CLOUD COMPUTING LAB

ASSIGNMENT 2

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SECTION NO : A3

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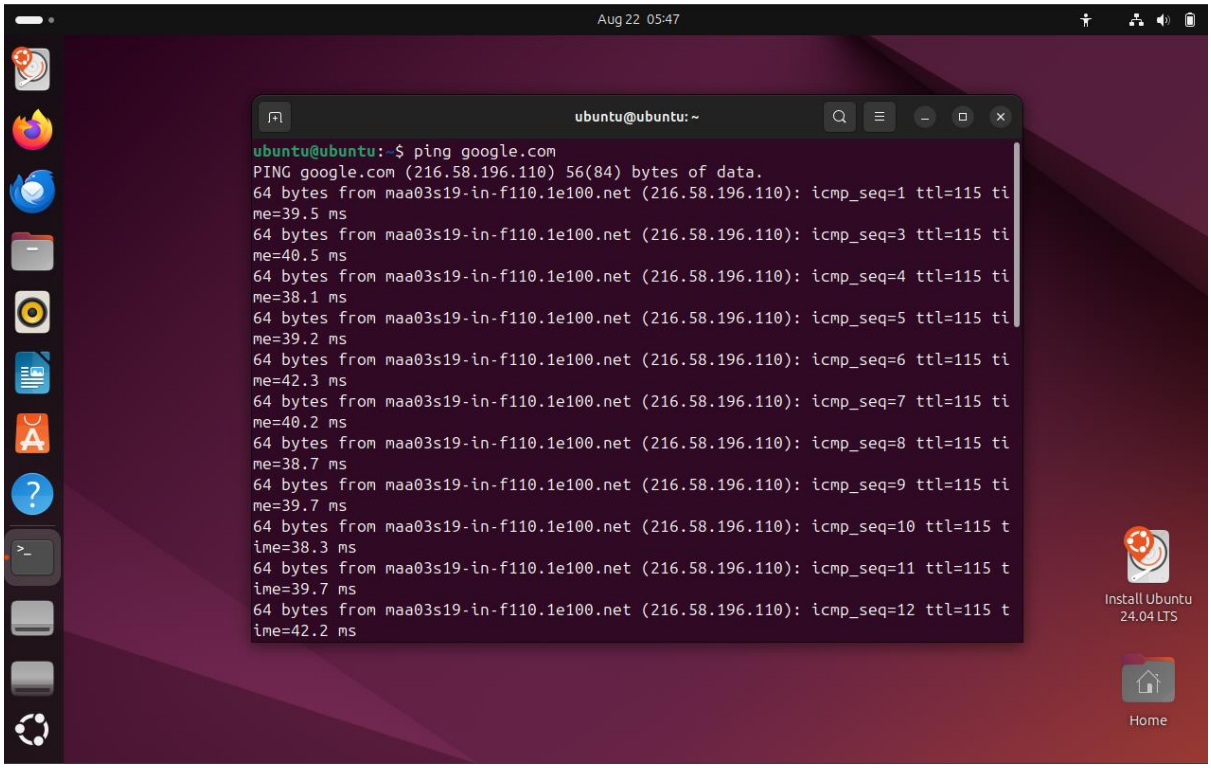
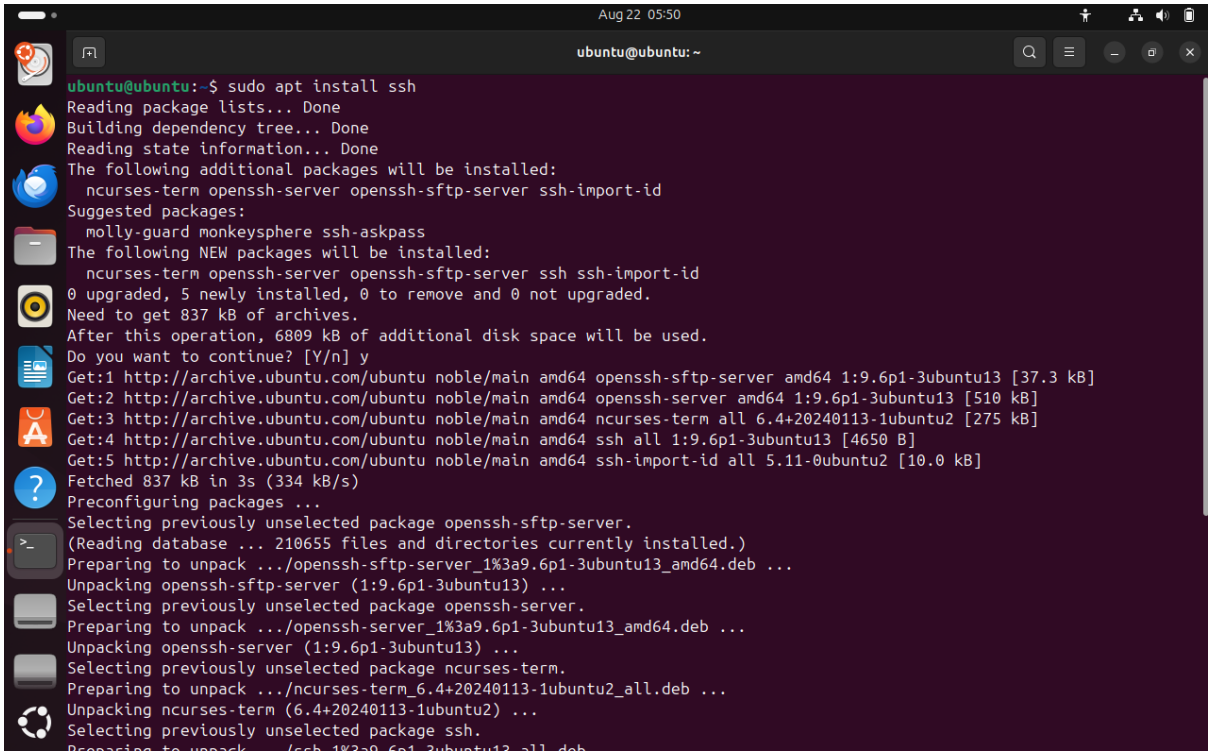
Task 1: Check the internet connection on the installed guest operating systems. Usually, it works automatically as long as the host system has Internet in it.

