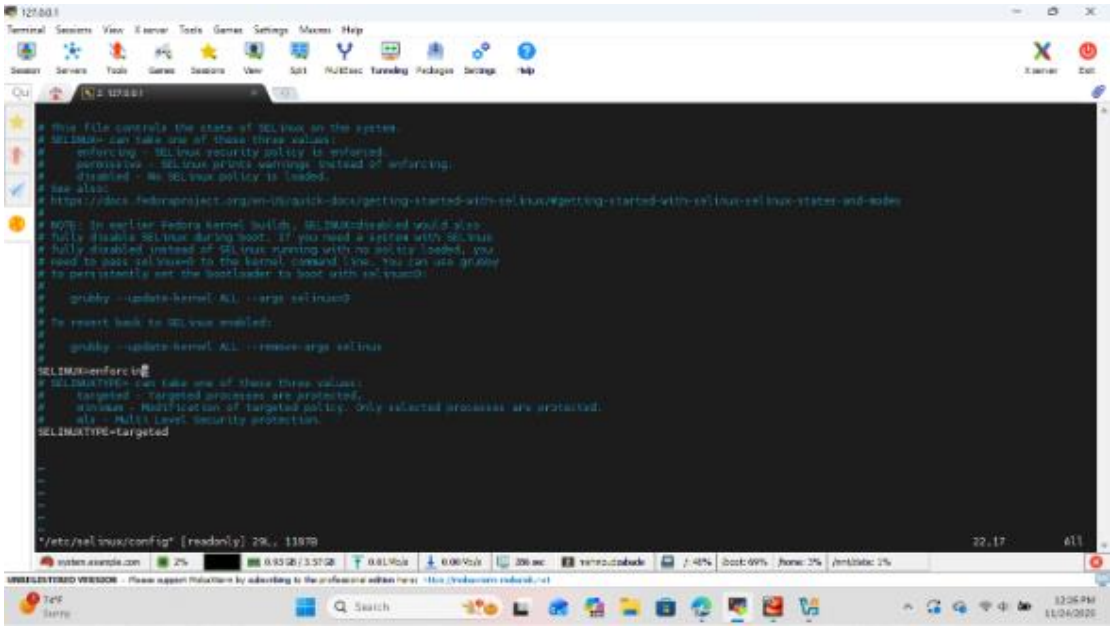


Part4: Permissions

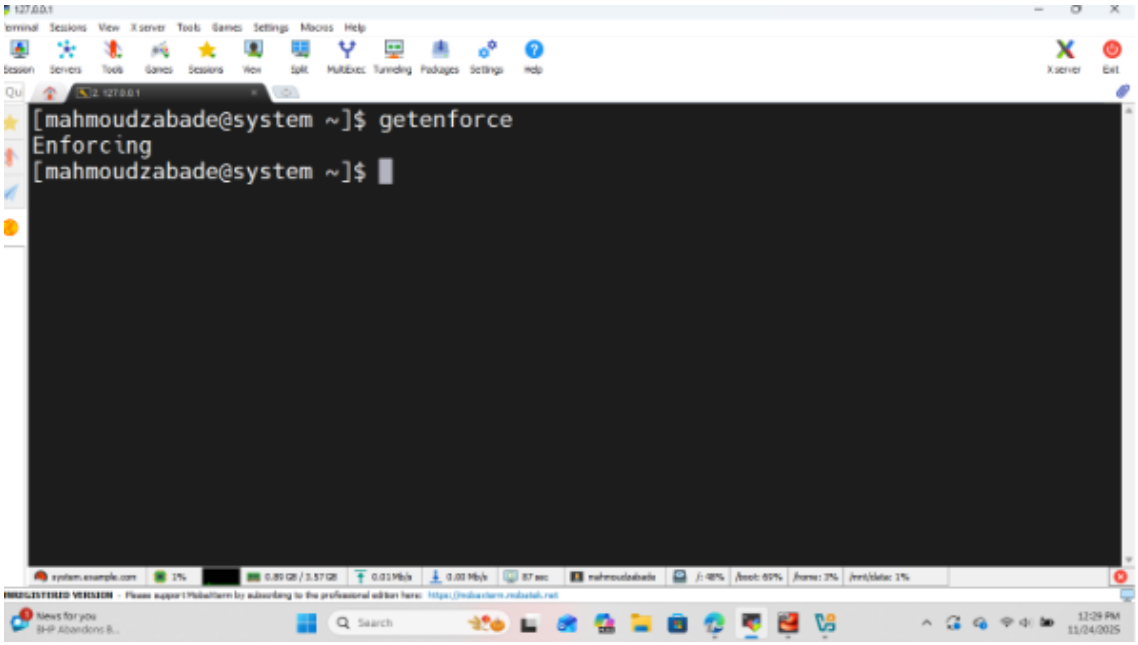


Part 5: SELinux

1- Open /etc/selinux/config file and change the mode into enforcing

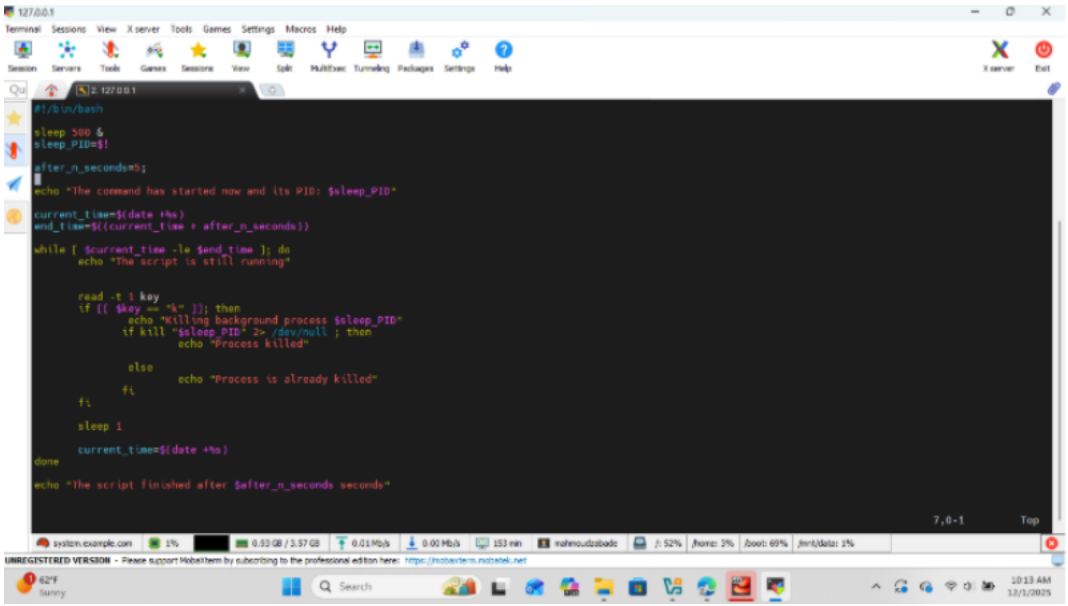


2- Reboot and check the SELinux mode



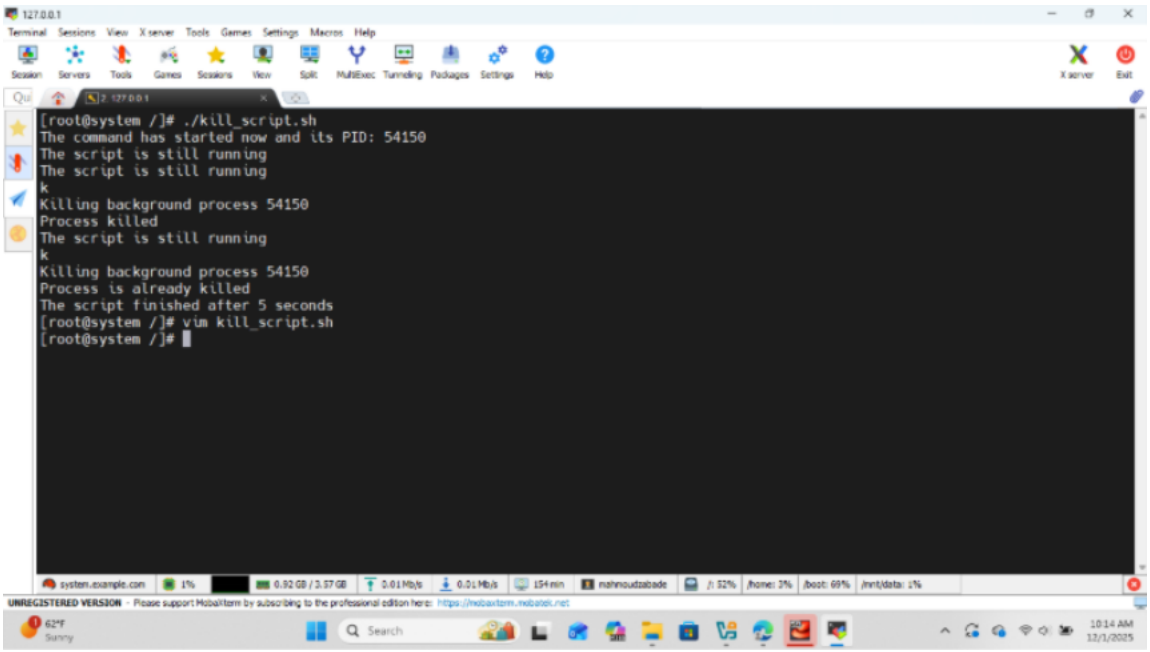
Part 6: bash script and processes

1- shell script that will run for n seconds and the process will be killed after the user enters ‘k’ character.



```
#!/bin/bash

sleep 500 &
sleep_PID=$!

after_n_seconds=5;

echo "The command has started now and its PID: $sleep_PID"

current_time=$(date +%s)
end_time=$((current_time + after_n_seconds))

while [ $current_time -le $end_time ]; do
      echo "The script is still running"


      read -t 1 key
      if [[ $key == "k" ]]; then
            echo "Killing background process $sleep_PID"
