

LINUX JOURNAL

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Subject: Linux Administration

College: SK Somaiya University

Sr.No	Practical
1	Installation of Linux distribution
2	Working with Users, Groups, and Permissions
3	Initial settings: Add a User, Network Settings, Change to static IP address, Disable IPv6 if not needed, Configure Services, display the list of services which are running, Stop and turn OFF auto-start setting for a service if you don't need it, Sudo Settings.
4	SSH Server: Password Authentication Configure SSH Server to manage a server from the remote computer, SSH Client: (Ubuntu and Windows)
5	Installing and Configure of FTP server
6	Install MySQL to configure database server
7	Install Samba to share folders or files between Windows and Linux.
8	Install and configure NFS server.
9	Install phpMyAdmin to operate MySQL on web browser from Clients.

Practical 1

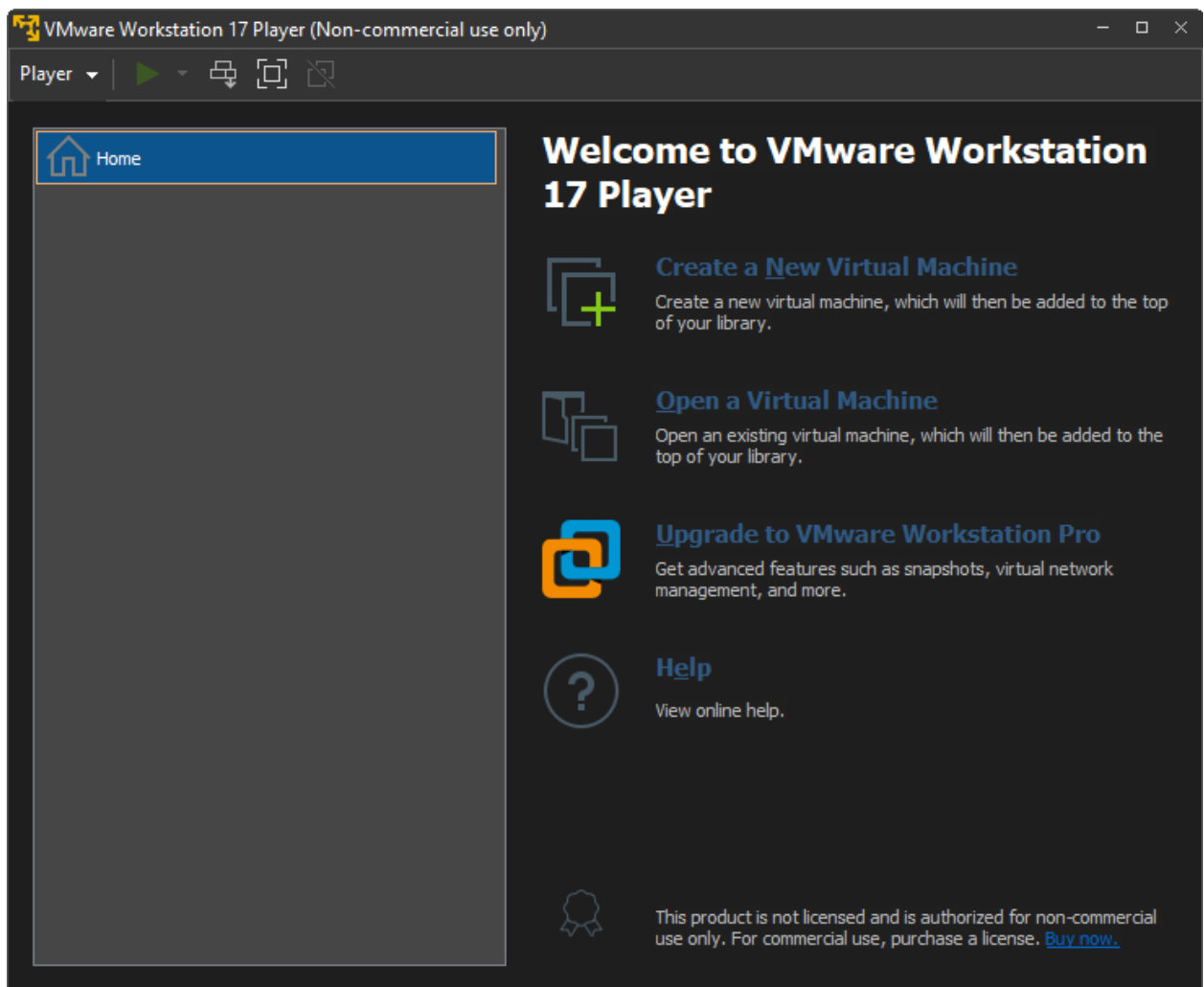
Installing a Linux distribution

Example: Distro: Ubuntu

Go to <https://ubuntu.com/download/desktop>

Download Latest LTS

Open VMWare Player



Create New Virtual Machine (select the iso manually if does not automatically)

New Virtual Machine Wizard

Welcome to the New Virtual Machine Wizard
A virtual machine is like a physical computer; it needs an operating system. How will you install the guest operating system?

Install from:

☐ Installer disc:
No drives available

☒ Installer disc image file (iso):
C:\Users\admin\Downloads\ubuntu-23.10.1-desktop-z Browse...
⇒ Cannot read this file.
Specify a different file or select a different option to continue.

☐ I will install the operating system later.
The virtual machine will be created with a blank hard disk.

Help < Back Next > Cancel

Enter Information

New Virtual Machine Wizard

Easy Install Information
This is used to install Ubuntu 64-bit.

Personalize Linux

Full name:

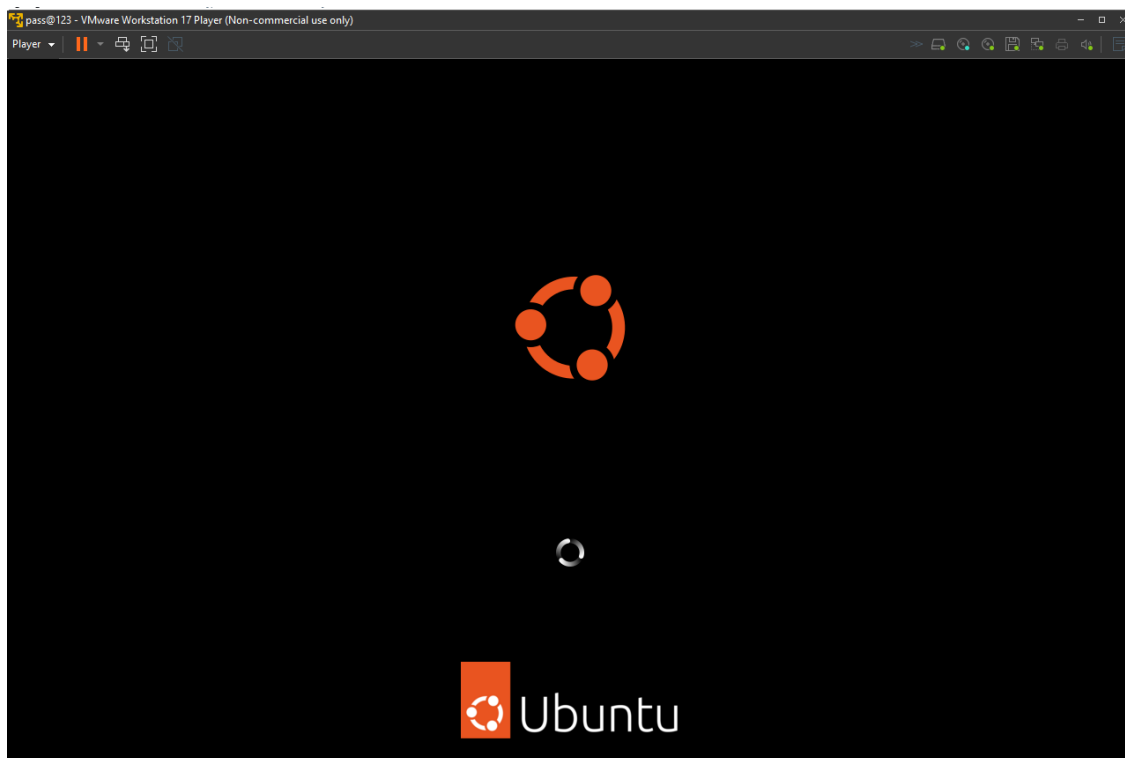
User name:

Password:

Confirm:

