Kpmp Bvcd, [10-04-2025 22:10]

port 22 needs to be open inside our vm so that we can ssh into

Kpmp Bvcd, [10-04-2025 22:12]

download private kye ans public key always assocaite with azure

Kpmp Bvcd, [10-04-2025 22:31]

this port needs to be open to access this particaluar virtual mahcine

Kpmp Bvcd, [10-04-2025 22:33]

i am requestiong to ssh into mahcine , so this is inbound traffic

Kpmp Bvcd, [10-04-2025 22:33]

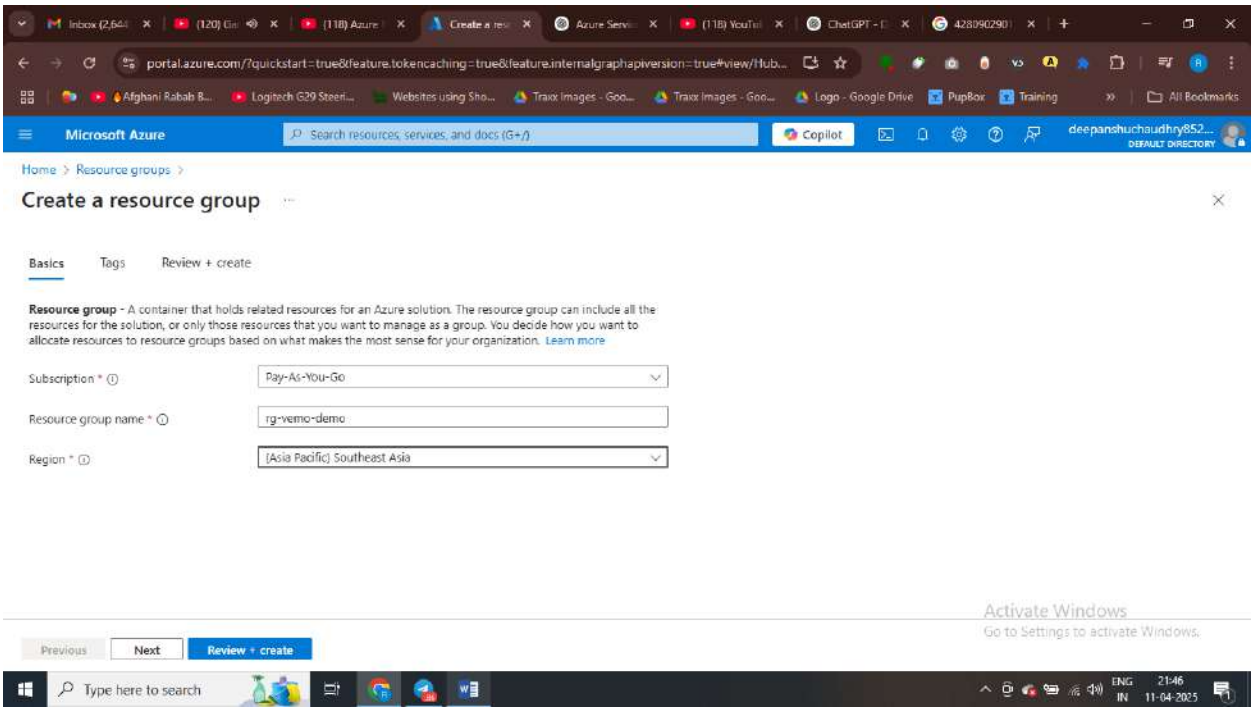
so we have open the port 22 in nsg in azure

Kpmp Bvcd, [10-04-2025 22:35]

if we have any service running on specific port like apapche , then we need to open ports so that we can access it

hypervisor manage our virtual machine and on top of it and it is on host on top of host OS

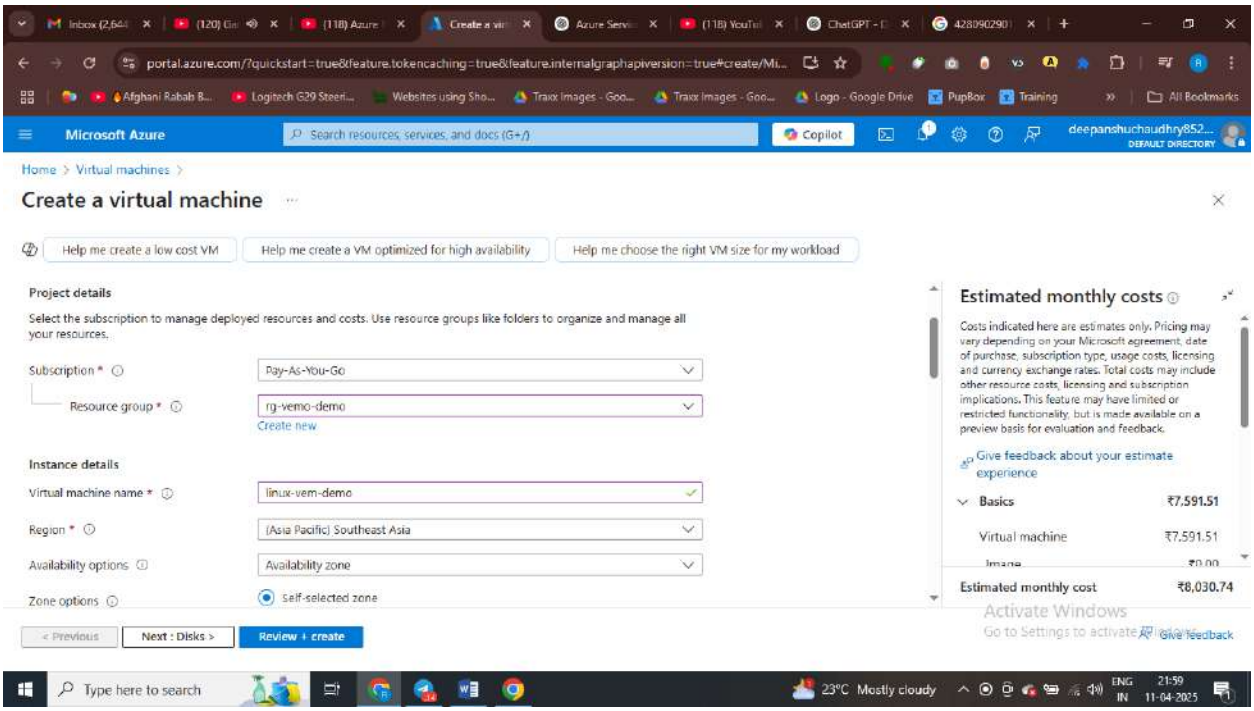
to create a vm we need to forst create resource g[p



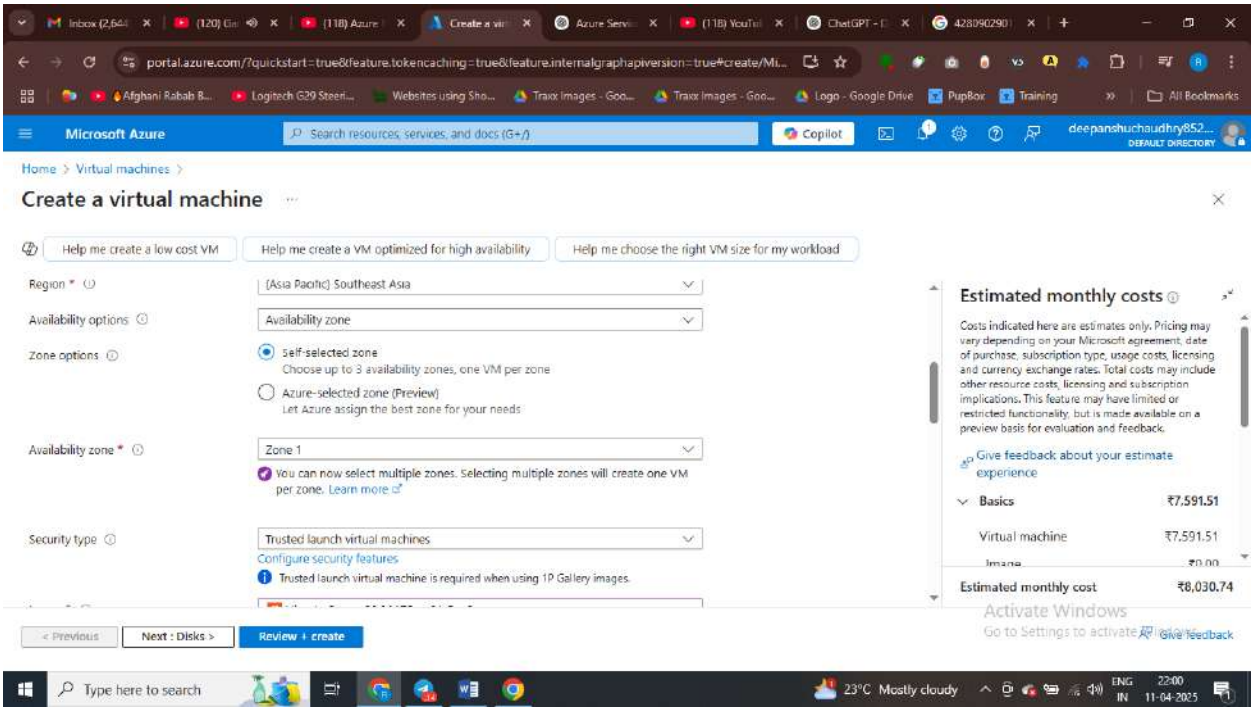
After that we create a vm and linux based vm we create it

If you want maximum availblity for your vm you can select multiple zone here

Use resource gp to create vm


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepanshuchaudhry852...
DEFAULT DIRECTORY
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Pay-As-You-Go
Resource group *
rg-vemo-demo
Create new
Instance details
Virtual machine name *
linux-vem-demo
Region *
(Asia Pacific) Southeast Asia
Availability options
Availability zone
Zone options
Self-selected zone
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics
₹7,591.51
Virtual machine
₹7,591.51
Estimated monthly cost
₹8,030.74
< Previous
Next : Disks >
Review + create
Activate Windows
Go to Settings to activate
Give feedback
Type here to search
23°C Mostly cloudy
ENG IN
21:59
11-04-2025

Check 1


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepanshuchaudhry852...
DEFAULT DIRECTORY
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Region *
(Asia Pacific) Southeast Asia
Availability options
Availability zone
Zone options
Self-selected zone
Choose up to 3 availability zones, one VM per zone
Azure-selected zone (Preview)
Let Azure assign the best zone for your needs
Availability zone *
Zone 1
You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more
Security type
Trusted launch virtual machines
Configure security features
Trusted launch virtual machine is required when using 1P Gallery images.
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics
₹7,591.51
Virtual machine
₹7,591.51
Estimated monthly cost
₹8,030.74
< Previous
Next : Disks >
Review + create
Activate Windows
Go to Settings to activate
Give feedback
Type here to search
23°C Mostly cloudy
ENG IN
22:00
11-04-2025

Microsoft Azure

Home > Virtual machines >

Create a virtual machine

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Availability zone * : Zone 1

You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more

Security type : Trusted launch virtual machines

Configure security features

Trusted launch virtual machine is required when using 1P Gallery images.

Image * : Ubuntu Server 20.04 LTS - x64 Gen2

See all images | Configure VM generation

VM architecture : Arm64 / x64

Run with Azure Spot discount :

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

Basics	₹7,591.51
Virtual machine	₹7,591.51
Image	₹0.00
Estimated monthly cost	₹8,030.74

< Previous | Next : Disks > | Review + create

Activate Windows

Go to Settings to activate Windows. Give feedback

Microsoft Azure

Home > Virtual machines >

Create a virtual machine

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Run with Azure Spot discount :

Size * : Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹7,591.51/month)

See all sizes

Enable Hibernation :

Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. Learn more

Administrator account

Authentication type : SSH public key / Password

Azure now automatically generates an SSH key pair for you and allows you to store it for future use. It is a fast, simple, and secure way to connect to your virtual machine.

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

Basics	₹7,591.51
Virtual machine	₹7,591.51
Image	₹0.00
Estimated monthly cost	₹8,030.74

< Previous | Next : Disks > | Review + create

Activate Windows

Go to Settings to activate Windows. Give feedback

Microsoft Azure

Home > Virtual machines >

Create a virtual machine

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Username * azureuser

SSH public key source: Generate new key pair

SSH Key Type: RSA SSH Format / Ed25519 SSH Format

Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.

Key pair name * linux-vem-demo_key

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None

< Previous | Next : Disks > | Review + create

Estimated monthly costs

Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

Basics	₹7,591.51
Virtual machine	₹7,591.51
Image	₹0.00
Estimated monthly cost	₹8,030.74

Microsoft Azure

Home > Virtual machines >

Create a virtual machine

Help me create a low cost VM | Help me create a VM optimized for high availability | Help me choose the right VM size for my workload

Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.

Key pair name * linux-vem-demo_key

Inbound port rules

Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.

Public inbound ports * None / Allow selected ports

Select inbound ports * SSH (22)

This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.

< Previous | Next : Disks > | Review + create

Estimated monthly costs

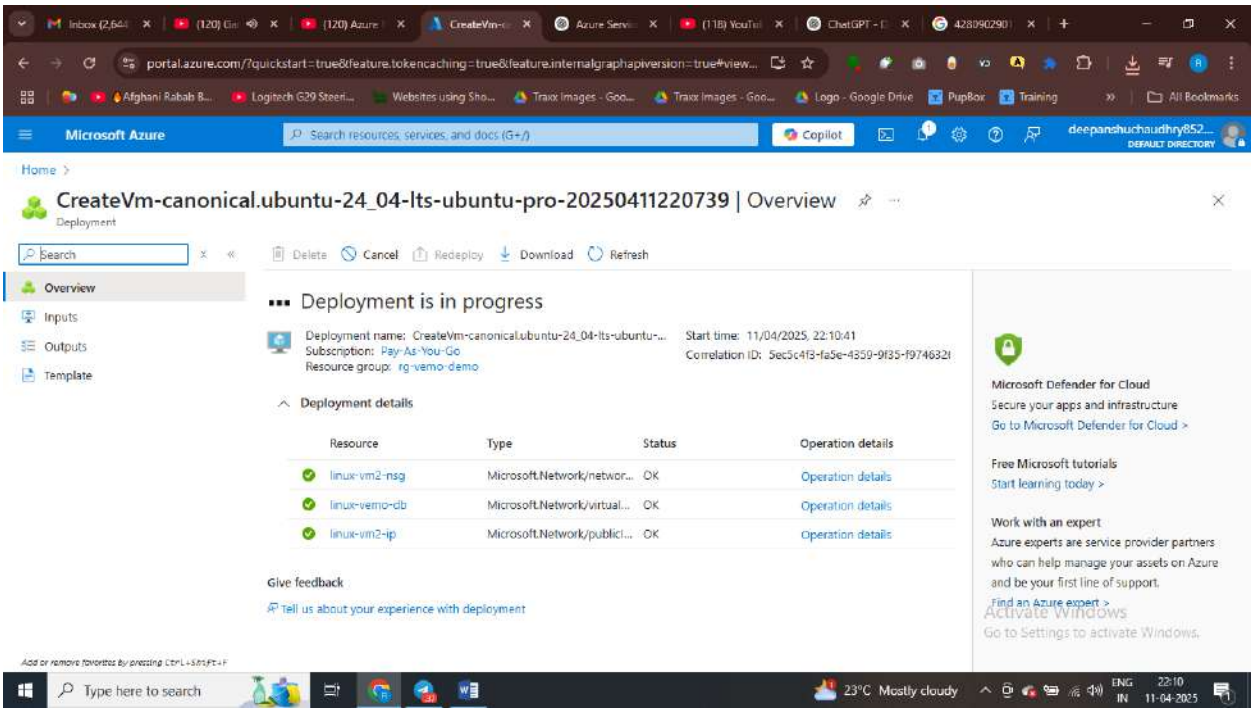
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.

Give feedback about your estimate experience

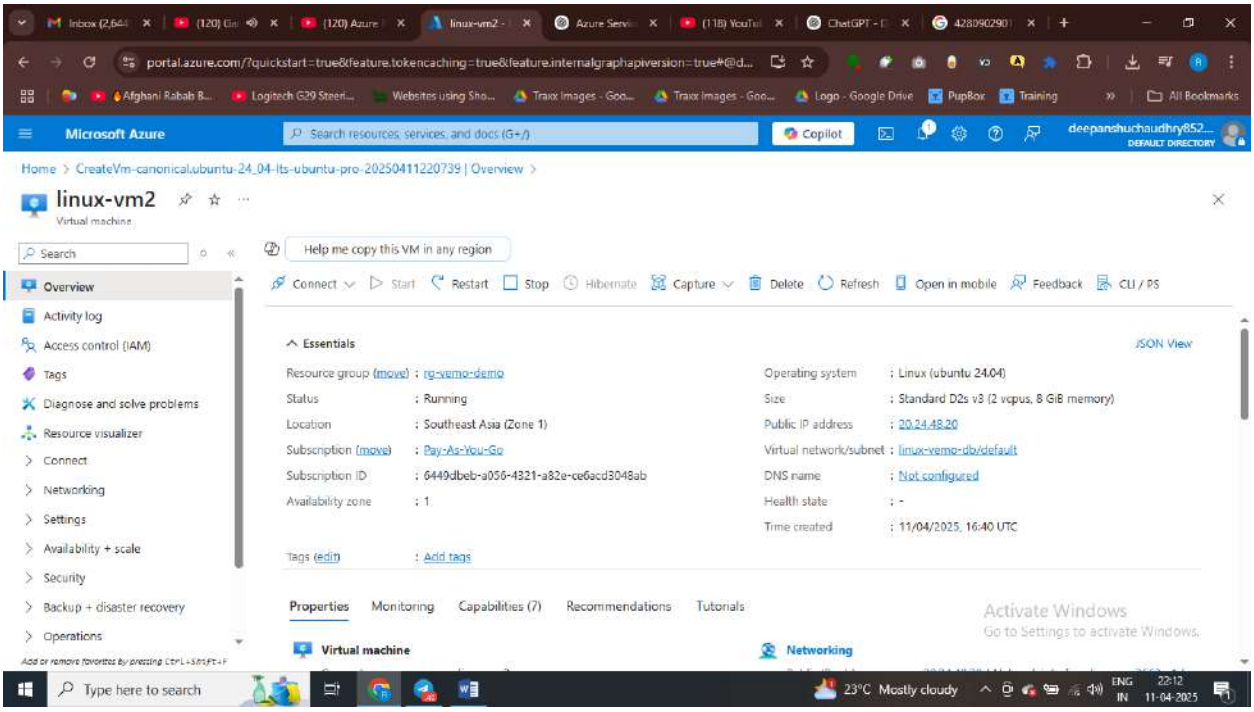
Basics	₹7,591.51
Virtual machine	₹7,591.51
Image	₹0.00
Estimated monthly cost	₹8,030.74

Inbound who can send traffic , to ssh we need open port 22 , so that user can ssh using private key

Enabble port 22 for ssh



deployemtn is in progress



Now try to ssh into vm using cmd line

Native shh

1. **Use `icacls` to change the permissions:** You can grant yourself full access (or modify as needed) to the `.pem` file with the following command:

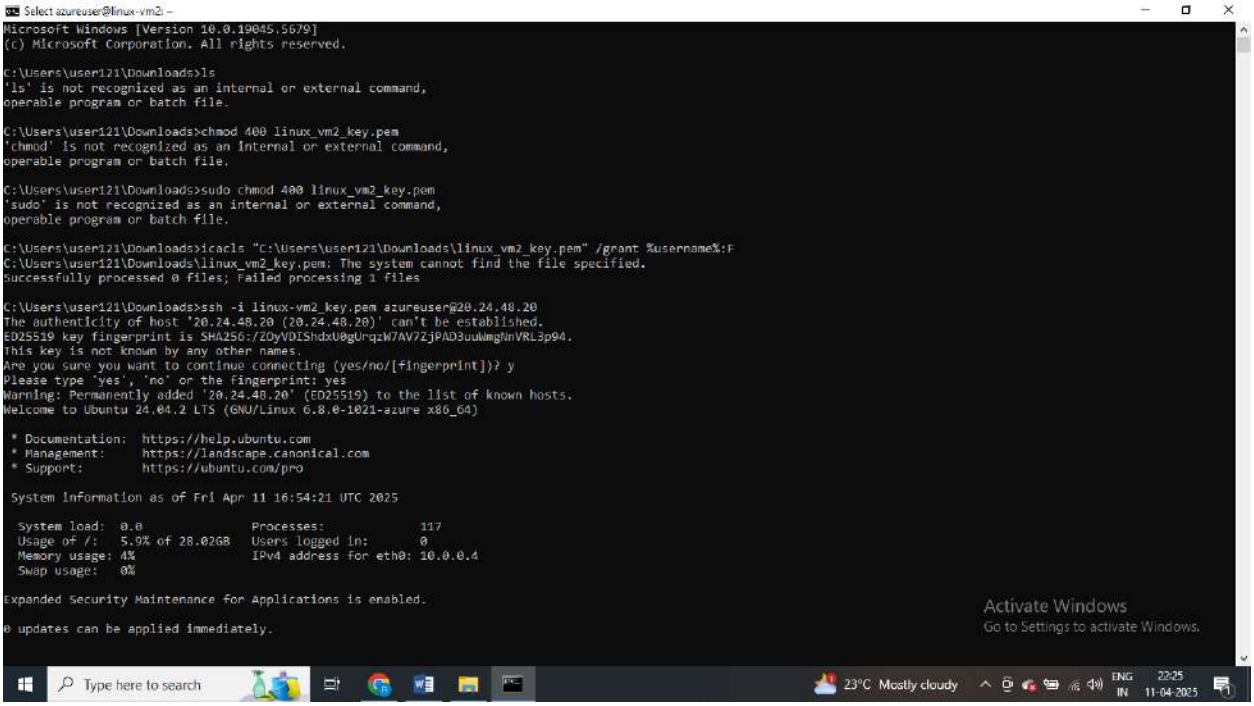
   ```
   cmd
   CopyEdit
   icacls "C:\Users\user121\Downloads\linux_vm2_key.pem" /grant
   %username%:F
   ```

   Explanation:

   - `"C:\Users\user121\Downloads\linux_vm2_key.pem"`: This is the path to your file. Make sure to enclose it in quotes if the path contains spaces.
   - `%username%`: This refers to the currently logged-in user. It will grant full access to your account for that file.
   - `/grant`: This gives the specified permissions.
   - `:F`: This means **Full access**.
2. **Verify the permissions:** If you want to check the permissions of the file after running the command, you can use:

   ```
   cmd
   CopyEdit
   icacls "C:\Users\user121\Downloads\linux_vm2_key.pem"
   ```

Let me know if this helps or if you need more assistance!



C:\Users\user121\Downloads>icacls "C:\Users\user121\Downloads\linux_vm2_key.pem" /grant %username%:F

C:\Users\user121\Downloads\linux_vm2_key.pem: The system cannot find the file specified.

Successfully processed 0 files; Failed processing 1 files

C:\Users\user121\Downloads>ssh -i linux-vm2_key.pem azureuser@20.24.48.20

The authenticity of host '20.24.48.20 (20.24.48.20)' can't be established.

ED25519 key fingerprint is SHA256:/ZOyVDIShdxU0gUrqzW7AV7ZjPAD3uuWmgNnVRL3p94.

This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? y

Please type 'yes', 'no' or the fingerprint: yes

Warning: Permanently added '20.24.48.20' (ED25519) to the list of known hosts.

Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1021-azure x86_64)

```
 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Fri Apr 11 16:54:21 UTC 2025

  System load:  0.0               Processes:           117
  Usage of /:   5.9% of 28.02GB   Users logged in:       0
  Memory usage: 4%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

Expanded Security Maintenance for Applications is enabled.

0 updates can be applied immediately.



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@linux-vm2:~$
```

```
C:\Users\user121\Downloads>icacls "C:\Users\user121\Downloads\linux_vm2_key.pem" /grant
%username%:F

C:\Users\user121\Downloads\linux_vm2_key.pem: The system cannot find the file specified.

Successfully processed 0 files; Failed processing 1 files


C:\Users\user121\Downloads>ssh -i linux-vm2_key.pem azureuser@20.24.48.20

The authenticity of host '20.24.48.20 (20.24.48.20)' can't be established.

ED25519 key fingerprint is SHA256:/ZOyVDIShdxU0gUrqzW7AV7ZjPAD3uuWmgNnVRL3p94.

This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? y

Please type 'yes', 'no' or the fingerprint: yes

Warning: Permanently added '20.24.48.20' (ED25519) to the list of known hosts.

Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1021-azure x86_64)


 * Documentation:  https://help.ubuntu.com

 * Management:     https://landscape.canonical.com

 * Support:        https://ubuntu.com/pro


 System information as of Fri Apr 11 16:54:21 UTC 2025


  System load:  0.0               Processes:           117

  Usage of /:   5.9% of 28.02GB   Users logged in:       0

  Memory usage: 4%                IPv4 address for eth0: 10.0.0.4

  Swap usage:   0%


Expanded Security Maintenance for Applications is enabled.


0 updates can be applied immediately.
```

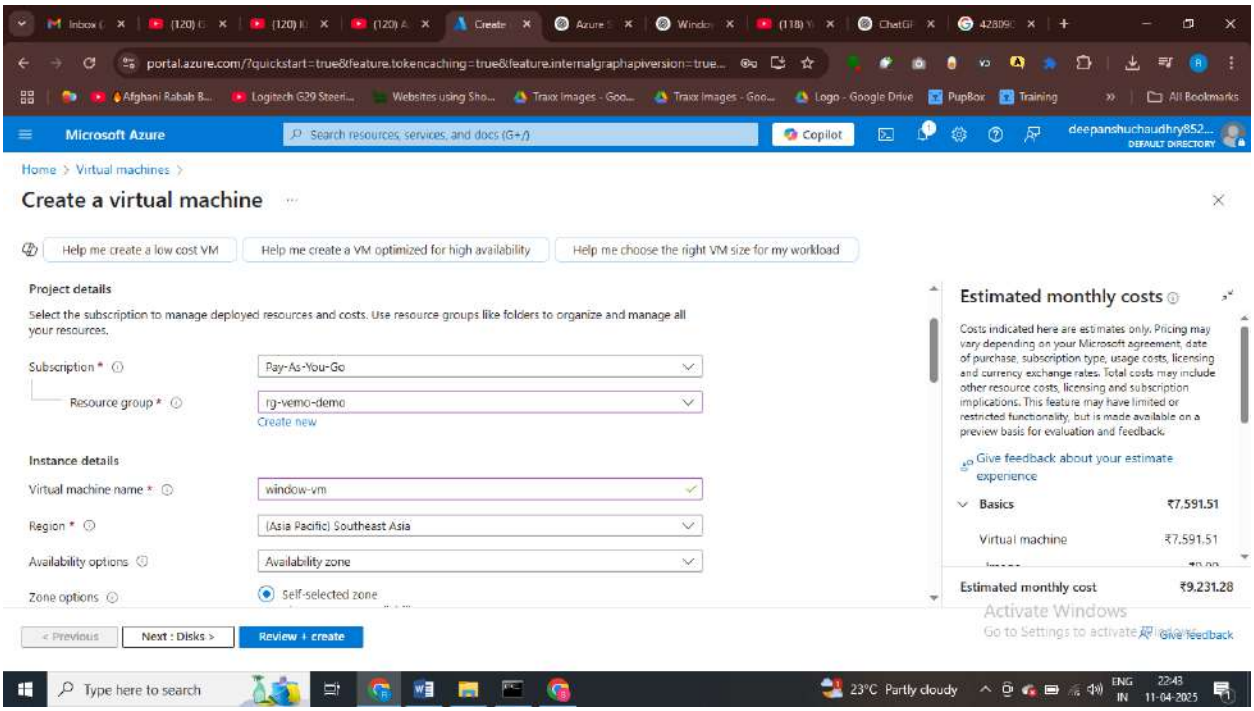
The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

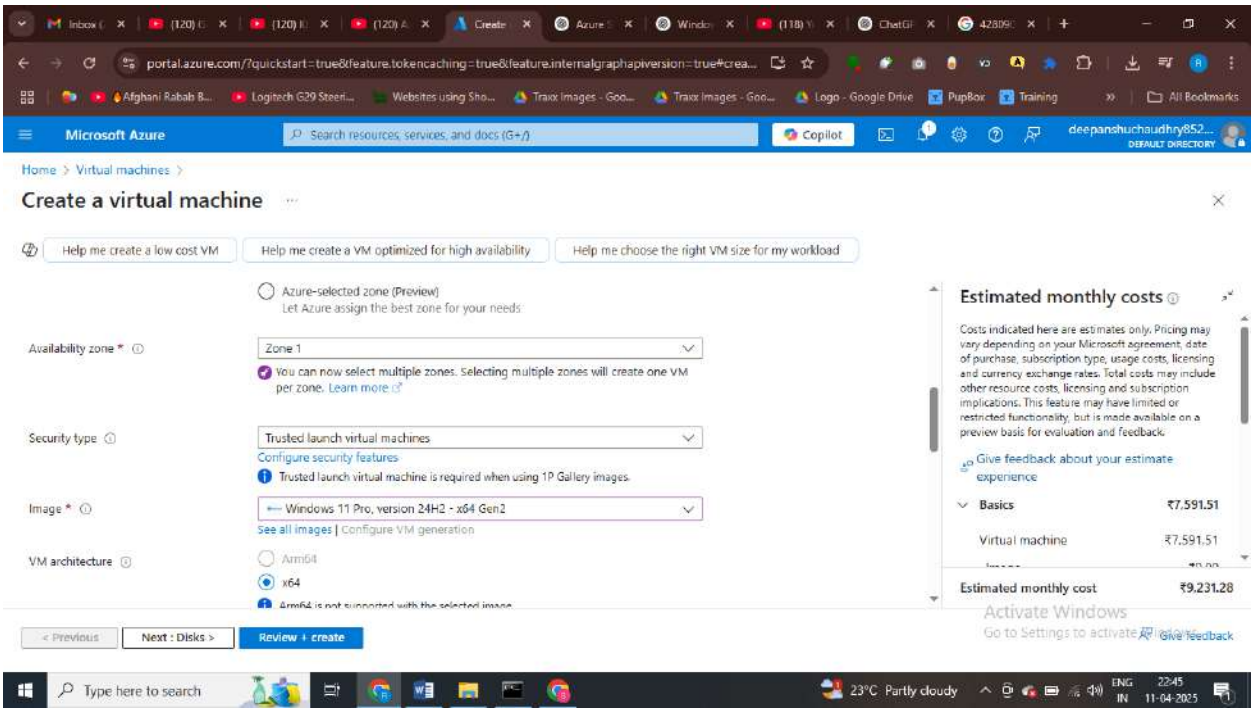
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