The connectivity of the Linux VM was checked to ensure an active internet connection, which is usually shared depending on the host system configuration. In this case, the Linux VM already had internet access by default, confirmed using the `ping` command to test reachability on an IP network.



Task 2: Transfer a file between one guest operating system to another guest operating system, where first guest system is your guest system and second guest system is from another group. Mention the paired group's roll numbers along with your group's roll number in the documentation.

We utilized SSH (Secure Shell) and SCP (Secure Copy Protocol) to accomplish the task, which involved securely accessing and managing the remote Linux VM as well as transferring files between the host system and the VM. SSH allowed us to establish an encrypted connection to the VM, providing a secure environment for executing commands remotely, while SCP enabled the secure and efficient transfer of files over the SSH connection. This combination of tools ensured both the integrity and confidentiality of the data being transmitted, making them ideal for managing the remote system and facilitating the necessary file exchanges.



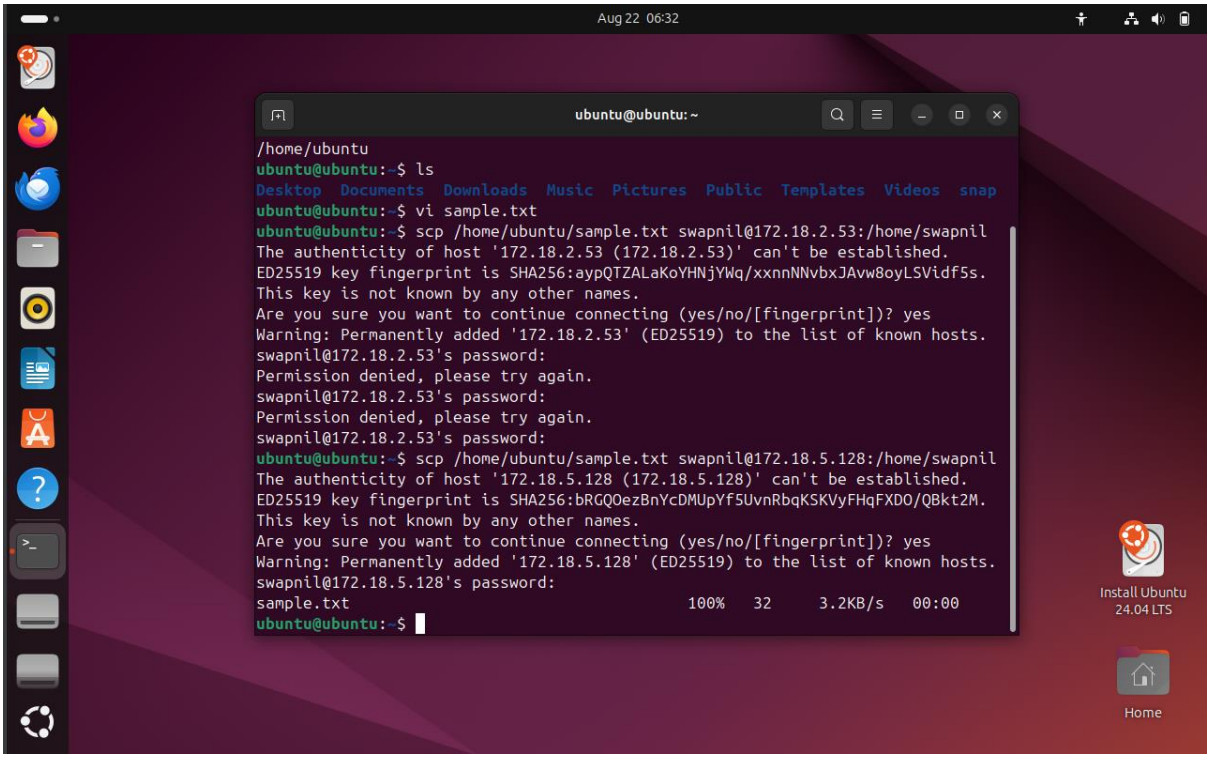
Next, we started SSH and established a connection between our computers using the following commands:

```
ubuntu@ubuntu:~$ sudo systemctl start ssh
ubuntu@ubuntu:~$ sudo ufw allow ssh
Rules updated
Rules updated (v6)
ubuntu@ubuntu:~$
```

We made a demo text file named ‘sample. txt,’ with some text .