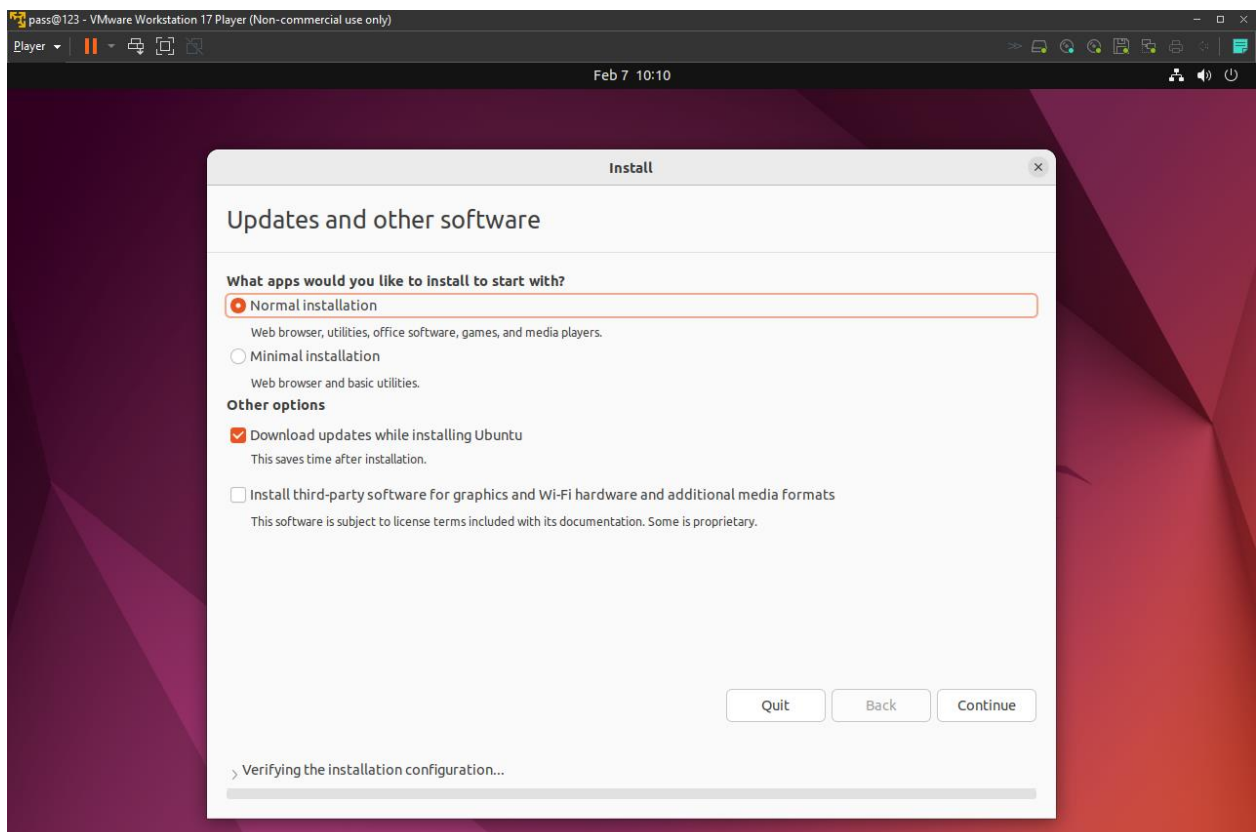
Help < Back Next > Cancel

On the next screen; click finish and the VM will power on

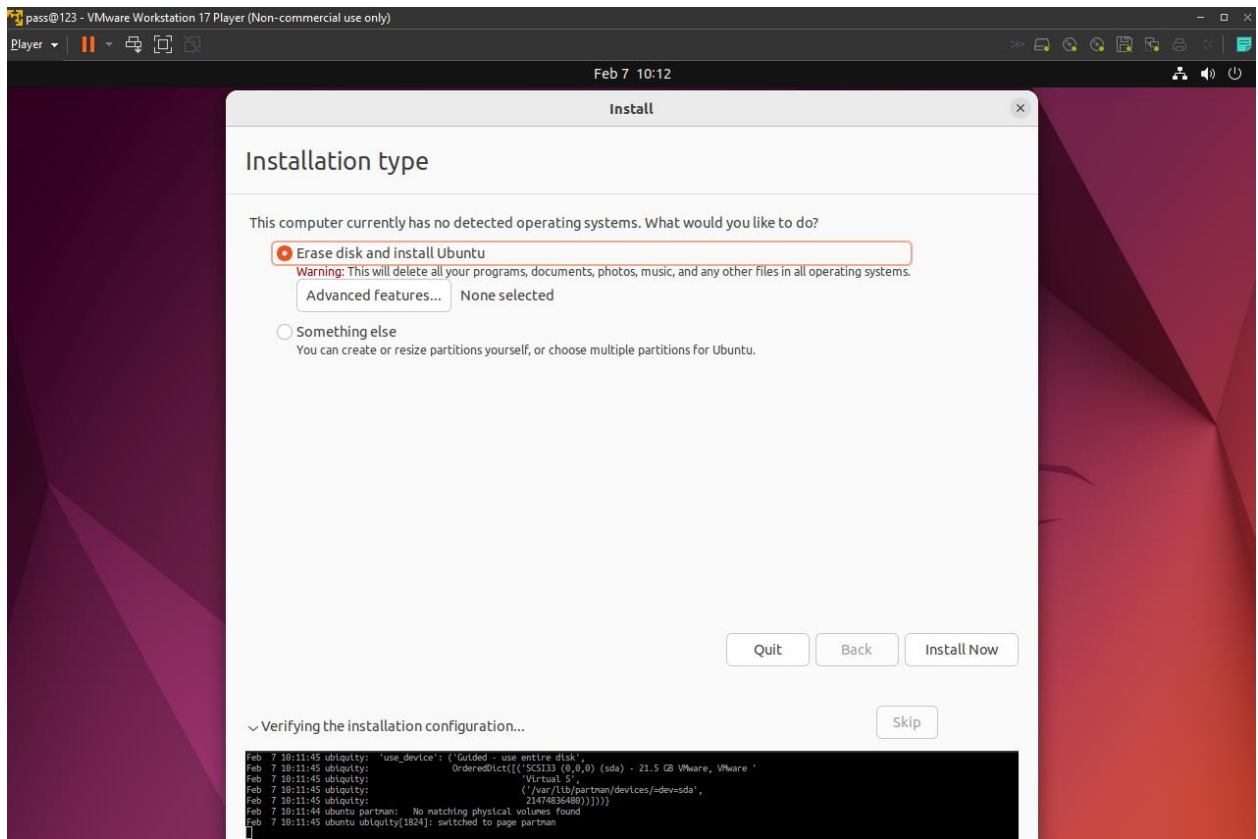


The installation process will begin

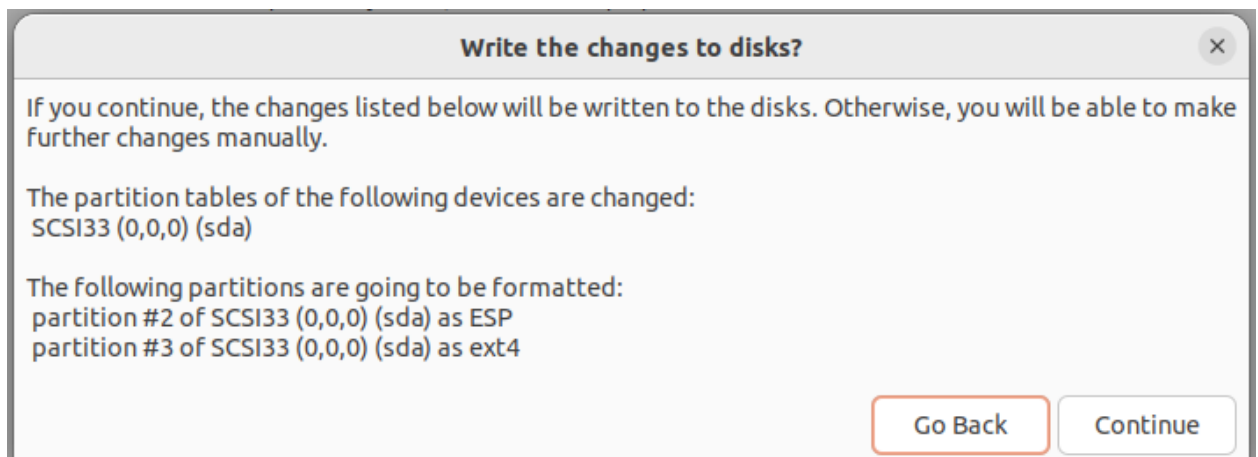
After selecting the keyboard layout, choose an installation template and continue