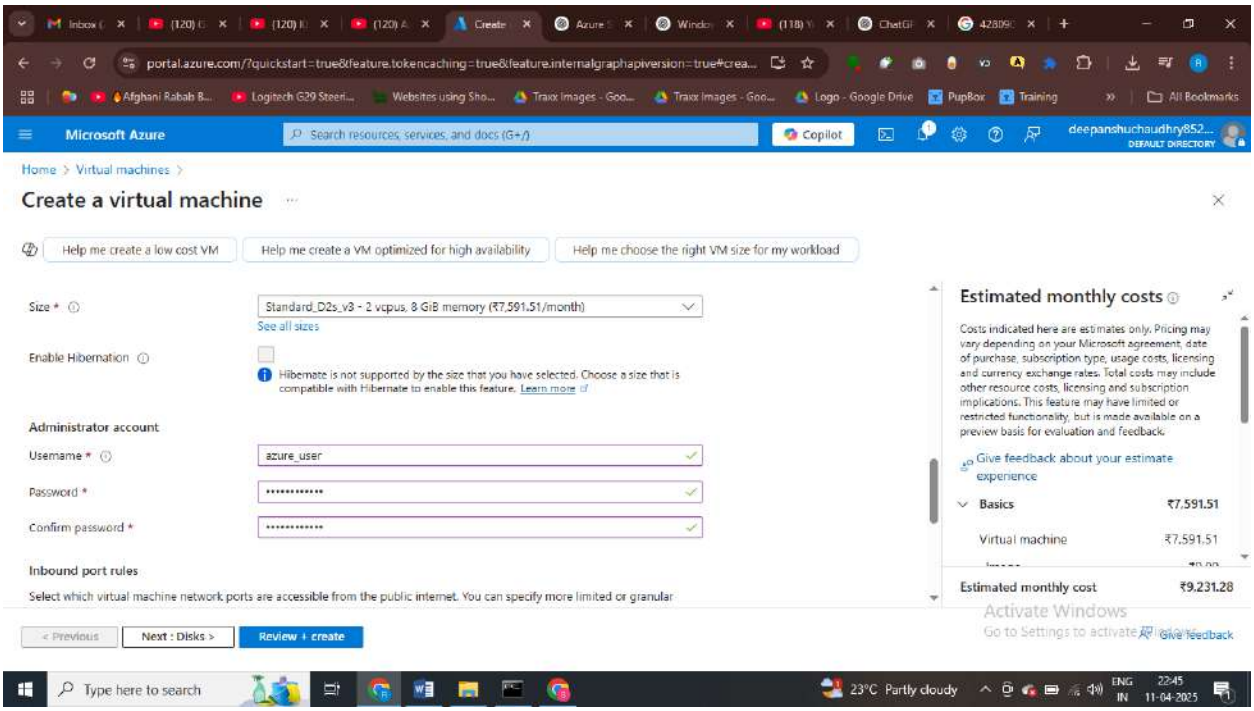
azureuser@linux-vm2:~$ ls
azureuser@linux-vm2:~$ pwd
/home/azureuser
azureuser@linux-vm2:~$

creating a widnow VM

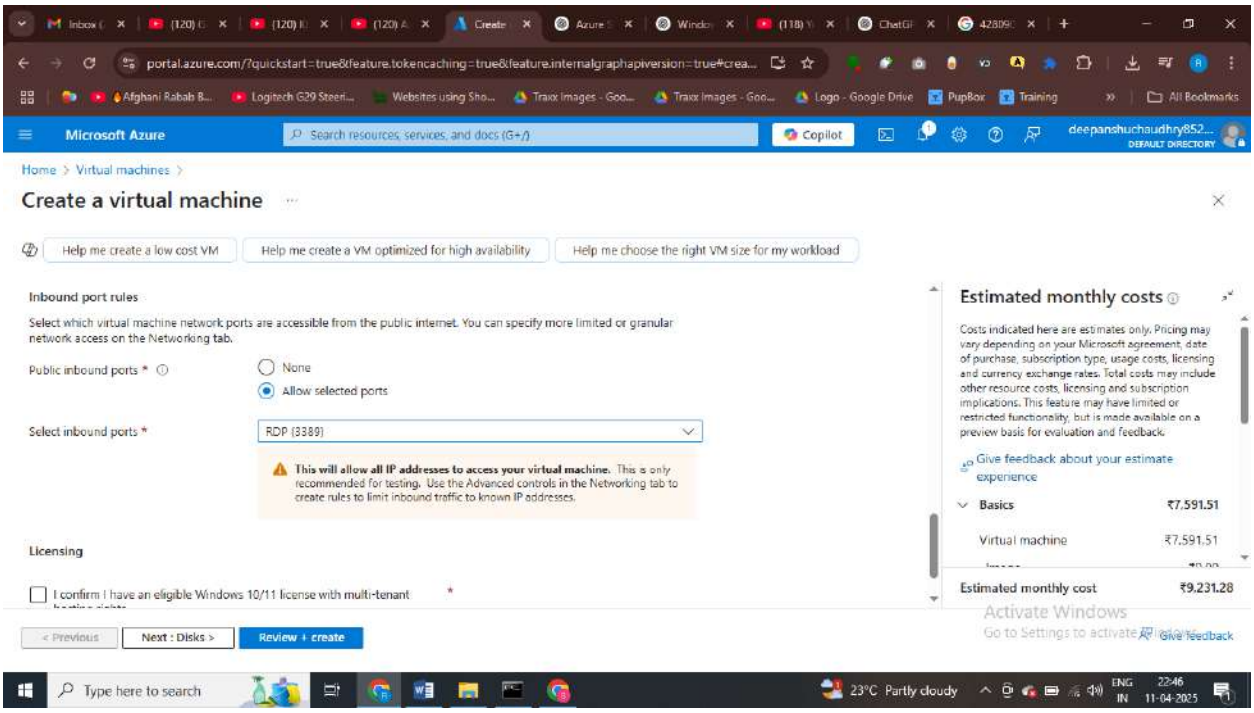

Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepanshuchaudhry852...
DEFAULT DIRECTORY
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Project details
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.
Subscription *
Pay-As-You-Go
Resource group *
rg-vemo-demo
Create new
Instance details
Virtual machine name *
window-vm
Region *
(Asia Pacific) Southeast Asia
Availability options
Availability zone
Zone options
Self-selected zone
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics
₹7,591.51
Virtual machine
₹7,591.51
Estimated monthly cost
₹9,231.28
< Previous
Next : Disks >
Review + create
Activate Windows
Go to Settings to activate
Give feedback
Type here to search
23°C Partly cloudy
ENG IN
22:43
11-04-2025

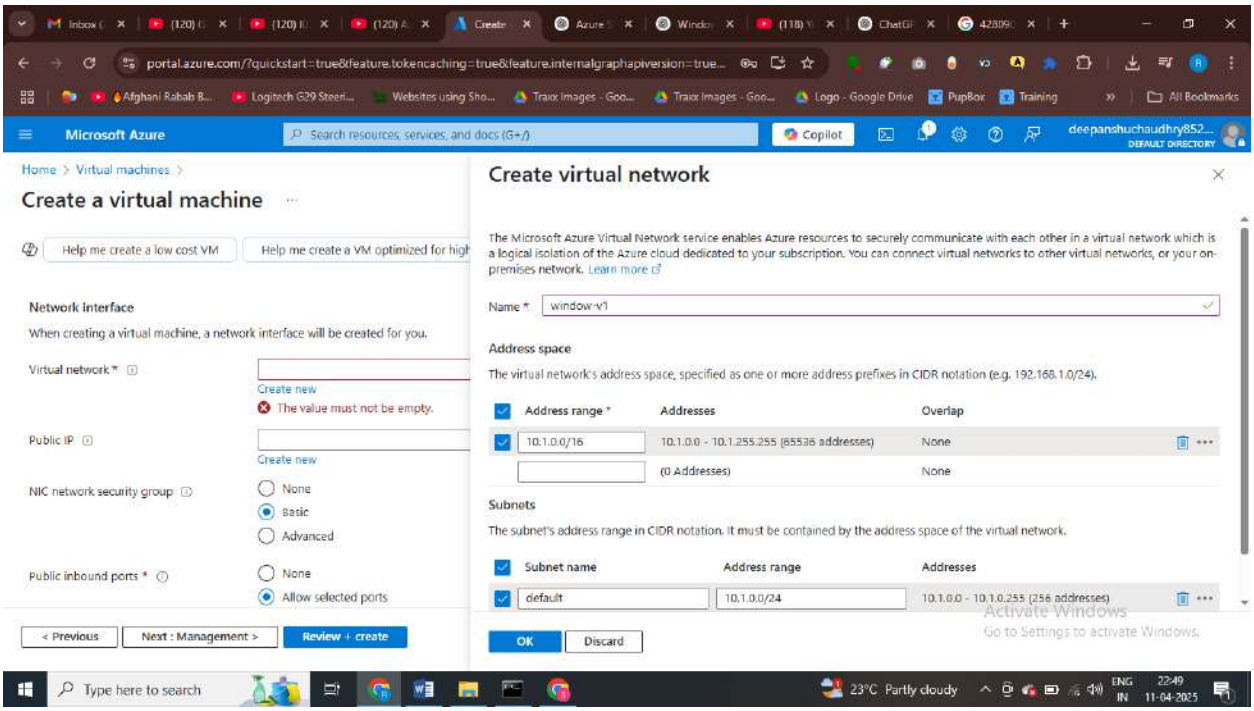
sec


Microsoft Azure
Search resources, services, and docs (G+/)
Copilot
deepanshuchaudhry852...
DEFAULT DIRECTORY
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Azure-selected zone (Preview)
Let Azure assign the best zone for your needs
Availability zone *
Zone 1
You can now select multiple zones. Selecting multiple zones will create one VM per zone. Learn more
Security type
Trusted launch virtual machines
Configure security features
Trusted launch virtual machine is required when using 1P Gallery images.
Image *
Windows 11 Pro, version 24H2 - x64 Gen2
See all images | Configure VM generation
VM architecture
Arm64
x64
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics
₹7,591.51
Virtual machine
₹7,591.51
Estimated monthly cost
₹9,231.28
< Previous
Next : Disks >
Review + create
Activate Windows
Go to Settings to activate
Give feedback
Type here to search
23°C Partly cloudy
ENG IN
22:45
11-04-2025

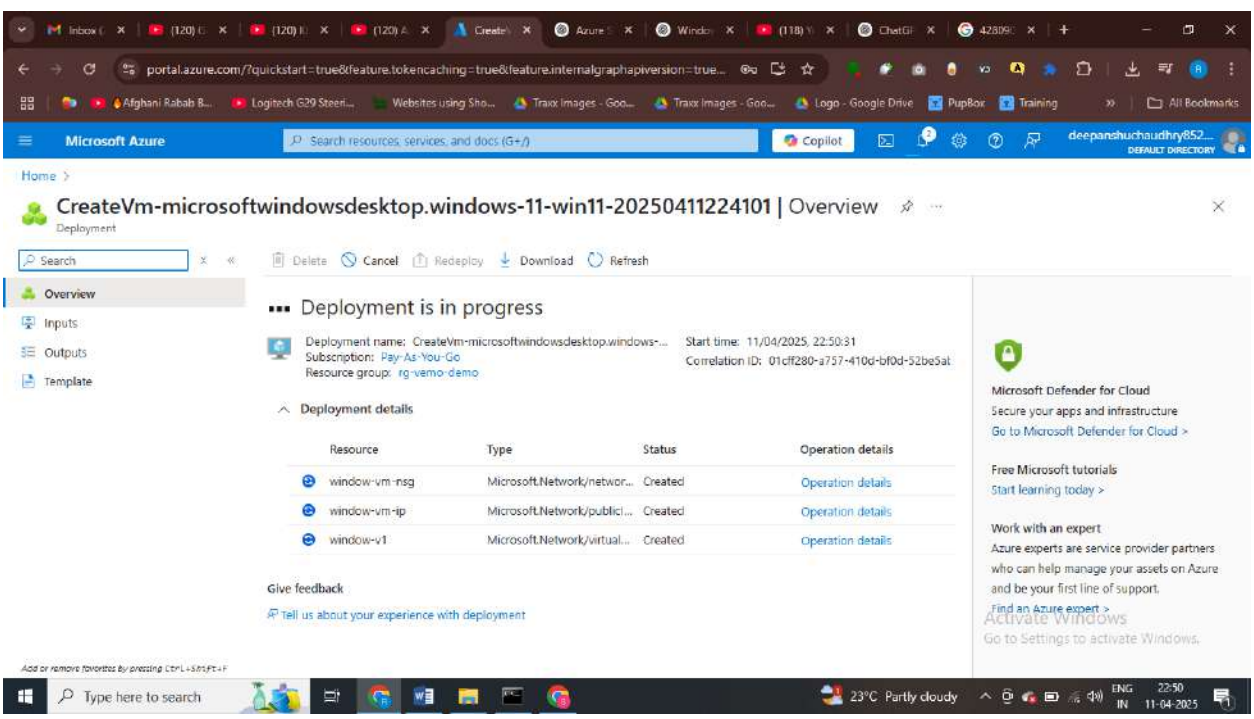


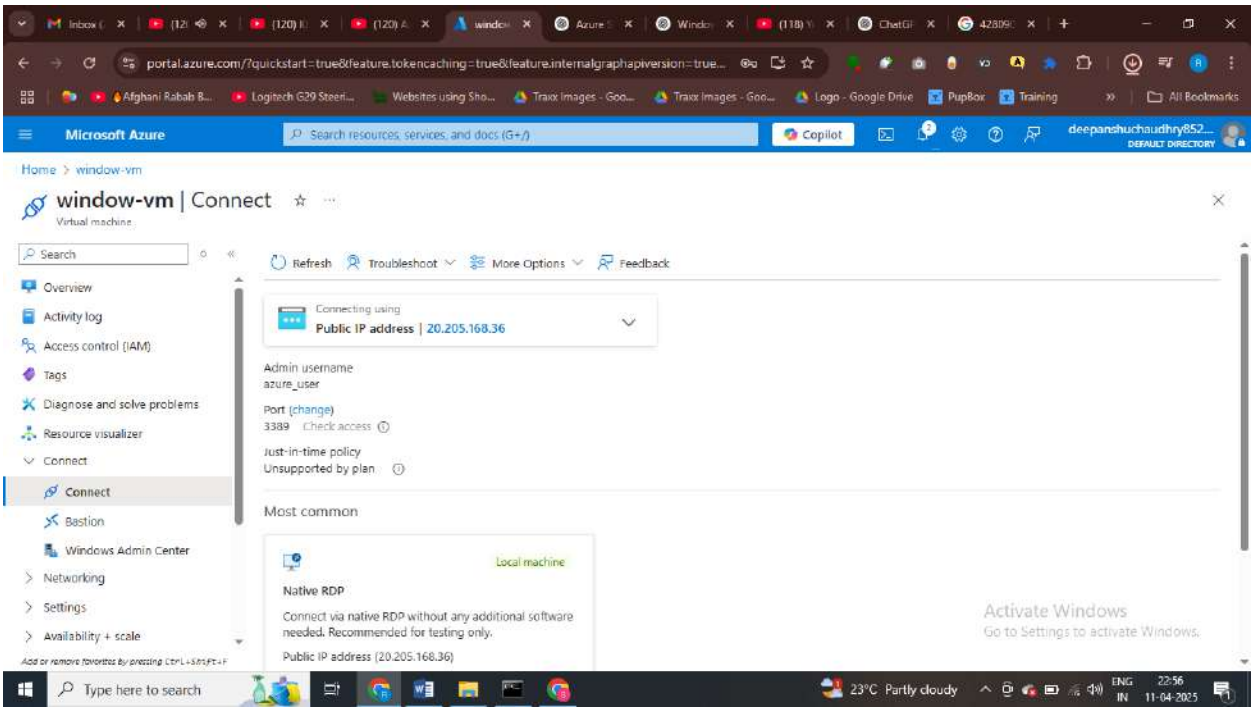
to access window port we need 3389 inbound ports





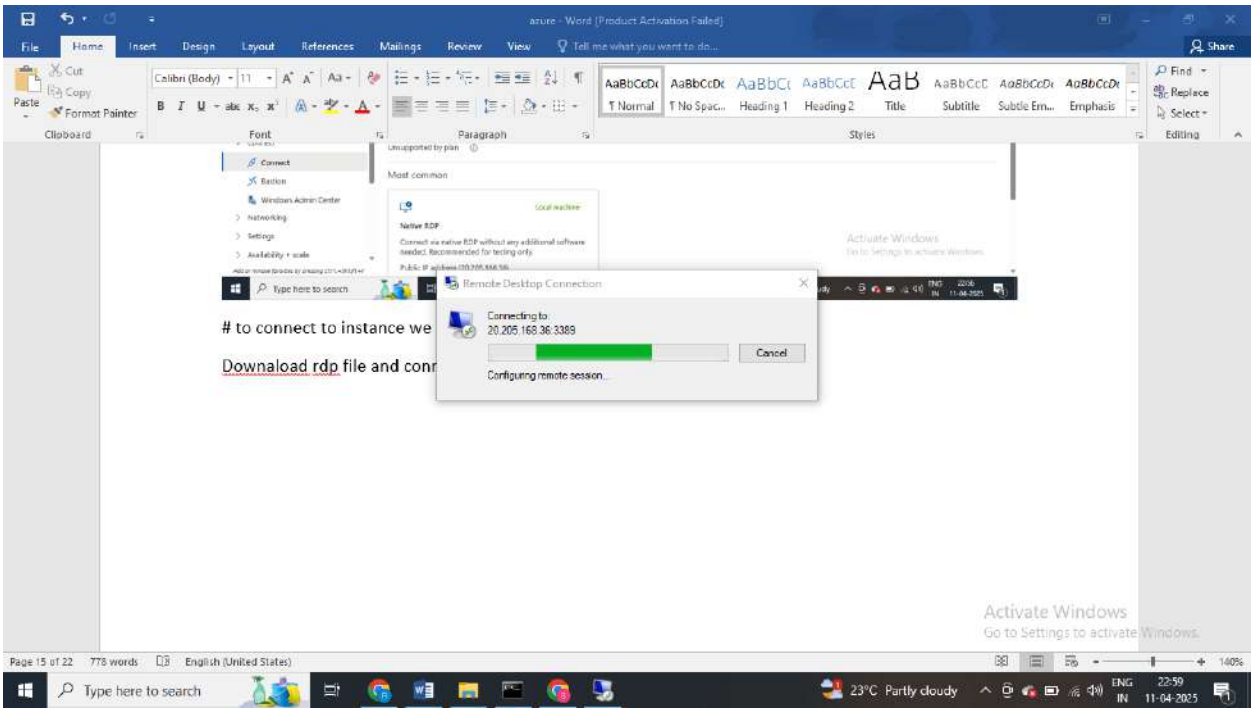
creating a vm please

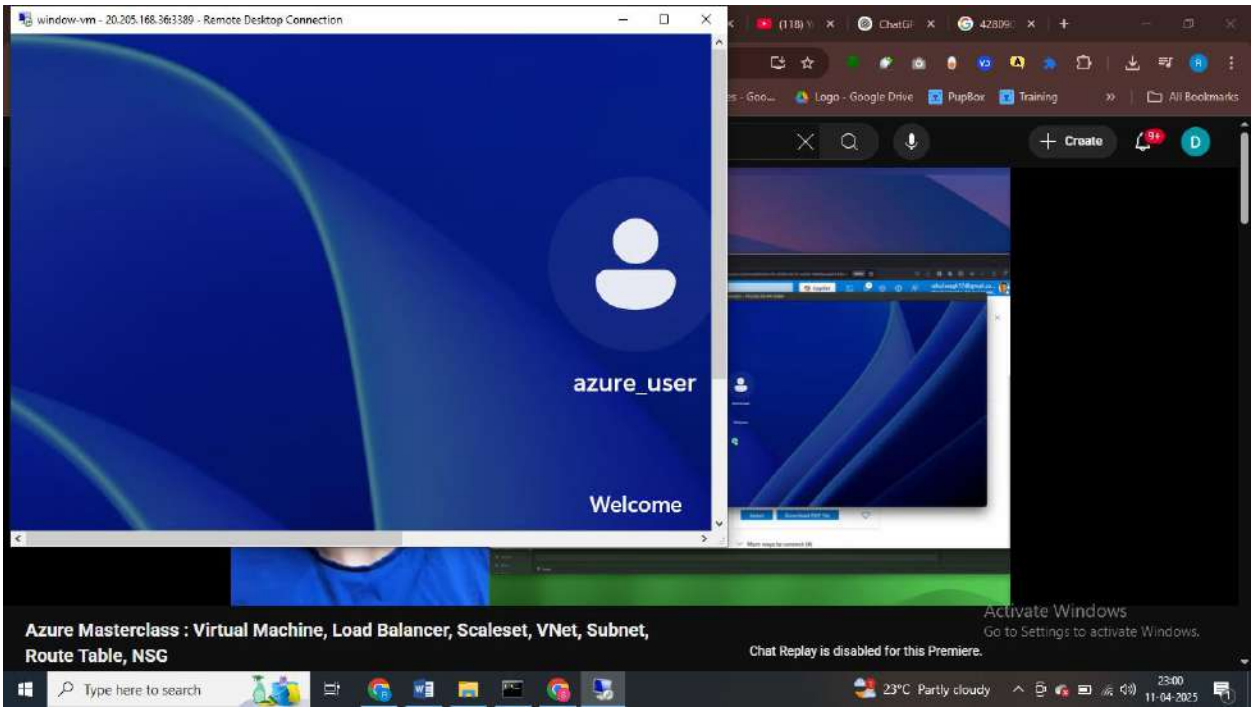




to connect to instance we have rdp file we have

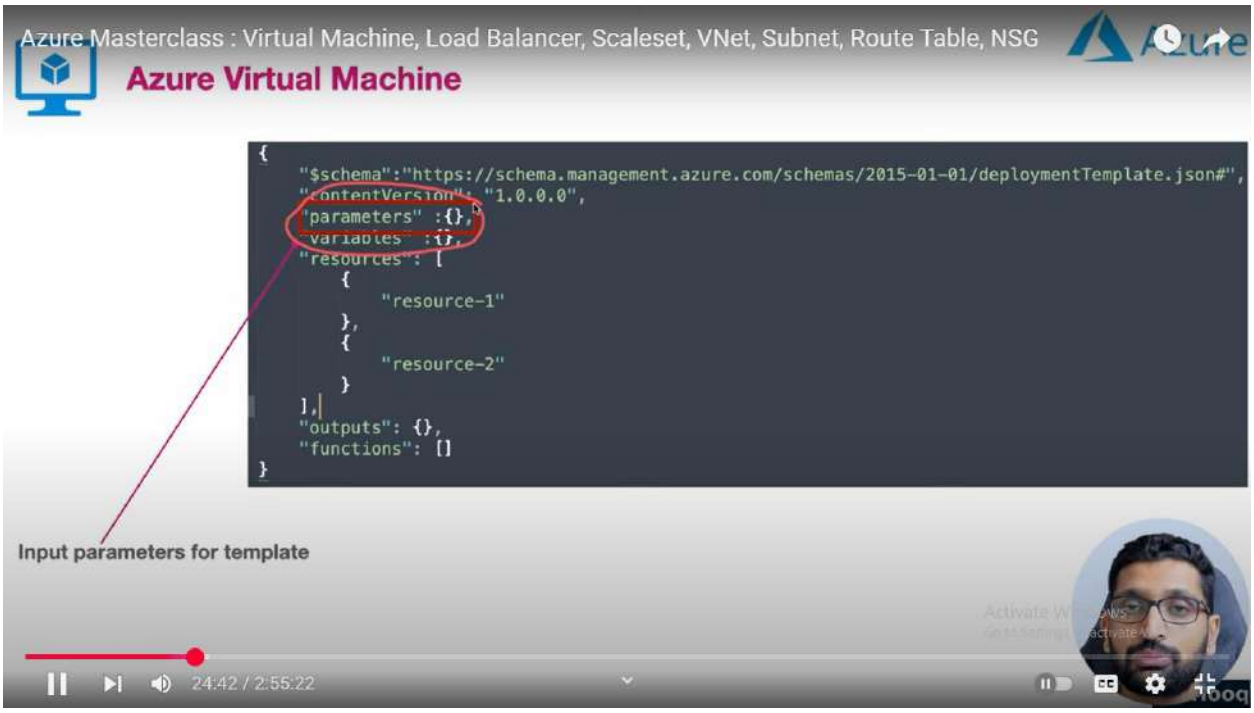
Downaload rdp file and connect to it

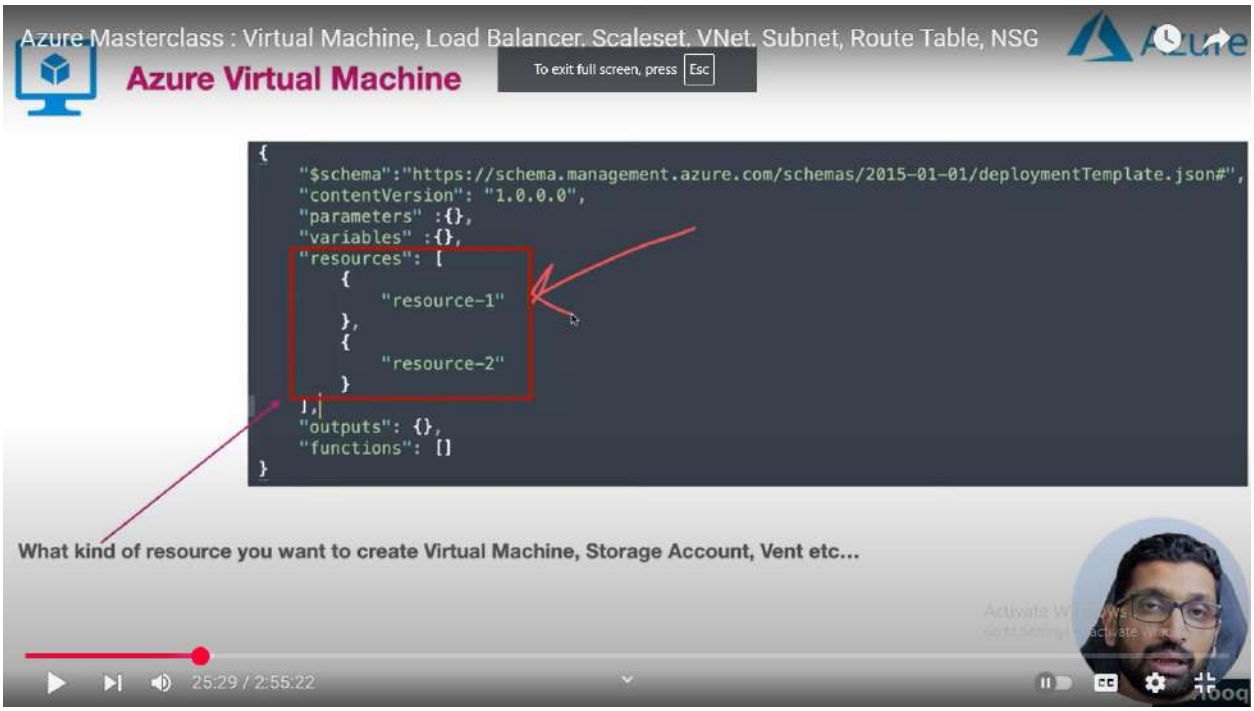




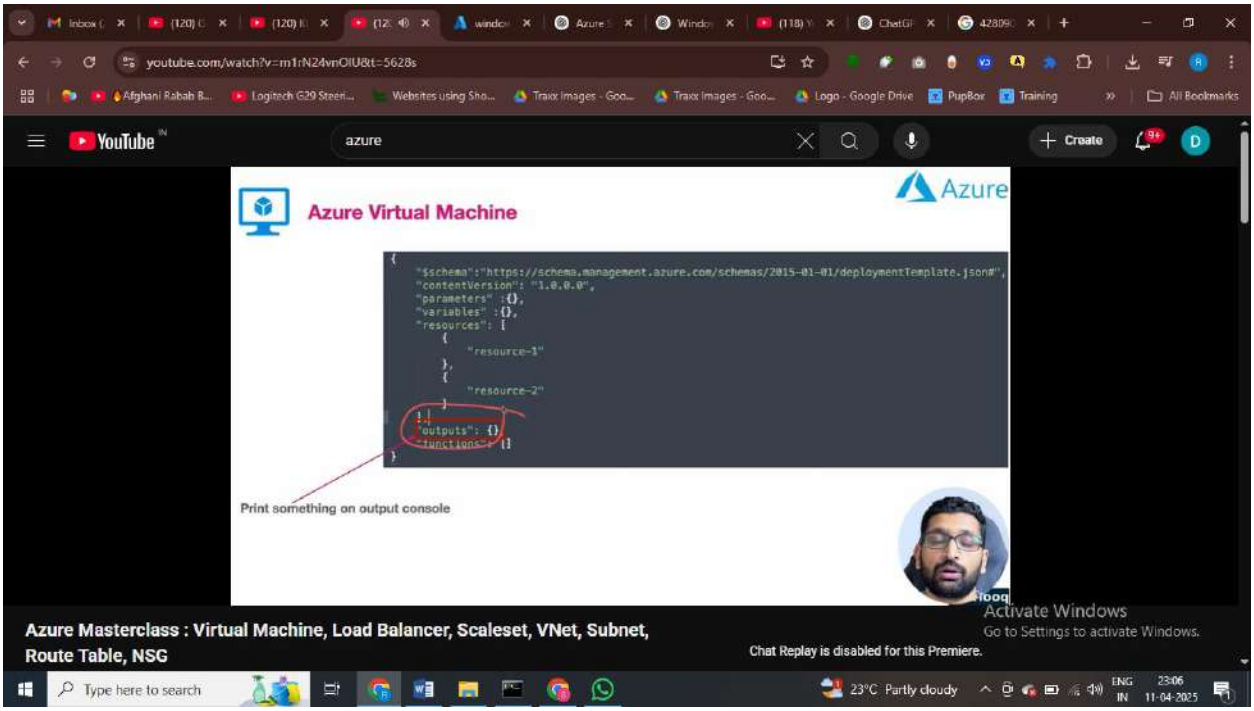
with the help of rdp file you can connect to window instance