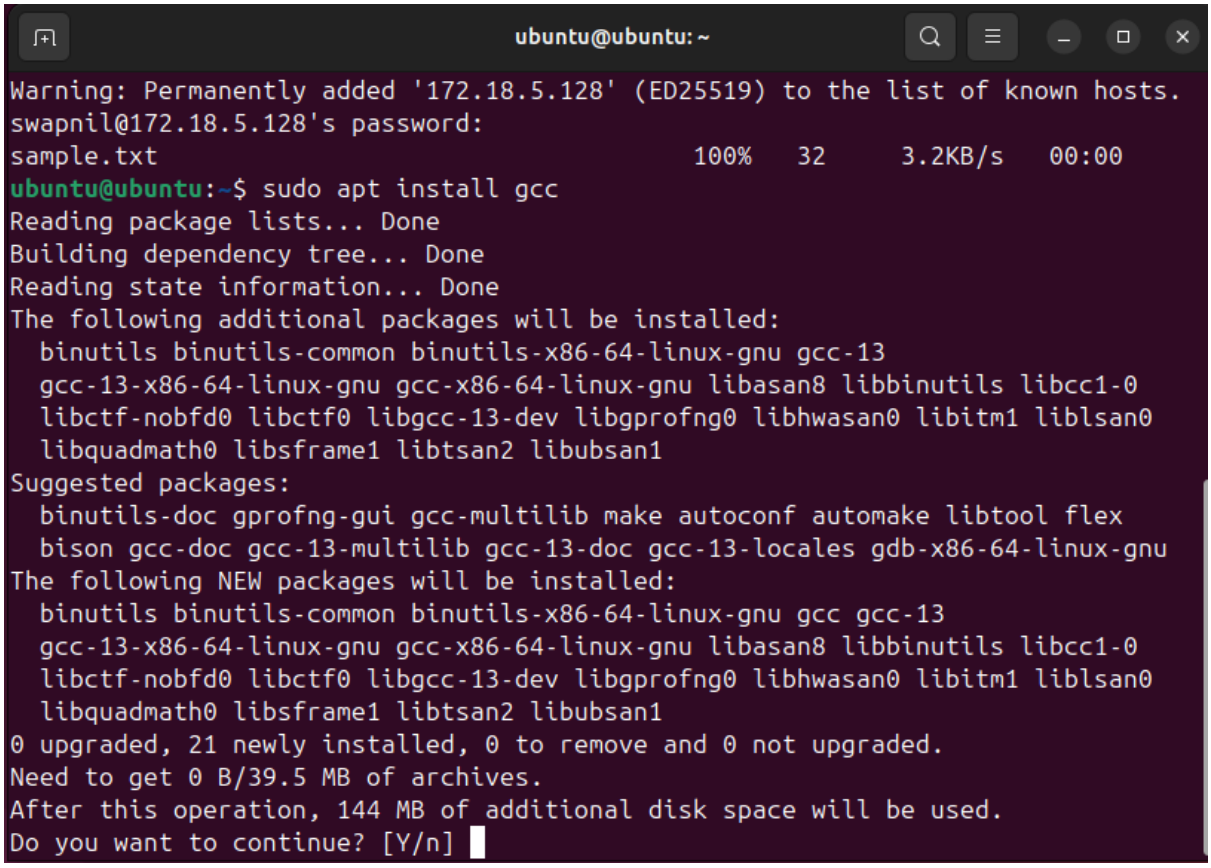
```
ubuntu@ubuntu:~$ pwd
/home/ubuntu
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos  snap
ubuntu@ubuntu:~$ vi sample.txt
ubuntu@ubuntu:~$
```

We transferred it to Swapnil’s virtual machine using the scp command. After being prompted for his password, we entered it, and the file was successfully transferred to his VM, as demonstrated.



Task 3: Install a C compiler in the virtual machine and create a C program file and run it in your guest operating system and once it is successfully run on your guest system, send the file to your friend's guest system with whom you made a pair for the above sub-task.

The first step was to install a C compiler. Among the many available options, we chose GCC, a widely used compiler for C and C++ programs. We installed it using the `apt` package manager.