            if kill "$sleep_PID" 2> /dev/null ; then
                  echo "Process killed"

            else
                  echo "Process is already killed"
            fi
      fi

      sleep 1

      current_time=$(date +%s)
done

echo "The script finished after $after_n_seconds seconds"
```

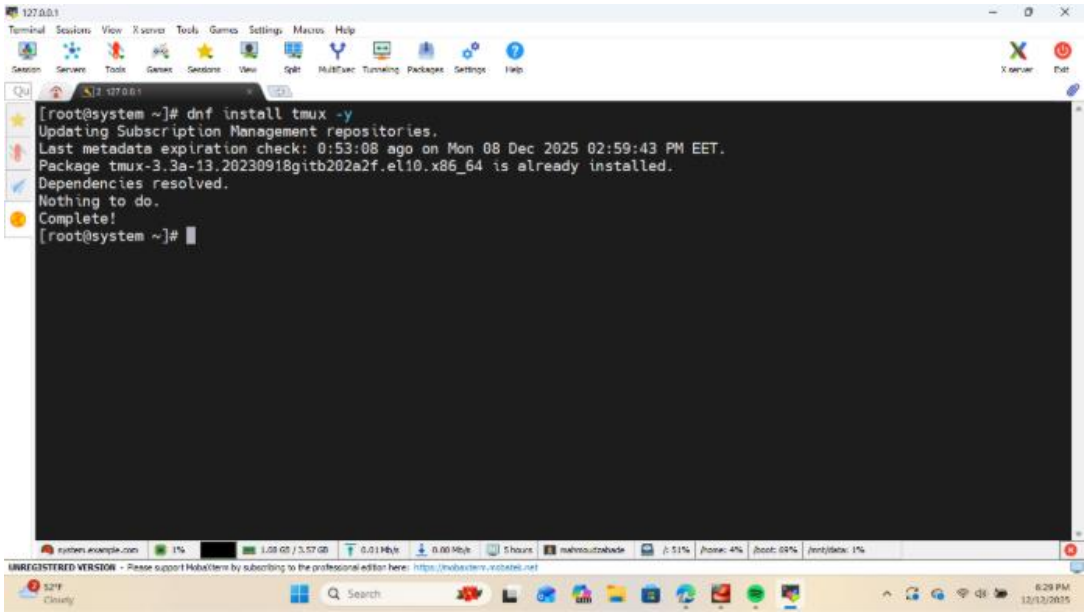
2- shell Run the script and check the results



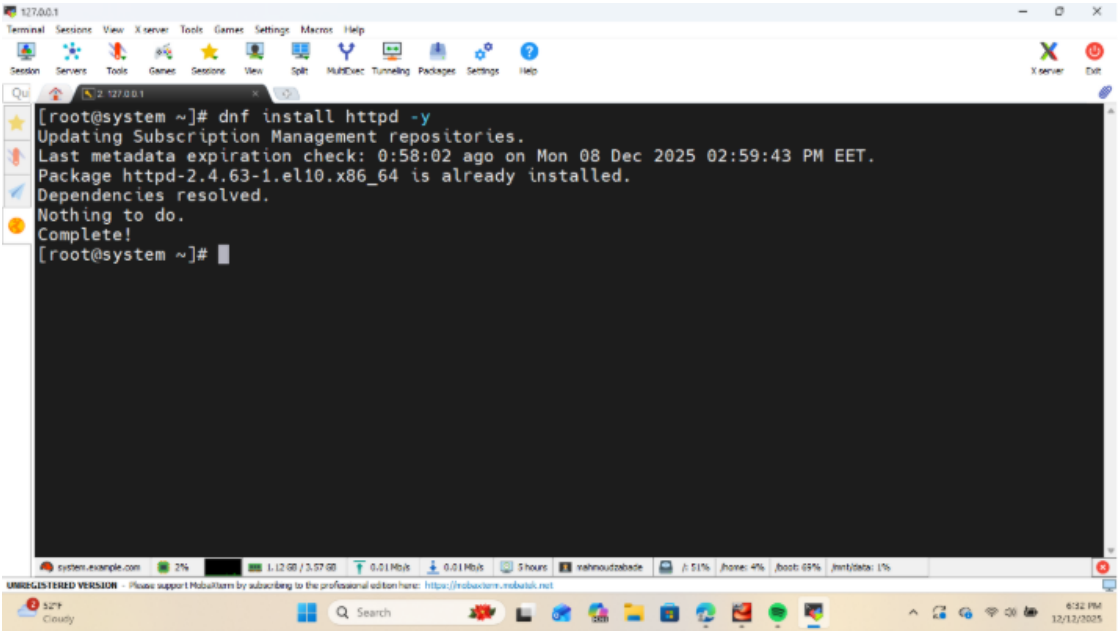
```
[root@system /]# ./kill_script.sh
The command has started now and its PID: 54150
The script is still running
The script is still running
k
Killing background process 54150
Process killed
The script is still running
k
Killing background process 54150
Process is already killed
The script finished after 5 seconds
[root@system /]# vim kill_script.sh
[root@system /]#
```