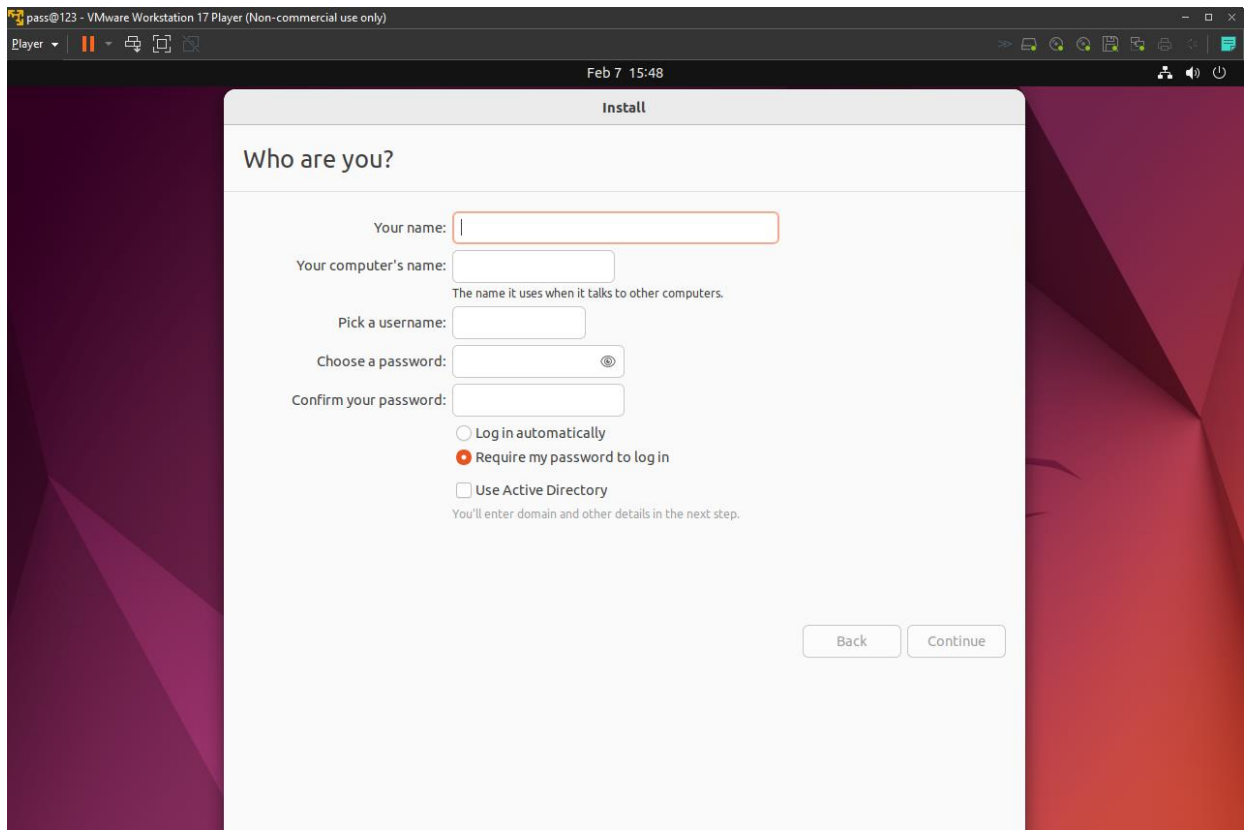
Click Install now



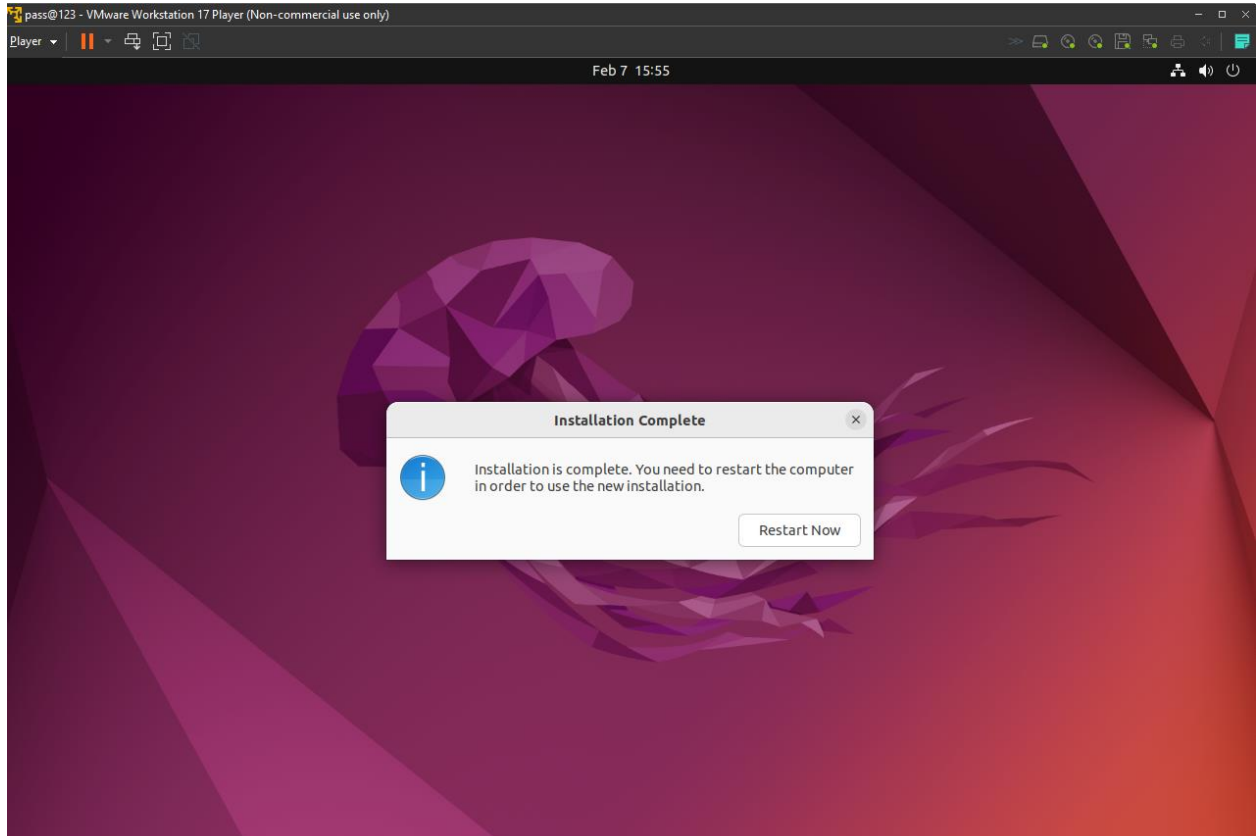
Continue



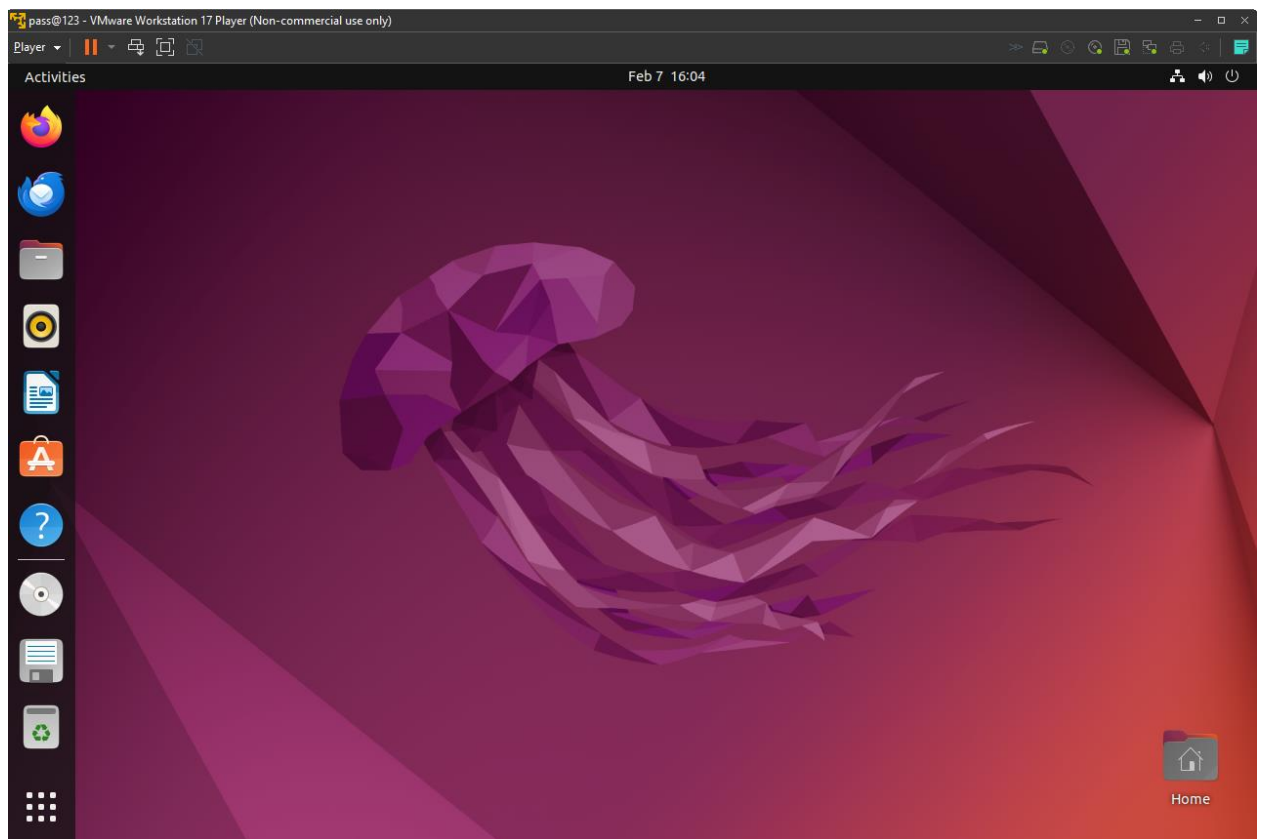
Choose a timezone and then fill in the information



Wait for installation to complete



Done



PRACTICAL 2

Working with Users, Groups and Permissions

The flow of commands

Step 1: mkdir soham [make directory]

Step 2: cd soham [go to directory]

Step 3: pwd [path in which directory]

Step 5: touch text.txt [create file]

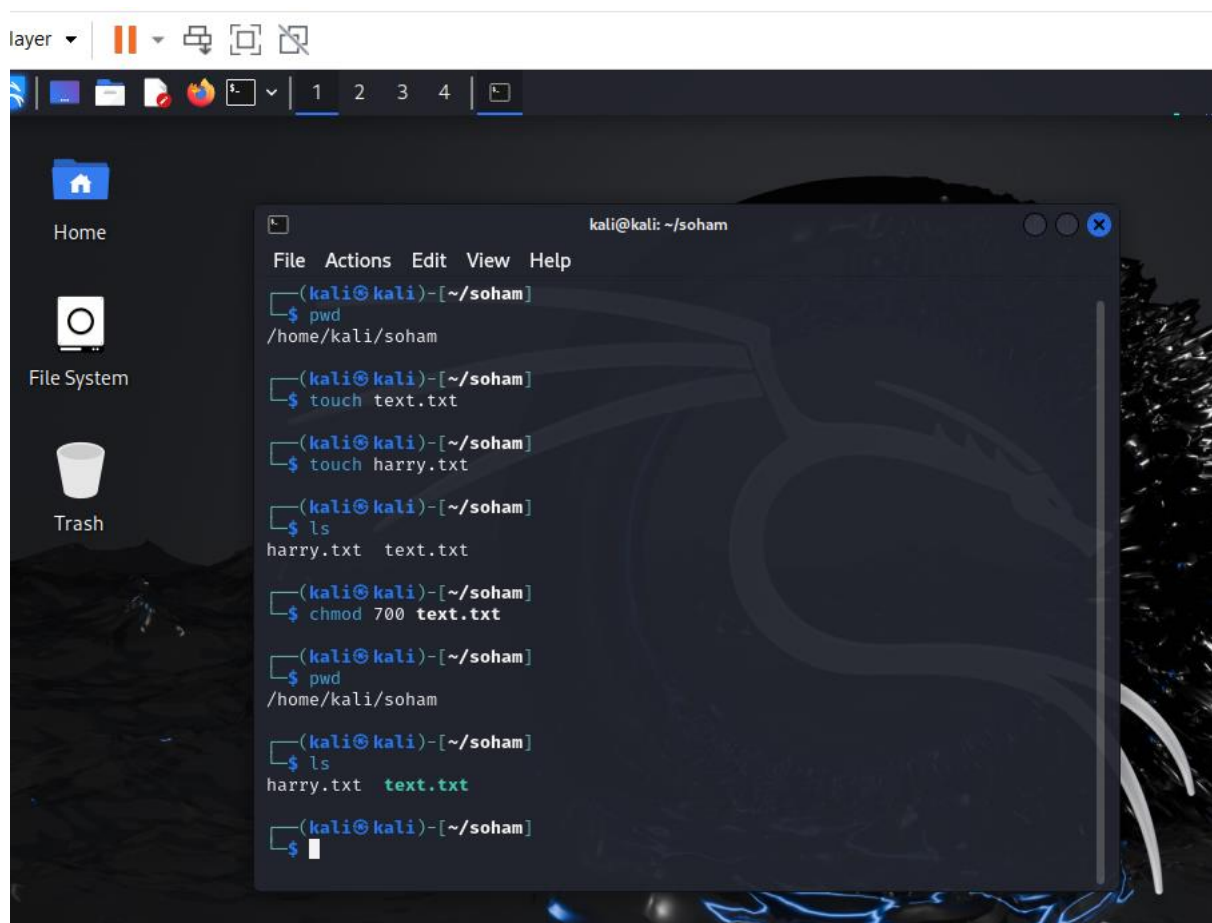
Step 6: touch harry.txt [create file]