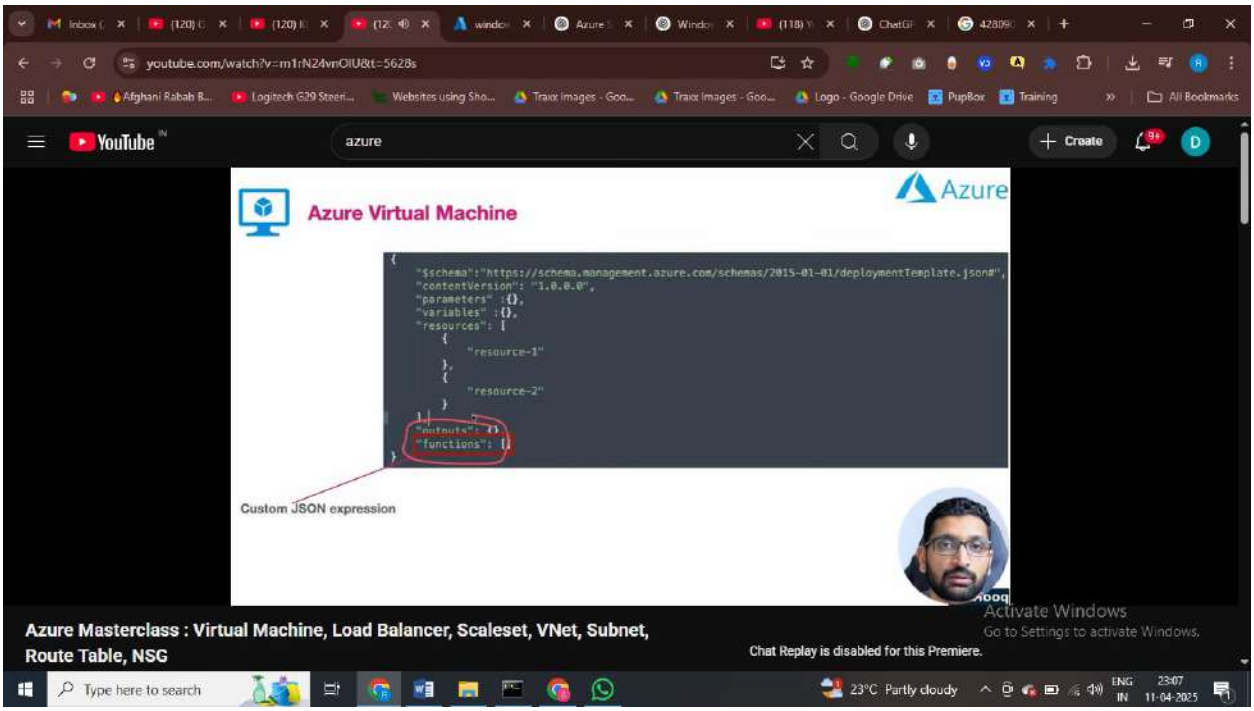
Azure resource template manaeger



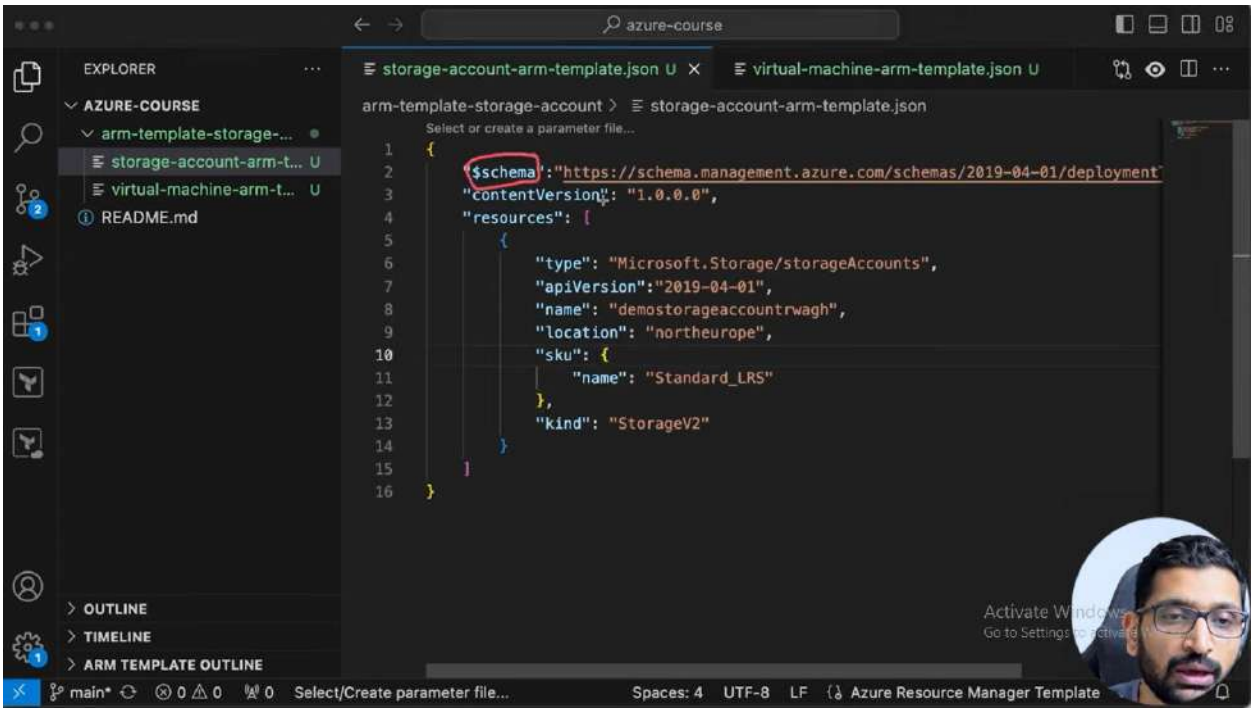


We can create vm using resource templates\



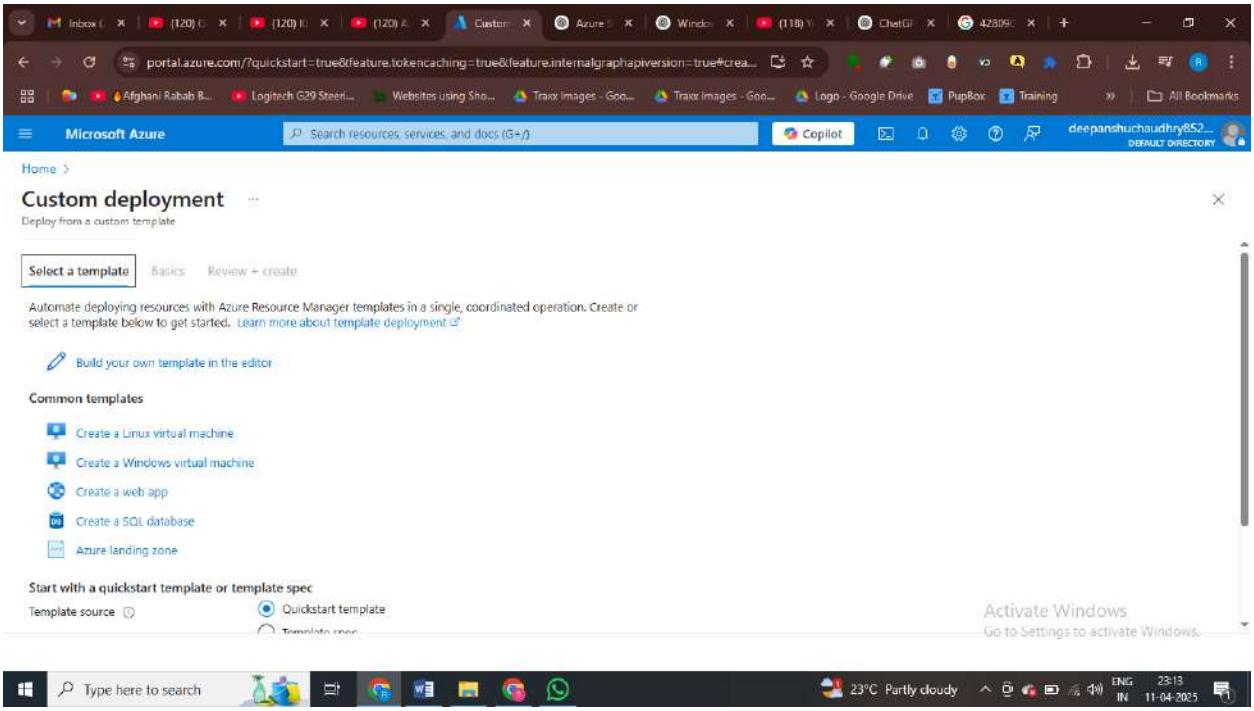


Creating template for arm template



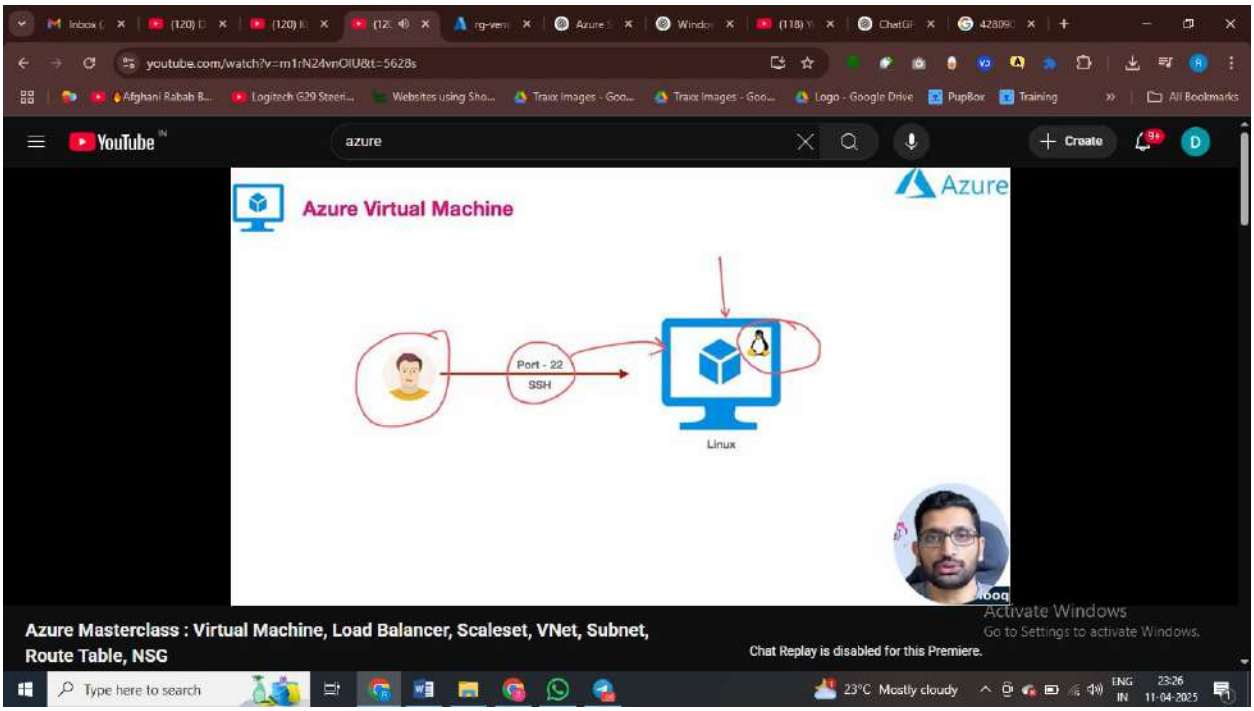
Serach arm template

You can create vm and all

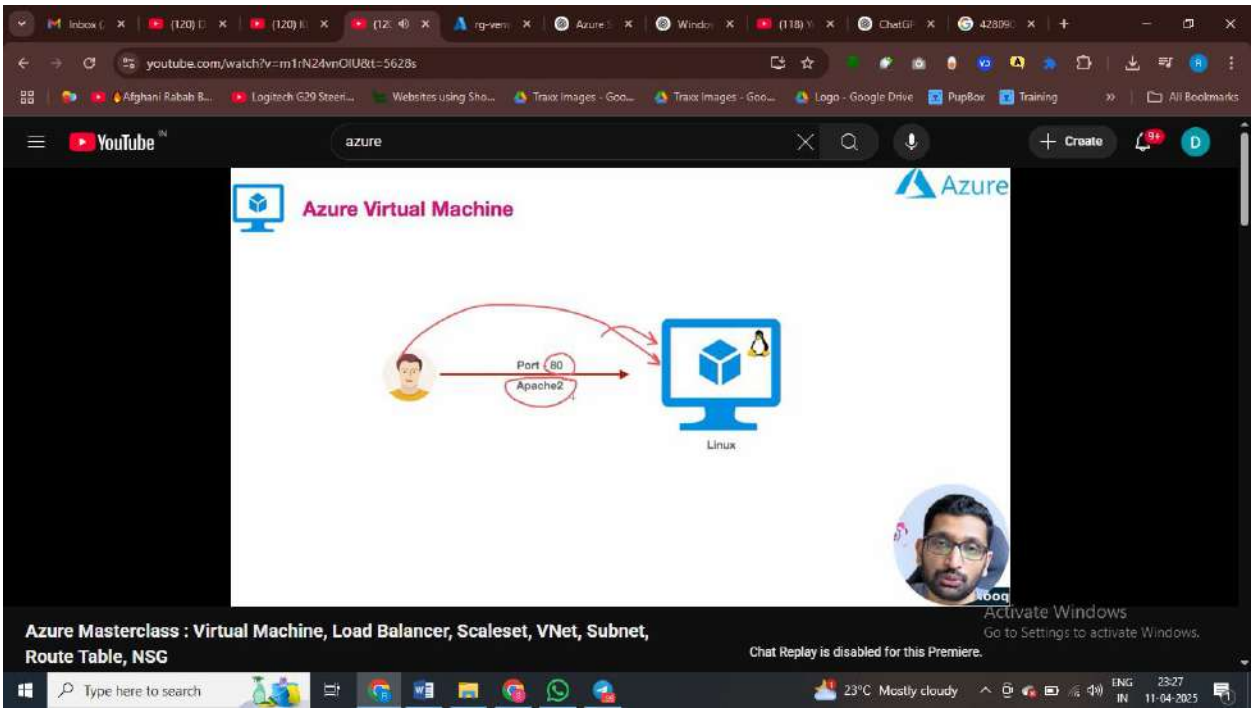


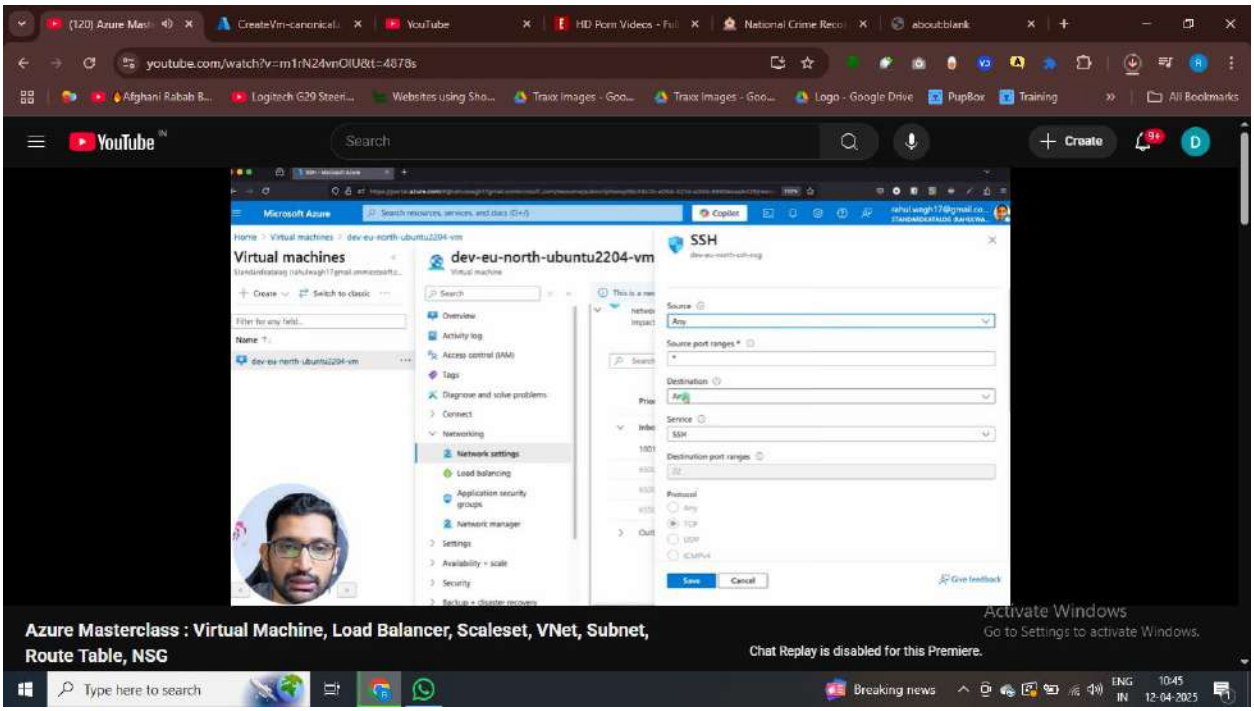
You can setup publicly

Network security gp in azure



User request to mahcine to ssh . so open port 22 using network sgs

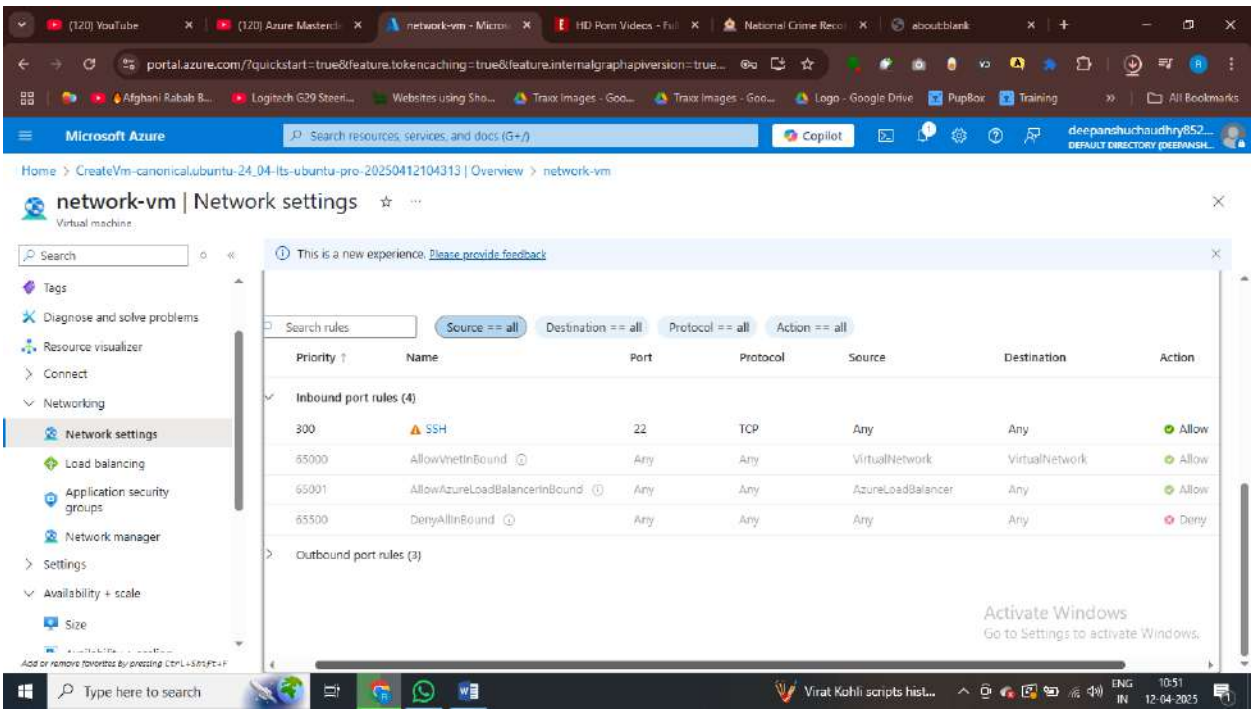




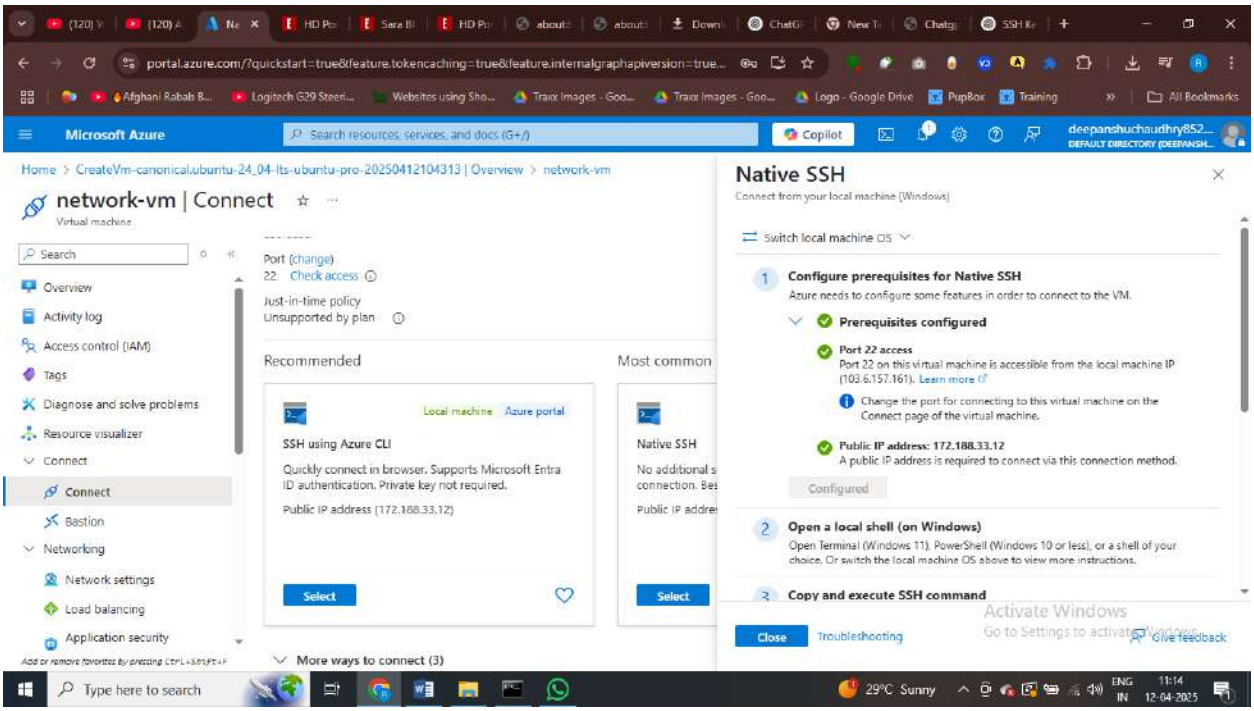
source any menas anyone can access our vm

Using public ip user can try to access the VM

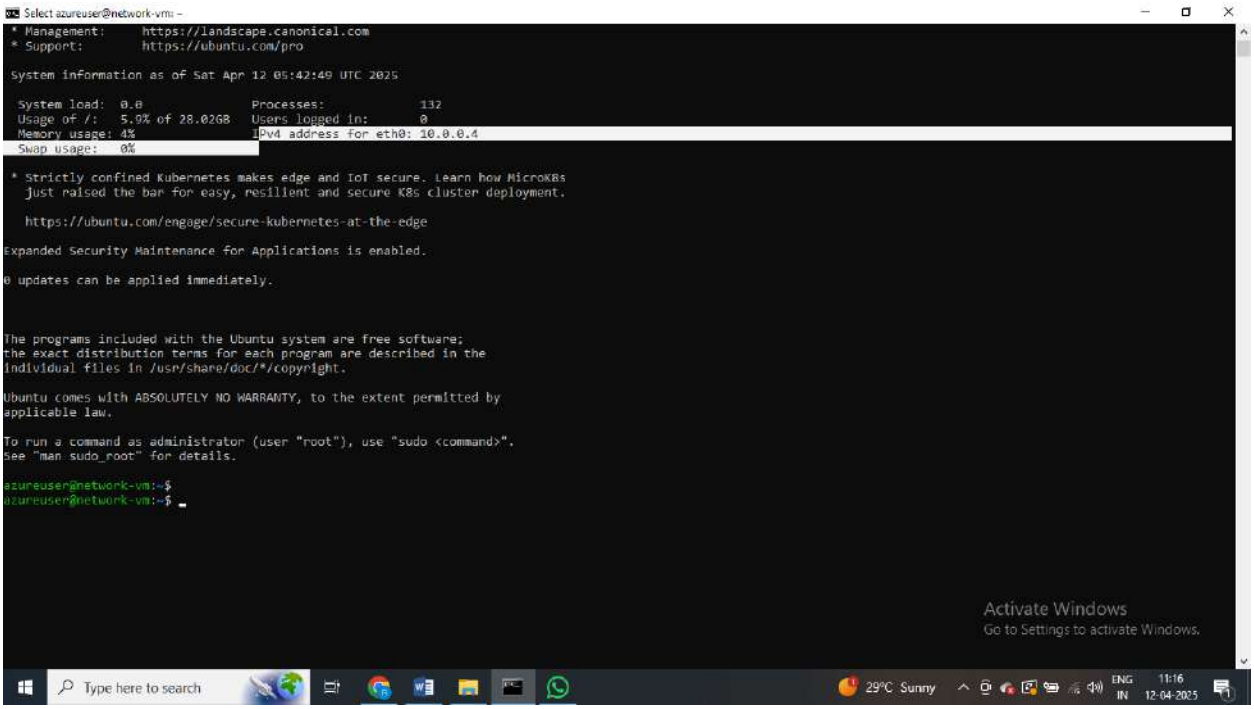
Priority basically which sg gp to attach with our vm



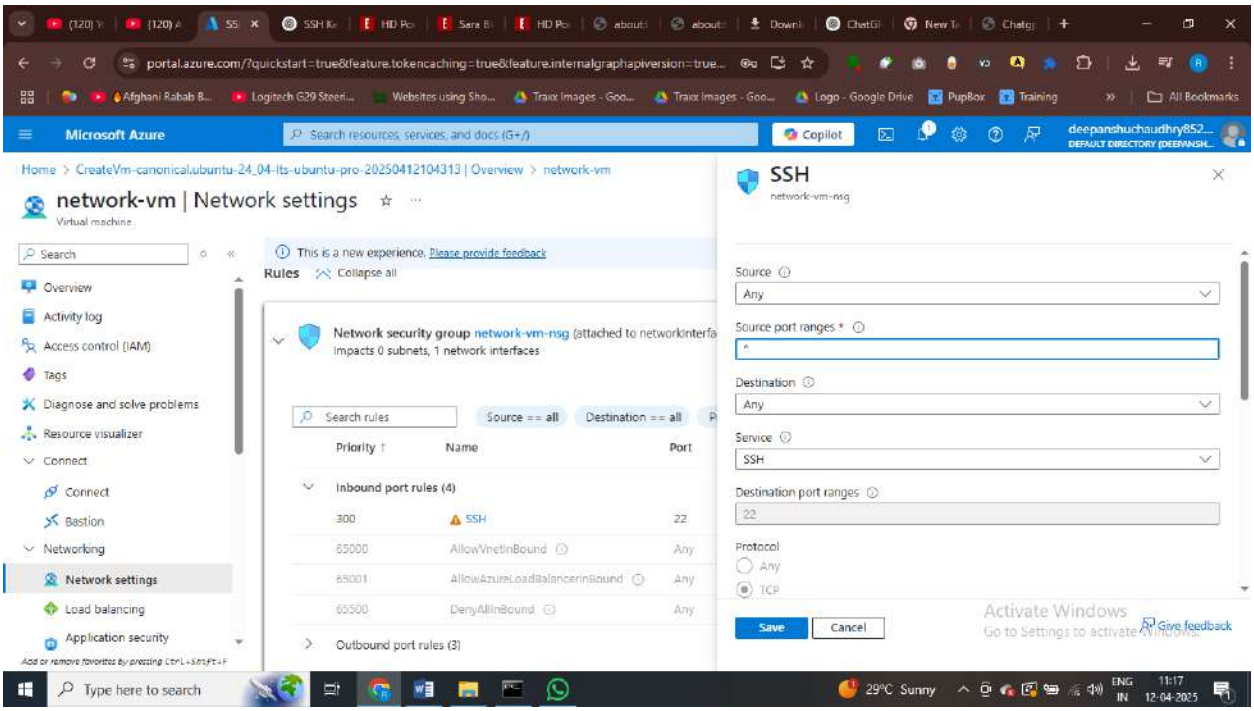
we have allowed ssh on port 22 , so anyone can ssh into instance , this port allowed you to access your virtual mahcine on port 22