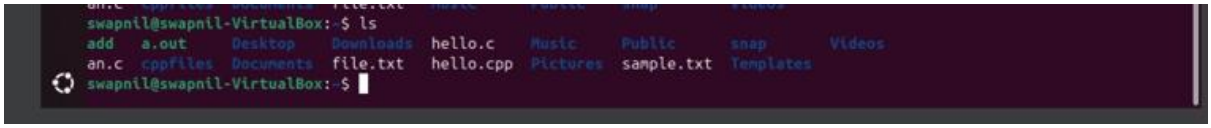

ubuntu@ubuntu: ~
Warning: Permanently added '172.18.5.128' (ED25519) to the list of known hosts.
swapnil@172.18.5.128's password:
sample.txt 100% 32 3.2KB/s 00:00
ubuntu@ubuntu:~$ sudo apt install gcc
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following additional packages will be installed:
binutils binutils-common binutils-x86-64-linux-gnu gcc-13
gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libasan8 libbinutils libcc1-0
libctf-nobfd0 libctf0 libgcc-13-dev libgprofng0 libhwasan0 libitm1 liblsan0
libquadmath0 libsframe1 libtsan2 libubsan1
Suggested packages:
binutils-doc gprofng-gui gcc-multilib make autoconf automake libtool flex
bison gcc-doc gcc-13-multilib gcc-13-doc gcc-13-locales gdb-x86-64-linux-gnu
The following NEW packages will be installed:
binutils binutils-common binutils-x86-64-linux-gnu gcc gcc-13
gcc-13-x86-64-linux-gnu gcc-x86-64-linux-gnu libasan8 libbinutils libcc1-0
libctf-nobfd0 libctf0 libgcc-13-dev libgprofng0 libhwasan0 libitm1 liblsan0
libquadmath0 libsframe1 libtsan2 libubsan1
0 upgraded, 21 newly installed, 0 to remove and 0 not upgraded.
Need to get 0 B/39.5 MB of archives.
After this operation, 144 MB of additional disk space will be used.
Do you want to continue? [Y/n]


```
ubuntu@ubuntu:~$ vi hello.c
ubuntu@ubuntu:~$ rm hello.c
ubuntu@ubuntu:~$ nano hello.c
ubuntu@ubuntu:~$ gcc hello.c
ubuntu@ubuntu:~$ ./a.out
hello worldubuntu@ubuntu:~$
```

After that we moved the `hello.c` program to our group partner Swapnil's VM using the `scp` command as shown below.

```
ubuntu@ubuntu:~$ scp /home/ubuntu/hello.c swapnil@172.18.5.128:/home/swapnil
swapnil@172.18.5.128's password:
Permission denied, please try again.
swapnil@172.18.5.128's password:
Permission denied, please try again.
swapnil@172.18.5.128's password:
hello.c                                       100%   65     6.6KB/s   00:00
ubuntu@ubuntu:~$
```

As demonstrated, the file was copied to his VM as intended and the procedure completed without an issue.



Task 4: Delete that C file present in your guest system and run the C file present in your friend's guest system from your guest system.

To simulate a situation where the C program was no longer present on our guest system, we first deleted the `hello.c` file using the rm command.