Step 7: ls [list of files]

Step 8: chmod 700 text.txt [Give permission]

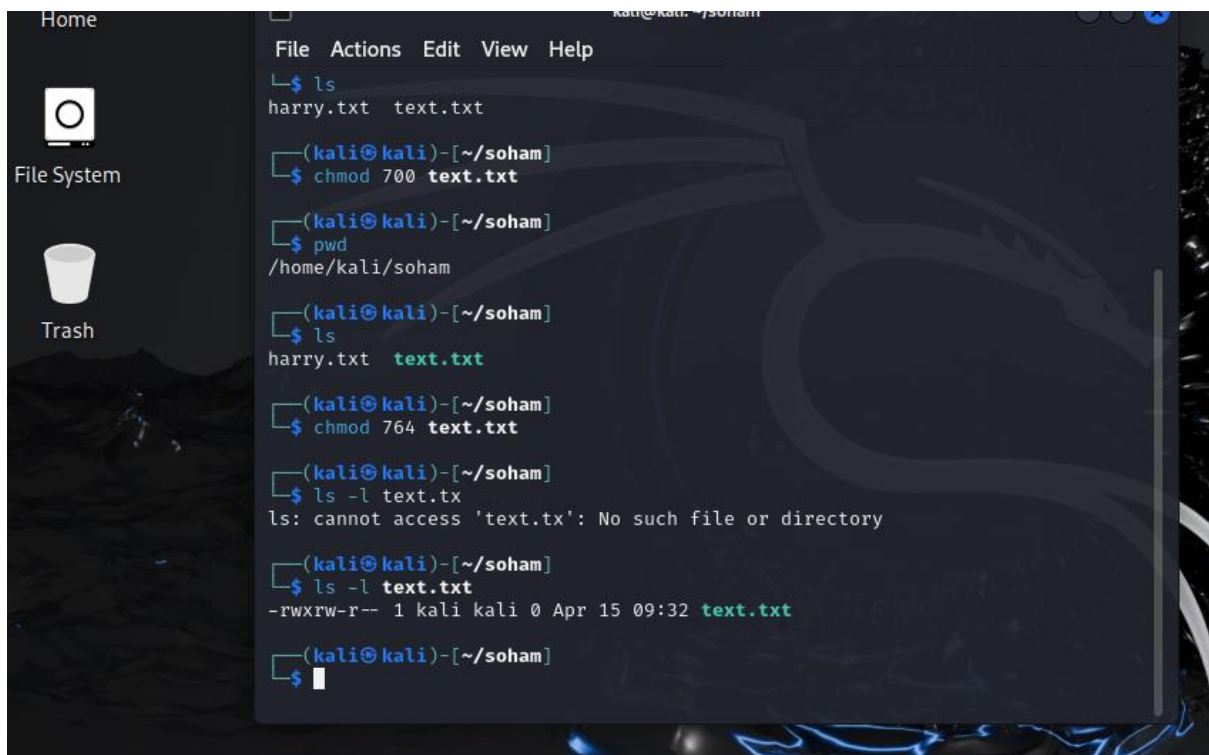
Step 9: pwd [path of directory]

Step 10 chmod 764 text.txt [Permissions] Step 11: ls -l text.txt [check permission are done]



The screenshot shows a Kali Linux desktop environment. A terminal window is open, displaying the following commands and their outputs:

```
kali@kali: ~/soham
File Actions Edit View Help
(kali@kali)-[~/soham]
$ pwd
/home/kali/soham
(kali@kali)-[~/soham]
$ touch text.txt
(kali@kali)-[~/soham]
$ touch harry.txt
(kali@kali)-[~/soham]
$ ls
harry.txt  text.txt
(kali@kali)-[~/soham]
$ chmod 700 text.txt
(kali@kali)-[~/soham]
$ pwd
/home/kali/soham
(kali@kali)-[~/soham]
$ ls
harry.txt  text.txt
(kali@kali)-[~/soham]
$
```



The screenshot shows a Kali Linux desktop environment. On the left, there is a sidebar with icons for 'Home', 'File System', and 'Trash'. The main window is a terminal application titled 'kali@kali: ~/soham'. The terminal displays the following commands and output:

```
File Actions Edit View Help
└─$ ls
harry.txt  text.txt

└─(kali@kali)-[~/soham]
└─$ chmod 700 text.txt

└─(kali@kali)-[~/soham]
└─$ pwd
/home/kali/soham

└─(kali@kali)-[~/soham]
└─$ ls
harry.txt  text.txt

└─(kali@kali)-[~/soham]
└─$ chmod 764 text.txt

└─(kali@kali)-[~/soham]
└─$ ls -l text.tx
ls: cannot access 'text.tx': No such file or directory

└─(kali@kali)-[~/soham]
└─$ ls -l text.txt
-rwxrw-r-- 1 kali kali 0 Apr 15 09:32 text.txt

└─(kali@kali)-[~/soham]
└─$
```

create user

sudo adduser username

create group

sudo addgroup groupname

add user to group

sudo usermod -aG groupname username

update password for user

sudo passwd username

print

id username

id groupname

make a directory

mkdir directoryname

delete file

rm filename

delete directory

`rmdir directoryname`

permissions

Read (r): Allows reading the file or listing the directory's contents.

Write (w): Allows modifying the file or directory.

Execute (x): Allows executing the file or accessing contents of the directory.

`chmod permissions filename/directoryname`

`chmod 744 filename/directoryname`

PRACTICAL 3

Initial settings: Add a User, Network Settings, Change to static IP address, Disable IPv6 if not needed, Configure Services, display the list of services which are running, Stop and turn OFF auto-start setting for a service if you don't need it, Sudo Settings

Step 1 : `sudo useradd IT` [add user]

Step 2 : `id IT` [add id]

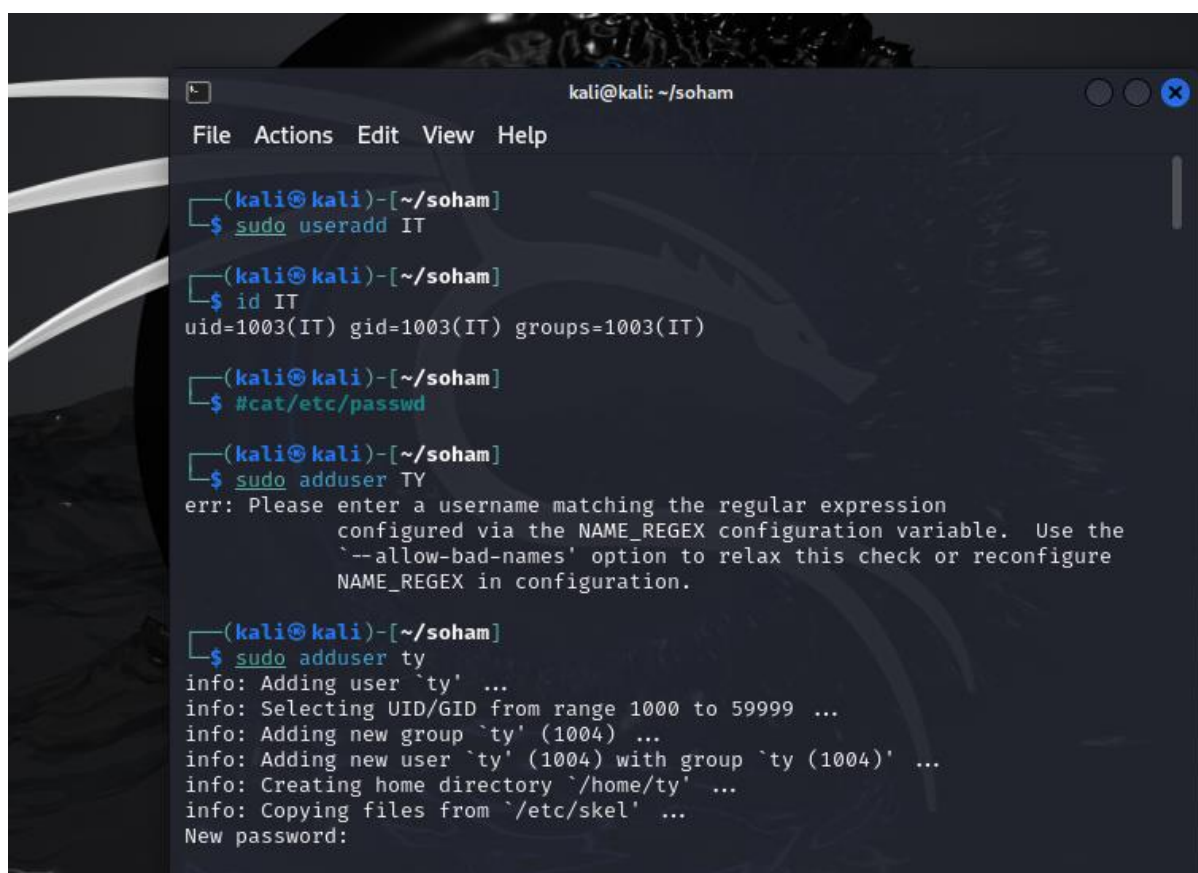
Step 3: `#cat/etc/passwd`

Step 4: `sudo adduser ty` [add user]