Part 7: Yum Repo

1- Install tmux

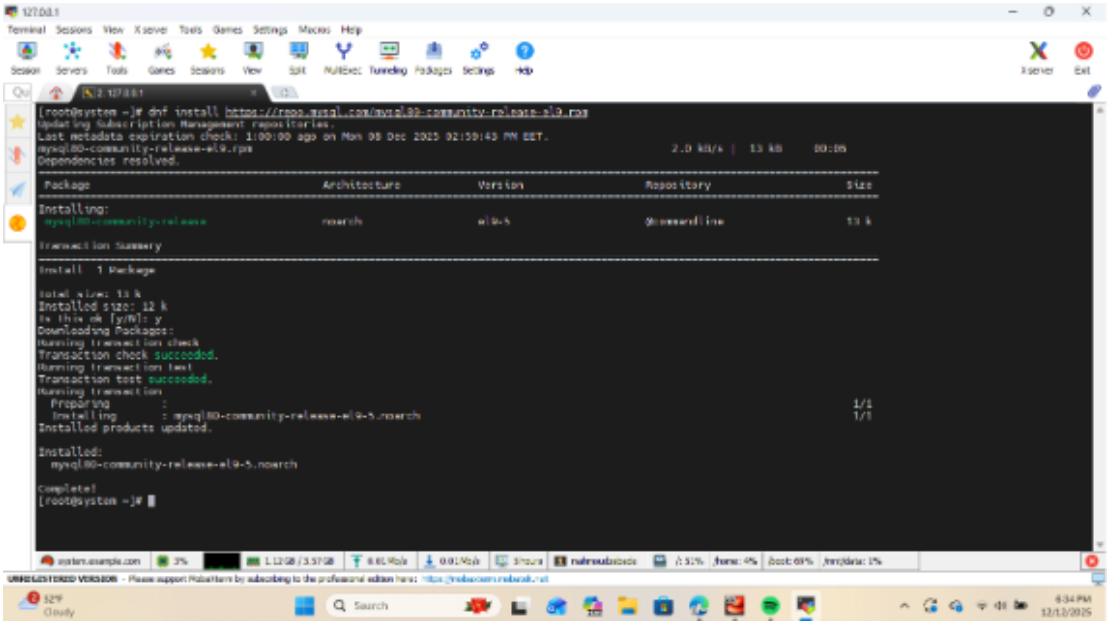


2- Install Apache server

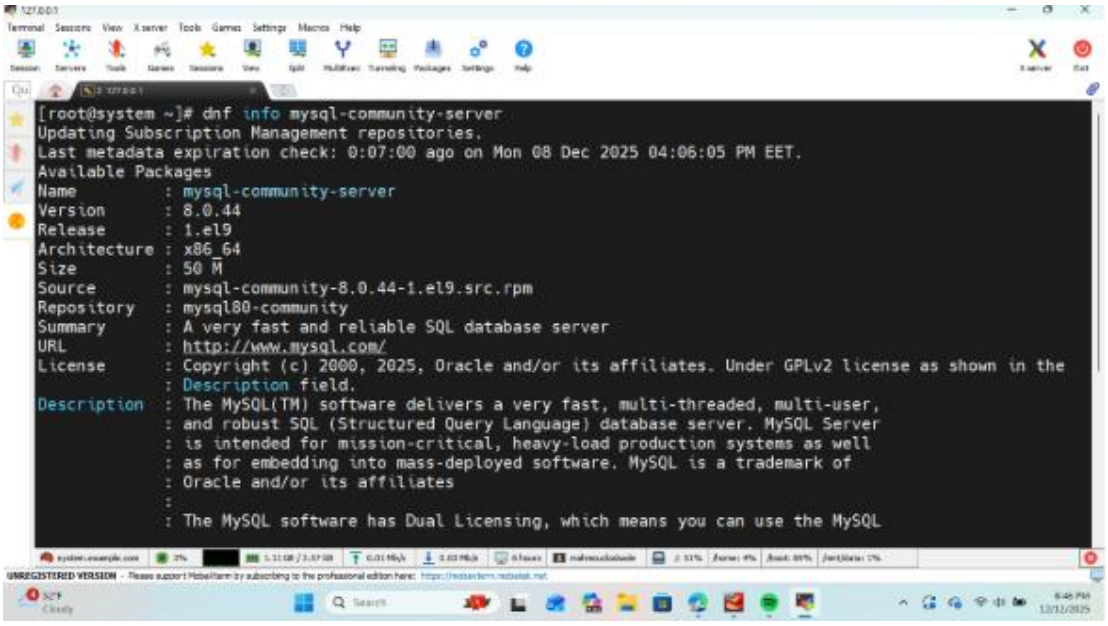


3- Install MySQL

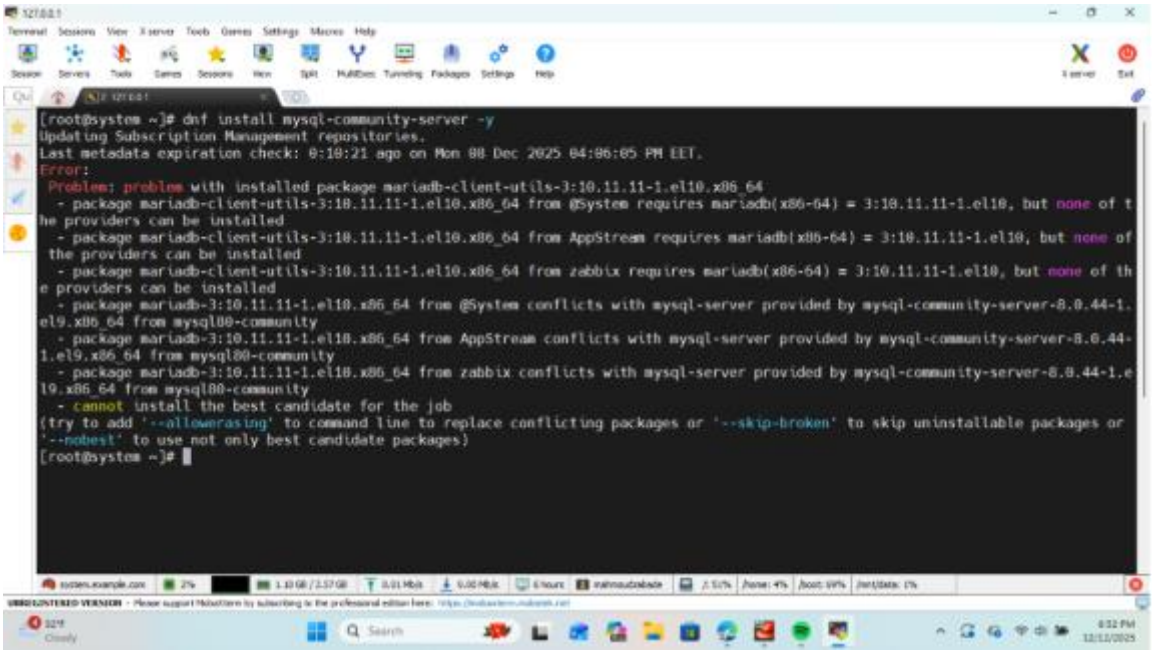
- **install MySQL repository**



- **search of MySQL server and from which repo**

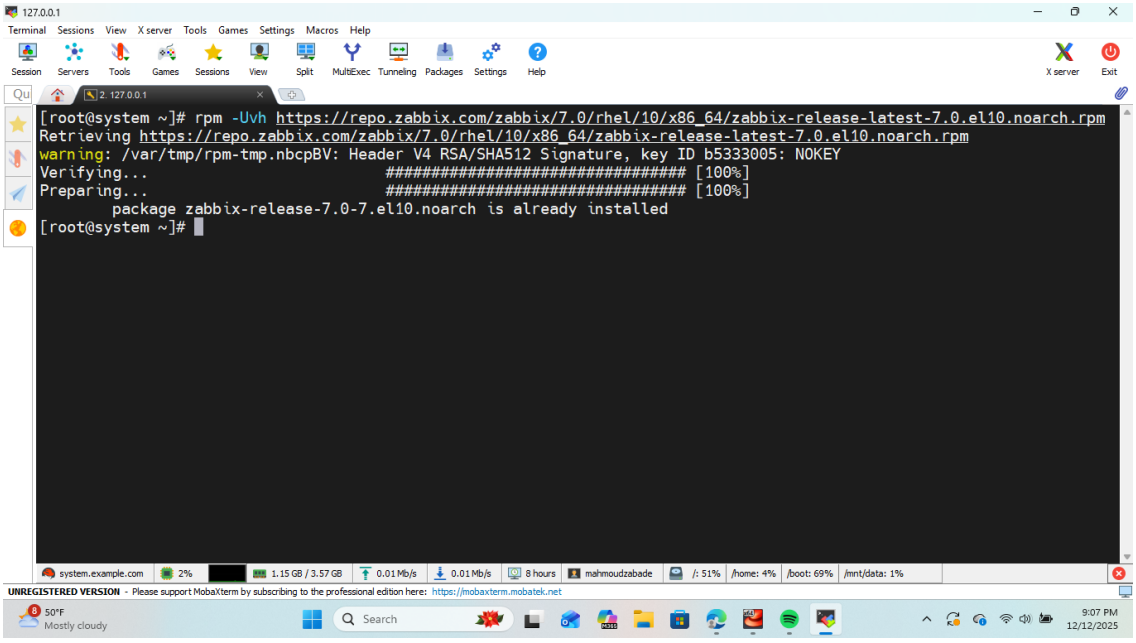


- **install MySQL server**