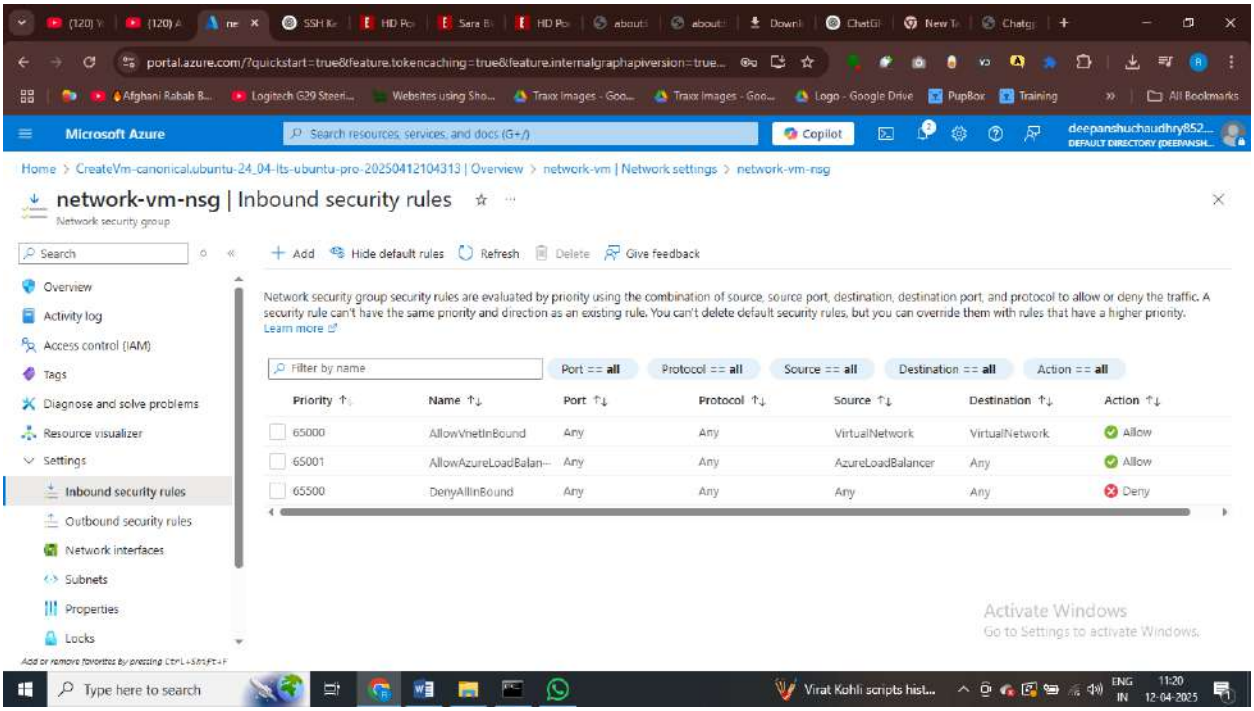
ssh into ec2 instance



this is private ipv4 address

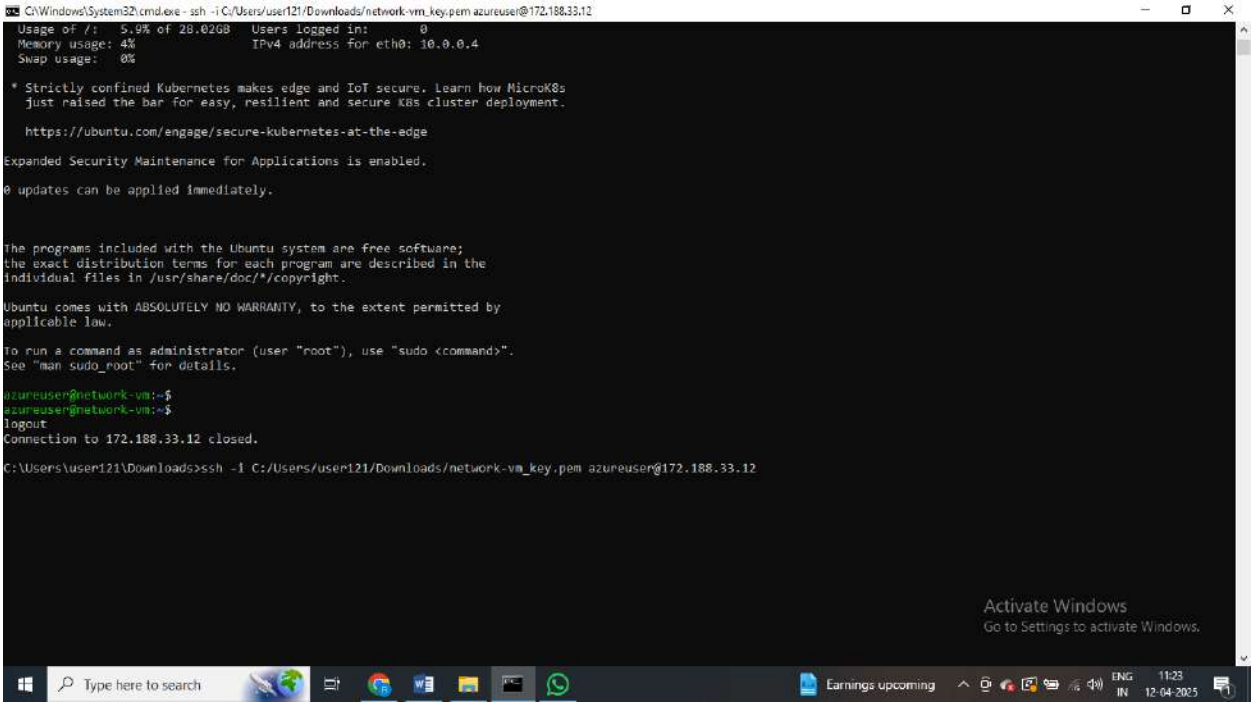


this is for ssh into instance, anyone can access into ssh instance

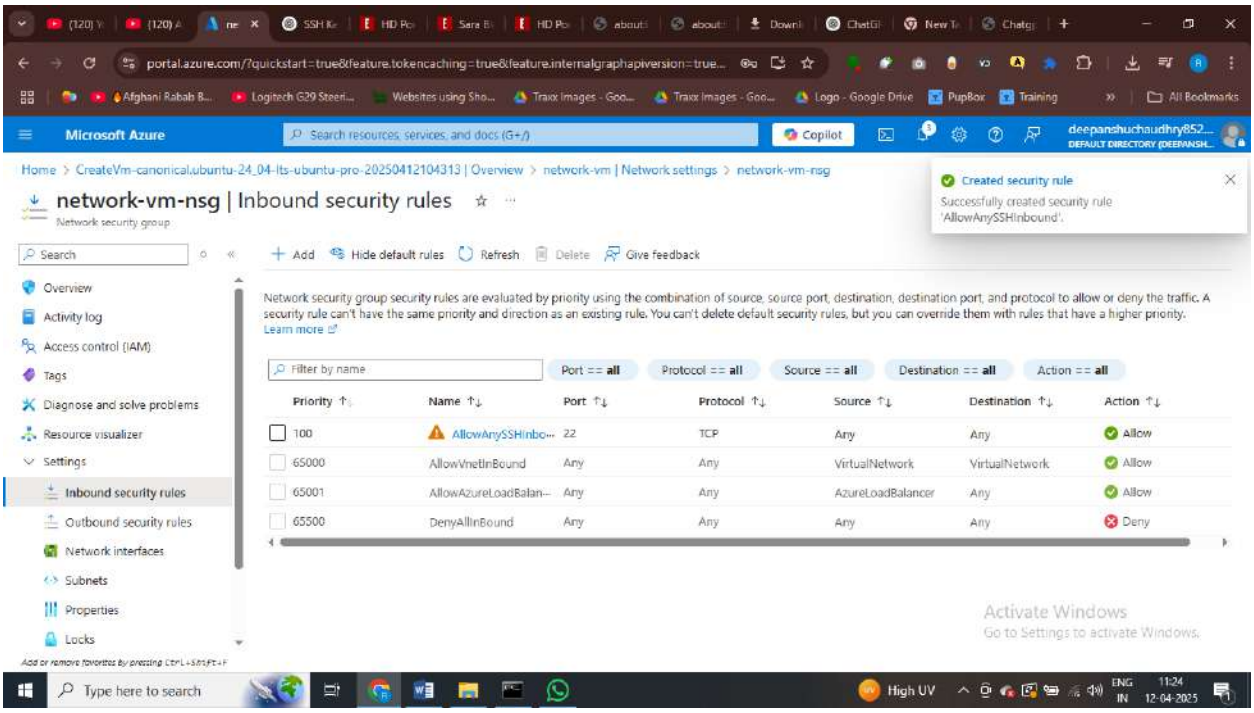


after deleting ssg for ssh 22 , we cant access our instance , no inbound traffic on port 22

#after deleting port 22 we cant ssh into our vm

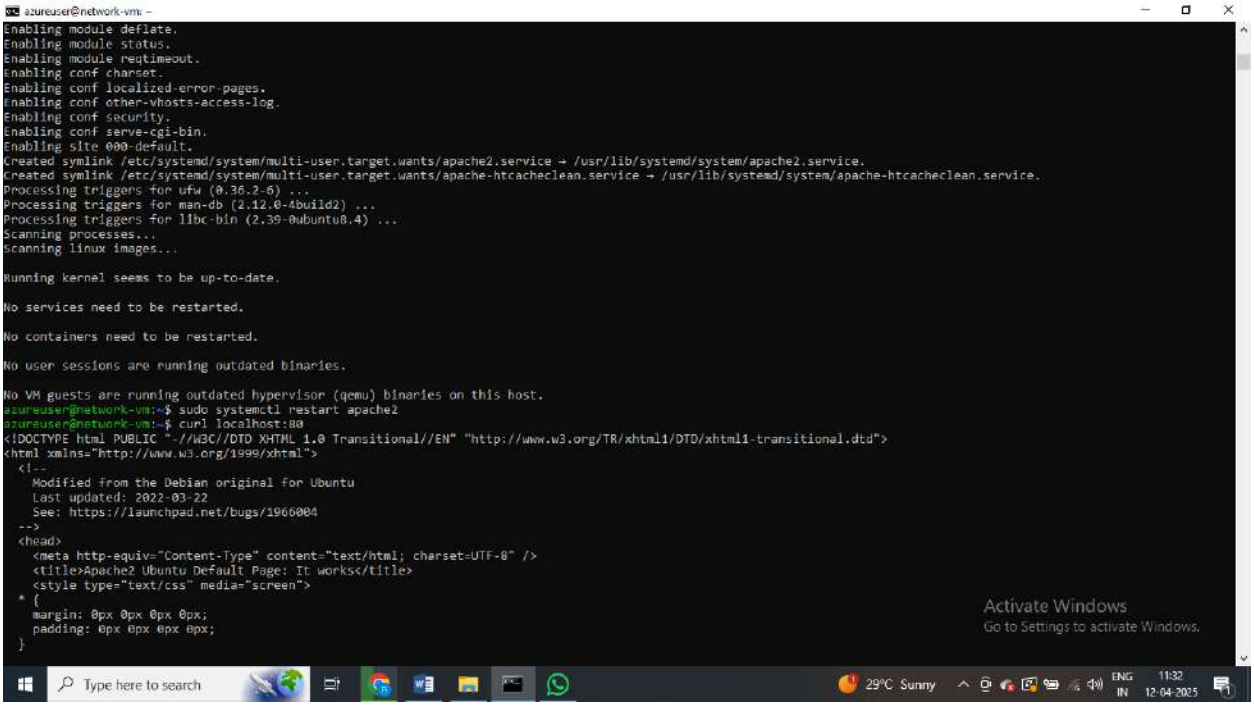


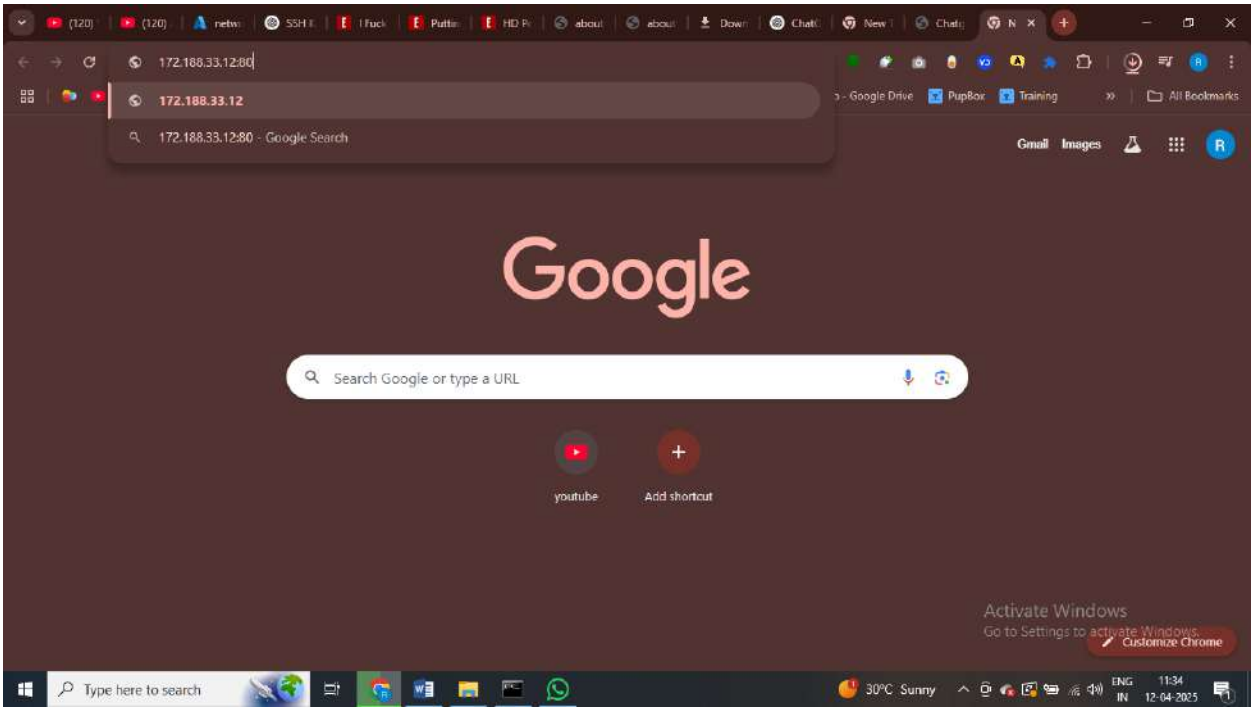
allow ssh traffic again so that I can send inbound traffic



```
C:\Users\user121\Downloads>ssh -i C:/Users/user121/Downloads/network-vm_key.pem
azureuser@172.188.33.12
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1021-azure x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Sat Apr 12 05:42:49 UTC 2025

  System load:  0.0               Processes:           132
  Usage of /:   5.9% of 28.02GB   Users logged in:     0
  Memory usage: 4%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

 * Strictly confined Kubernetes makes edge and IoT secure. Learn how MicroK8s
   just raised the bar for easy, resilient and secure K8s cluster deployment.

   https://ubuntu.com/engage/secure-kubernetes-at-the-edge

Expanded Security Maintenance for Applications is enabled.

0 updates can be applied immediately.



The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.
```

```
Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.
azureuser@network-vm:~$ sudo apt update
Hit:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease
azureuser@network-vm:~$ sudo apt install apache2
Reading package lists... Done
Building dependency tree... Done

azureuser@network-vm:~$ sudo systemctl restart apache2
azureuser@network-vm:~$ curl localhost:80
<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
  <!--
    Modified from the Debian original for Ubuntu
```



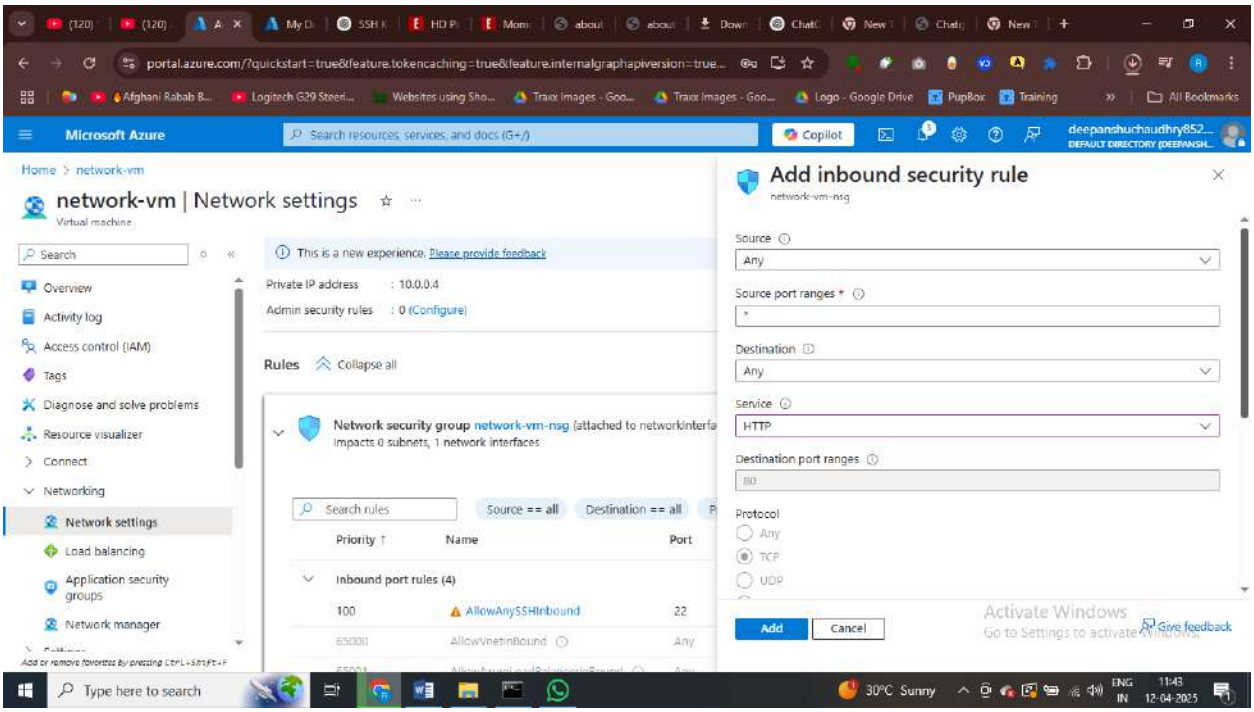


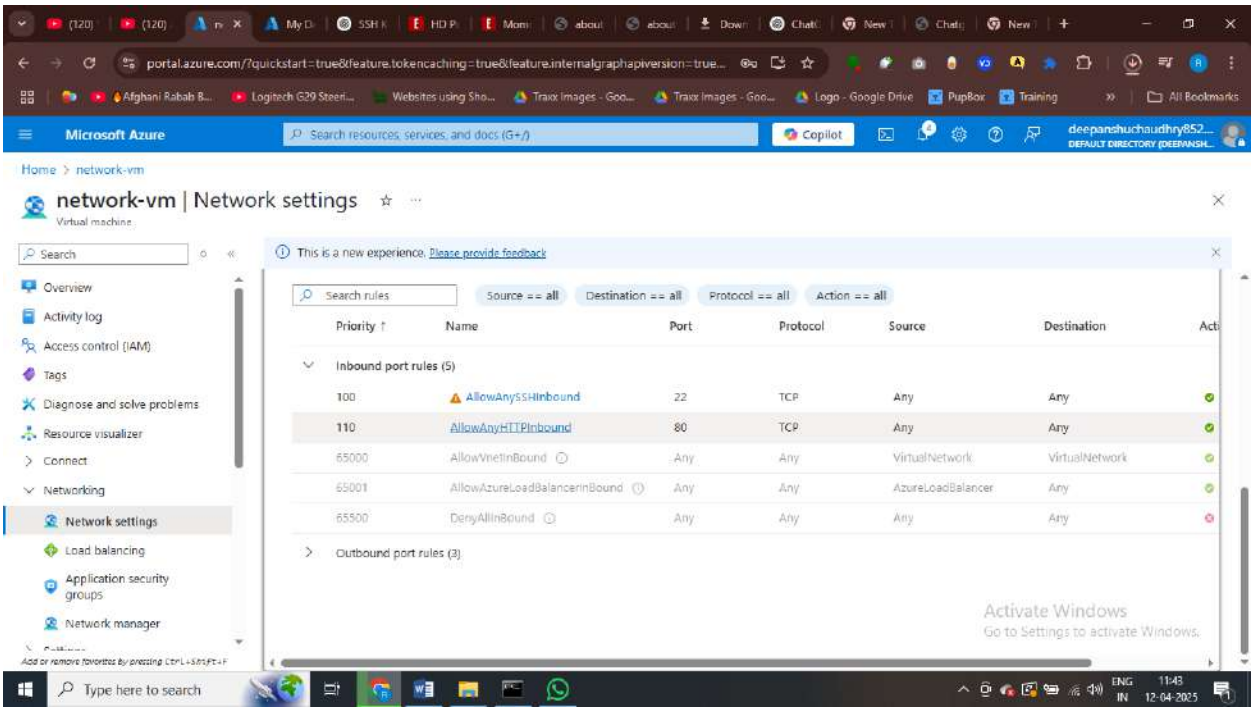
I have not open the port 80 so this site cant be accisble

Apache 2 running on port 80 , it can be accsible inside the virtual machine but not outside

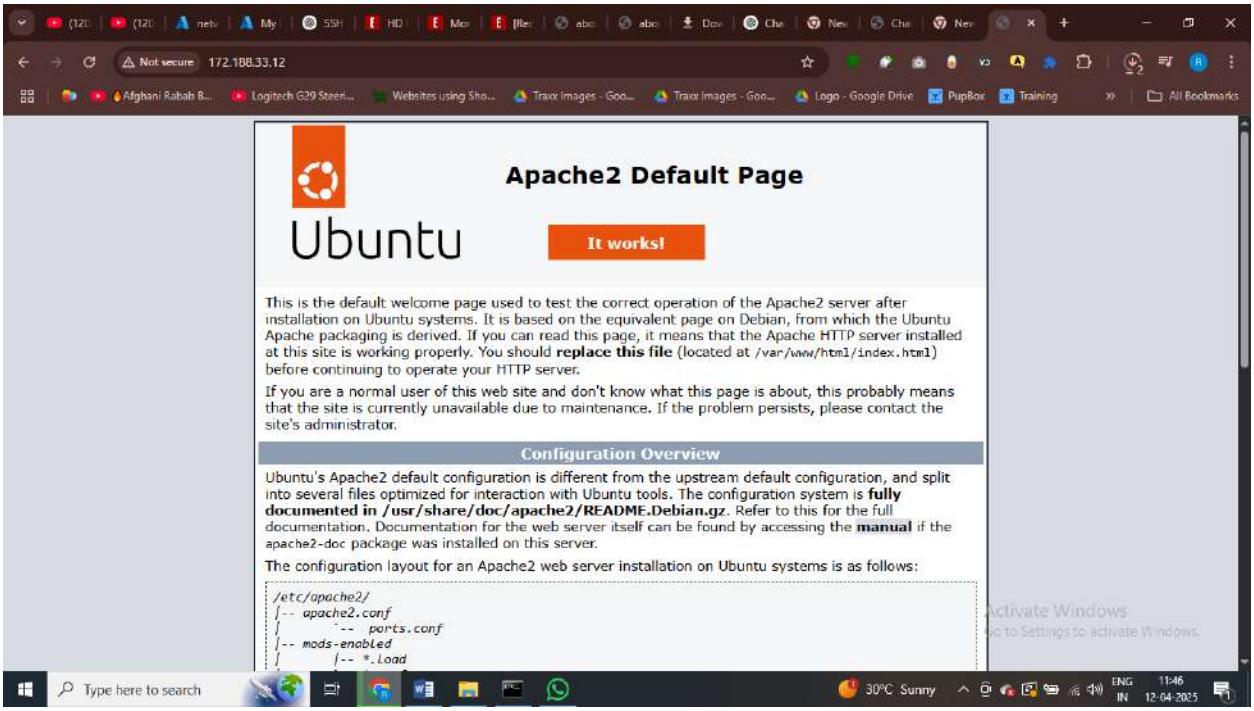
We are sending the request on our VM so open prt 80

So it running on port 80 that’s why we need to open the port 80



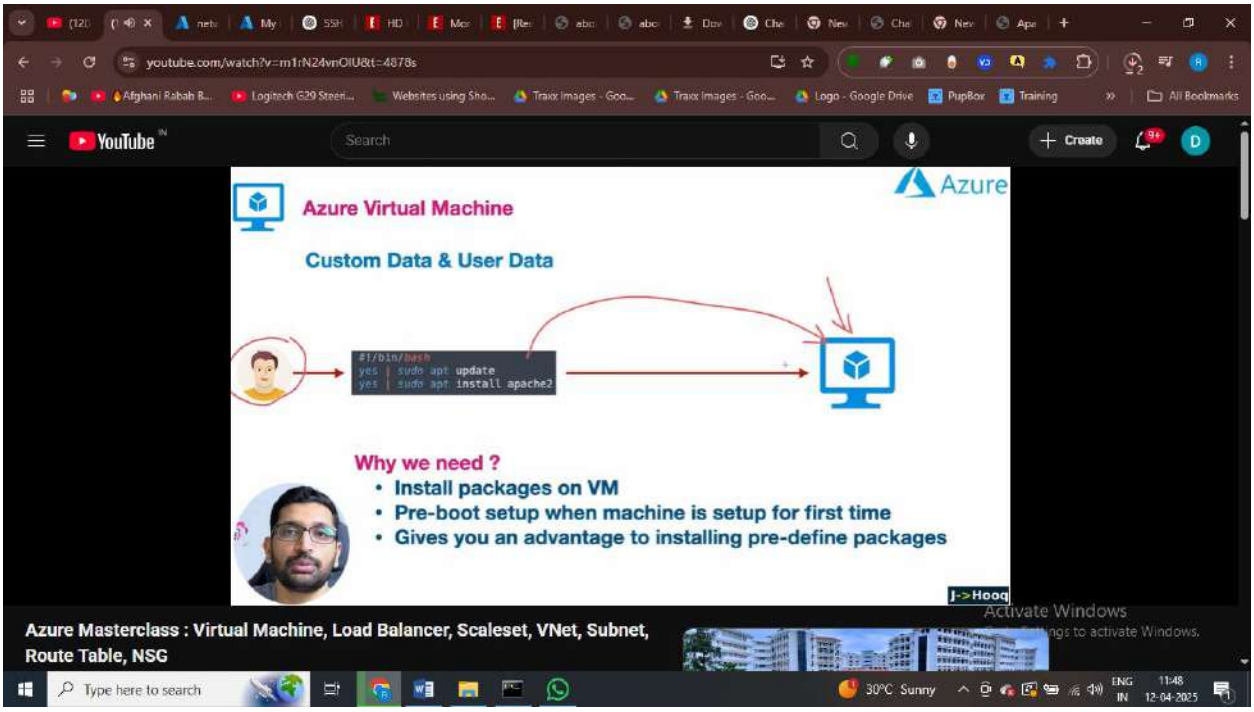


add another security gp rule

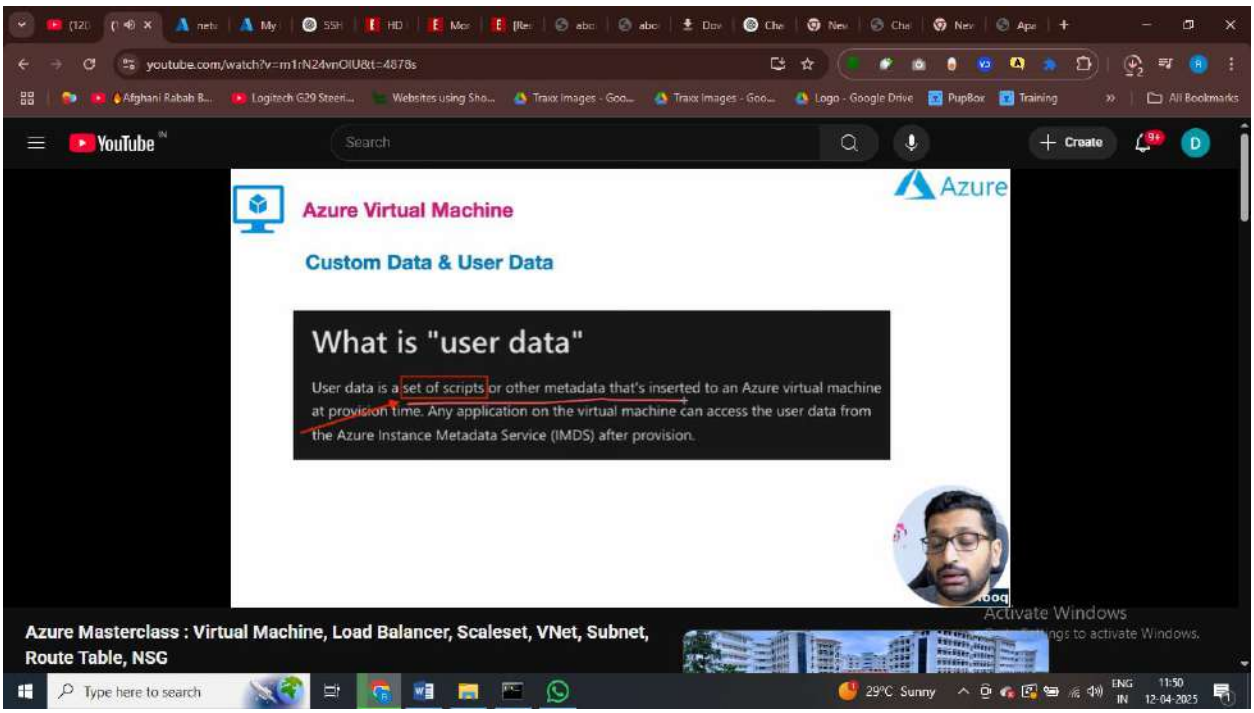


succesffyly after opening port 80 using public ip I can acess apache on port 80 \

$ custom data and user data

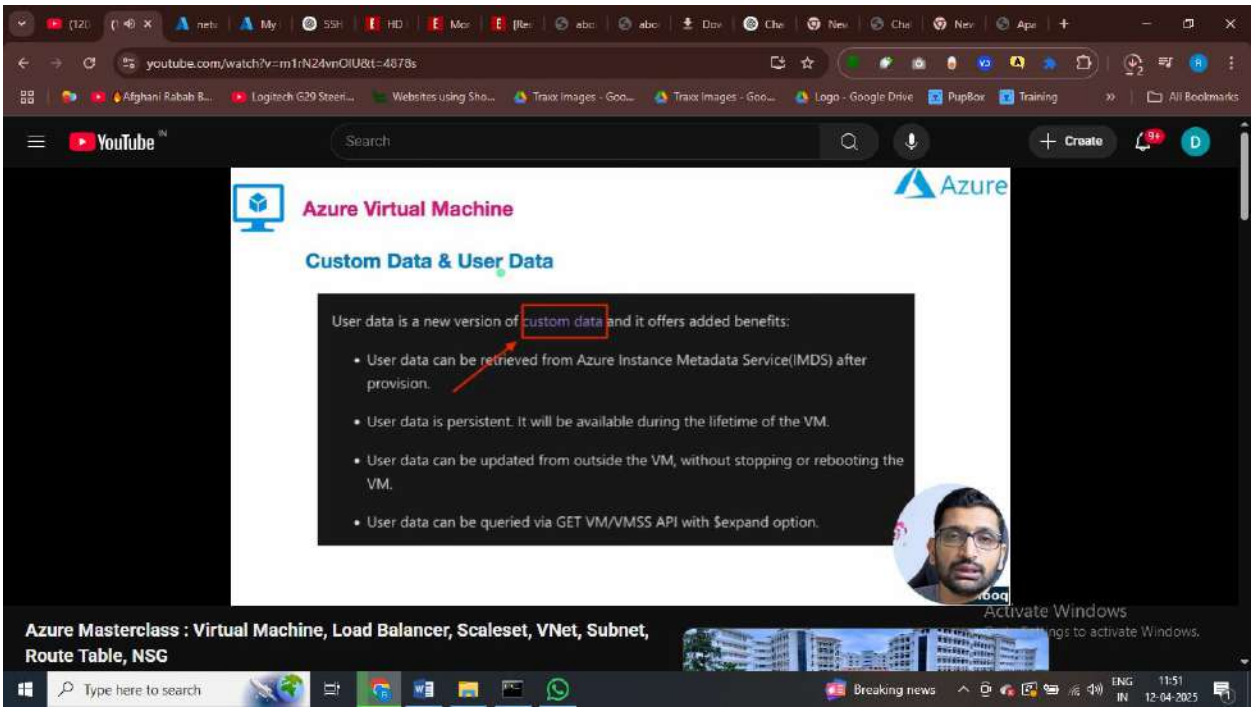


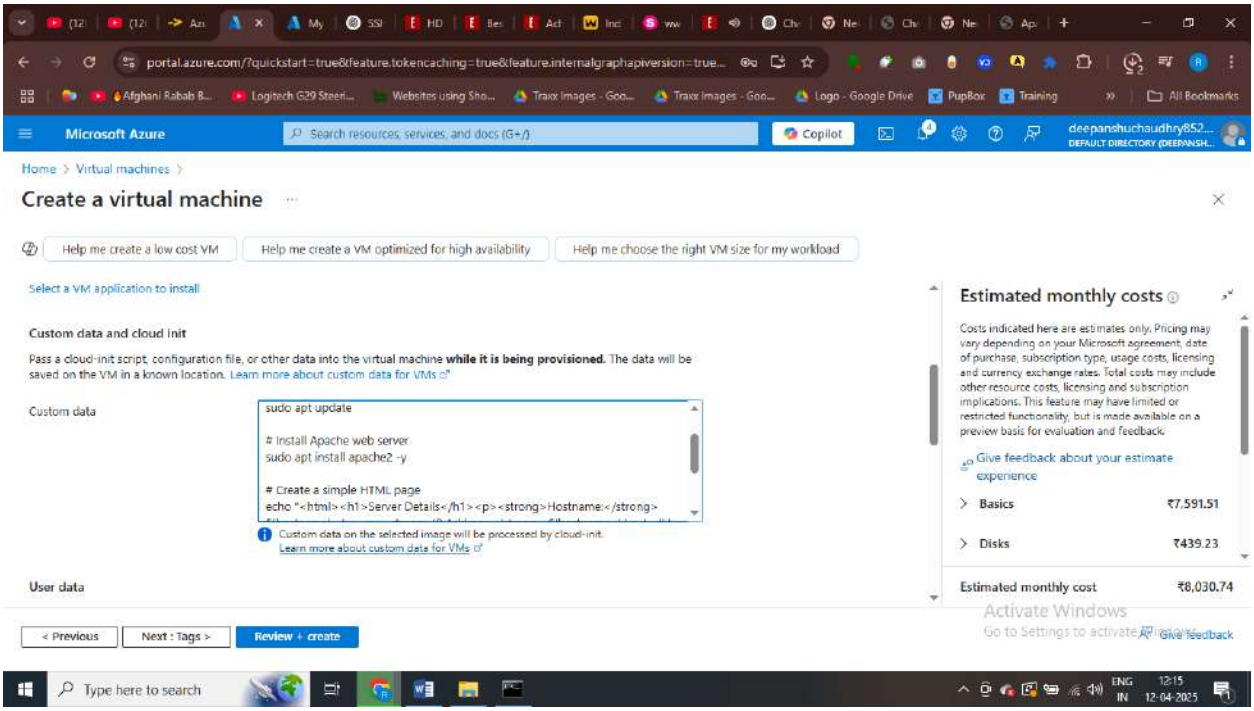
Install package when mahcine start



provision time means starting of the machine

.