Step 5: `sudo addgroup bt` [Group name]

Step 6: `sudo usermod -a -G bt ty` [Check in group name user 'ty' is user]

Step 7: `sudo passwd ty` [to change password for user ty]



```
kali@kali: ~/soham
File Actions Edit View Help

(kali@kali)-[~/soham]
$ sudo useradd IT

(kali@kali)-[~/soham]
$ id IT
uid=1003(IT) gid=1003(IT) groups=1003(IT)

(kali@kali)-[~/soham]
$ #cat/etc/passwd

(kali@kali)-[~/soham]
$ sudo adduser TY
err: Please enter a username matching the regular expression
configured via the NAME_REGEX configuration variable. Use the
'--allow-bad-names' option to relax this check or reconfigure
NAME_REGEX in configuration.

(kali@kali)-[~/soham]
$ sudo adduser ty
info: Adding user `ty' ...
info: Selecting UID/GID from range 1000 to 59999 ...
info: Adding new group `ty' (1004) ...
info: Adding new user `ty' (1004) with group `ty (1004)' ...
info: Creating home directory `/home/ty' ...
info: Copying files from `/etc/skel' ...
New password:
```

```
info: Selecting GID from range 1000 to 59999 ...
info: Adding group `bt' (GID 1005) ...

(kali@kali)-[~/soham]
$ sudo usermod -a -G bt harry
usermod: user 'harry' does not exist

(kali@kali)-[~/soham]
$ sudo usermod -a -G bt ty

(kali@kali)-[~/soham]
$ sudo passwd ty
New password:
Retype new password:
passwd: password updated successfully

(kali@kali)-[~/soham]
$ history
 1  ls
 2  sudo apt install
 3  mkdir soham
 4  ls
 5  lswd
```

```
(kali@kali)-[~/soham]
$ id ty
uid=1004(ty) gid=1004(ty) groups=1004(ty),100(users),1005(bt)

(kali@kali)-[~/soham]
$ id bt
id: 'bt': no such user

(kali@kali)-[~/soham]
$ id it
id: 'it': no such user

(kali@kali)-[~/soham]
$ id IT
uid=1003(IT) gid=1003(IT) groups=1003(IT)

(kali@kali)-[~/soham]
$
```

Practical 4

SSH Server: Password Authentication Configure SSH Server to manage a server from the remote computer, SSH Client (Ubuntu and Windows)

sudo apt-get update

```
somaiya@somaiya:~/Desktop$ sudo apt-get update
[sudo] password for somaiya:
Hit:1 http://security.ubuntu.com/ubuntu jammy-security InRelease
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Hit:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Reading package lists... Done
```

sudo apt-get install openssh-server

```
somaiya@somaiya:~/Desktop$ sudo apt-get install openssh-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
openssh-server is already the newest version (1:8.9p1-3ubuntu0.1).
The following packages were automatically installed and are no longer required:
chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver
intel-media-va-driver libaacs0 libaom3 libass9 libavcodec58 libavformat58
libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0 libchromaprint1
libcodec2-1.0 libdavid5 libflite1 libgme0 libgsm1
libgstreamer-plugins-bad1.0-0 libigdgmm12 liblilv-0-0 libmfx1 libmysofa1
libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55 librabbitmq4 librubberband2
libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libsratom-0-0
libsrt1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0
libva-drm2 libva-wayland2 libva-x11-2 libva2 libvdpau1 libvidstab1.1
libx265-199 libxvidcore4 libzimg2 libzmq5 libzvbi-common libzvbi0
mesa-va-drivers mesa-va-drivers pocketsphinx-en-us systemd-hwe-hwdb
va-driver-all vdpau-driver-all
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 287 not upgraded.
```

sudo systemctl start sshd

sudo systemctl status sshd


```

0 upgraded, 0 newly installed, 0 to remove and 207 not upgraded.
somaia@somaia:~/Desktop$ sudo systemctl start sshd
somaia@somaia:~/Desktop$ sudo systemctl status sshd
● ssh.service - OpenBSD Secure Shell server
   Loaded: loaded (/lib/systemd/system/ssh.service; enabled; vendor preset: en
   Active: active (running) since Sat 2023-02-11 13:10:33 IST; 2min 44s ago
     Docs: man:sshd(8)
           man:sshd_config(5)
   Process: 747 ExecStartPre=/usr/sbin/sshd -t (code=exited, status=0/SUCCESS)
    Main PID: 762 (sshd)
       Tasks: 1 (limit: 5913)
      Memory: 3.6M
         CPU: 46ms
    CGroup: /system.slice/ssh.service
            └─762 "sshd: /usr/sbin/sshd -D [listener] 0 of 10-100 startups"

Feb 11 13:10:33 somaia systemd[1]: Starting OpenBSD Secure Shell server...
Feb 11 13:10:33 somaia sshd[762]: Server listening on 0.0.0.0 port 22.
Feb 11 13:10:33 somaia sshd[762]: Server listening on :: port 22.
Feb 11 13:10:33 somaia systemd[1]: Started OpenBSD Secure Shell server.

```

ifconfig

```

somaia@somaia:~/Desktop$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.109 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::9b63:3f74:a469:b503 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:bd:e1:e2 txqueuelen 1000 (Ethernet)
    RX packets 13063 bytes 16521679 (16.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 3982 bytes 591822 (591.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 812 bytes 105967 (105.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 812 bytes 105967 (105.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

Copy the inet address(192.168.0.109) and ping it using windows cmd

```

somaia@somaia:~/Desktop$ ifconfig
enp0s3: flags=4163<UP,BROADCAST,RUNNING,MULTICAST> mtu 1500
    inet 192.168.0.109 netmask 255.255.255.0 broadcast 192.168.0.255
    inet6 fe80::9b63:3f74:a469:b503 prefixlen 64 scopeid 0x20<link>
    ether 08:00:27:bd:e1:e2 txqueuelen 1000 (Ethernet)
    RX packets 13063 bytes 16521679 (16.5 MB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 3982 bytes 591822 (591.8 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING> mtu 65536
    inet 127.0.0.1 netmask 255.0.0.0
    inet6 ::1 prefixlen 128 scopeid 0x10<host>
    loop txqueuelen 1000 (Local Loopback)
    RX packets 812 bytes 105967 (105.9 KB)
    RX errors 0 dropped 0 overruns 0 frame 0
    TX packets 812 bytes 105967 (105.9 KB)
    TX errors 0 dropped 0 overruns 0 carrier 0 collisions 0

```

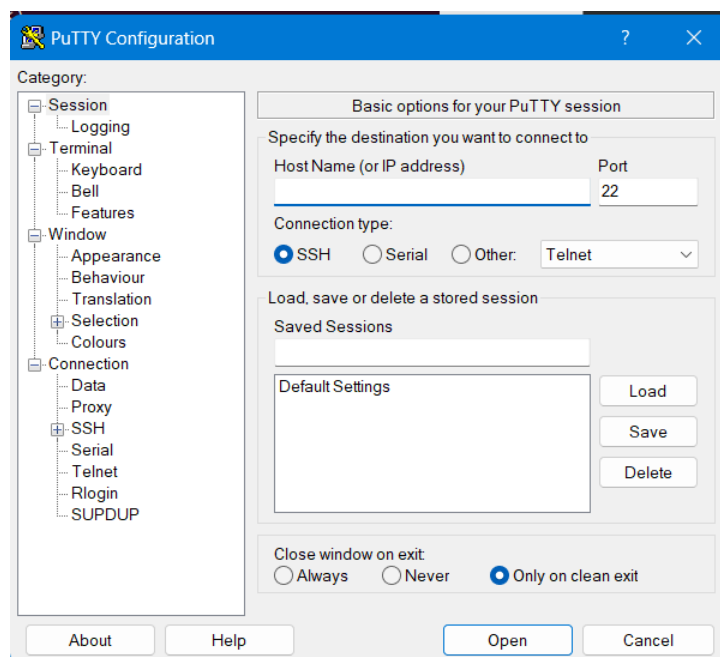
```
ping 192.168.0.109
```

```
Pinging 192.168.0.109 with 32 bytes of data:  
Reply from 192.168.0.109: bytes=32 time=1ms TTL=64  
Reply from 192.168.0.109: bytes=32 time<1ms TTL=64  
Reply from 192.168.0.109: bytes=32 time<1ms TTL=64  
Reply from 192.168.0.109: bytes=32 time<1ms TTL=64  
  