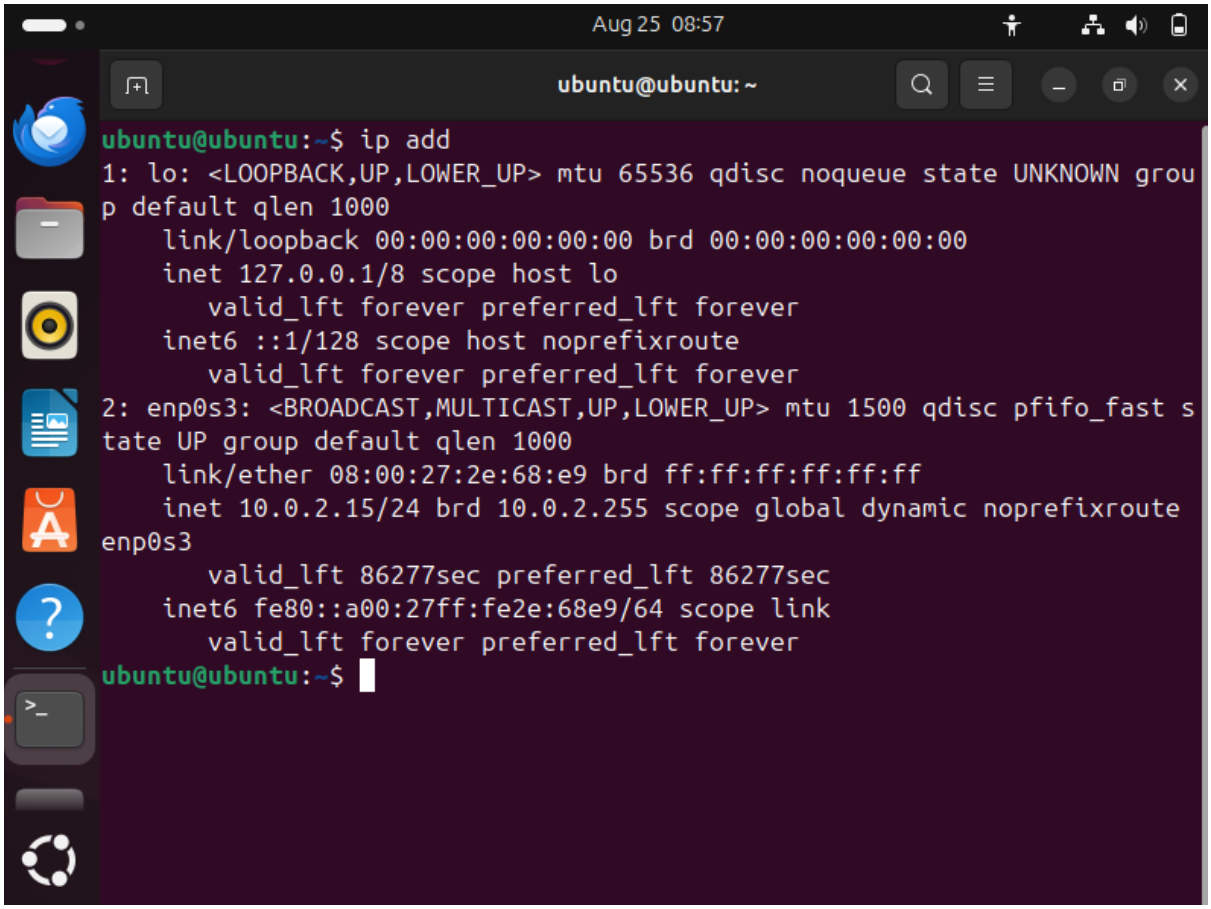
```
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos  a.out  hello.c  sample.txt  snap
ubuntu@ubuntu:~$ rm hello.c
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos  a.out  sample.txt  snap
ubuntu@ubuntu:~$
```

We accessed a remote server via SSH to compile and run a C program. We used the `gcc` compiler to compile the `hello.c` file, located in the remote directory `/home/swapnil/`, into an executable named `abc`. After successful compilation, we executed the program, which printed "hello world" in the terminal, confirming that our code ran correctly.

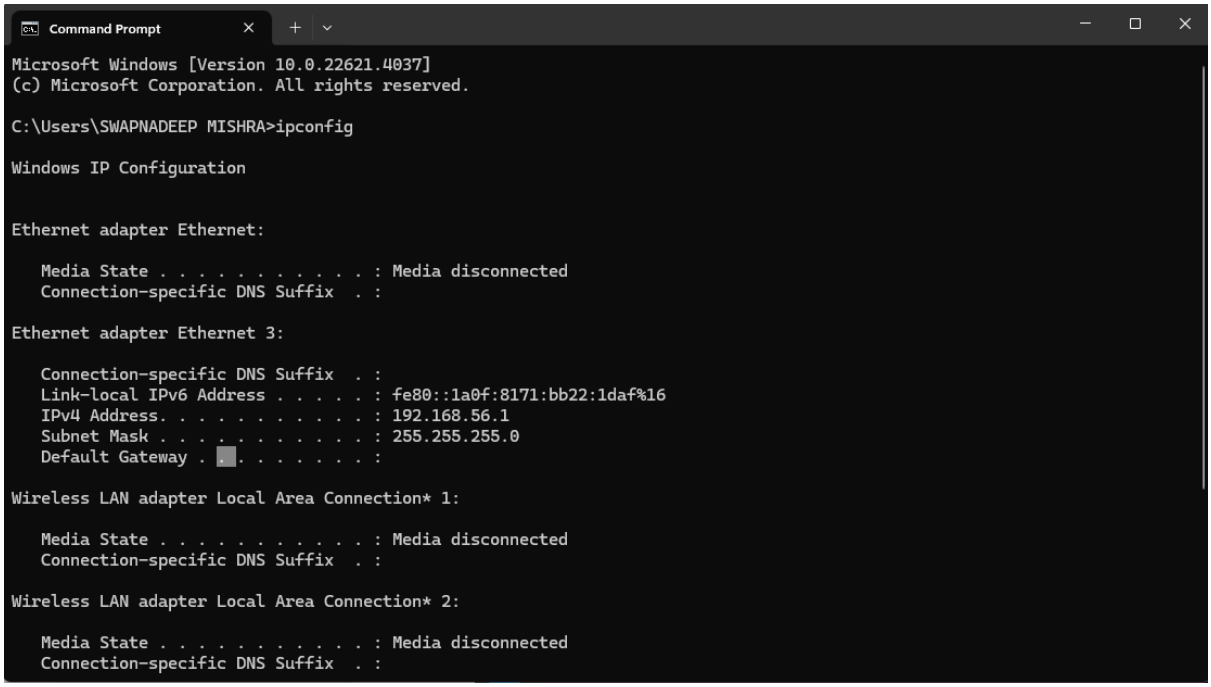
```
ubuntu@ubuntu:~$ ls
Desktop  Documents  Downloads  Music  Pictures  Public  Templates  Videos  a.out  sample.txt  snap
ubuntu@ubuntu:~$ ssh swapnil@172.18.5.128 "gcc /home/swapnil/hello.c -o /home/swapnil/abc && /home/swapnil/abc"
swapnil@172.18.5.128's password:
hello worldubuntu@ubuntu:~$
```

Task -5: File transfer from host to guest operating system.