$instaling apapche 2 while starting the VM

```
#!/bin/bash

# Update the system
sudo apt update

# Install Apache web server
sudo apt install apache2 -y

# Create a simple HTML page
echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d' ' -f1)</p></html>" > /var/www/html/index.html

# Restart Apache to apply changes
sudo systemctl restart apache2
```

Explanation:

1. **`sudo apt update`**: Updates the system's package list.
2. **`sudo apt install apache2 -y`**: Installs the Apache web server.
3. **`echo` command**: Creates an HTML page that displays the server's hostname and IP address. The `$(hostname)` command grabs the hostname, and `$(hostname -I | cut -d' ' -f1)` fetches the first IP address of the system.
4. **`sudo systemctl restart apache2`**: Restarts Apache to load the updated content.

Usage:

- You can add this script under **Custom Data** while creating the VM in Azure.
- This will ensure that the Apache server is installed and the HTML page is updated every time the VM is provisioned.

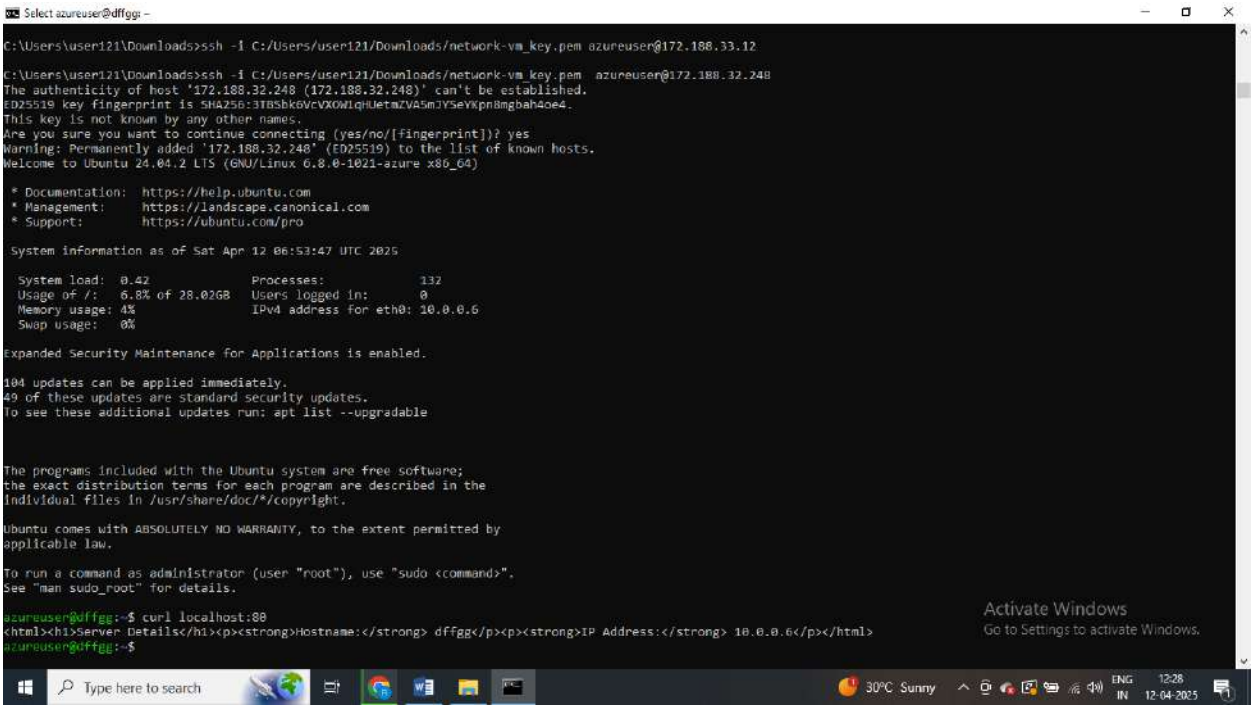
Let me know if you need more modifications or additional steps!

```
C:\Users\user121\Downloads>ssh -i C:/Users/user121/Downloads/network-vm_key.pem azureuser@172.188.32.248

The authenticity of host '172.188.32.248 (172.188.32.248)' can't be established.

ED25519 key fingerprint is SHA256:3TBSbk6VcVXOW1qHUetmZVA5mJYSeYKpn8mgbah4oe4.
```

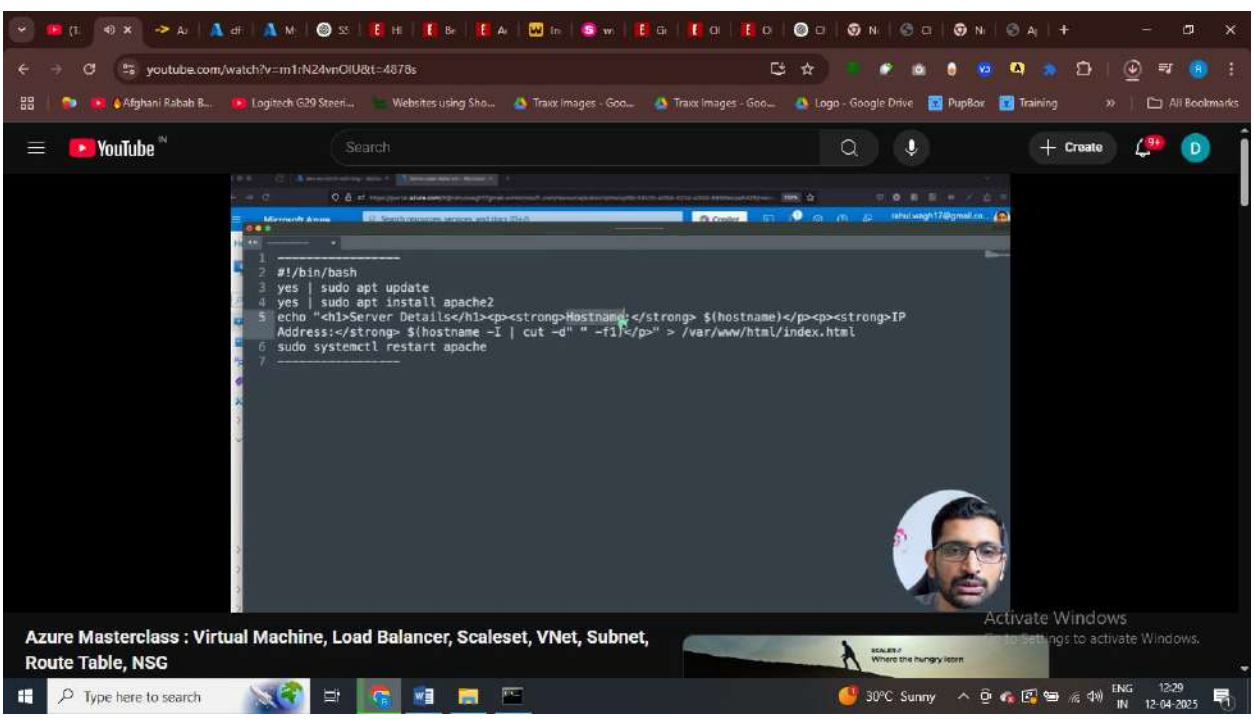
This key is not known by any other names.

Are you sure you want to continue connecting (yes/no/[fingerprint])? yes

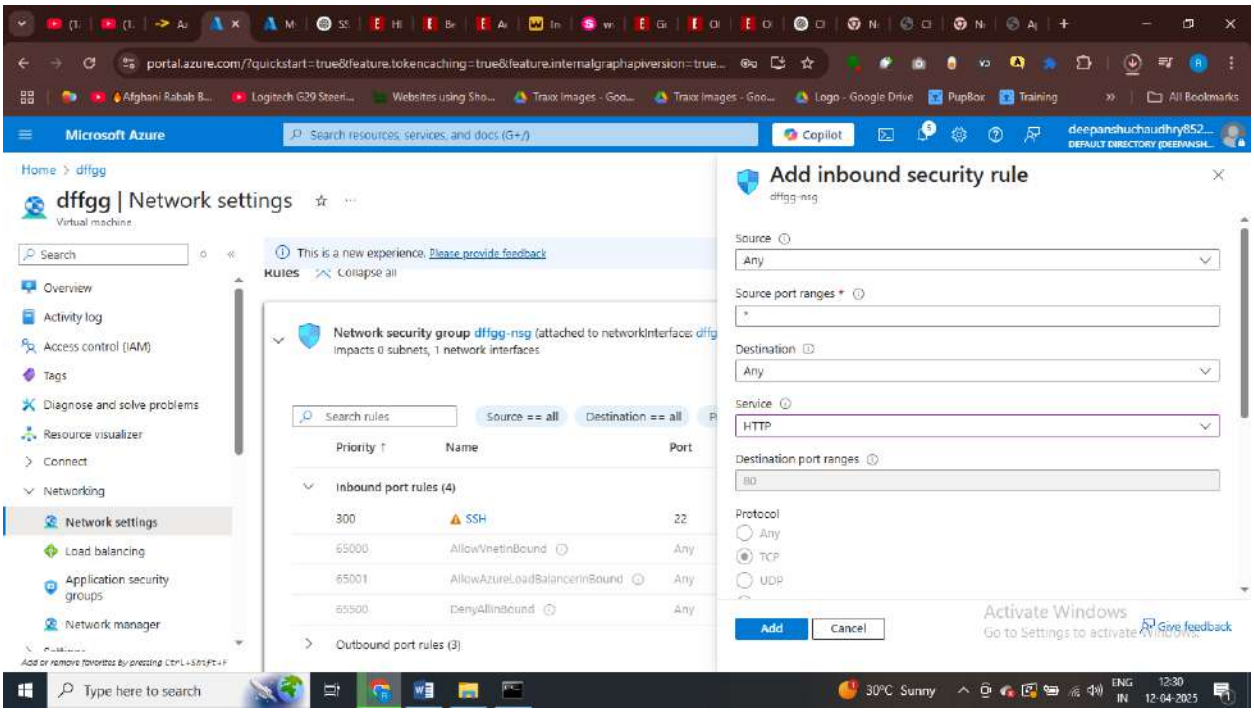
Warning: Permanently added '172.188.32.248' (ED25519) to the list of known hosts.

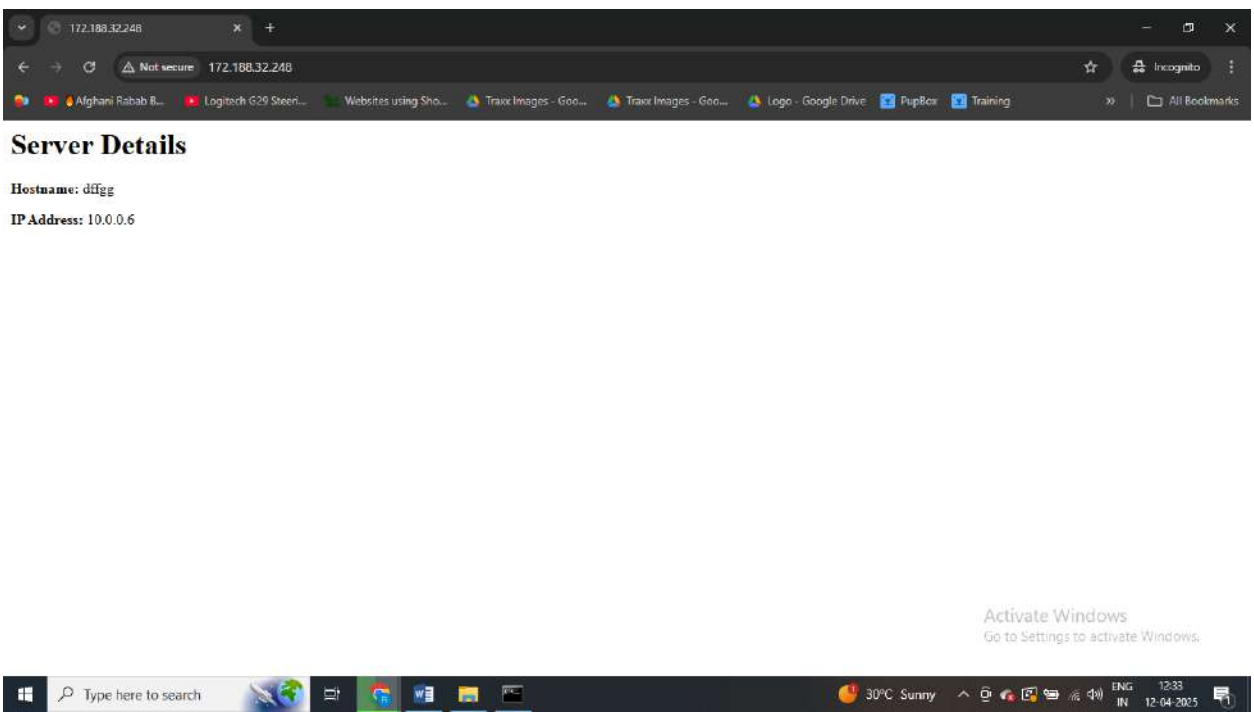


apache has beed installed in our Vm

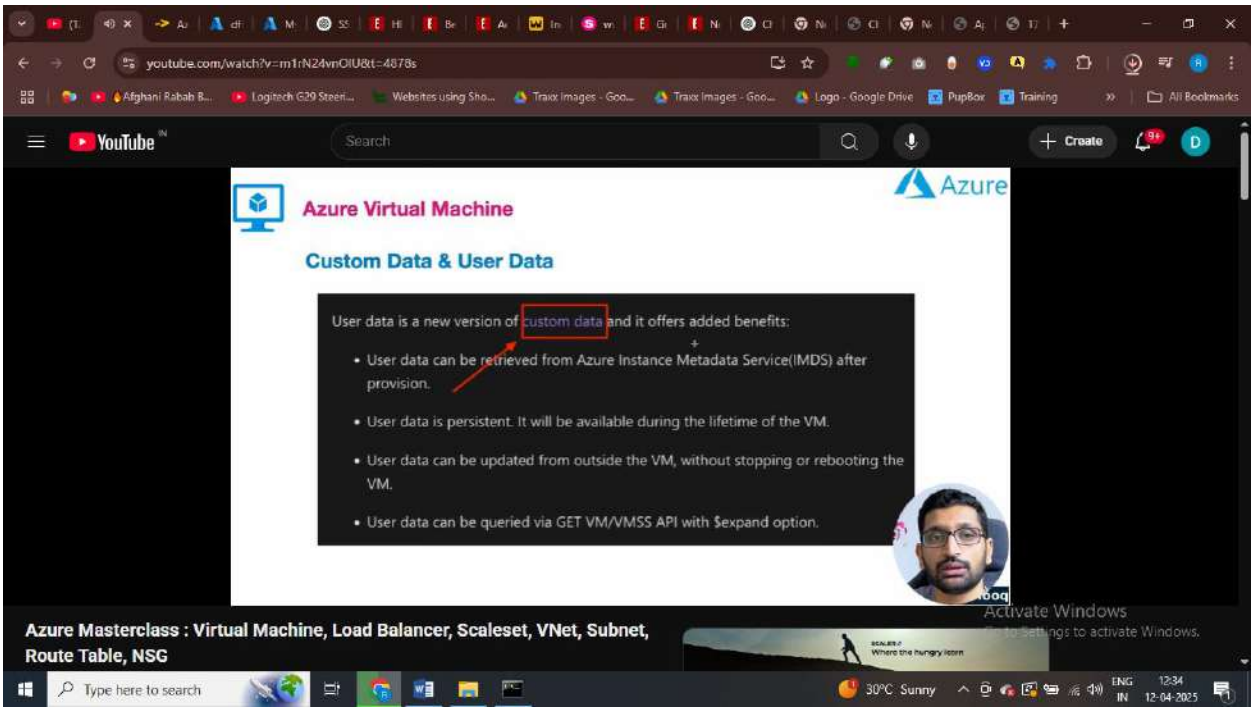


opening port 80 so that appn accessible using localhost



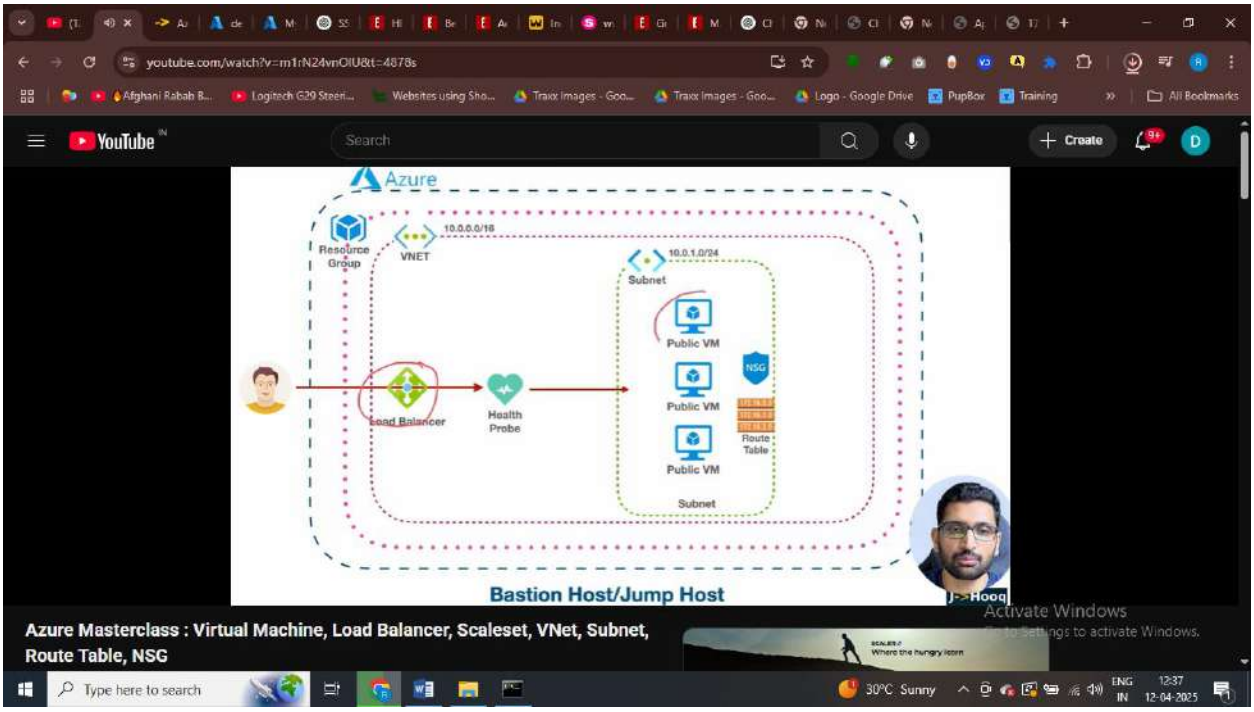


afrter opening port 80 – we can send request on our vm and get the apache web server htat is running on port 80 succesfully



user user data as it is latest versions

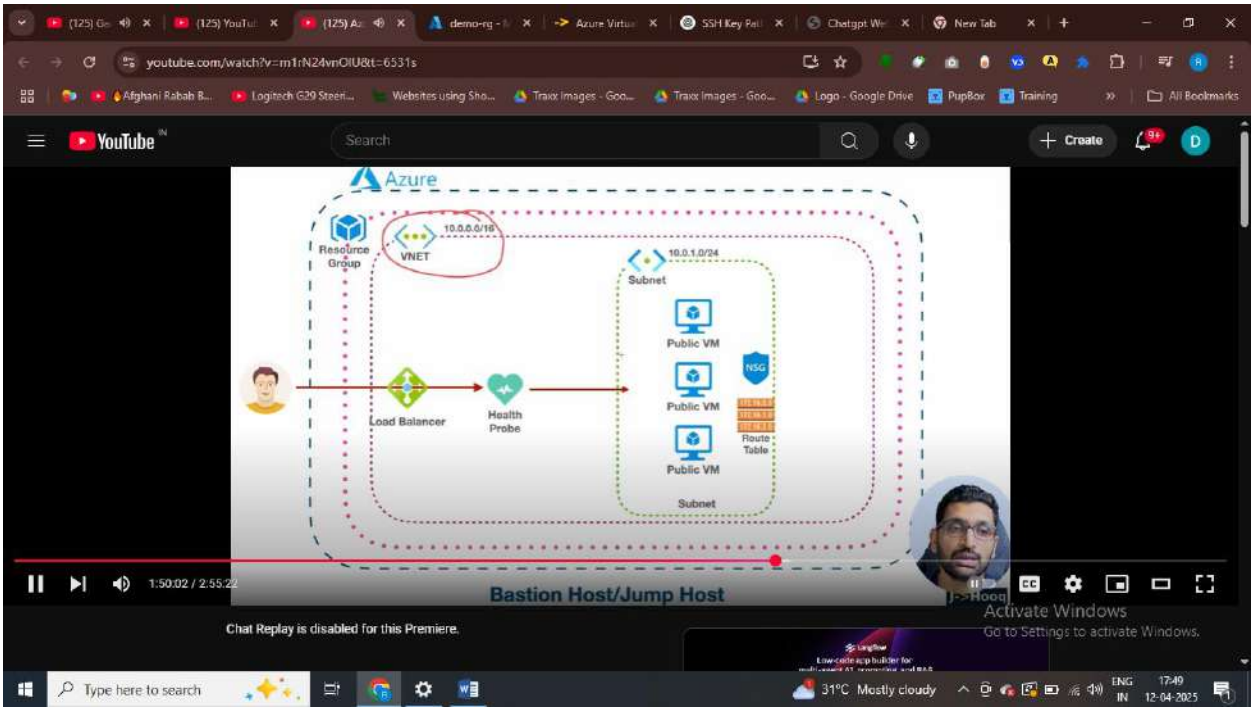
Azure load balner



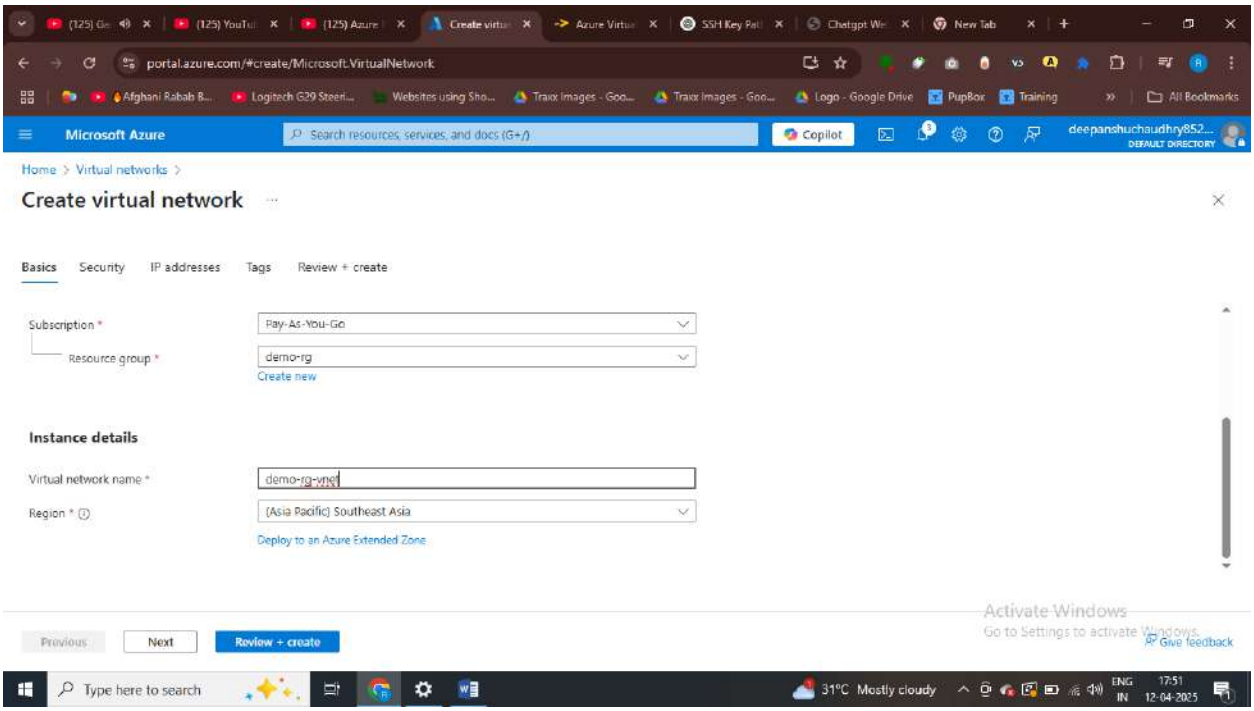
In Azure, a **Resource Group (RG)** is a container that holds related resources for an Azure solution. A resource group typically contains resources such as virtual machines, storage accounts, databases, networking components, and more

By organizing resources into groups, you can manage them more effectively.

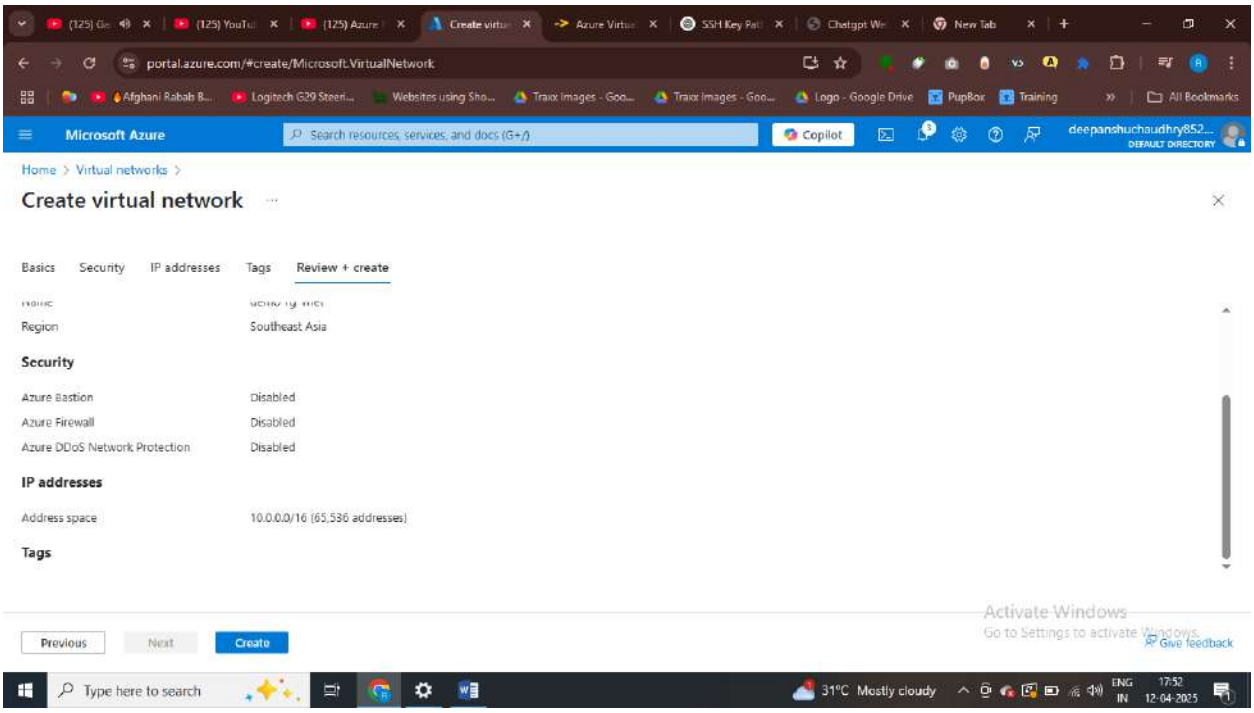
You can assign **role-based access control (RBAC)** at the resource group level. This allows you to control who can access or manage the resources within the group.