Ping statistics for 192.168.0.109:  
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),  
    Approximate round trip times in milli-seconds:  
        Minimum = 0ms, Maximum = 1ms, Average = 0ms
```

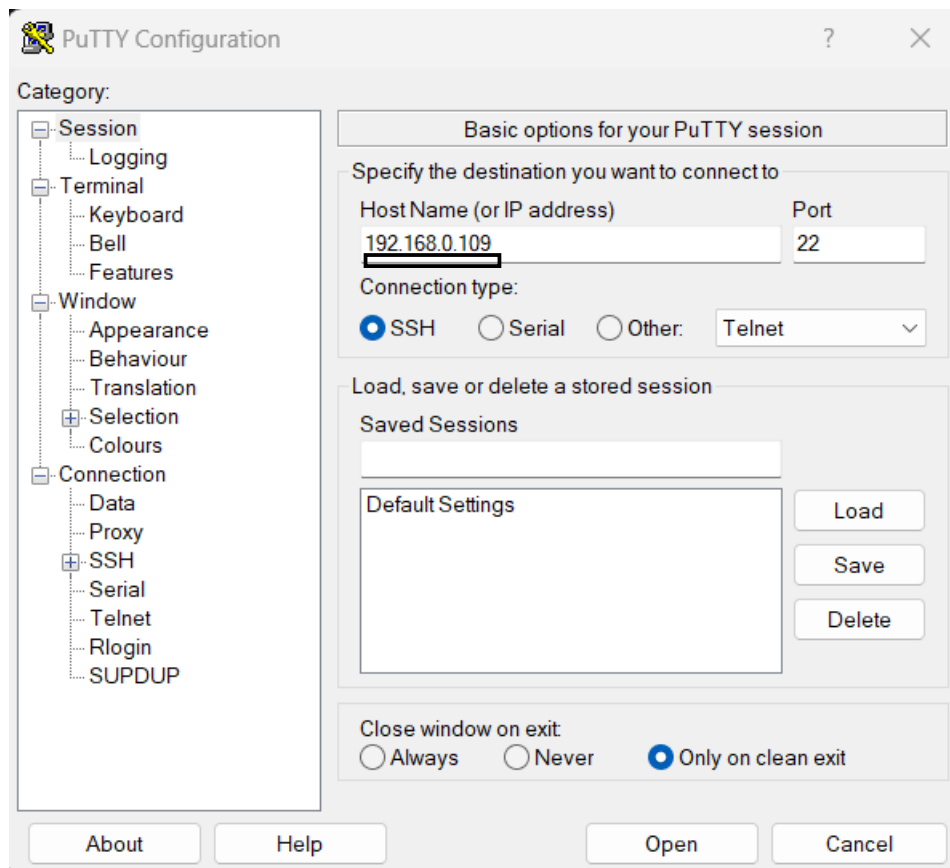
Install putty

<https://www.chiark.greenend.org.uk/~sgtatham/putty/latest.html>

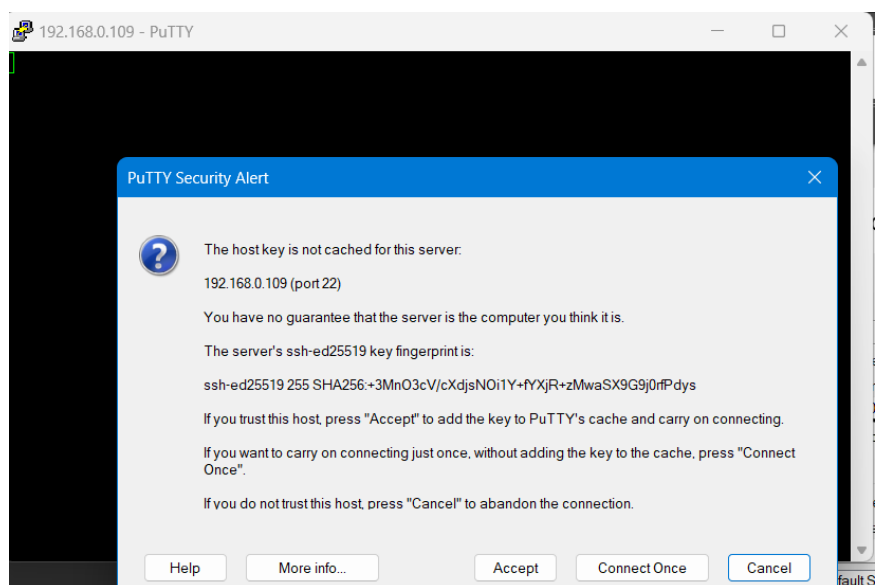
64-bit x86: [putty.exe](#)

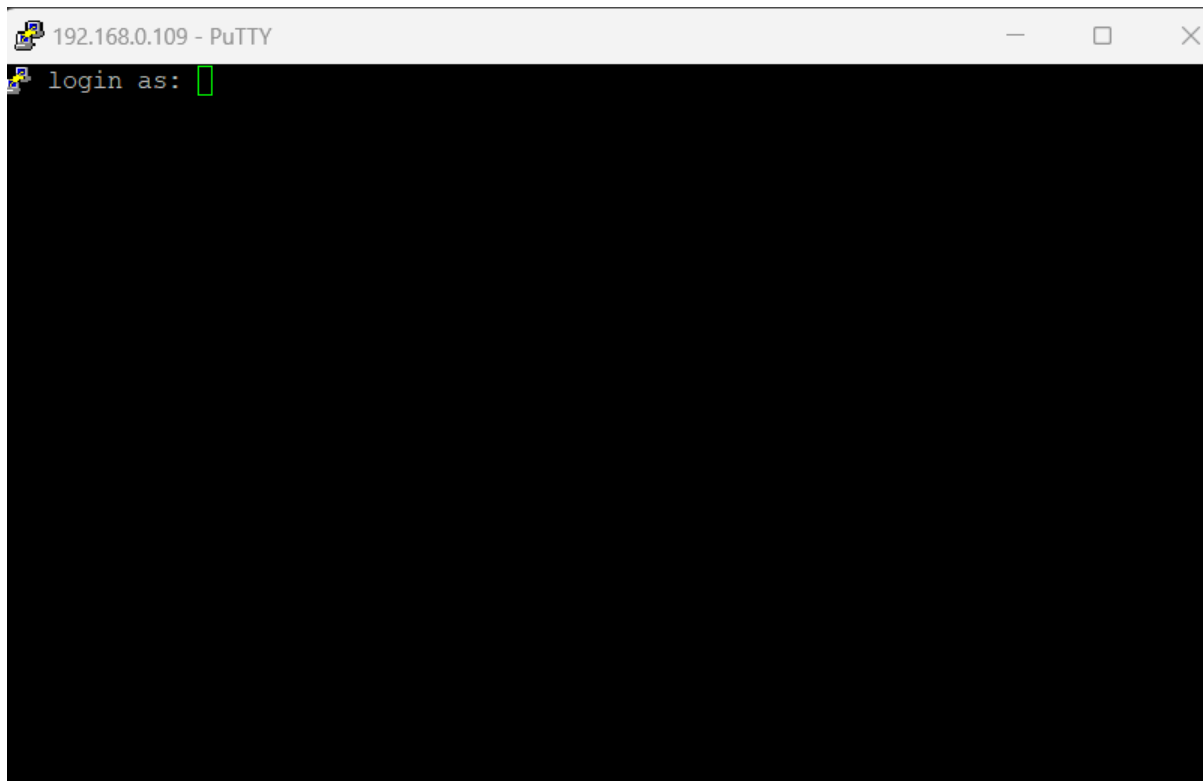


Hostname(or Ip address) -> inet address(192.168.0.129) ->Save -> Open



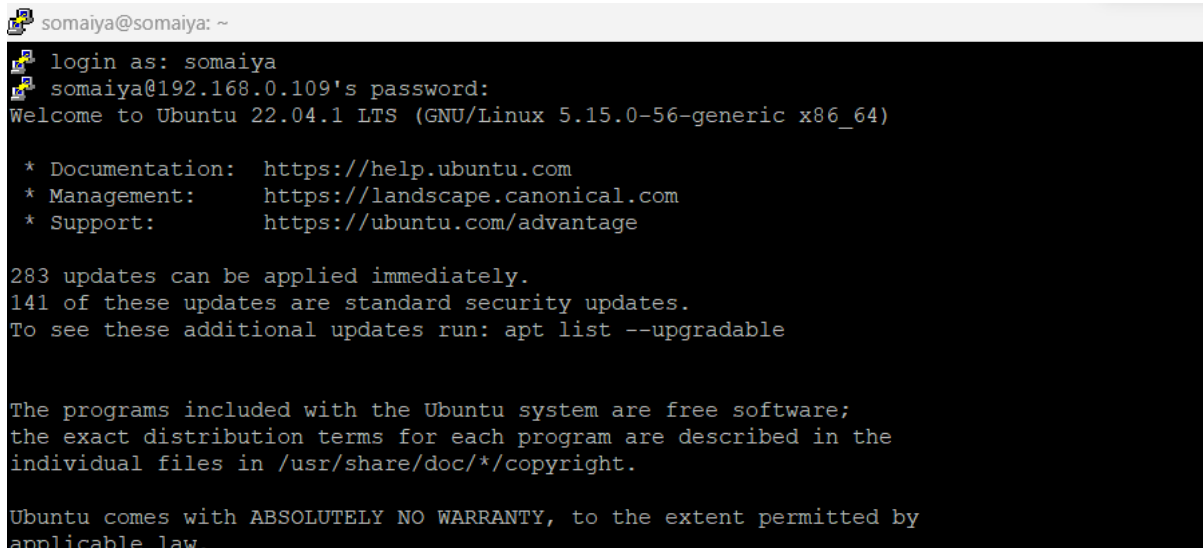
Select Accept



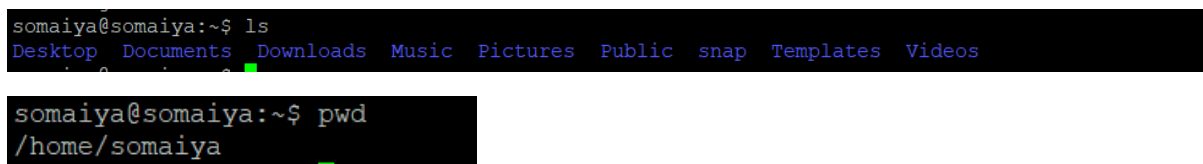


Put your ubuntu login credentials

In Login as:name of your and password



Run basic linux commands in putty



run tcpdump -e command