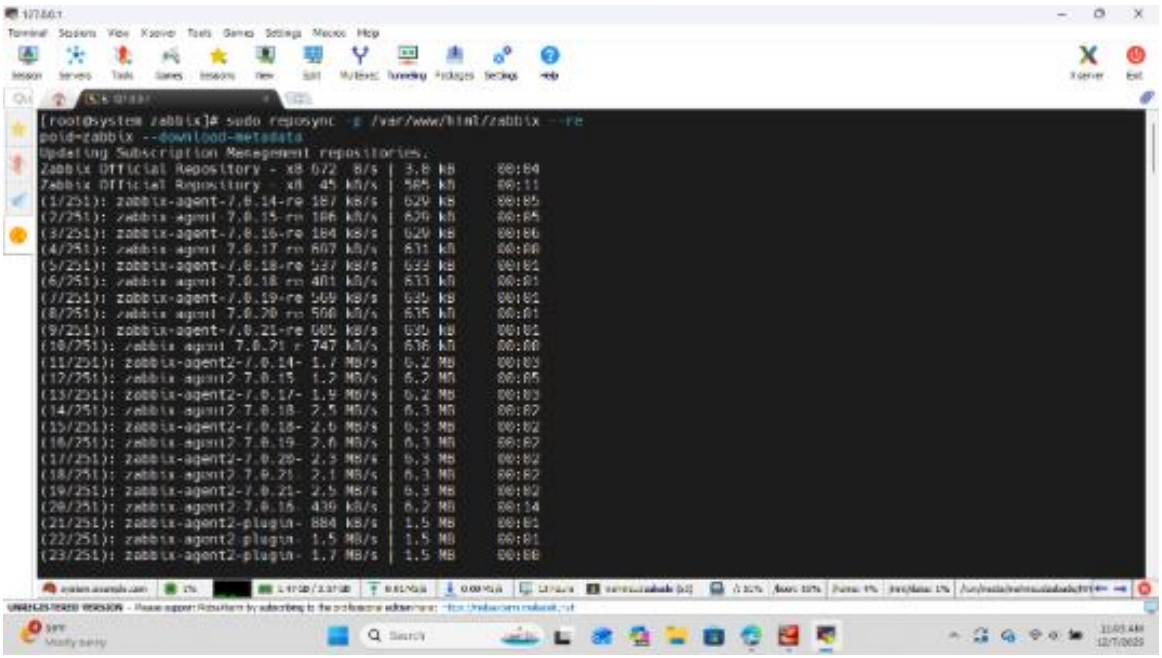


4- Install Zabbix packages

- **Install Zabbix repo**

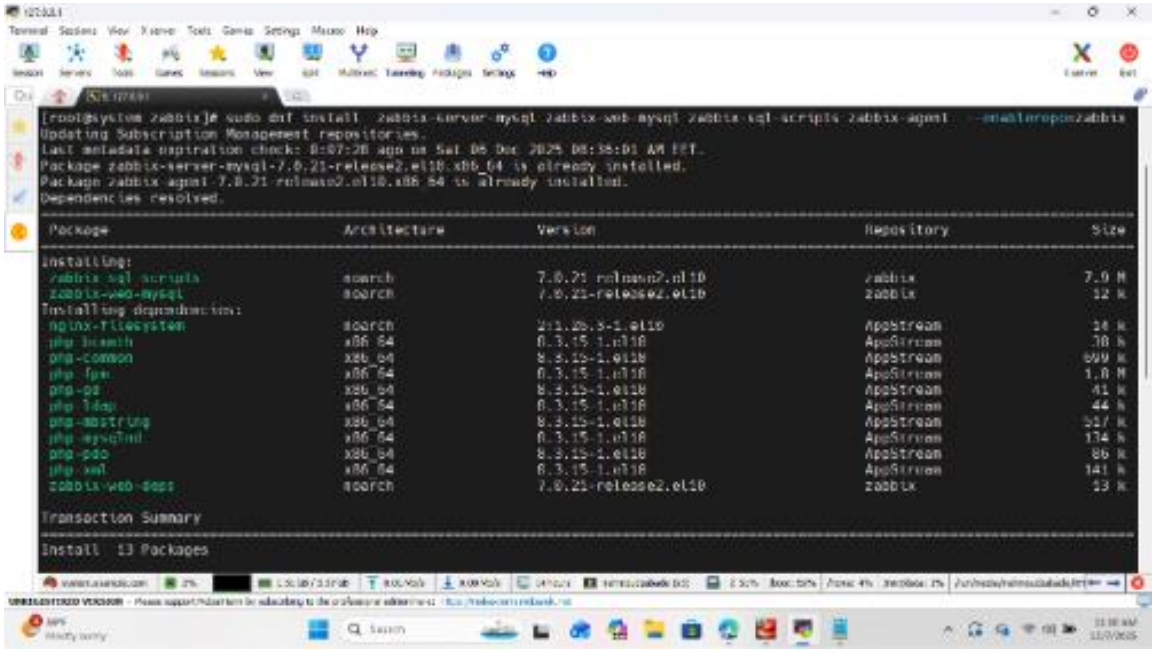


- **Download (mirror) all the rpm files**

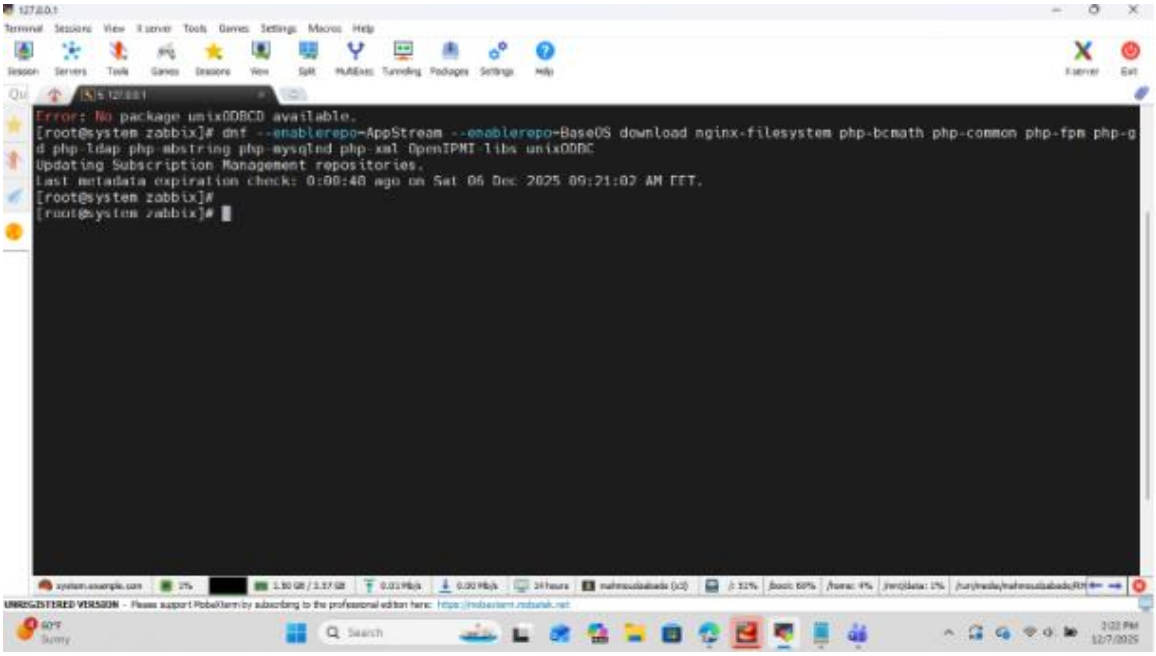


- **Download the dependencies**

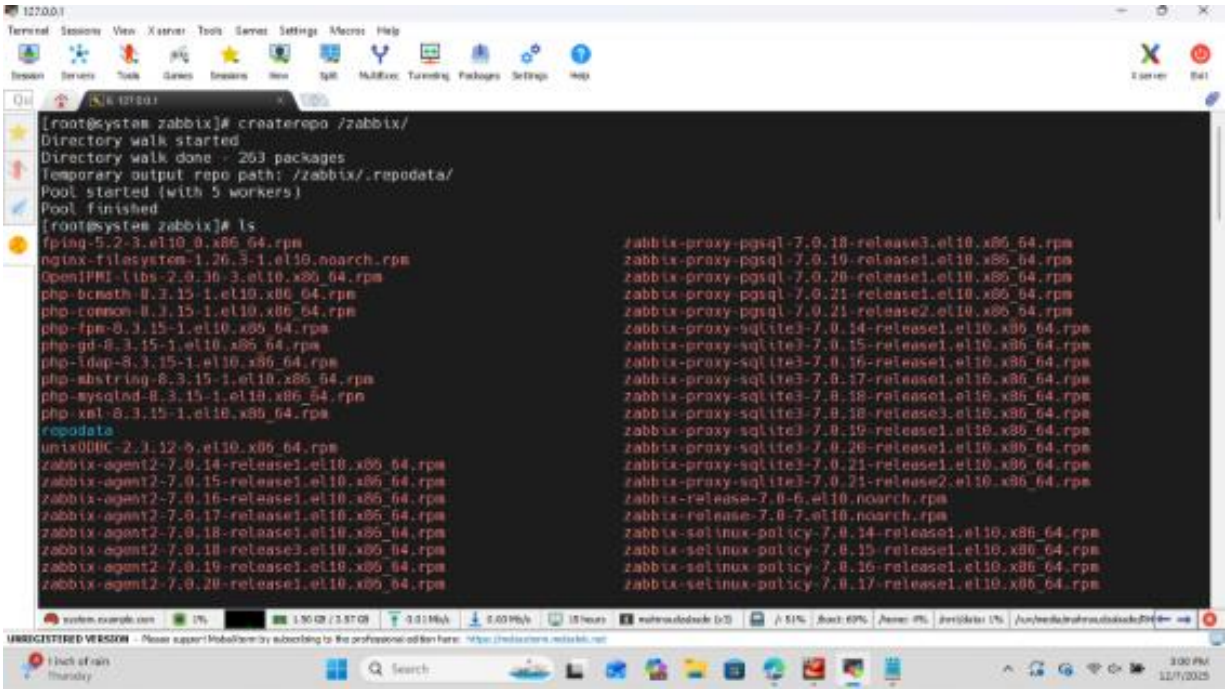
Here are all the dependencies needed for all the packages