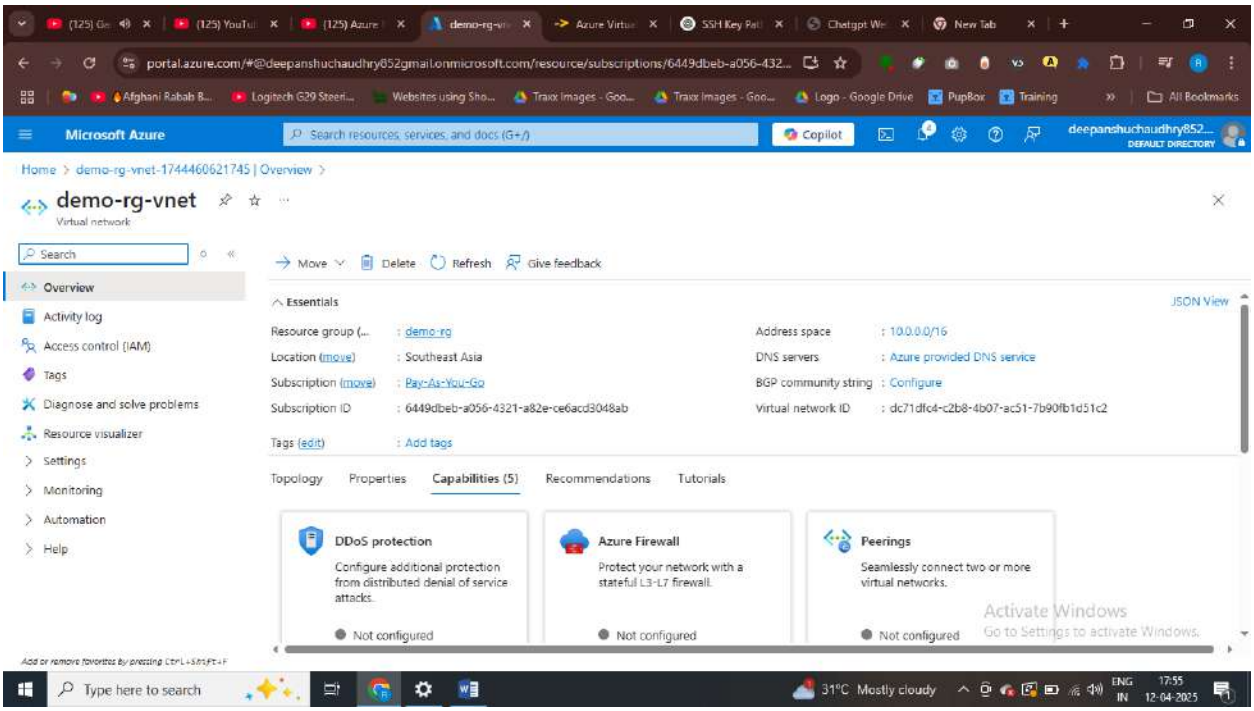


after that we will create our vpc like vnet is vpc in azure where we provide every resource



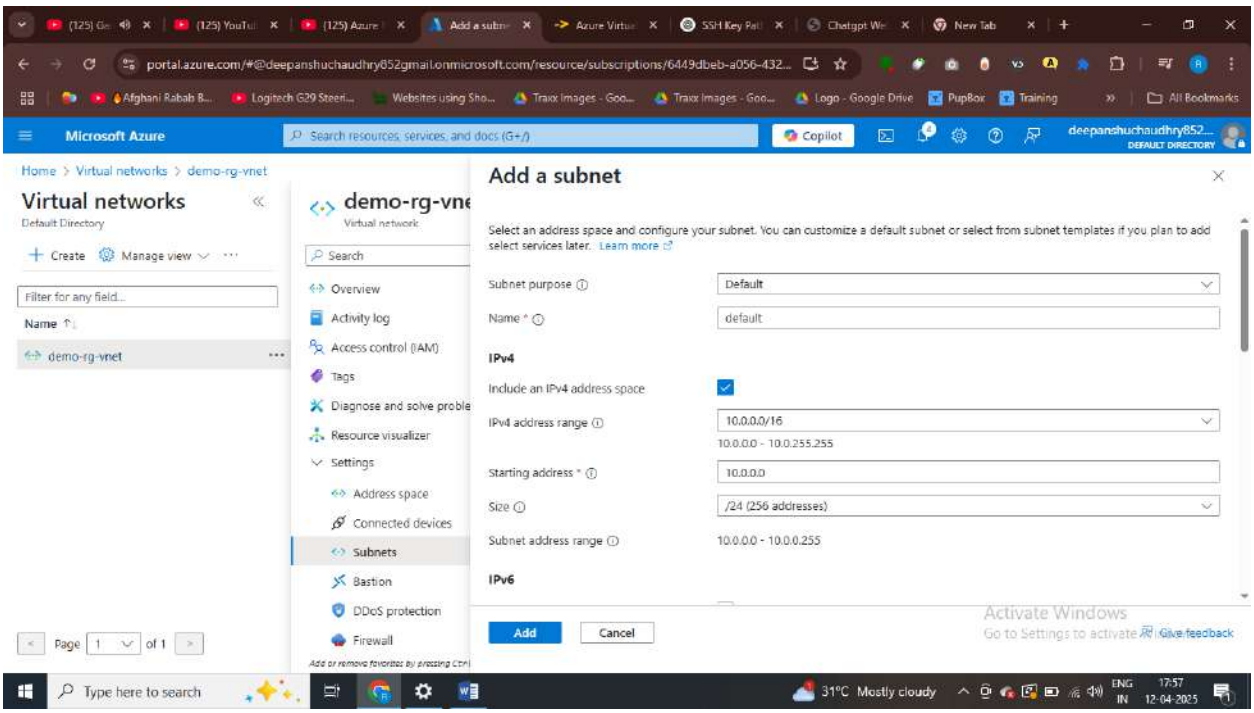
it will creaete a vnet of this cidr range ., I have delete subnet I will create my own subnet

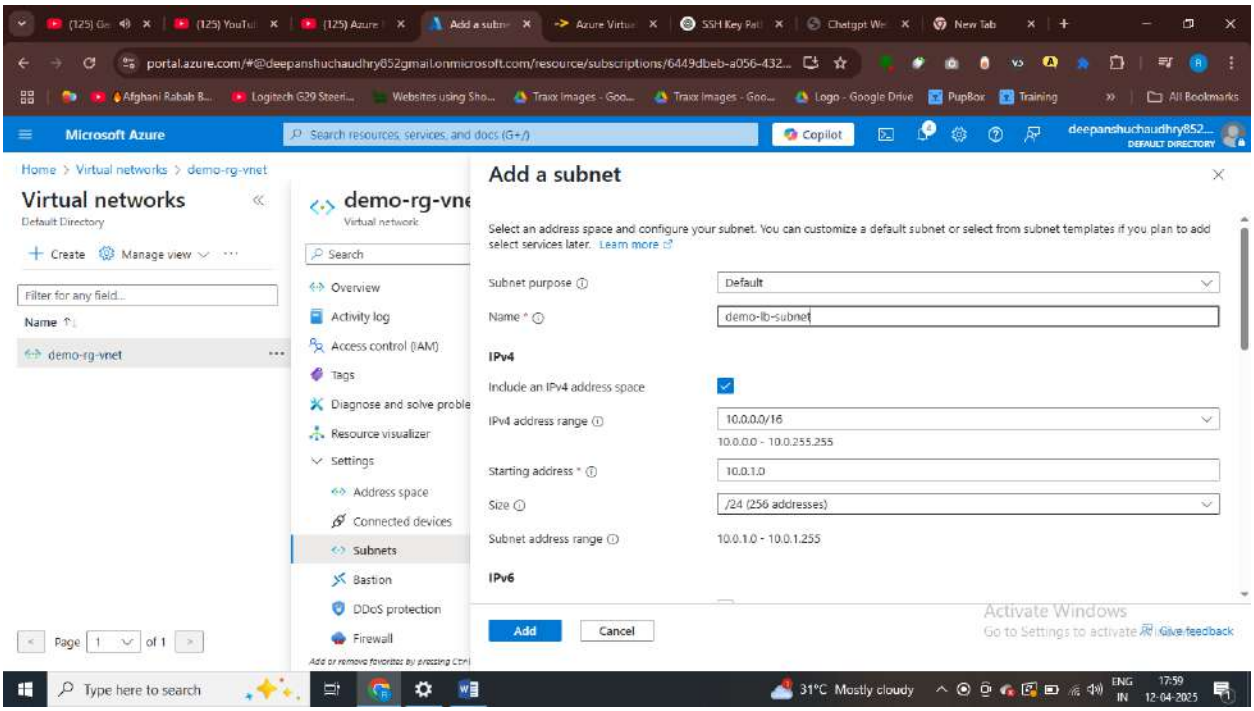




Our vnet succesfuully created with this cidr range

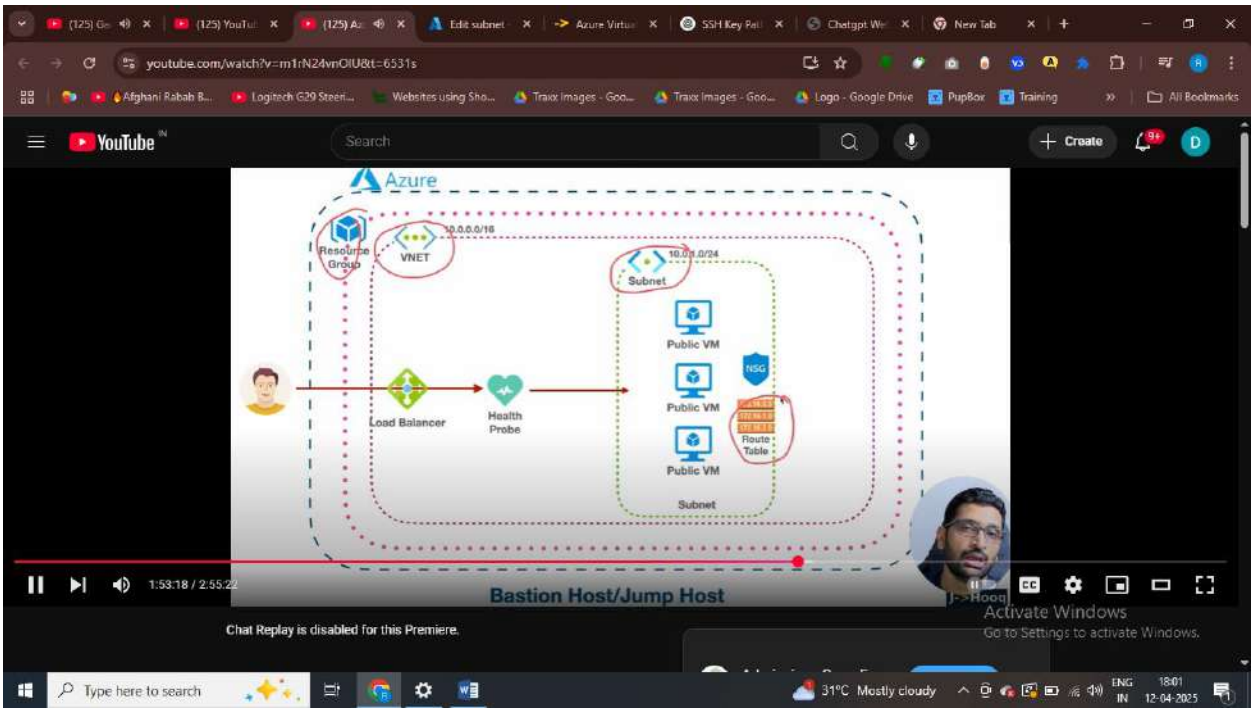
adding a subnet inside the vnet

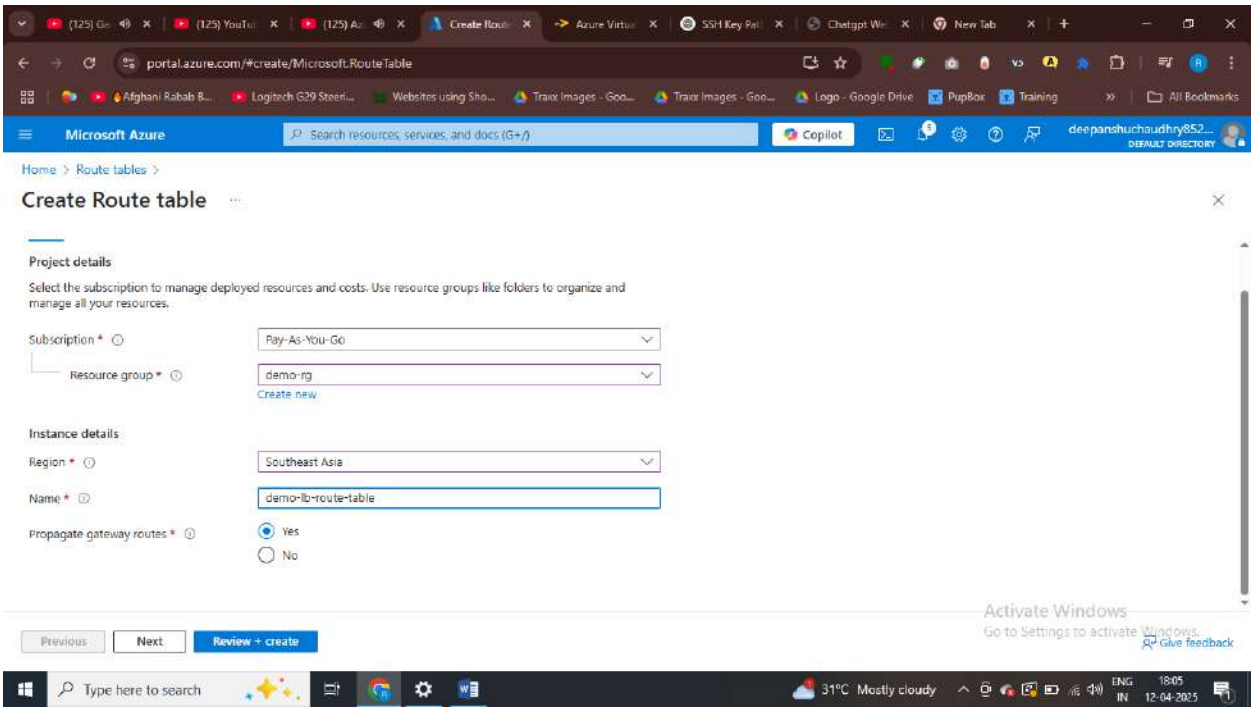


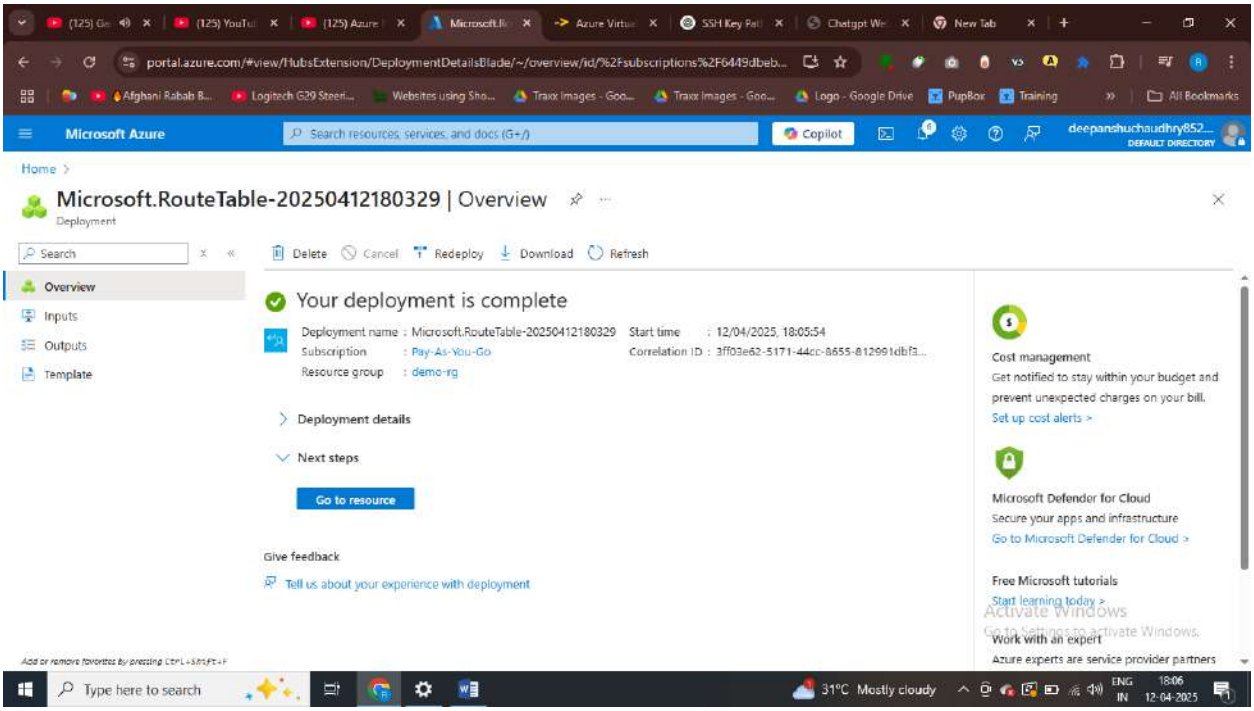


this is range of subnet in which we have 254 ip address

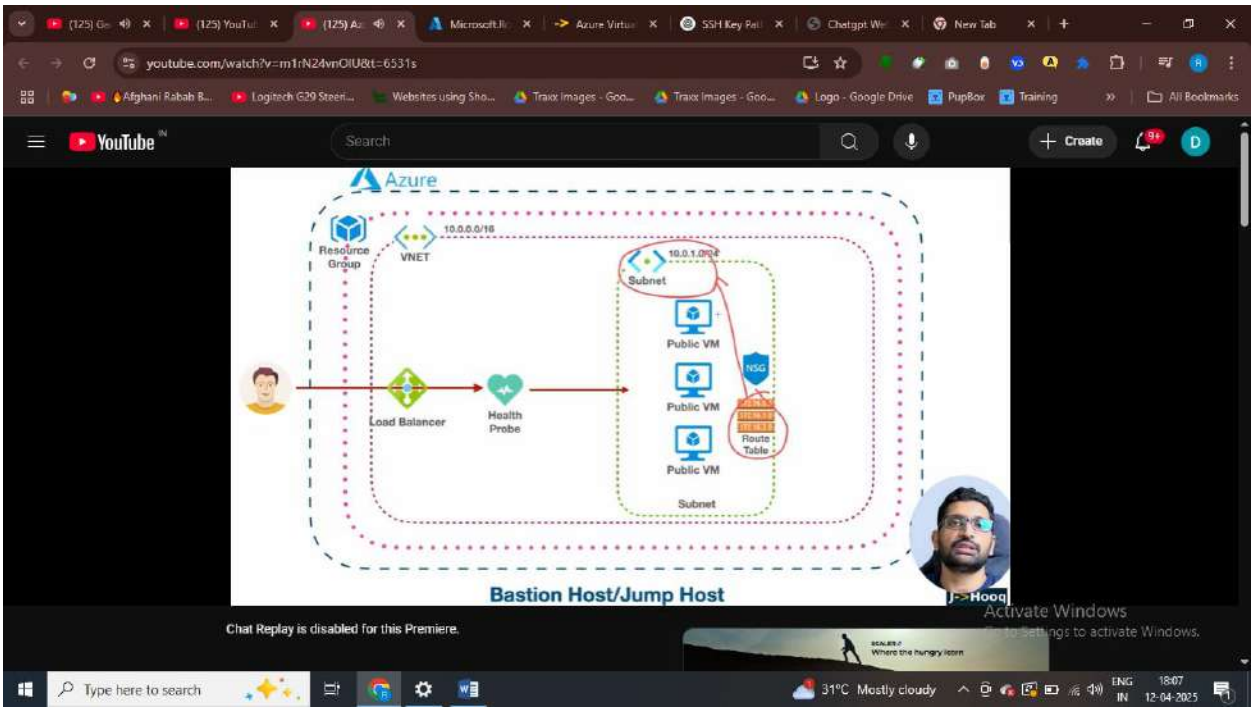
After this creta route table so that incoming request can route to this subnet



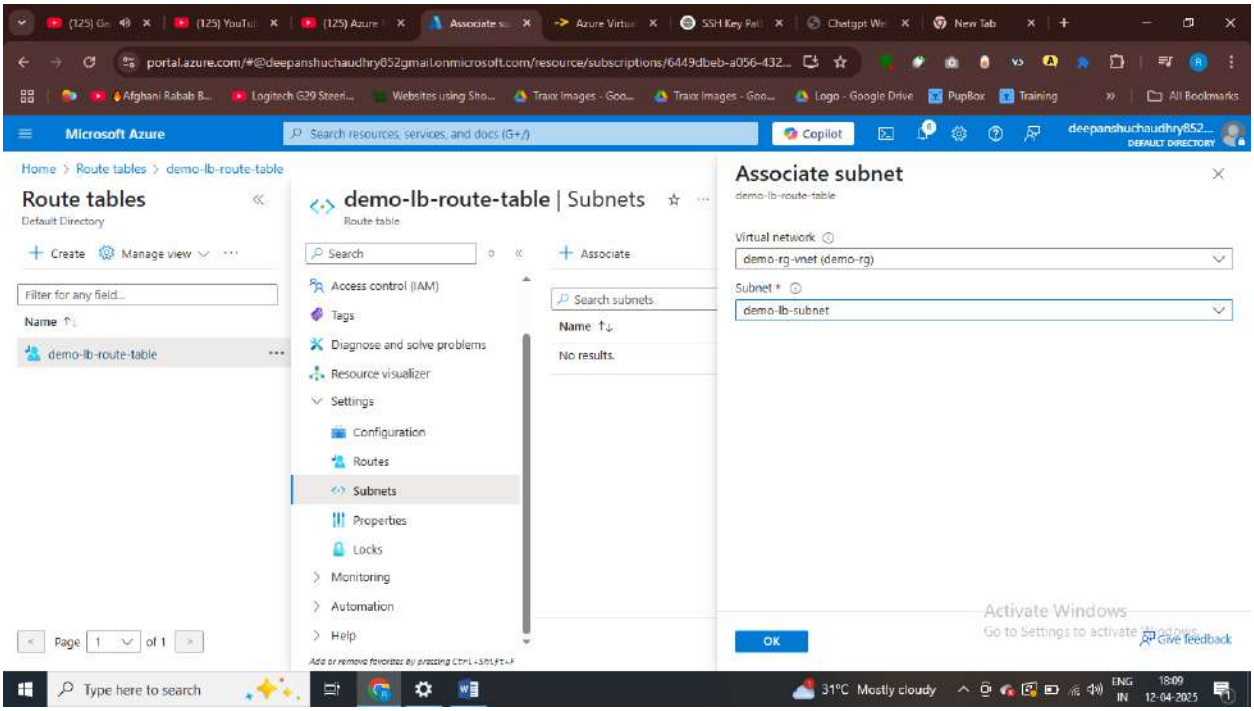




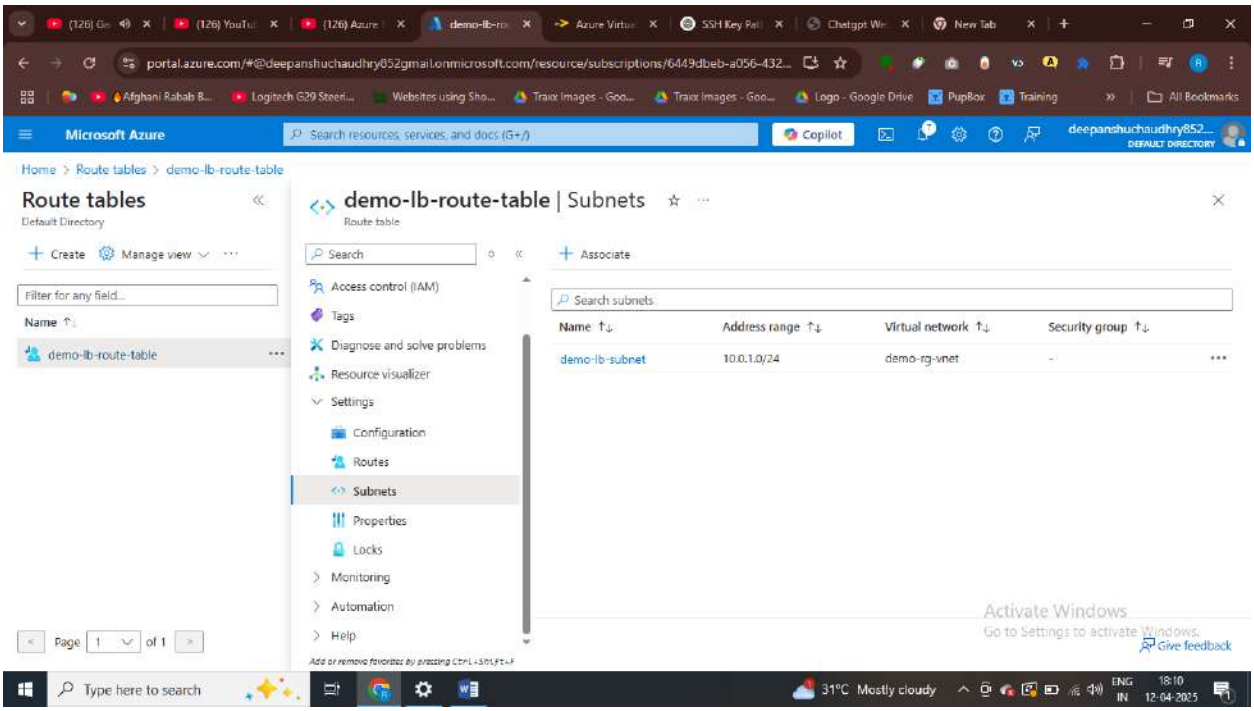
after creating route table we neeed to associate both subnet and route tables



associate route table and subnets now – so that incomeing rquet throught route go to subnets

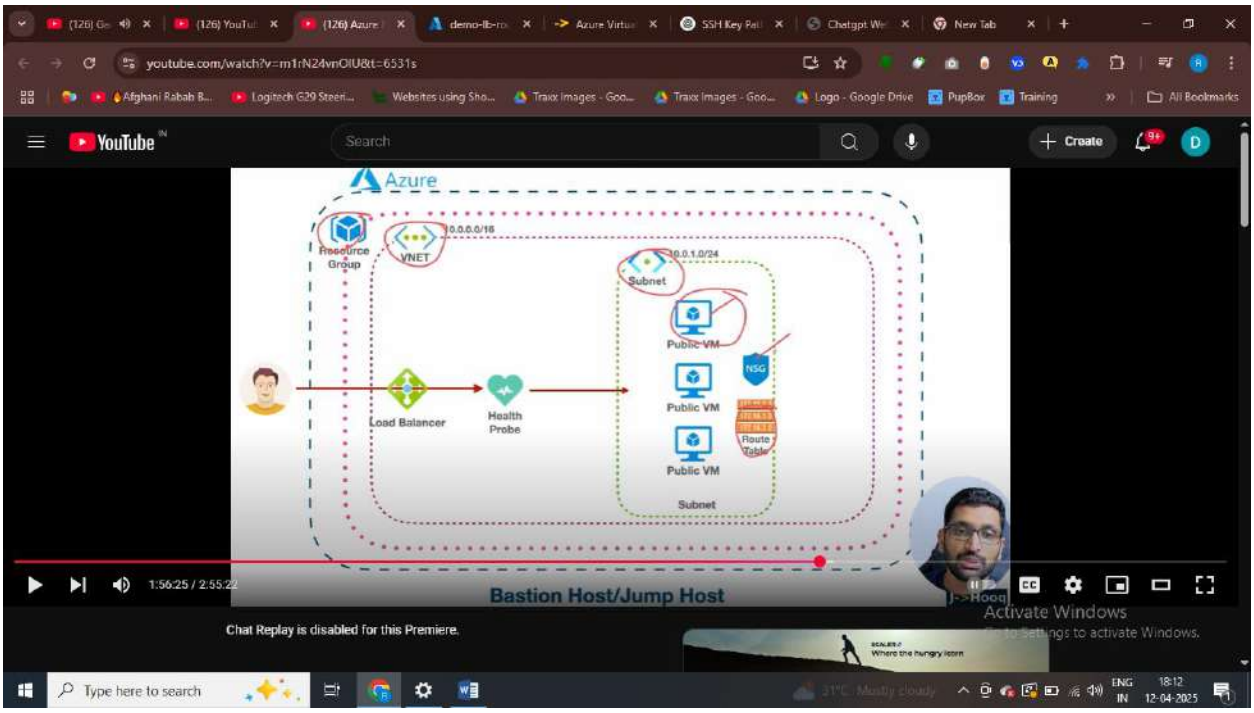


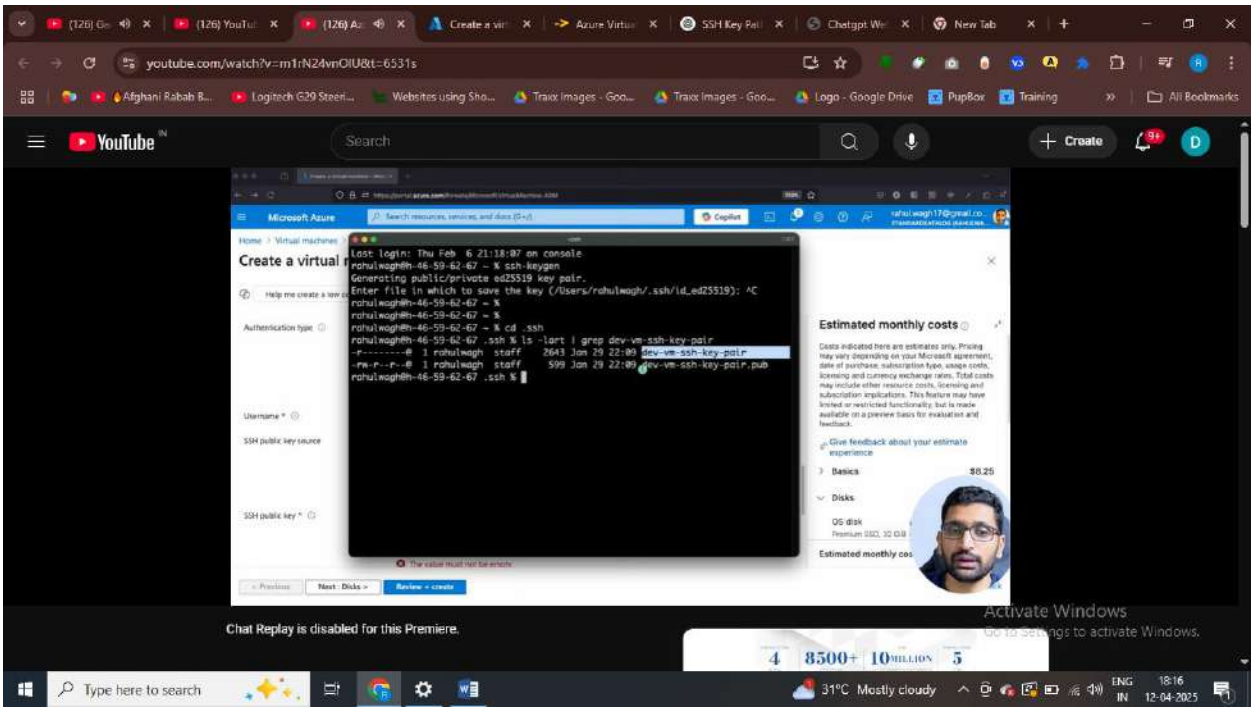
go to route table click on subnet .add subnet with route table