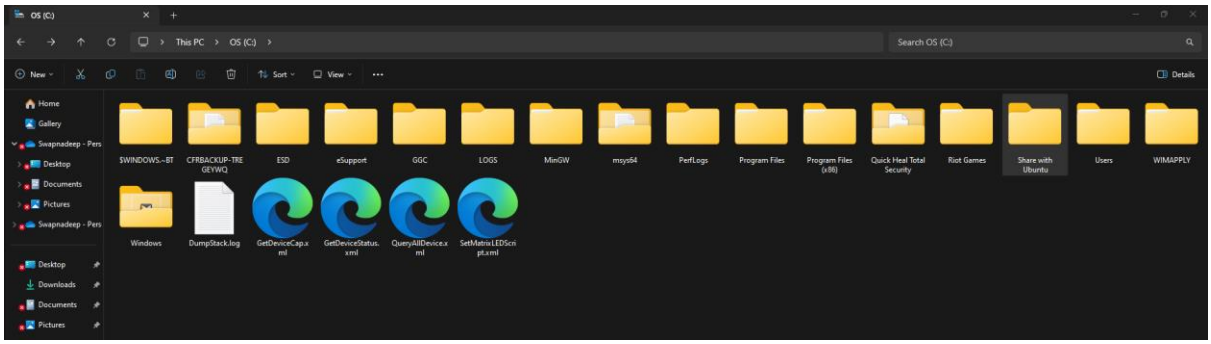
At first we open the terminal in our guest(ubuntu) system and enter the command “ip add” to get the ip address.



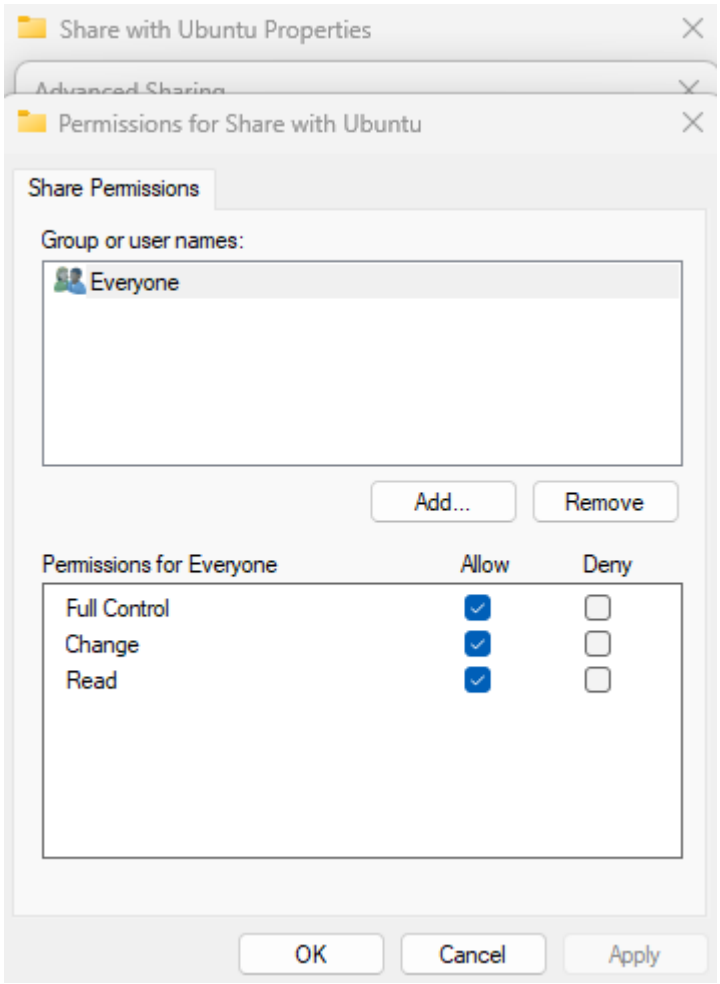
Then we open cmd in our host windows 11 system and enter the command “ipconfig” to get the ip address.