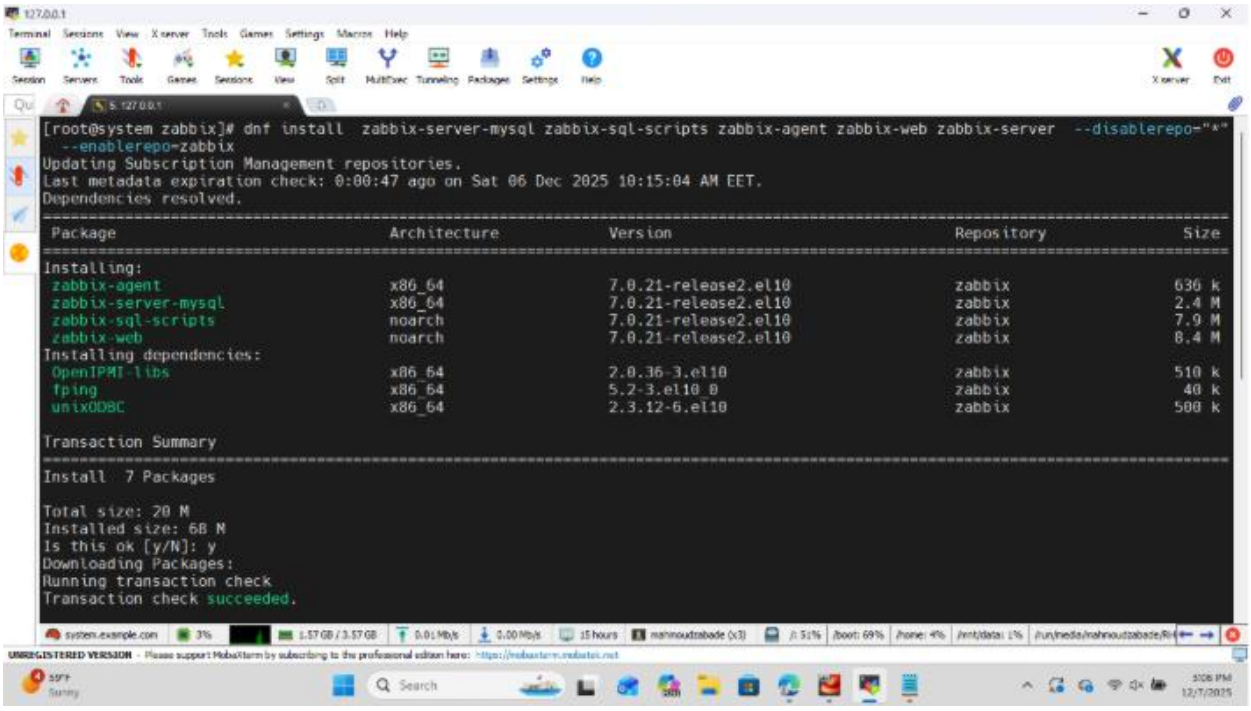
Download the dependencies



- **Create the metadata file**

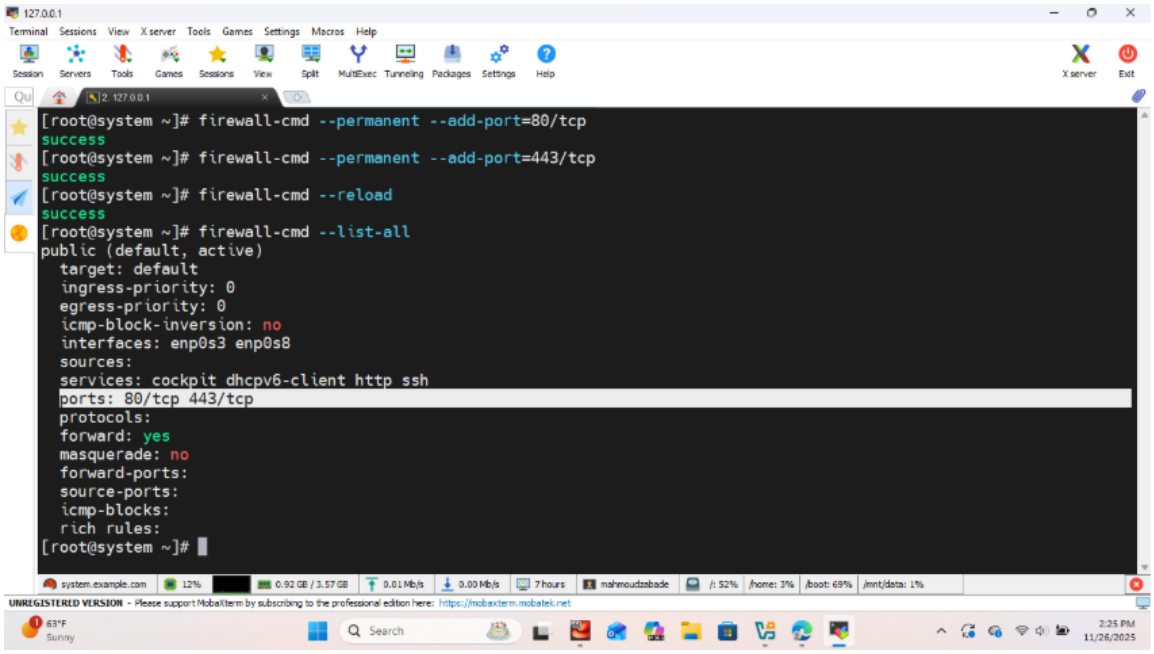


- **Install the packages**

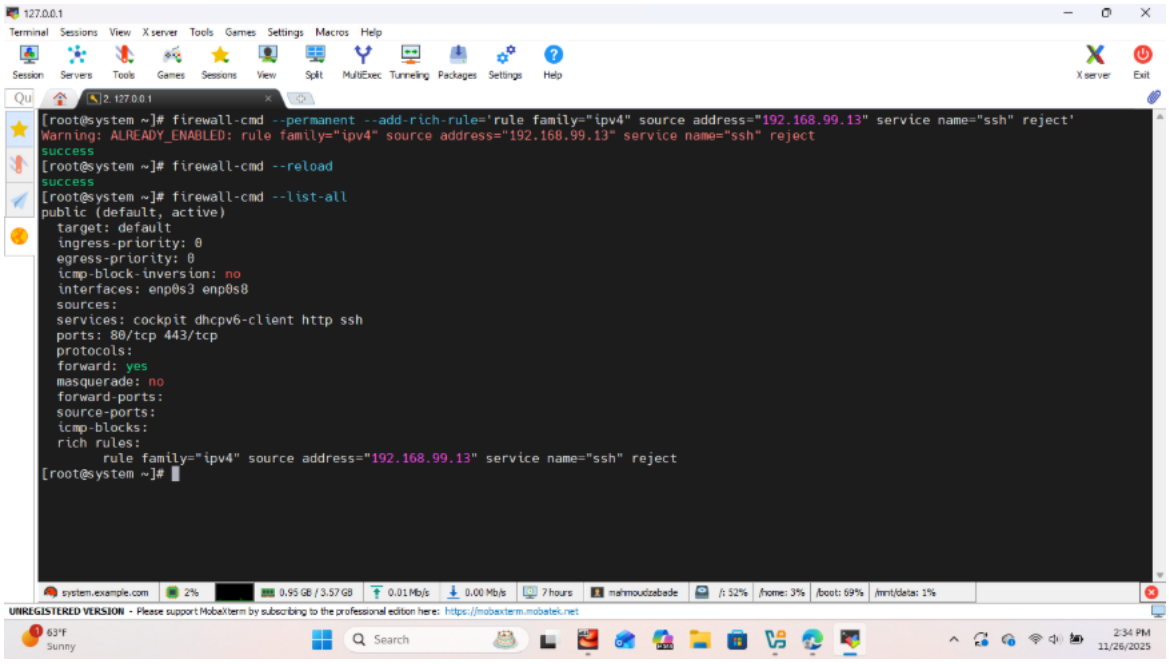


Part 8: Network management

1- Open Port 80 & 443 and make the changes permanent