associate route table with subnet

$ now we need to create VM and SG group

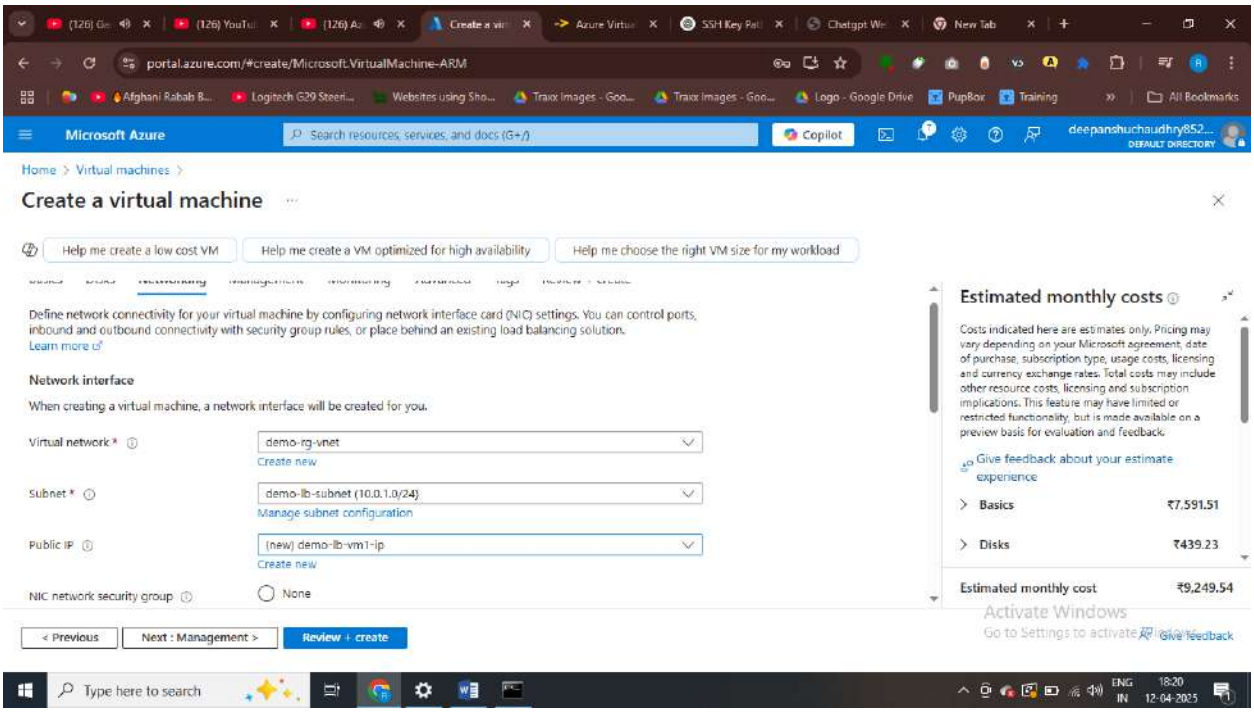


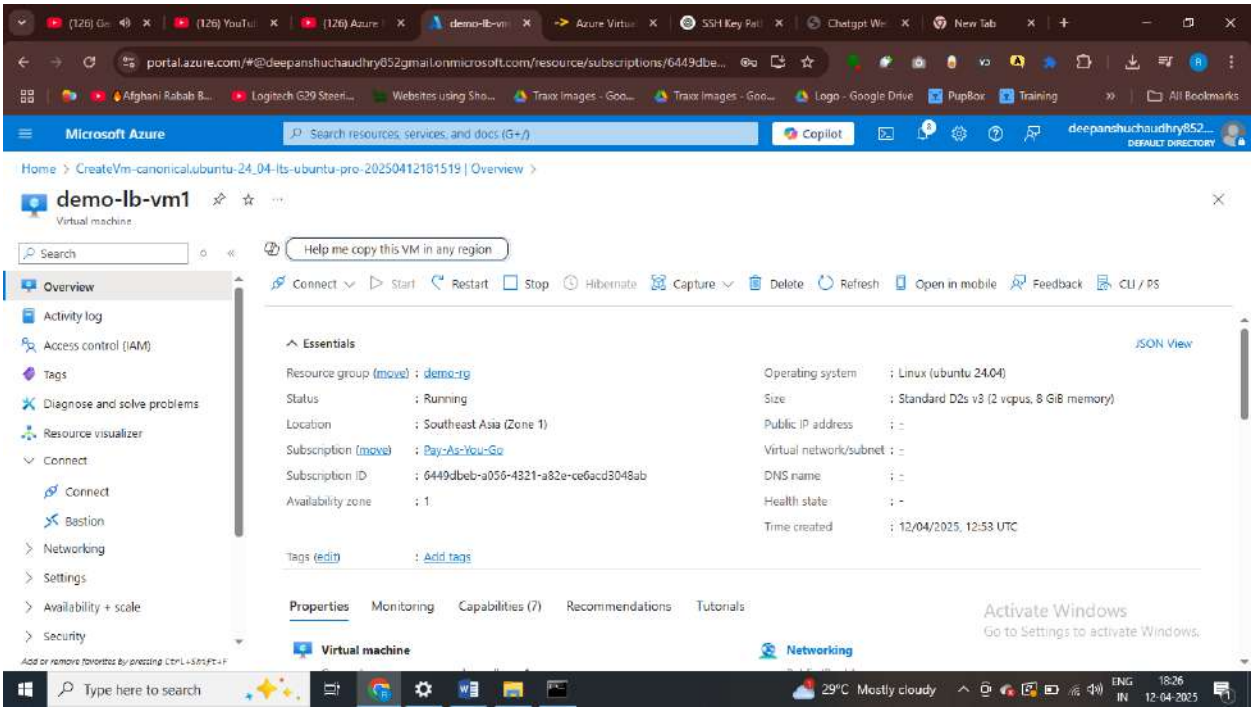


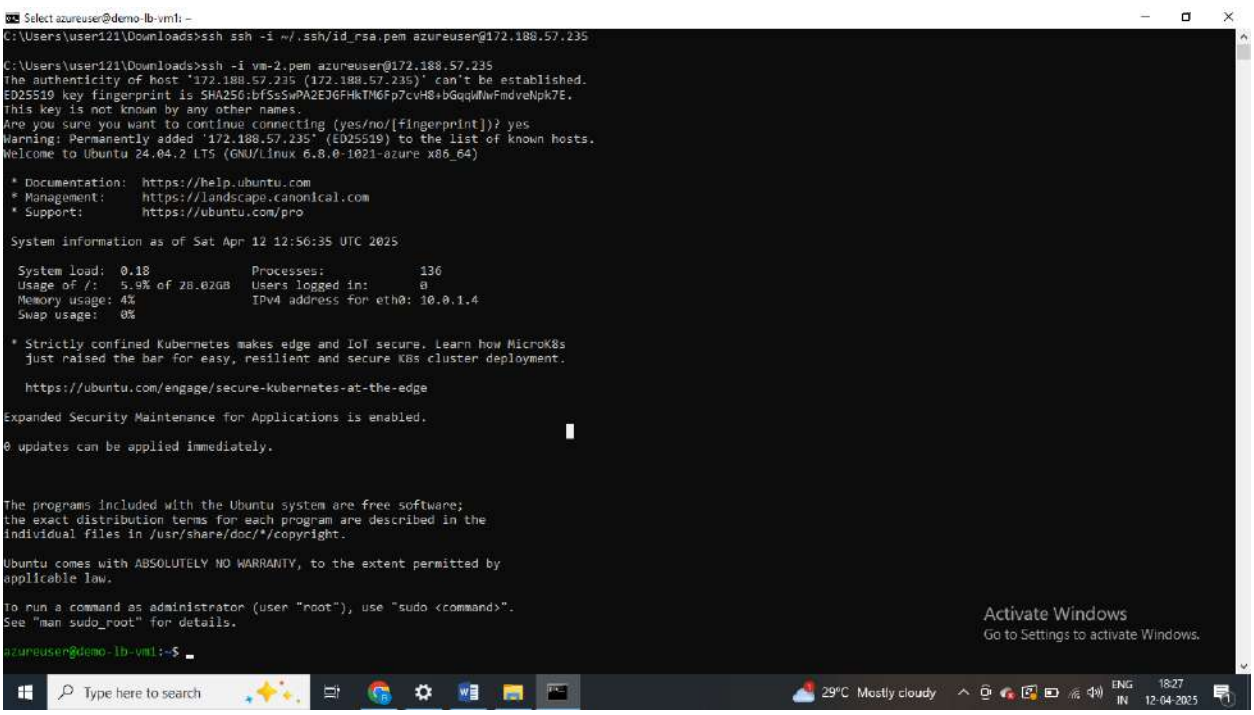
use ssh key gen for creating public and private key

Those key who don't have extension are private key and .pub is pulich key with extension

creating a vm with networking with vnet and subnet

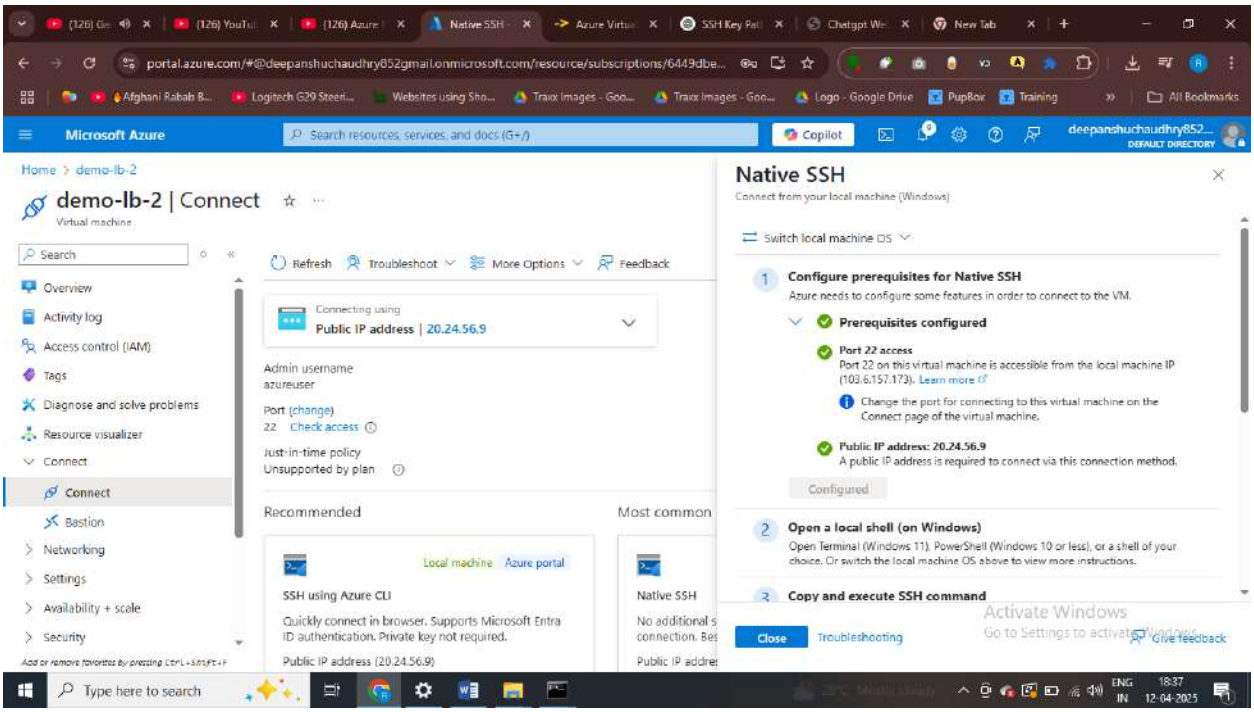






creat a vm and ssh into instance

create second vm and ssh into the machine



C:\Users\user121\Downloads>ssh -i demo-lb-2_key.pem azureuser@20.24.56.9

The authenticity of host '20.24.56.9 (20.24.56.9)' can't be established.

ED25519 key fingerprint is SHA256:WDb4G2lDturpbCSGrv9afocJFR/90lQtr+/WwpRyeUg.

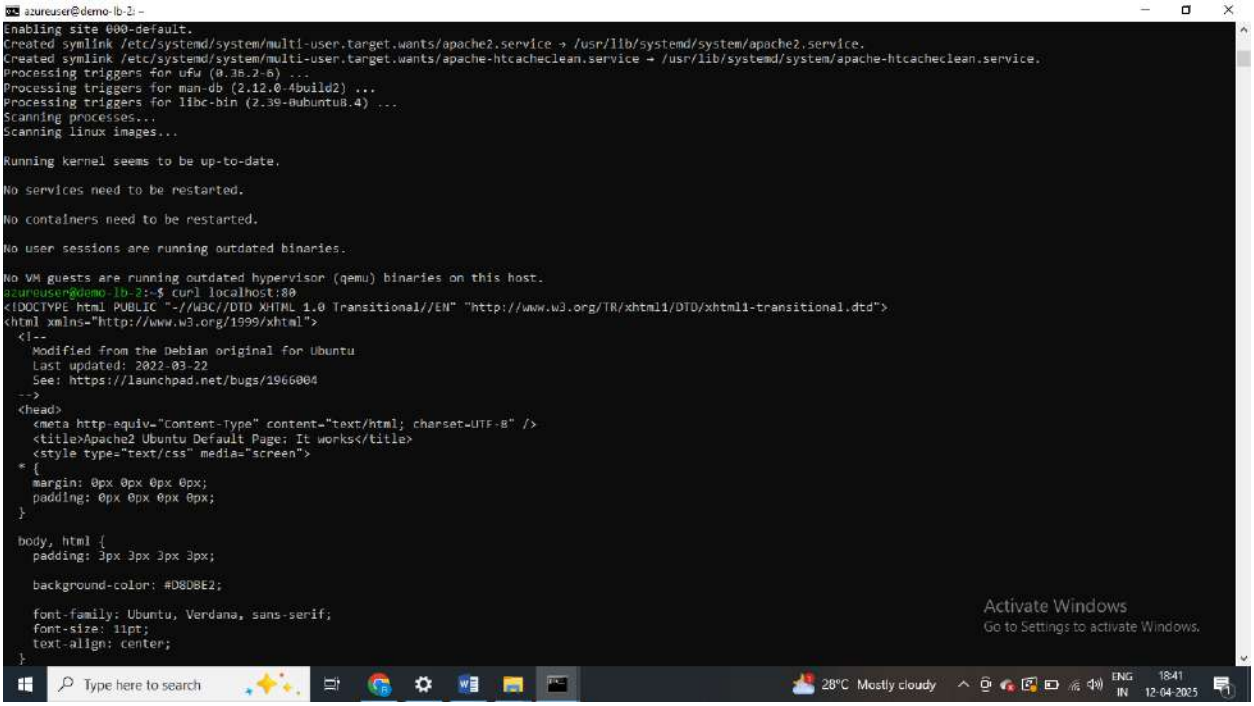
ssh into second vm

After that I install appach2 on both vm so that while load balcaing we get some page

azureuser@demo-lb-vm1:~$ sudo apt update

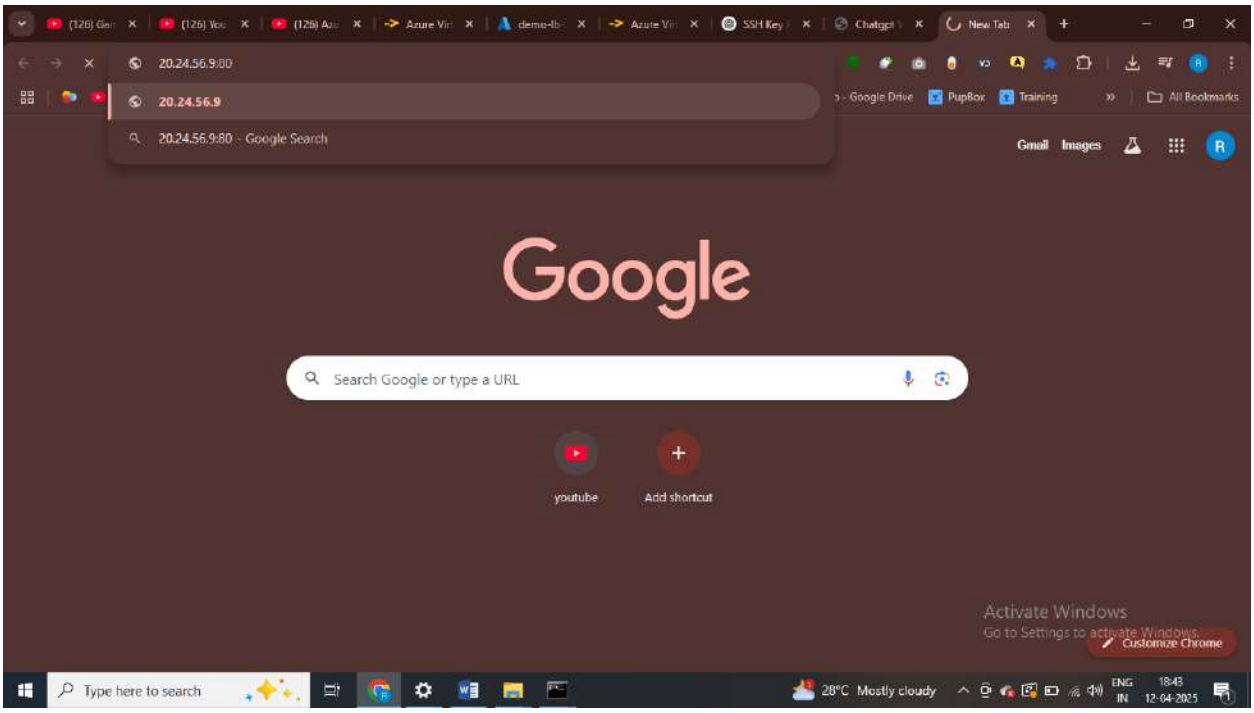
azureuser@demo-lb-vm1:~$ sudo apt install apache2

isnall apache2 on both VM

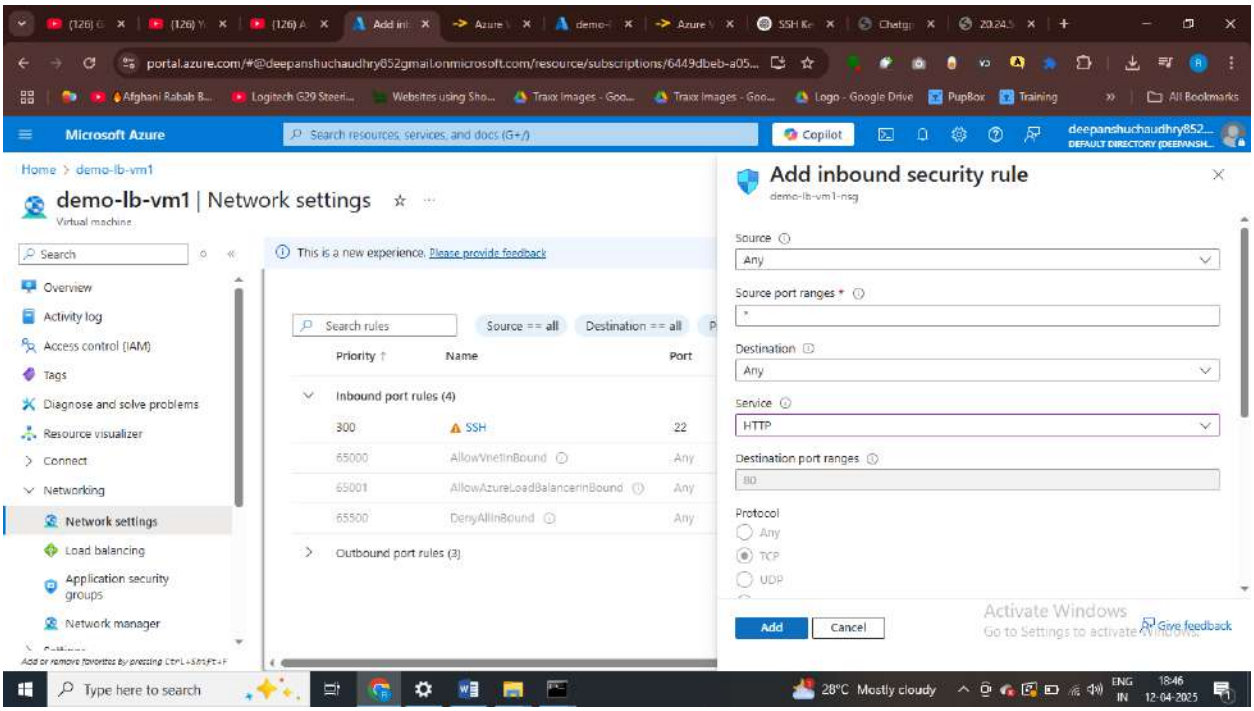


curl localhost on port 80 , apahce running on port 80

geeting homepage of apahce server

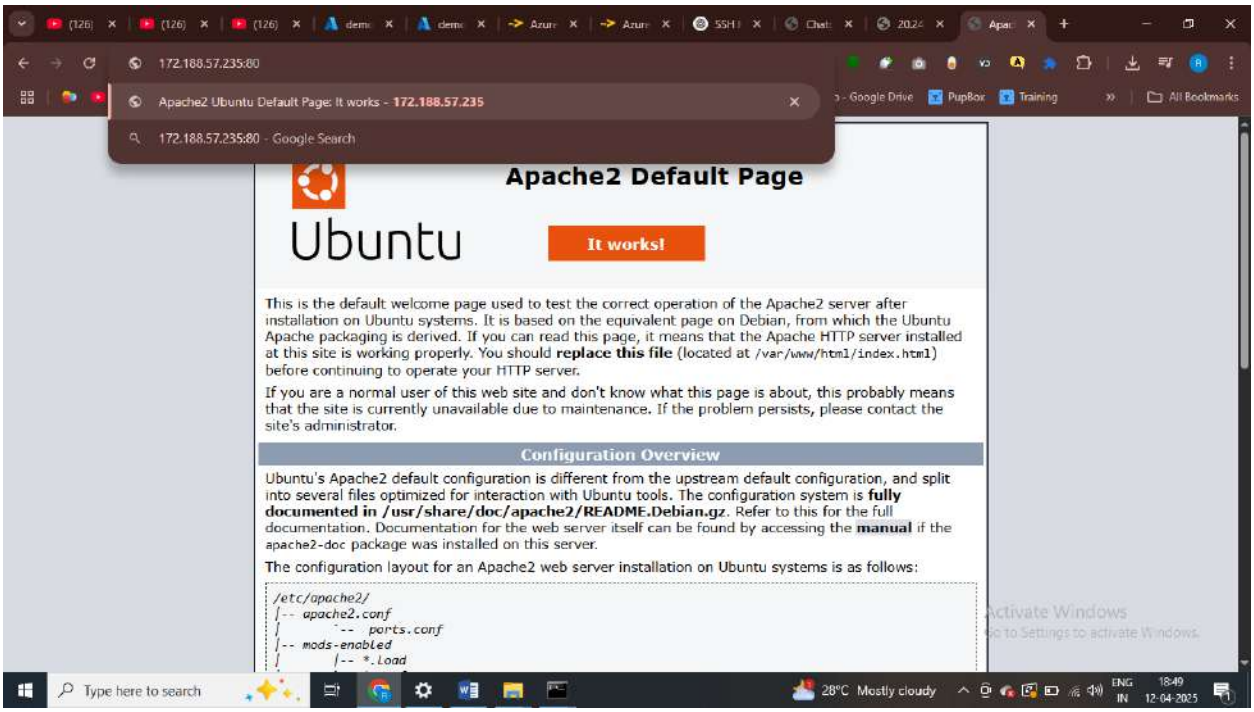


Apahce 2 not accessible using public ip of VM , as we need to configure nework security grou[

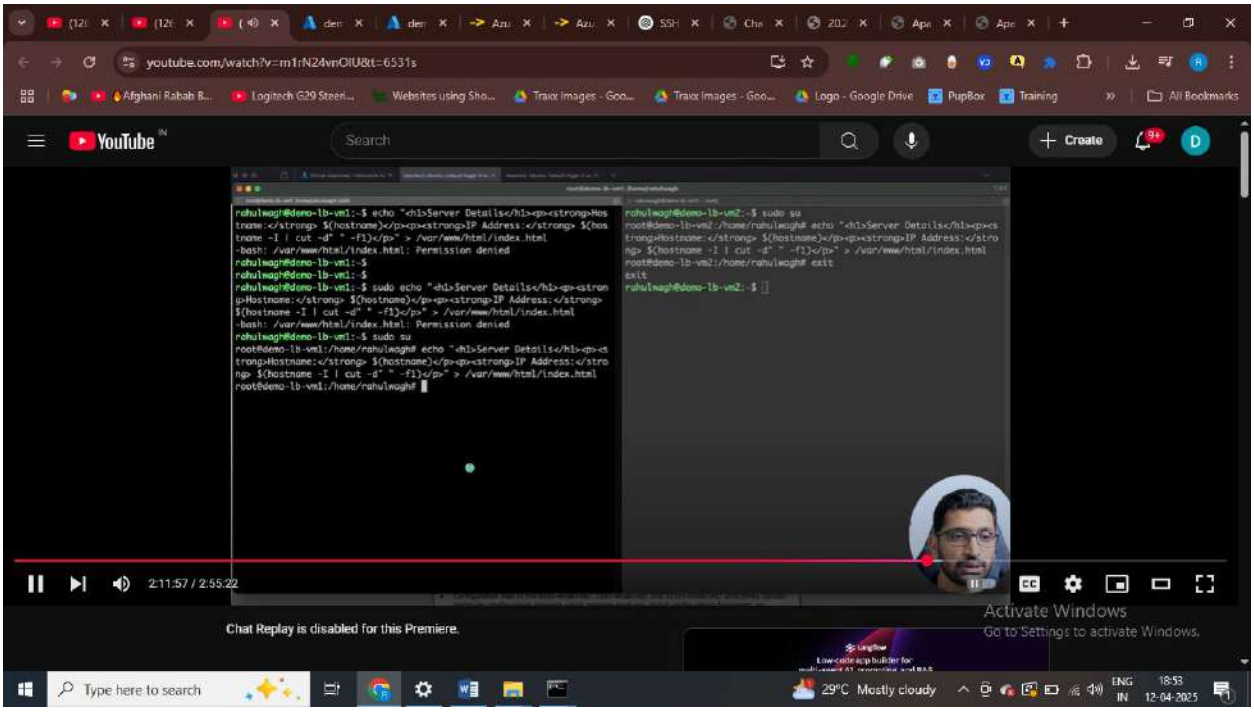


source any = any one can access our machine on port 80

for vm1 using ip addres succefully getting reposene on port 80

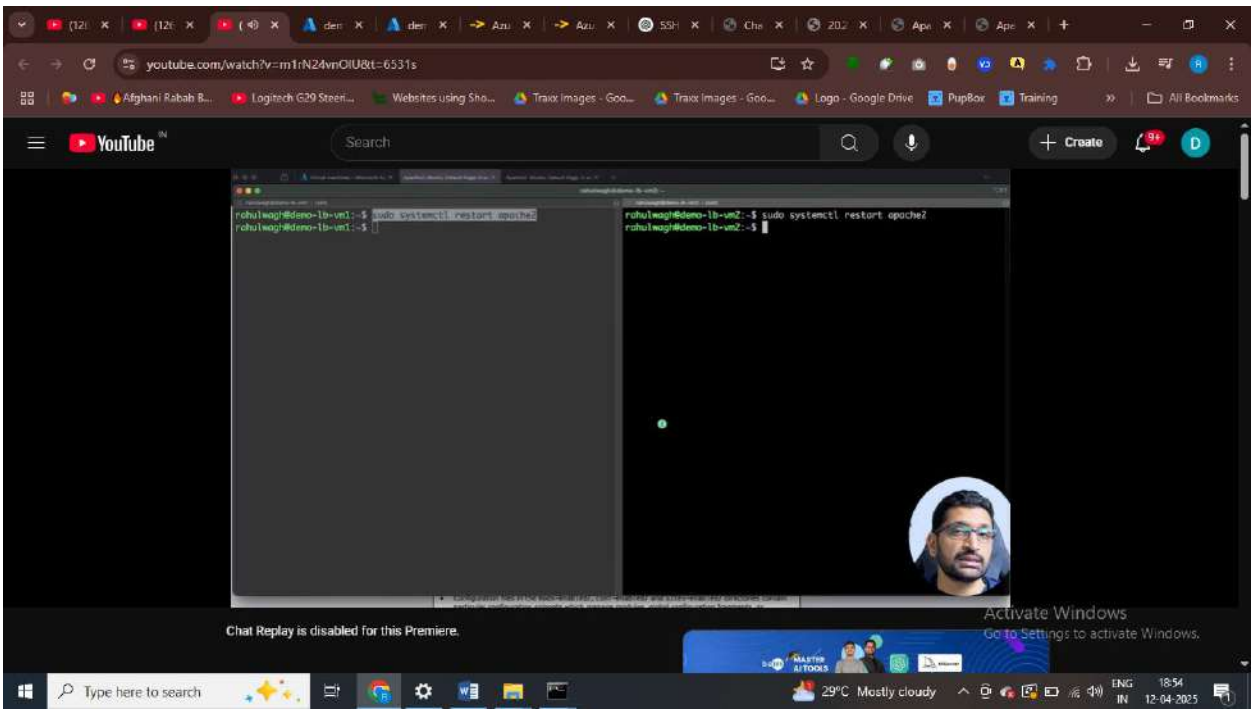


Both VM can be accessible using public ip add on port 80



update ethe content of both web pages

after restart apach2



```
azureuser@demo-lb-vm1:~$ echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong>
$(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d' ' -f1)</p></html>" >
/var/www/html/index.html

-bash: /var/www/html/index.html: Permission denied

azureuser@demo-lb-vm1:~$ sudo

usage: sudo -h | -K | -k | -V

usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]

usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user]

        [-u user] [command [arg ...]]

usage: sudo [-ABbEHkNnPS] [-r role] [-t type] [-C num] [-D directory]

        [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]

        [-u user] [VAR=value] [-i | -s] [command [arg ...]]

usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory]

        [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]

        [-u user] file ...

azureuser@demo-lb-vm1:~$ sudo su

root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server
Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong>
$(hostname -I | cut -d' ' -f1)</p></html>" > /var/www/html/index.html

root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server
Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong>
$(hostname -I | cut -d' ' -f1)</p></html>" > /var/www/html/index.html

root@demo-lb-vm1:/home/azureuser#

# upadating the page content of apache web server
```

azureuser@demo-lb-vm1: ~

```
        </p>
      </div>

     </div>
    </div>
    <div class="validator">
    </div>
  </body>
</html>
azureuser@demo-lb-vm1:~$ pwd
/home/azureuser
azureuser@demo-lb-vm1:~$ echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d' ' -f1)<
/p></html>" > /var/www/html/index.html
-bash: /var/www/html/index.html: Permission denied
azureuser@demo-lb-vm1:~$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user]
            [-u user] [command [arg ...]]
usage: sudo [-ABbEHkNnPS] [-r role] [-t type] [-C num] [-D directory]
            [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]
            [-u user] [VAR=value] [-i | -s] [command [arg ...]]
usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory]
            [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]
            [-u user] file ...
azureuser@demo-lb-vm1:~$ sudo su
root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d
' ' -f1)</p></html>" > /var/www/html/index.html
root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d
' ' -f1)</p></html>" > /var/www/html/index.html
root@demo-lb-vm1:/home/azureuser# ^C
root@demo-lb-vm1:/home/azureuser# ^C
root@demo-lb-vm1:/home/azureuser#
exit
azureuser@demo-lb-vm1:~$
```

Activate Windows
Go to Settings to activate Windows.

Type here to search
29°C Mostly cloudy
ENG IN 18:56 12-04-2025

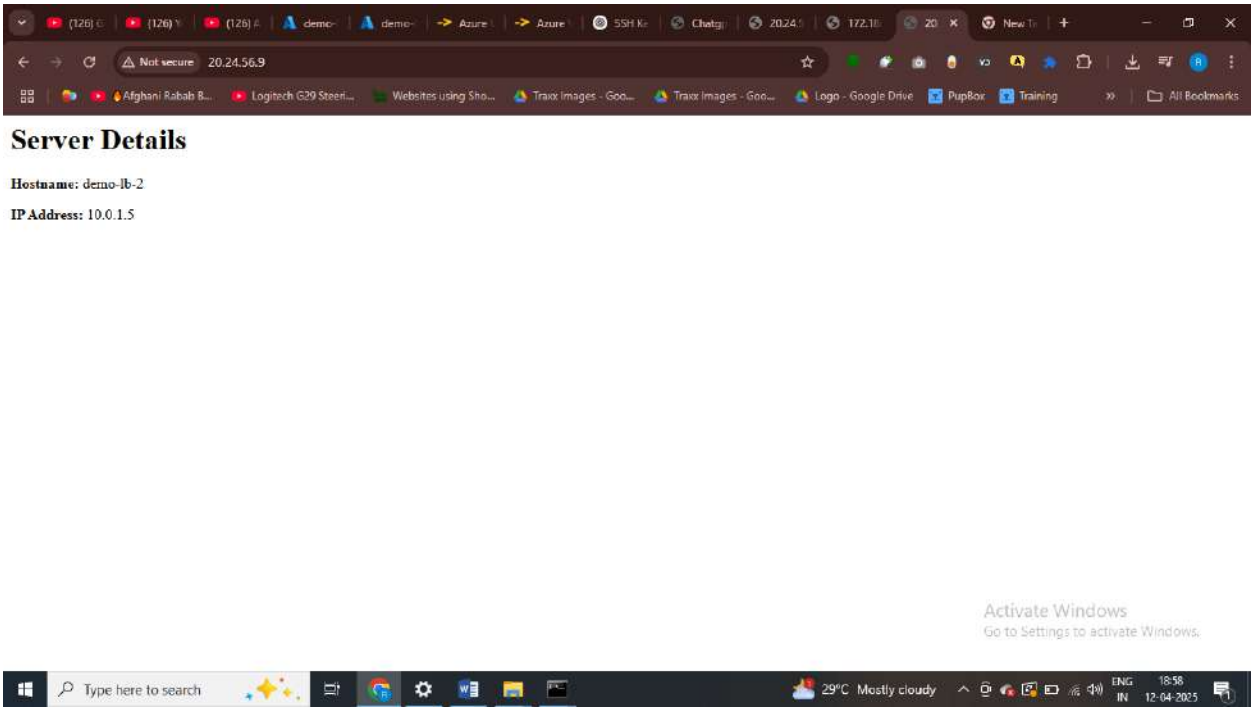
azureuser@demo-lb-vm1: ~

```
        </p>
      </div>

     </div>
    </div>
    <div class="validator">
    </div>
  </body>
</html>
azureuser@demo-lb-vm1:~$ pwd
/home/azureuser
azureuser@demo-lb-vm1:~$ echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d' ' -f1)<
/p></html>" > /var/www/html/index.html
-bash: /var/www/html/index.html: Permission denied
azureuser@demo-lb-vm1:~$ sudo
usage: sudo -h | -K | -k | -V
usage: sudo -v [-ABkNnS] [-g group] [-h host] [-p prompt] [-u user]
usage: sudo -l [-ABkNnS] [-g group] [-h host] [-p prompt] [-U user]
            [-u user] [command [arg ...]]
usage: sudo [-ABbEHkNnPS] [-r role] [-t type] [-C num] [-D directory]
            [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]
            [-u user] [VAR=value] [-i | -s] [command [arg ...]]
usage: sudo -e [-ABkNnS] [-r role] [-t type] [-C num] [-D directory]
            [-g group] [-h host] [-p prompt] [-R directory] [-T timeout]
            [-u user] file ...
azureuser@demo-lb-vm1:~$ sudo su
root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d
' ' -f1)</p></html>" > /var/www/html/index.html
root@demo-lb-vm1:/home/azureuser# echo "<html><h1>Server Details</h1><p><strong>Hostname:</strong> $(hostname)</p><p><strong>IP Address:</strong> $(hostname -I | cut -d
' ' -f1)</p></html>" > /var/www/html/index.html
root@demo-lb-vm1:/home/azureuser# ^C
root@demo-lb-vm1:/home/azureuser# ^C
root@demo-lb-vm1:/home/azureuser#
exit
azureuser@demo-lb-vm1:~$ sudo systemctl restart apache2
azureuser@demo-lb-vm1:~$
```

Activate Windows
Go to Settings to activate Windows.