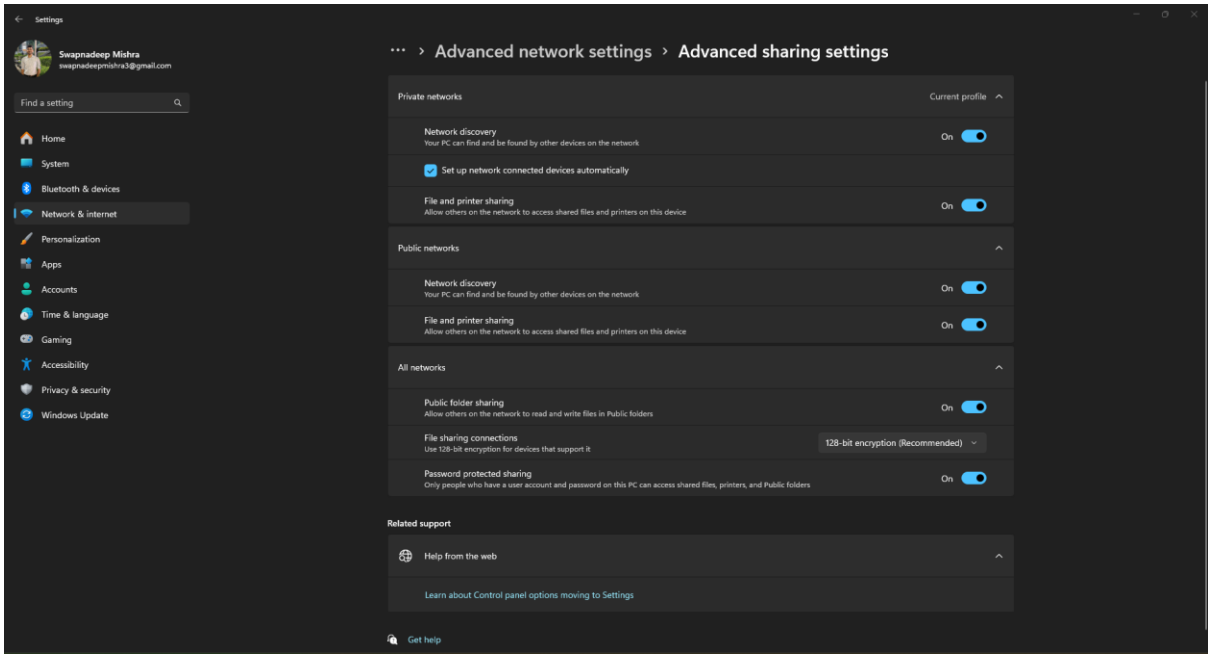
After that we created a folder named “Share with Ubuntu” in our Local disk C.



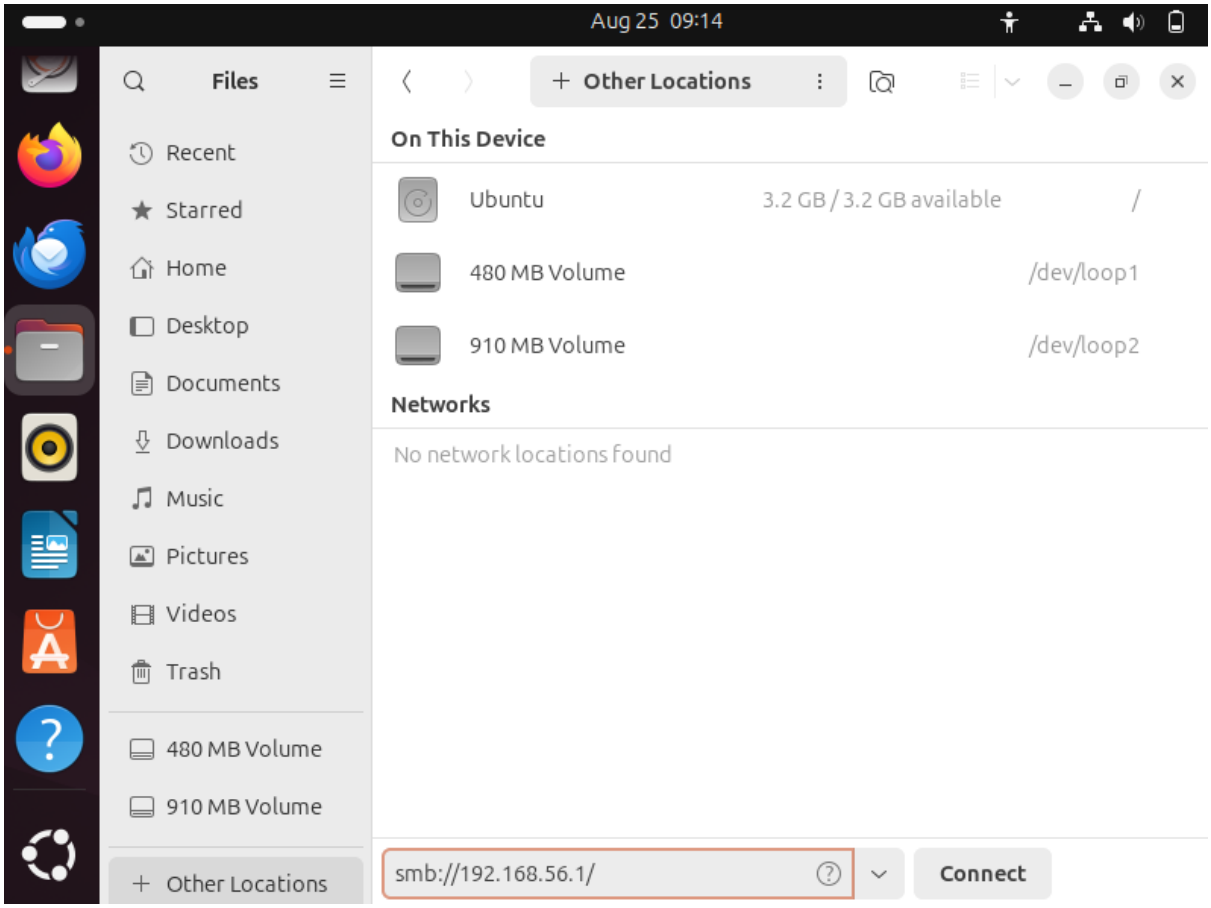
After that we gave all the sharing permissions to the created file thus it will not show us any issues while sharing.