```
somaiya@somaiya:~$ tcpdump -e
tcpdump: enp0s3: You don't have permission to capture on that device
(socket: Operation not permitted)
somaiya@somaiya:~$ sudo su
[sudo] password for somaiya:
root@somaiya:/home/somaiya# tcpdump -e
```

```
tcpdump: verbose output suppressed, use -v[v]... for full protocol decode
listening on enp0s3, link-type EN10MB (Ethernet), snapshot length 262144 bytes
13:50:20.121841 08:00:27:bd:e1:e2 (oui Unknown) > b4:8c:9d:64:22:87 (oui Unknown), ethertype
453, ack 1731877403, win 501, length 208
13:50:20.122134 b4:8c:9d:64:22:87 (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
0
13:50:20.208639 08:00:27:bd:e1:e2 (oui Unknown) > 60:32:b1:08:15:3c (oui Unknown), ethertype
dr.arpa. (55)
13:50:20.212641 60:32:b1:08:15:3c (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
13:50:20.212881 08:00:27:bd:e1:e2 (oui Unknown) > 60:32:b1:08:15:3c (oui Unknown), ethertype
a. (44)
13:50:20.219205 60:32:b1:08:15:3c (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
13:50:20.220360 08:00:27:bd:e1:e2 (oui Unknown) > 60:32:b1:08:15:3c (oui Unknown), ethertype
dr.arpa. (55)
13:50:20.226325 60:32:b1:08:15:3c (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
13:50:20.226652 08:00:27:bd:e1:e2 (oui Unknown) > 60:32:b1:08:15:3c (oui Unknown), ethertype
a. (44)
13:50:20.231961 60:32:b1:08:15:3c (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
13:50:20.233199 08:00:27:bd:e1:e2 (oui Unknown) > b4:8c:9d:64:22:87 (oui Unknown), ethertype
n 501, length 480
13:50:20.275348 b4:8c:9d:64:22:87 (oui Unknown) > 08:00:27:bd:e1:e2 (oui Unknown), ethertype
0
^C
12 packets captured
20 packets received by filter
0 packets dropped by kernel
```

Practical 5

Installing and configure of FTP server

Practical 5

Step 1: Install FTP server

```
sudo apt update
```

```
sudo apt install vsftpd
```

```
hitesh@hitesh-virtual-machine:~/Desktop$ sudo apt install vsftpd
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
vsftpd is already the newest version (3.0.5-0ubuntu1).
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver intel-media-va-driver libaac0 libaom3 libass9 libavcodec58 libavformat58 libavutil56 libbdplus0 libblas3 libbluray2 libbs2b0
  libchromaprint1 libcodec2-1.0 libdavid5 libflite1 libgme0 libgsml1 libgststreamer-plugins-bad1.0-0 libigdgmm12 libllv-0-0 libllvm15 libnfx1 libnysofa1 libnorm1 libopenmpt0 libpgm-5.3-0 libpostproc55
  librabbitmq4 librubberband2 libserd-0-0 libshine3 libsnappy1v5 libsord-0-0 libstrat0-0 libstr1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0 libva-drm2 libva-wayland2 libva-x11-2
  libva2 libvdpau1 libvidstab1.1 libx265-199 libxvidcore4 libzing2 libzmq5 libzvbi-common libzvbi0 mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe-hwdb va-driver-all vdpau-driver-all
Use 'sudo apt autoremove' to remove them.
0 upgraded, 0 newly installed, 0 to remove and 468 not upgraded.
hitesh@hitesh-virtual-machine:~/Desktop$
```

Anonymous FTP:

- By default, vsftpd disables anonymous FTP. If you want to enable it, uncomment or add the following line:
- makefile
- Copy code

```
anonymous_enable=YES
```

Chroot Jail:

- To restrict users to their home directories, enable chroot:
- makefile
- Copy code

```
chroot_local_user=YES
```

Local Users:

- To allow local system users to access the FTP server, make sure this line is uncommented:
- makefile
- Copy code

```
local_enable=YES
```

Write Access:

- If you want local users to have write access, uncomment this line:
- makefile
- Copy code
- write_enable=YES (if not login success then again comment)

Step 3: Restart the vsftpd service:

After you've made your changes, restart the vsftpd service for the changes to take effect:

```
hitesh@hitesh-virtual-machine:~/Desktop$ sudo systemctl restart vsftpd
hitesh@hitesh-virtual-machine:~/Desktop$
```

Step 5: ifconfig

```
hitesh@hitesh-virtual-machine: ~/Desktop$ ifconfig
ens33: flags=4163<UP,BROADCAST,RUNNING,MULTICAST>  mtu 1500
    inet 192.168.211.128  netmask 255.255.255.0  broadcast 192.168.211.255
    inet6 fe80::a0d0:9:2961:7952  prefixlen 64  scopeid 0x20<link>
    ether 00:0c:29:ab:41:c8  txqueuelen 1000  (Ethernet)
    RX packets 466650  bytes 674027302 (674.0 MB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 90530  bytes 7118944 (7.1 MB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

lo: flags=73<UP,LOOPBACK,RUNNING>  mtu 65536
    inet 127.0.0.1  netmask 255.0.0.0
    inet6 ::1  prefixlen 128  scopeid 0x10<host>
    loop txqueuelen 1000  (Local Loopback)
    RX packets 2484  bytes 532945 (532.9 KB)
    RX errors 0  dropped 0  overruns 0  frame 0
    TX packets 2484  bytes 532945 (532.9 KB)
    TX errors 0  dropped 0  overruns 0  carrier 0  collisions 0

hitesh@hitesh-virtual-machine: ~/Desktop$
```

Step 4: Connect it from client machine

ftp hostname@ipaddress

```
hitesh@hitesh-virtual-machine: ~/Desktop$ ftp hitesh@192.168.211.128
Connected to 192.168.211.128.
220 (vsFTPd 3.0.5)
331 Please specify the password.
Password:
230 Login successful.
Remote system type is UNIX.
Using binary mode to transfer files.
ftp> ls
229 Entering Extended Passive Mode (|||20524|)
150 Here comes the directory listing.
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Desktop
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Documents
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Downloads
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Music
drwxr-xr-x  3 1000    1000          4096 Apr 15 16:37 Pictures
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Public
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Templates
drwxr-xr-x  2 1000    1000          4096 Apr 15 11:37 Videos
drwx----- 4 1000    1000          4096 Apr 15 13:27 snap
226 Directory send OK.
ftp> cd Music
250 Directory successfully changed.
ftp> ls
229 Entering Extended Passive Mode (|||24336|)
150 Here comes the directory listing.
226 Directory send OK.
ftp> cd..
?Invalid command.
ftp> cd ..
250 Directory successfully changed.
ftp>
```

Using windows

Open File Explorer:

- Open File Explorer by pressing Win + E or by clicking on the File Explorer icon in the taskbar.

Access FTP Site:

- In the address bar of File Explorer, type the FTP URL in the following format:
- perl
- Copy code

ftp://username:password@ftp_server_address

- Replace username, password, and ftp_server_address with your actual FTP server login credentials and server address.

For example:

- perl
- Copy code

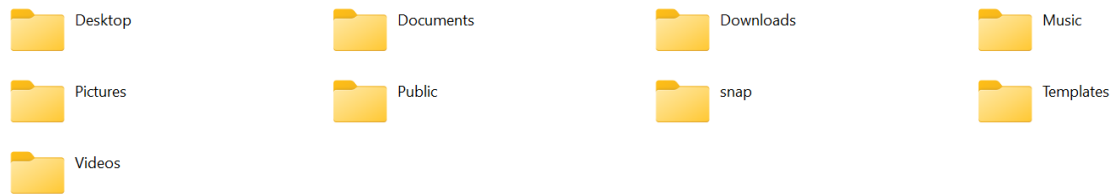
ftp://hitesh:hitesh@192.168.211.128

Enter Credentials (if required):

- If prompted, enter the username and password for your FTP server.

Access Files:

- Once authenticated, you'll be able to view and interact with the files and folders on the FTP server as if they were local files.



Practical 6

Install MySQL to configure database server

Step 1: update sudo and install Mysql

sudo apt update

sudo apt install mysql-server