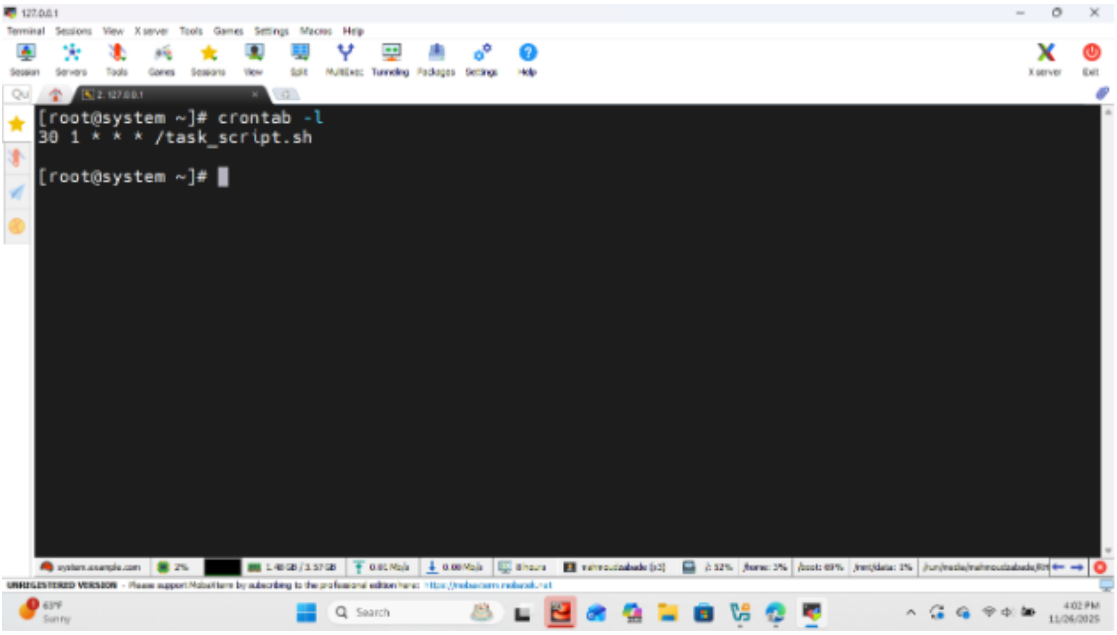


2- Add rich rule to prevent specific IP

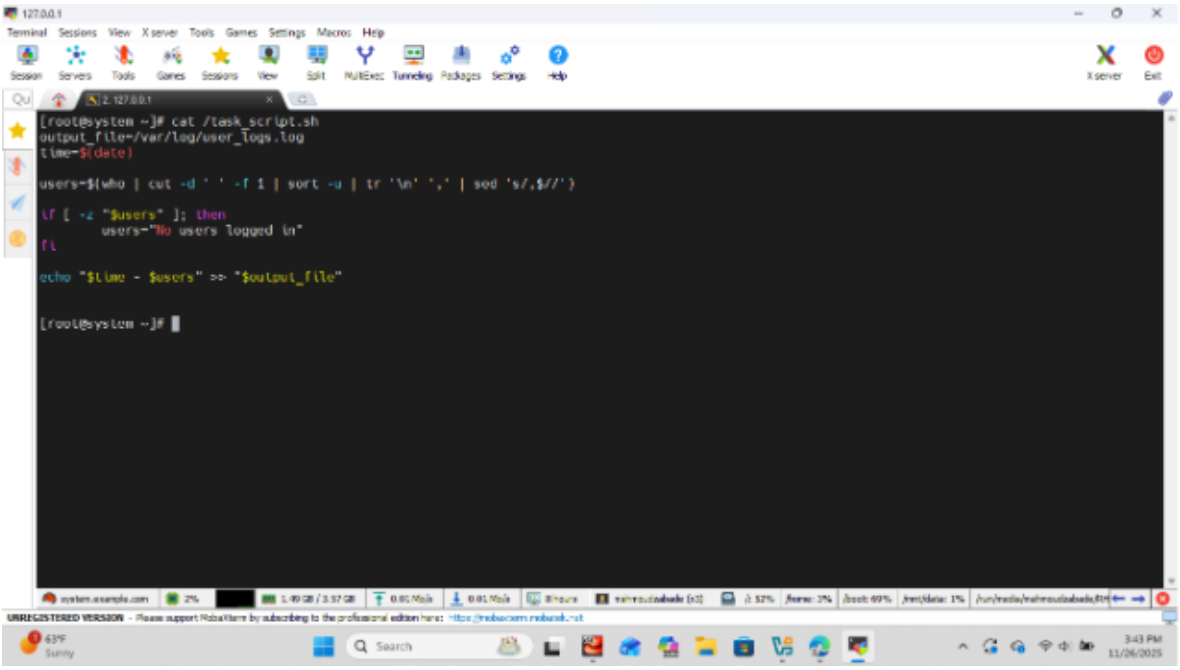


Part 9: Cronjob

1-Edit the crontab for the root user



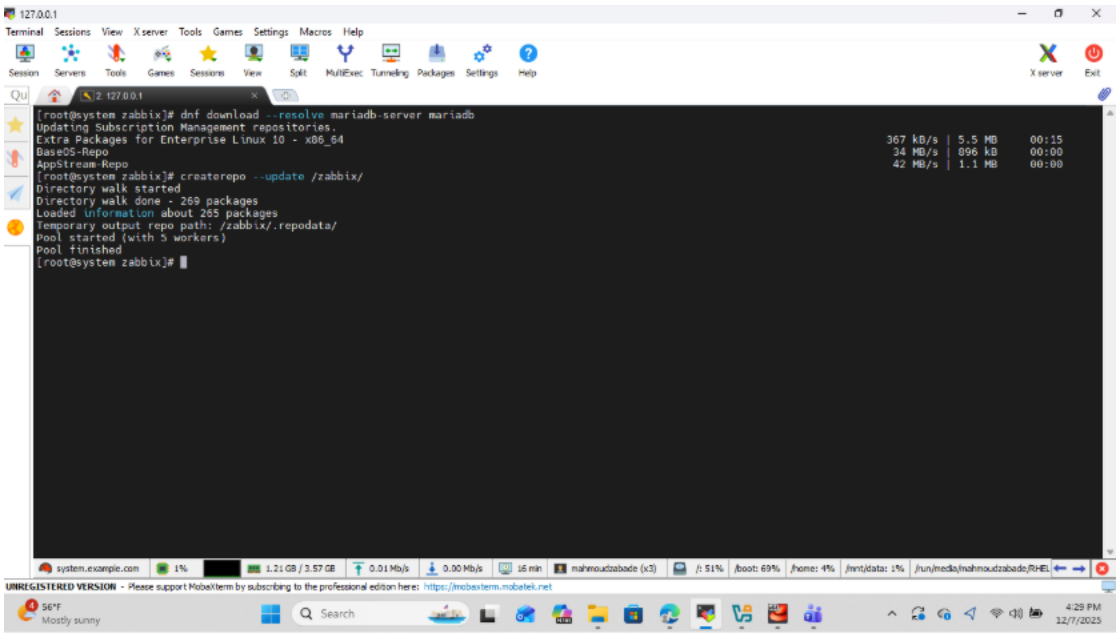
2- Shell script to print the logged users with into a log file