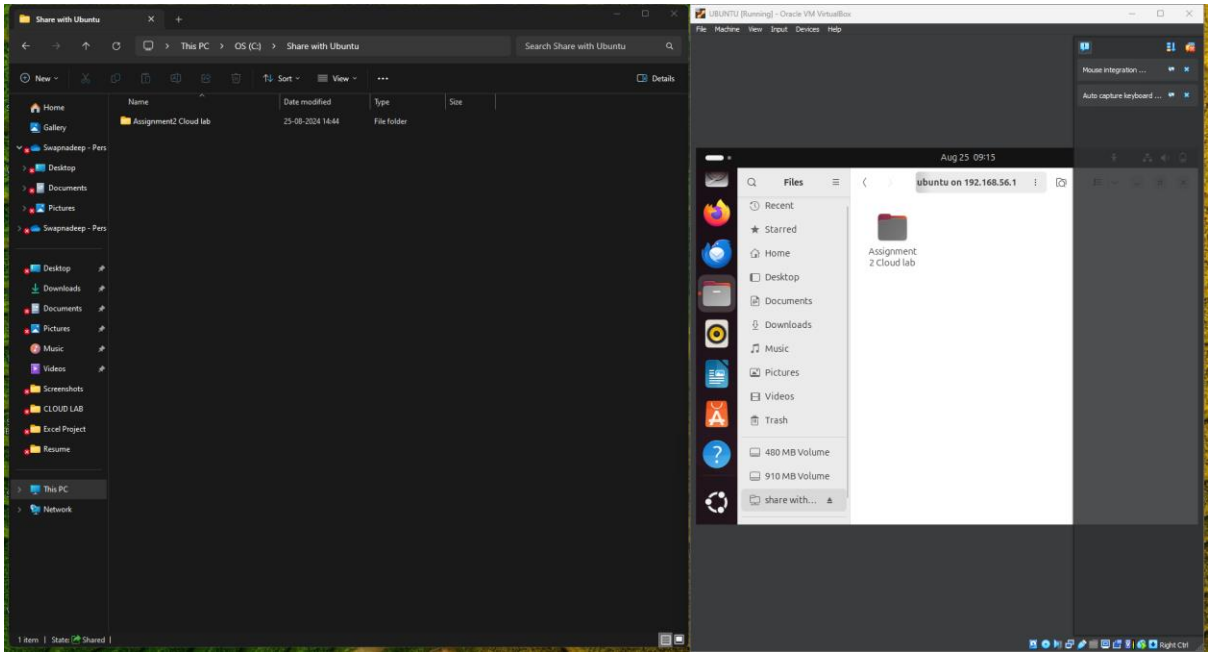
Then opening the settings we opened the network & internet and we gave access to all private , public and all network sharing options .



After that we opened our guest system and opened files. Next in the files we went to other locations and in that field we enter our ip address of our host system and press the connect button.



After pressing connect we saw that the folder that we created was there . Then we create a file inside the folder in our windows system and after refreshing that in ubuntu system we saw that the folder is also created in our guest system.


Share with Ubuntu
This PC
OS (C:)
Share with Ubuntu
Search Share with Ubuntu
New
Sort
View
Details
Home
Gallery
Swapnadeep - Pers
Desktop
Documents
Pictures
Swapnadeep - Pers
Desktop
Downloads
Documents
Pictures
Music
Videos
Screenshots
CLOUD LAB
Excel Project
Resume
This PC
Network
Name
Date modified
Type
Size
Assignment2 Cloud lab
25-08-2024 14:44
File folder
1 item | State: Shared |
UBUNTU [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
Mouse integration ...
Auto capture keyboard ...
Aug 25 09:15
Files
ubuntu on 192.168.56.1
Recent
Starred
Home
Desktop
Documents
Downloads
Music
Pictures
Videos
Trash
480 MB Volume
910 MB Volume
share with...
Assignment 2 Cloud lab
Right Ctrl