```
hitesh@hitesh-virtual-machine:~/Desktop$ sudo apt update
[sudo] password for hitesh:
Get:1 http://security.ubuntu.com/ubuntu jammy-security InRelease [110 kB]
Hit:2 http://in.archive.ubuntu.com/ubuntu jammy InRelease
Get:3 http://in.archive.ubuntu.com/ubuntu jammy-updates InRelease [119 kB]
Hit:4 http://in.archive.ubuntu.com/ubuntu jammy-backports InRelease
Get:5 http://security.ubuntu.com/ubuntu jammy-security/main amd64 Packages [1,343 kB]
Get:6 http://security.ubuntu.com/ubuntu jammy-security/main i386 Packages [444 kB]
Get:7 http://security.ubuntu.com/ubuntu jammy-security/universe amd64 Packages [852 kB]
Get:8 http://security.ubuntu.com/ubuntu jammy-security/universe i386 Packages [600 kB]
Fetched 3,468 kB in 4s (978 kB/s)
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
468 packages can be upgraded. Run 'apt list --upgradable' to see them.
hitesh@hitesh-virtual-machine:~/Desktop$ sudo apt install mysql-server
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following packages were automatically installed and are no longer required:
  chromium-codecs-ffmpeg-extra gstreamer1.0-vaapi i965-va-driver intel-media-va-driver libaac0 libaom3 libass9 libavcodec58 libavformat58 libavutil56 libbdplus0 libbrotli1
  libchromaprint1 libcodec2-1.0 libdav1d5 libflite1 libgme0 libgsm1 libgstreamer-plugins-bad1.0-0 libigdgmm12 libllv-0-0 libllvm15 libnfx1 libmysofa1 libnorm1 libopenal1
  librabbitmq4 librubberband2 libserd-0-0 libshine3 libsnappy1v5 libsoxr-0-0 libsratom-0-0 libstr1.4-gnutls libssh-gcrypt-4 libswresample3 libswscale5 libudfread0 libva2
  libvdpau1 libvidstab1.1 libx265-199 libxvidcore4 libzmq2 libzmq5 libzvb1-common libzvb10 mesa-va-drivers mesa-vdpau-drivers pocketsphinx-en-us systemd-hwe
Use 'sudo apt autoremove' to remove them.
The following additional packages will be installed:
  libaio1 libcgi-fast-perl libcgi-pm-perl libevent-core-2.1-7 libevent-pthreads-2.1-7 libfcgi-bin libfcgi-perl libfcgi0ldbl libhtml-template-perl libmecab2 libprotobuf-c1
  mecab-ipadic-utf8 mecab-utils mysql-client-8.0 mysql-client-core-8.0 mysql-common mysql-server-8.0 mysql-server-core-8.0
Suggested packages:
  libipc-sharedcache-perl mailx tinyc
The following NEW packages will be installed:
```

Step 3 : start and enable mysql server

sudo systemctl start mysql

sudo systemctl enable mysql

```
hitesh@hitesh-virtual-machine:~/Desktop$ sudo systemctl start mysql
[sudo] password for hitesh:
hitesh@hitesh-virtual-machine:~/Desktop$ sudo systemctl enable mysql
: Synchronizing state of mysql.service with SysV service script with /lib/systemd/systemd-sysv-install.
: Executing: /lib/systemd/systemd-sysv-install enable mysql
hitesh@hitesh-virtual-machine:~/Desktop$
```

Step 5 : verify mysql installation

sudo systemctl status mysql

```

hitesh@hitesh-virtual-machine:~/Desktop$ sudo systemctl status mysql
● mysql.service - MySQL Community Server
   Loaded: loaded (/lib/systemd/system/mysql.service; enabled; vendor preset: enabled)
   Active: active (running) since Mon 2024-04-15 23:40:29 IST; 50min ago
     Main PID: 17063 (mysqld)
    Status: "Server is operational"
       Tasks: 37 (limit: 4557)
      Memory: 366.0M
         CPU: 22.058s
    CGroup: /system.slice/mysql.service
            └─17063 /usr/sbin/mysqld

Apr 15 23:40:28 hitesh-virtual-machine systemd[1]: Starting MySQL Community Server...
Apr 15 23:40:29 hitesh-virtual-machine systemd[1]: Started MySQL Community Server.
hitesh@hitesh-virtual-machine:~/Desktop$

```

Step 5: Create MySQL Databases and Users.

Sudo mysql

```

hitesh@hitesh-virtual-machine:~/Desktop$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2024, 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>

```

CREATE DATABASE emp;

use emp

Database changed

mysql> create table employee(

-> id int primary key,

-> name varchar(30),

-> age int,

-> salary int

->);

insert into employee(1,"petter",25,30000);

insert into employee values (2,"joye",28,40000);

select * from employee;

```
hitesh@hitesh-virtual-machine:~/Desktop$ sudo mysql
Welcome to the MySQL monitor.  Commands end with ; or \g.
Your MySQL connection id is 8
Server version: 8.0.36-0ubuntu0.22.04.1 (Ubuntu)

Copyright (c) 2000, 2024, 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> CREATE DATABASE emp;
Query OK, 1 row affected (0.01 sec)

mysql> use emp
Database changed
mysql> create table employee(
    -> id int primary key,
    -> name varchar(30),
    -> age int,
    -> salary int
    -> );
Query OK, 0 rows affected (0.02 sec)

mysql> insert into employee(1,"petter",25,30000);
ERROR 1064 (42000): You have an error in your SQL syntax; check the manual that corresponds to
mysql> insert into employee values (1,"petter",25,30000);
Query OK, 1 row affected (0.18 sec)

mysql> insert into employee values (2,"joye",28,40000);
Query OK, 1 row affected (0.00 sec)

mysql> select * from employee
    -> ;
+----+-----+-----+-----+
| id | name  | age  | salary |
+----+-----+-----+-----+
|  1 | petter |   25 |  30000 |
|  2 | joye   |   28 |  40000 |
+----+-----+-----+-----+
2 rows in set (0.00 sec)

mysql>
```

Practical 7

Install Samba to share Folders and Files between Windows and Linux.

Step 1: `sudo apt-get update`

Step 2: `sudo apt install samba`

Step 3: `sudo cp /etc/samba/smb.conf /etc/samba/smb.conf.backup`

Step 4: `sudo mkdir -p /home/somaiya/somaiya_TYIT`

Step 5: `cd /home/somaiya`

Step 6: `sudo adduser somaiya`

Step 7: `sudo smbpasswd -a somaiya`

Step 8: Restarting the samba services

`sudo systemctl restart smbd`

`sudo systemctl status smbd`

Step 9: Editing Samba Configuration File

`sudo nano /etc/samba/smb.conf`

Add this Lines in the Last

`[somaiya_TYIT]`

`path = /home/somaiya/somaiya_TYIT`

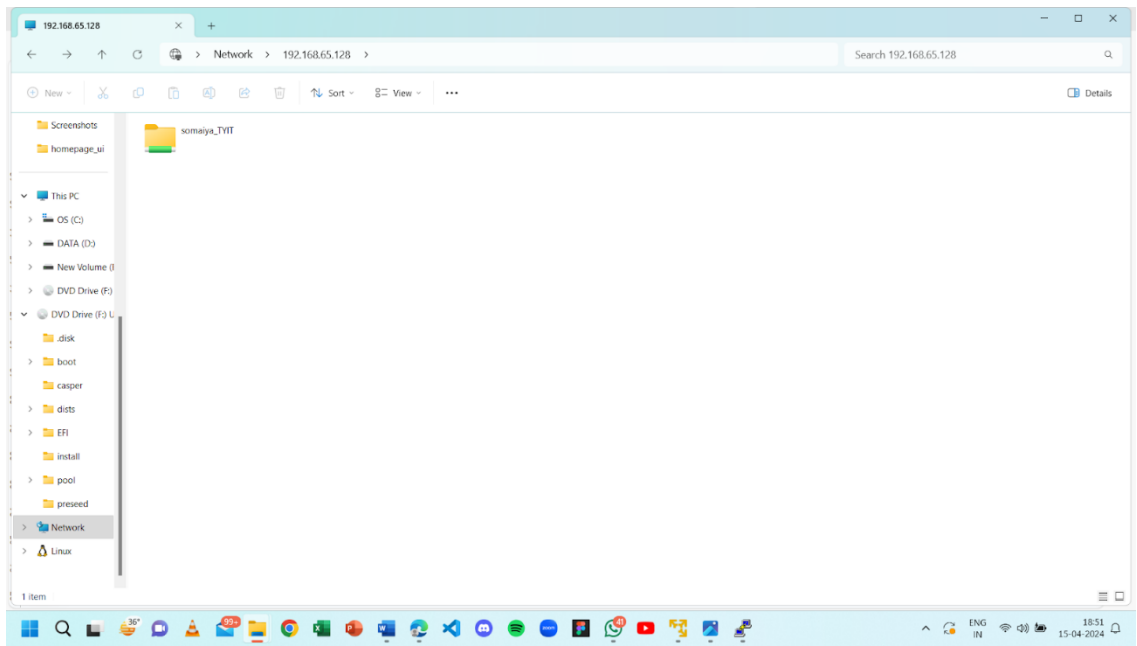
`read only = no`

`valid users = somaiya`

Step 10: `ifconfig`, Copy the IP Address

Step 11: Now go to Windows Explorer

Go to File explorer type the ip address of ubuntu OS to access the folder [folder_name]
double click on the folder



Practical 8

Install Samba to share Folders and Files between Windows and Linux.

Step 1: `sudo apt-get update`

Step 2: `sudo apt install nfs-kernel-server`

Step 3: `sudo mkdir /home/share`

Step 4: `cd /home/share`

Step 5: `sudo touch first.txt`

Step 6: `sudo chmod -R 755 /home/share`

Step 7: `sudo nano /etc/exports`

Step 8: Add this Line at the End
`/home/share *(rw)`

Step 9: `sudo systemctl restart nfs-kernel-server`

Step 10: Copy the IP Address after running this command:
`ip a`

Step 11: Open Another Terminal for Client Side and Write the Command:
`cd /etc`

Step 12: `showmount -e`

Step 13: `sudo mkdir /home/client`

Step 14: `cd /home/client`

Step 15: `ls`

Practical 9

Install phpMyAdmin to operate MySQL on web browser from Clients.

Practical 9

Aim: Install phpMyAdmin to operate MySQL on web browser from Clients.

Step 1: `sudo apt-get update`

Step 2: `sudo apt install apache2`

Step 3: `sudo apt install mysql-server`

Step 4: `sudo apt install mysql-client`

Step 5: `sudo mysql`

Enter Following Commands:

`create user 'james'@'localhost' identified by 'password';` then press Enter

`grant all on . to 'james'@'localhost';` then press Enter

`exit`

Step 6: `sudo apt install php`

Step 7: `sudo apt install phpmyadmin`

In the Dialog Boxes

Select - apache2

Click on Yes

Setup Password

Step 8: open browser and type 'localhost/phpmyadmin'