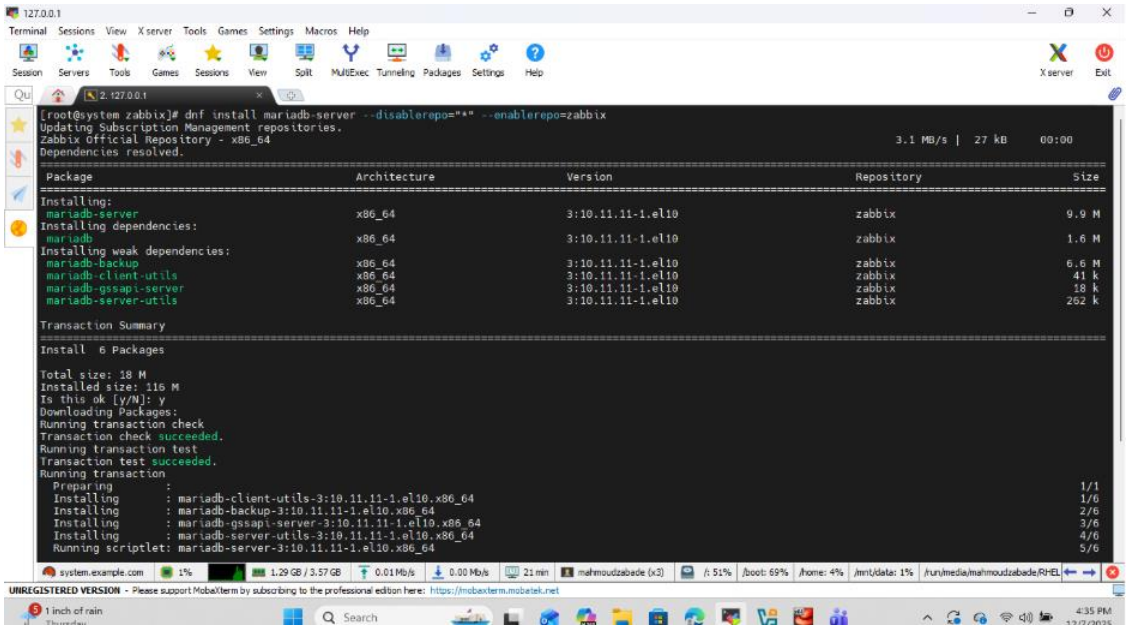
Part 10: MariaDB

1- Install MariaDB from the local repo that was created earlier.

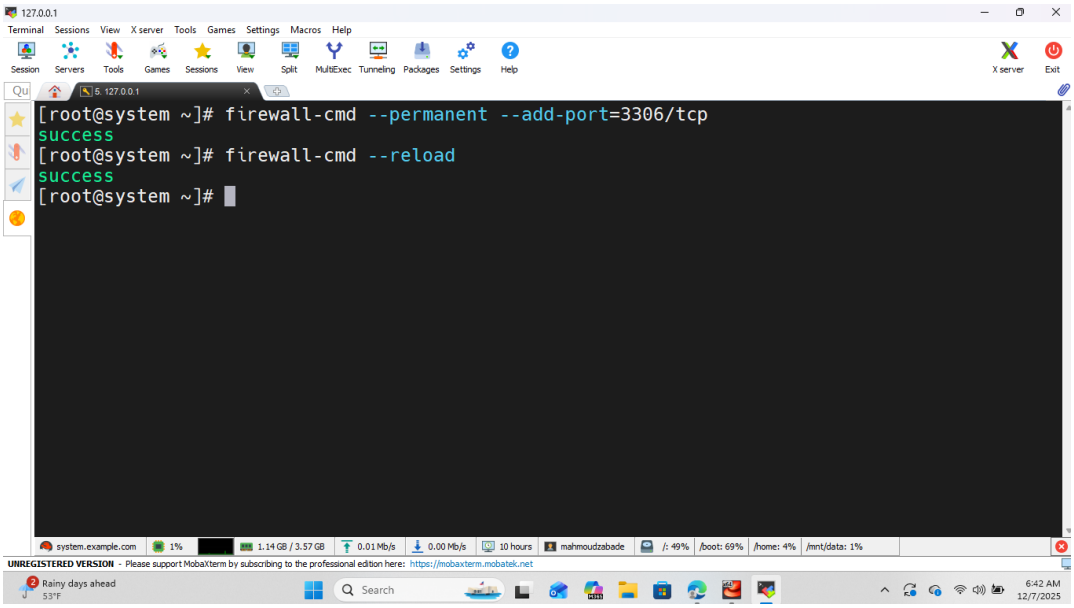
- Download MariaDB packages to the local repo



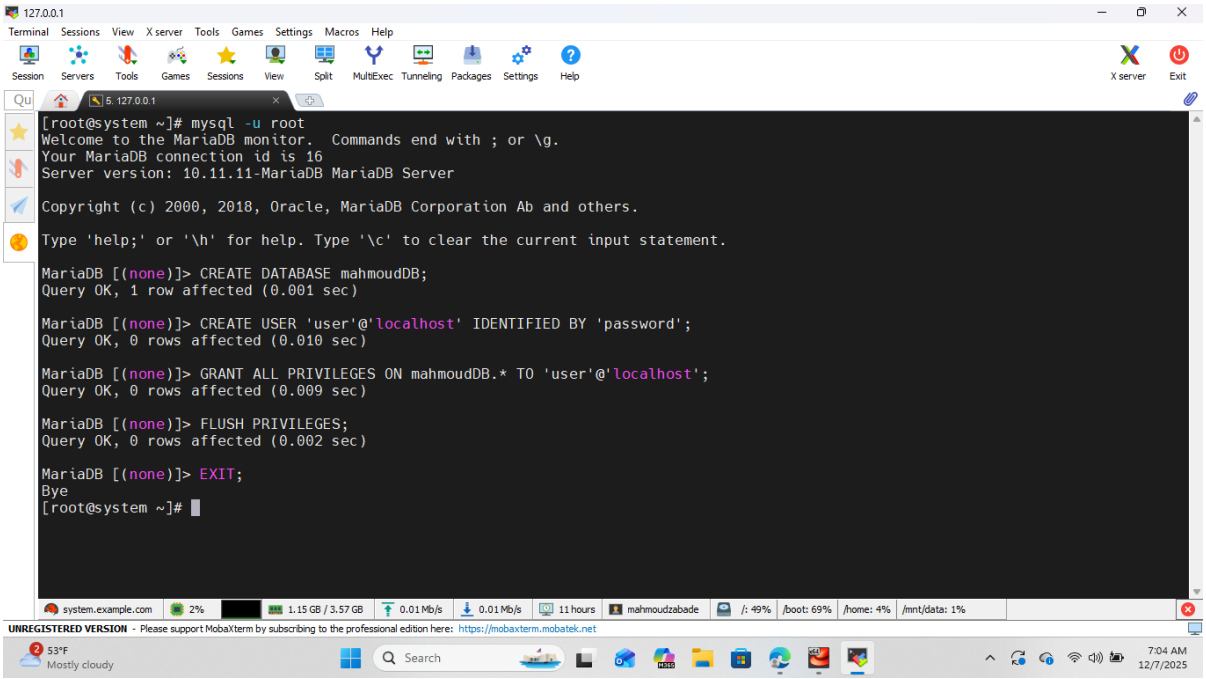
- Install MariaDB



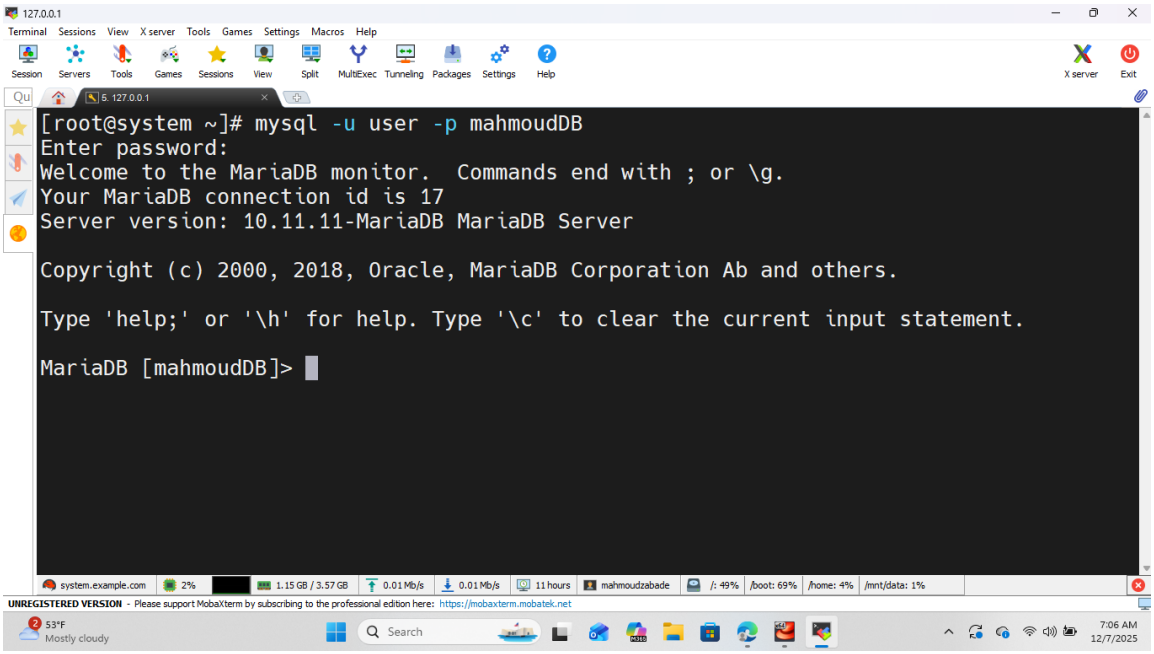
2- Open ports in the iptables from MariaDB.



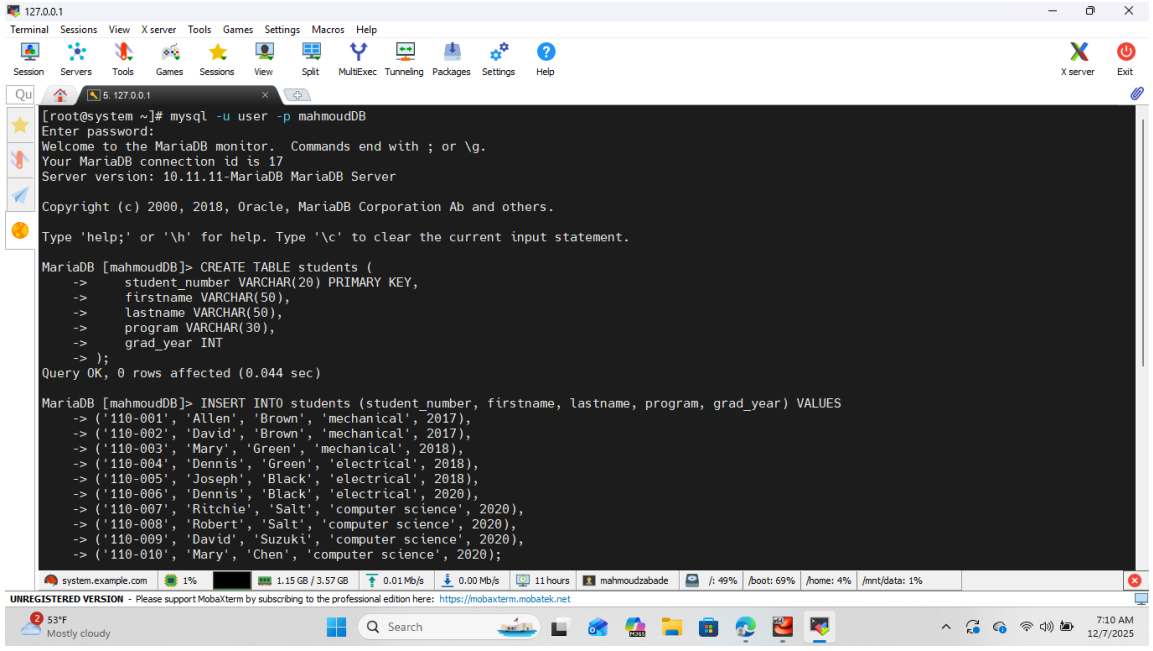
3- Create database, user (note: handle permissions).



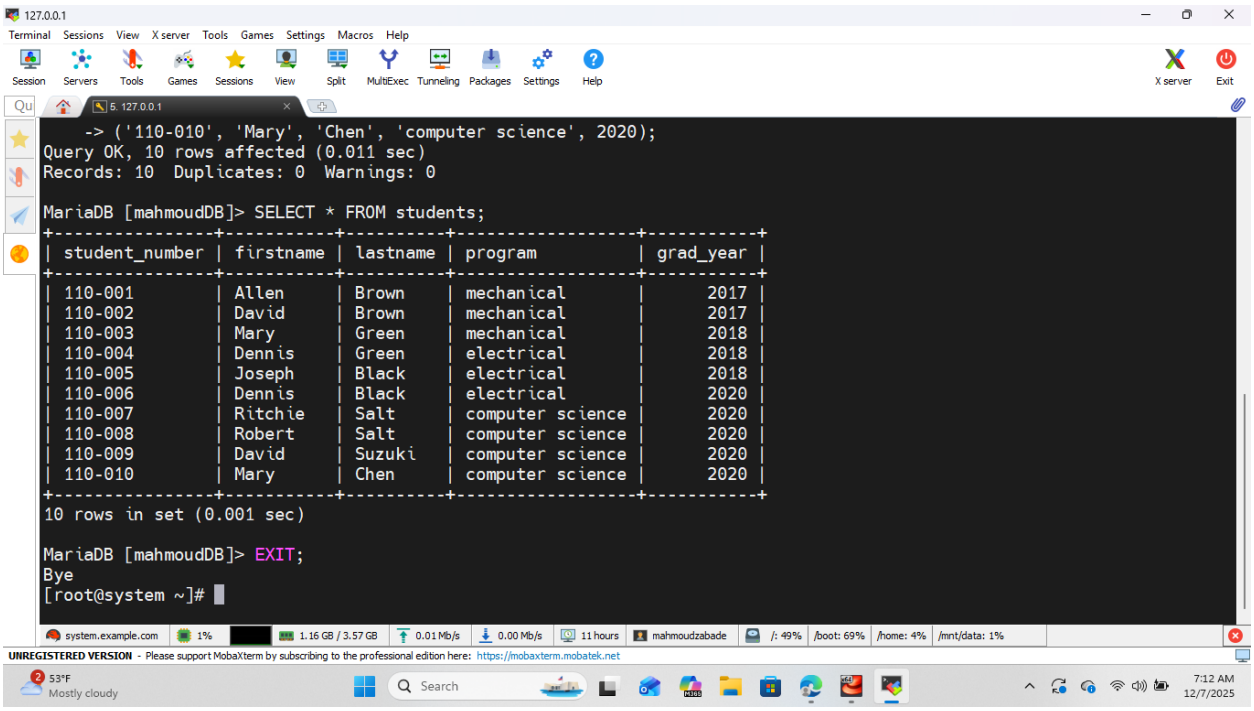
4- Connect to the database created in step 3 using the new user (with password)



5- Create a schema



6- Verify that the schema is created successfully


127.0.0.1
Terminal Sessions View X server Tools Games Settings Macros Help
Session Servers Tools Games Sessions View Split MultiExec Tunneling Packages Settings Help
X server Exit
5. 127.0.0.1
-> ('110-010', 'Mary', 'Chen', 'computer science', 2020);
Query OK, 10 rows affected (0.011 sec)
Records: 10 Duplicates: 0 Warnings: 0
MariaDB [mahmoudDB]> SELECT * FROM students;
student_number	firstname	lastname	program	grad_year
110-001	Allen	Brown	mechanical	2017
110-002	David	Brown	mechanical	2017
110-003	Mary	Green	mechanical	2018
110-004	Dennis	Green	electrical	2018
110-005	Joseph	Black	electrical	2018
110-006	Dennis	Black	electrical	2020
110-007	Ritchie	Salt	computer science	2020
110-008	Robert	Salt	computer science	2020
110-009	David	Suzuki	computer science	2020
110-010	Mary	Chen	computer science	2020
10 rows in set (0.001 sec)
MariaDB [mahmoudDB]> EXIT;
Bye
[root@system ~]#
system.example.com 1% 1.16 GB / 3.57 GB 0.01 Mb/s 0.00 Mb/s 11 hours mahmoudzabade /: 49% /boot: 69% /home: 4% /mnt/data: 1%
UNREGISTERED VERSION - Please support MobaXterm by subscribing to the professional edition here: https://mobaxterm.mobatek.net
53°F Mostly cloudy
Search
7:12 AM 12/7/2025