Type here to search
29°C Mostly cloudy
ENG IN 18:56 12-04-2025

geeting the hostname of websitite and private ip by updating th e



azureuser@demo-lb-2:~$ echo "<html><h1>Server Details</h1> Hostname: $(hostname) IP Address: $(hostname -I | cut -d' ' -f1) </html>" > /var/www/html/index.html

-bash: /var/www/html/index.html: Permission denied

azureuser@demo-lb-2:~$ sudo su

root@demo-lb-2:/home/azureuser# echo "<html><h1>Server Details</h1> Hostname: $(hostname) IP Address: $(hostname -I | cut -d' ' -f1) </html>" > /var/www/html/index.html

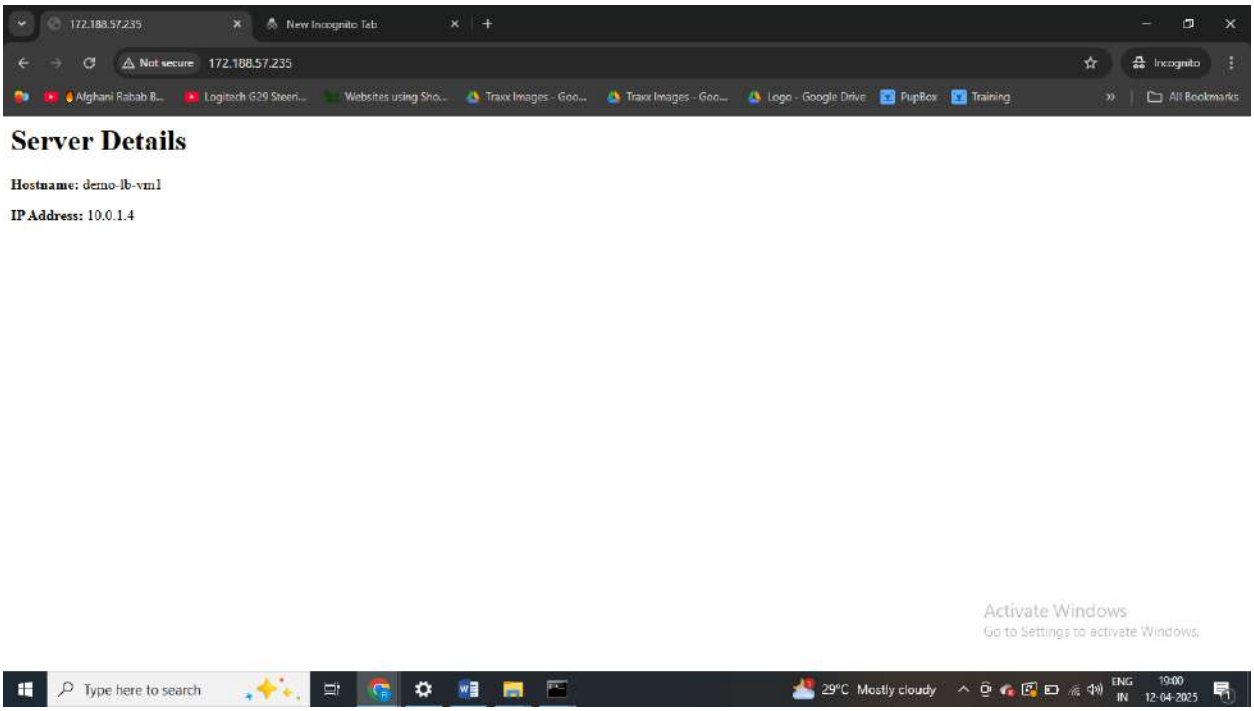
root@demo-lb-2:/home/azureuser#

root@demo-lb-2:/home/azureuser#

exit

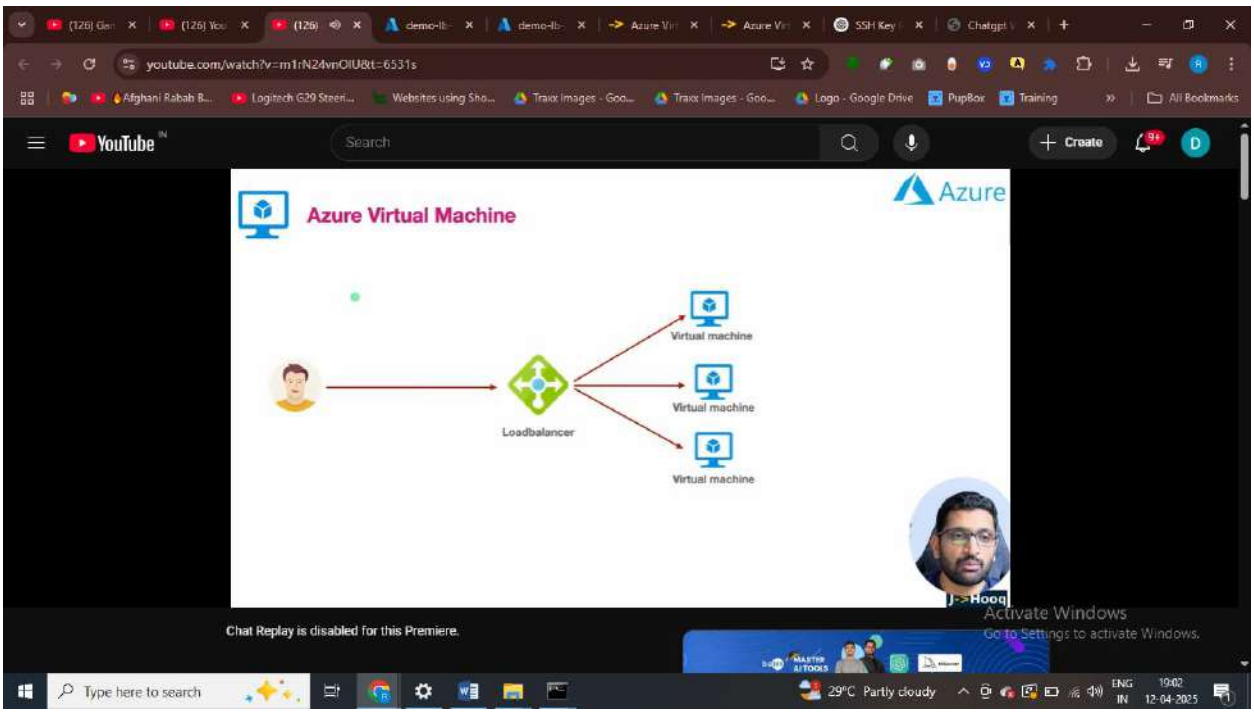
azureuser@demo-lb-2:~$ sudo systemctl restart apache2

azureuser@demo-lb-2:~$



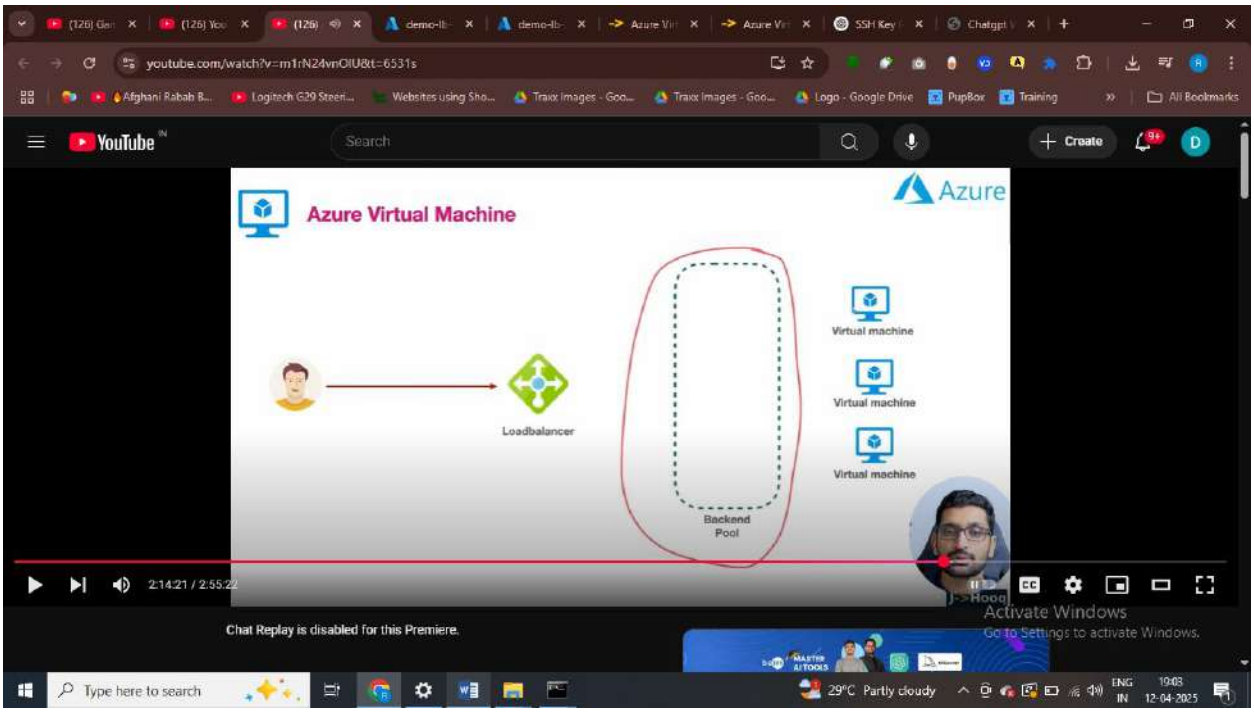
From vm1 geeting private ip

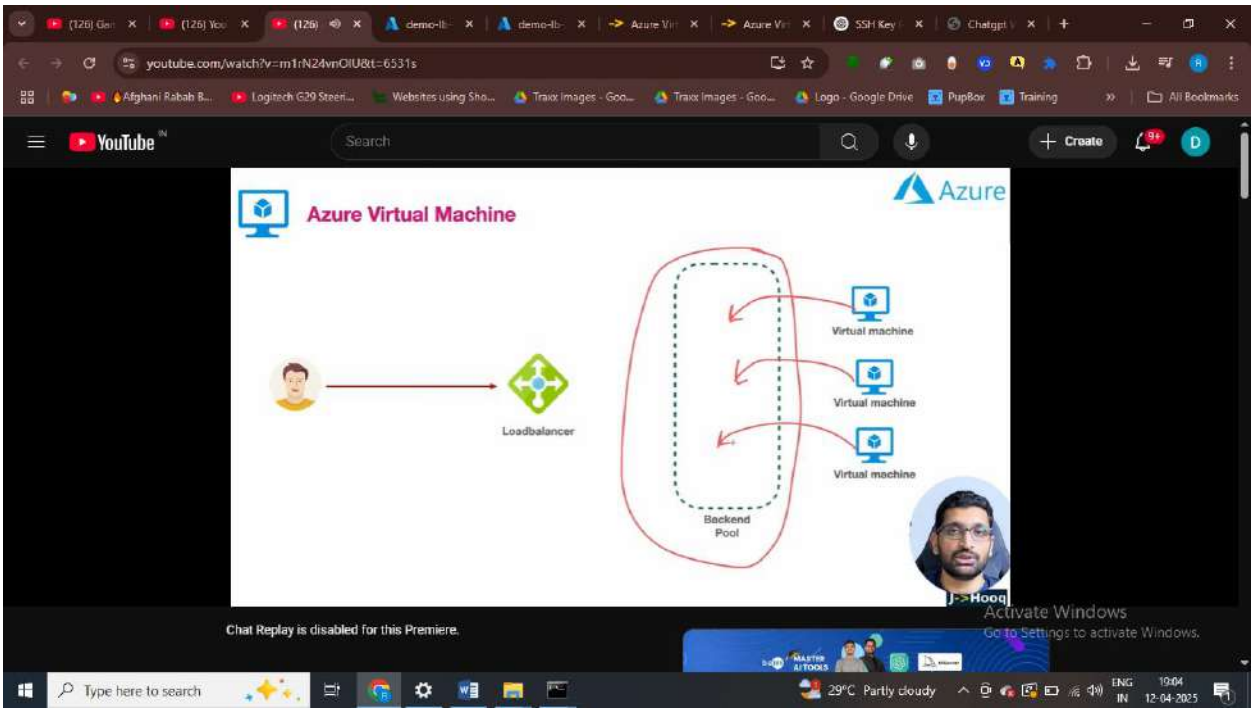
@ to now where is our request going on which server = load balancer si neccesryar



User try to access load balancer and using load balancer we are redicretct traffic to vm

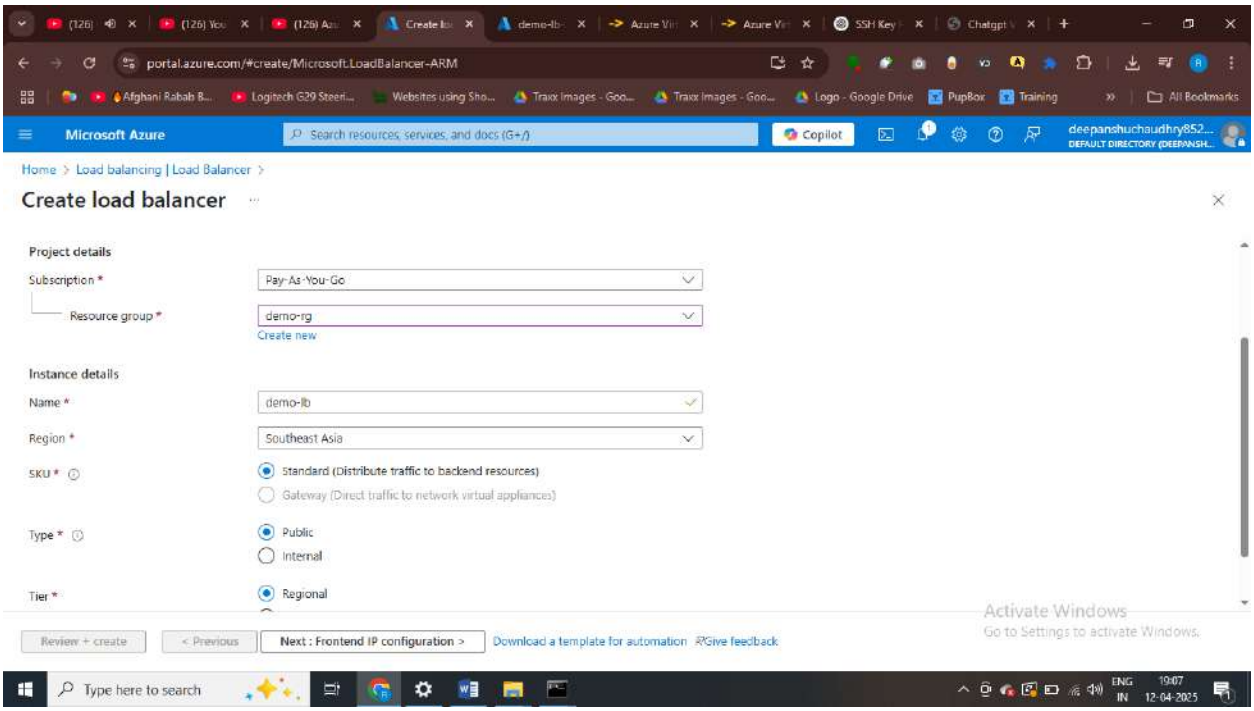
backend pool is logically grouping of vm





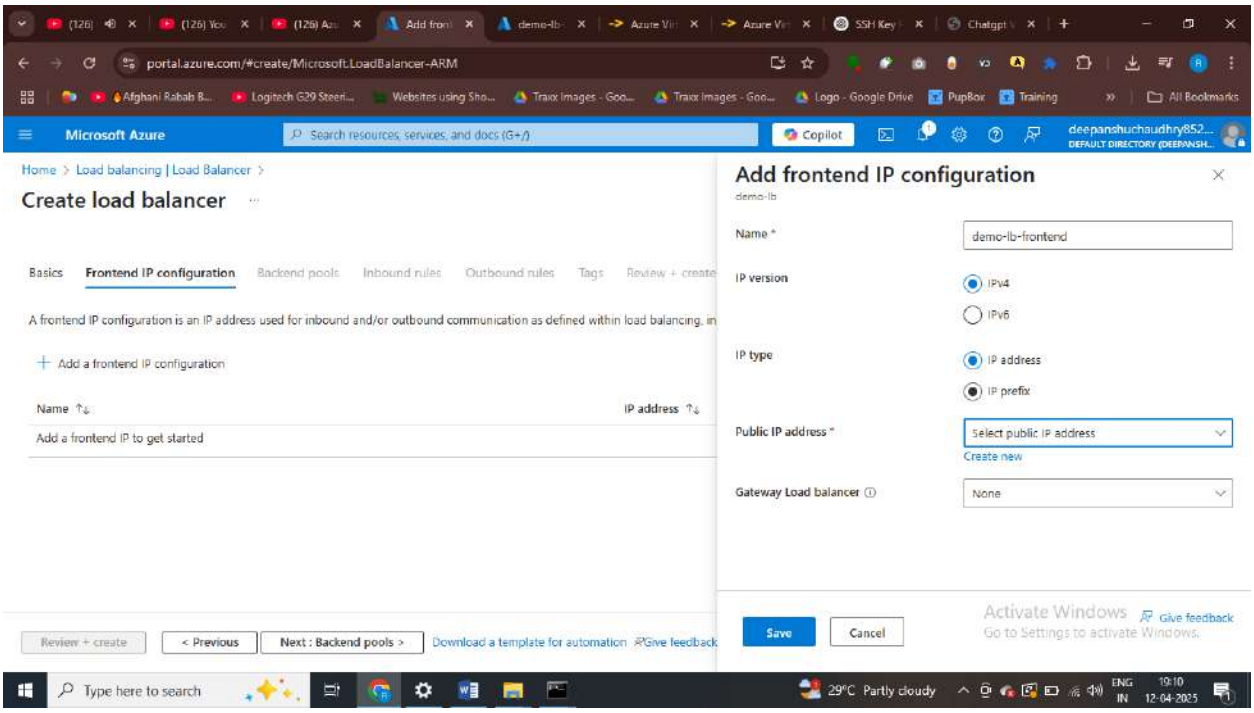
Put thse vm into backednd pool

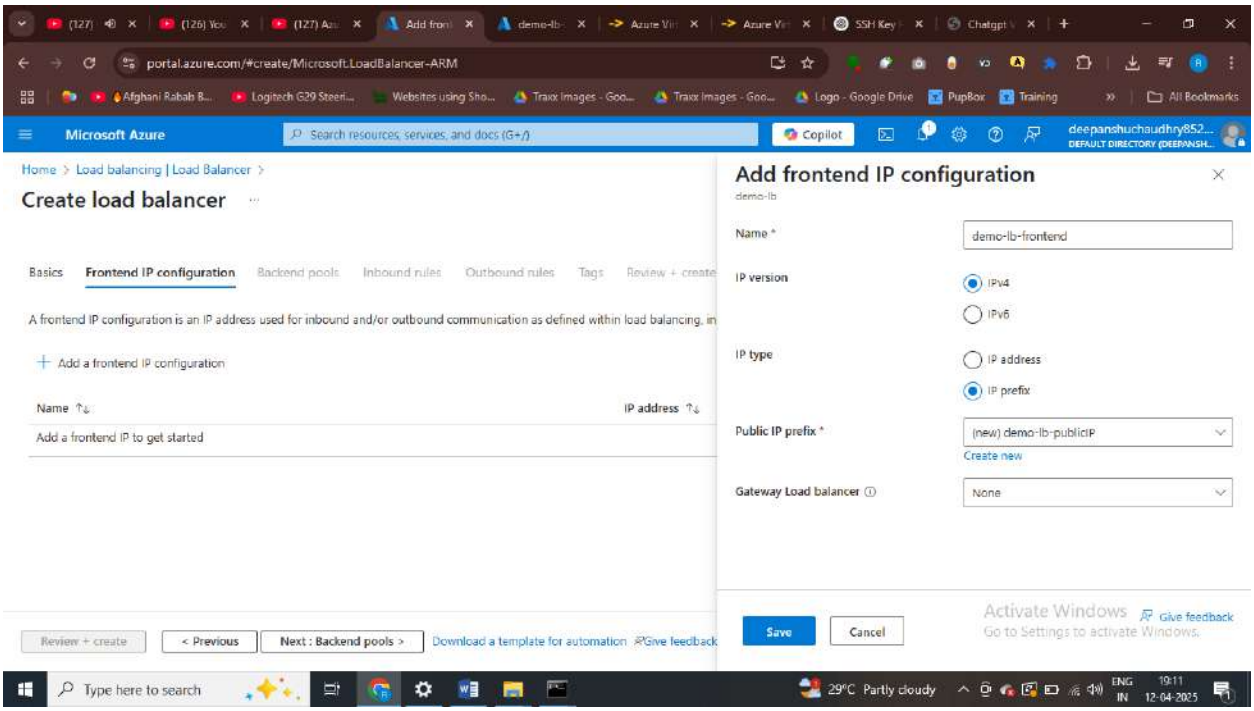
Load balcner use this backend pool to get to know about Virtual mahcine , how many virtual amchine we hvwe



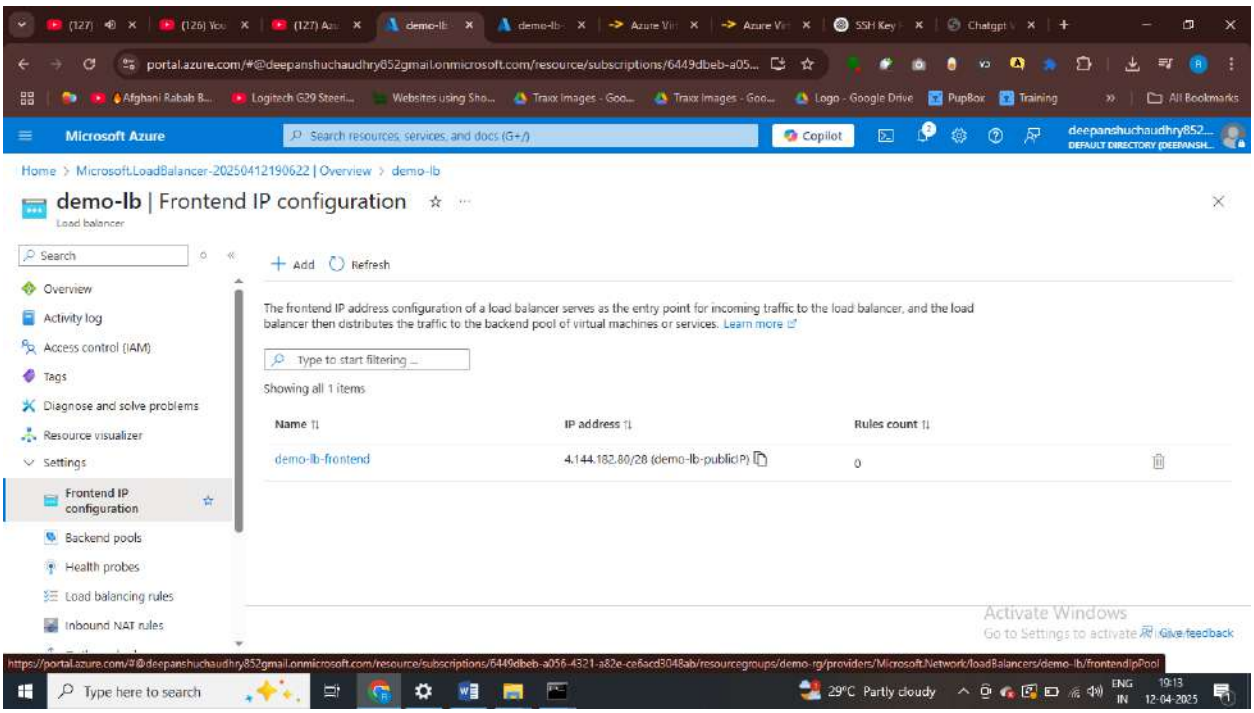
create a Load Balancer

load balancer need to have public ip that we will assign through the frontnend ip configuration

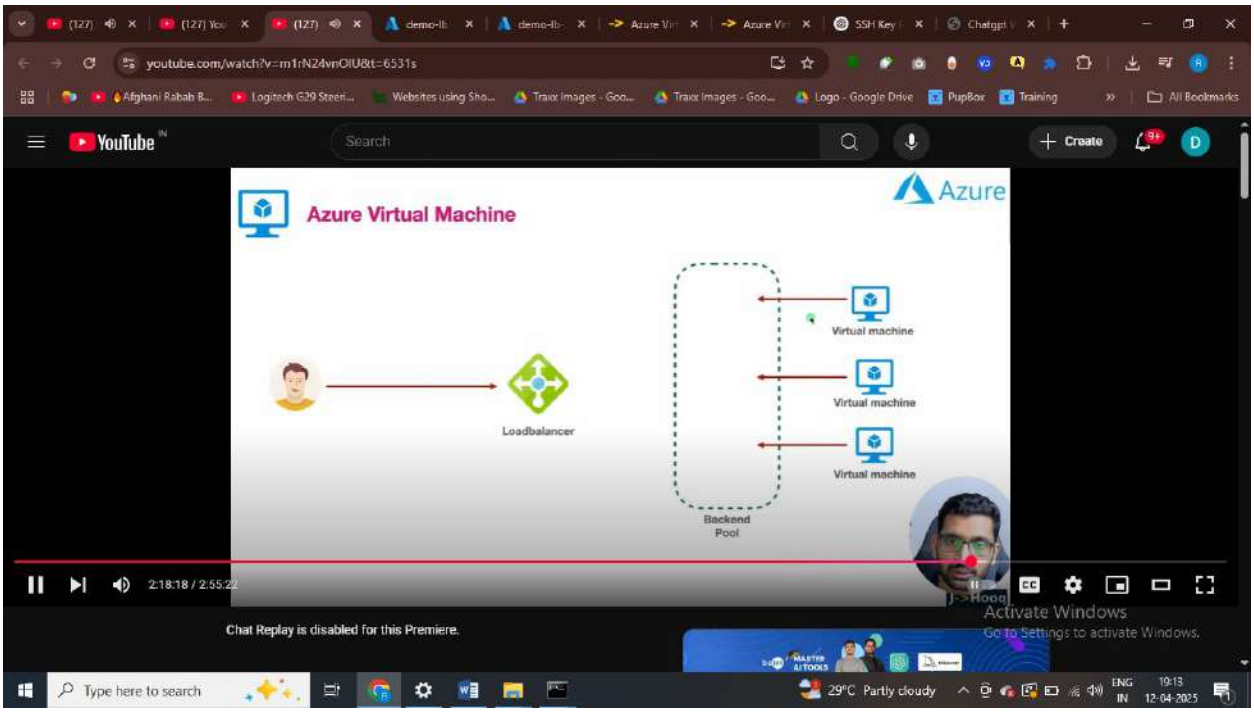




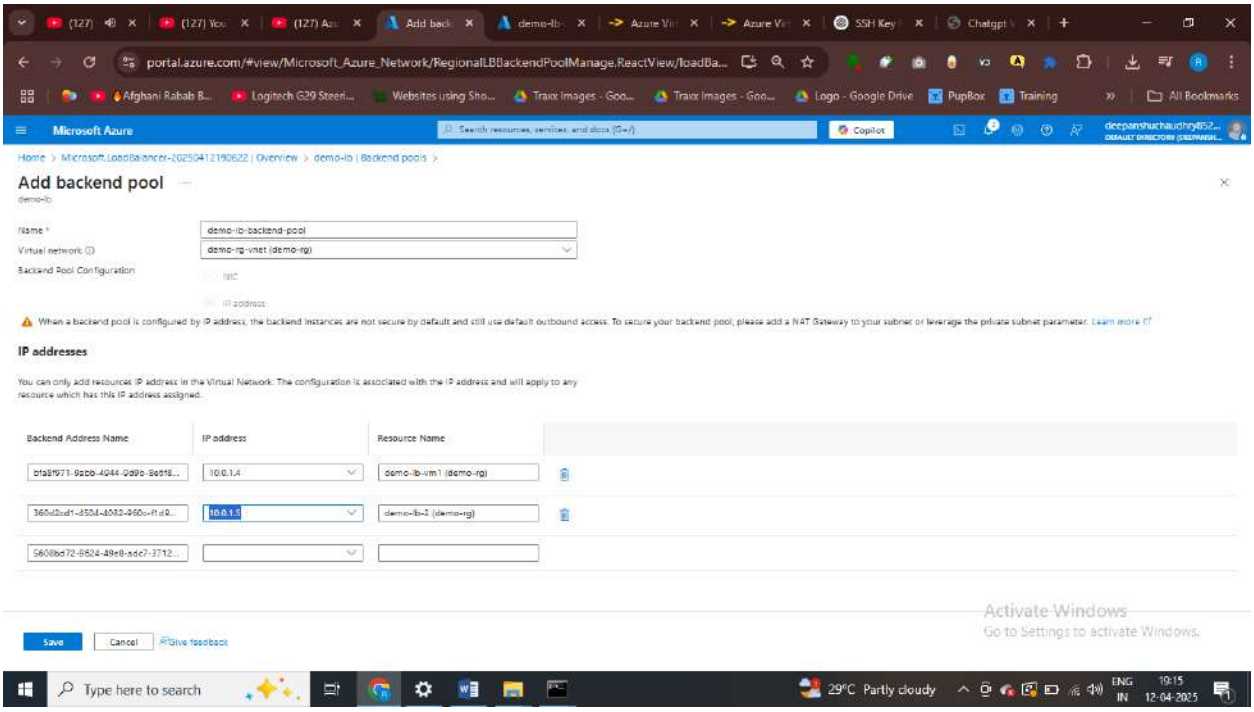
this is public ip of our load balancer

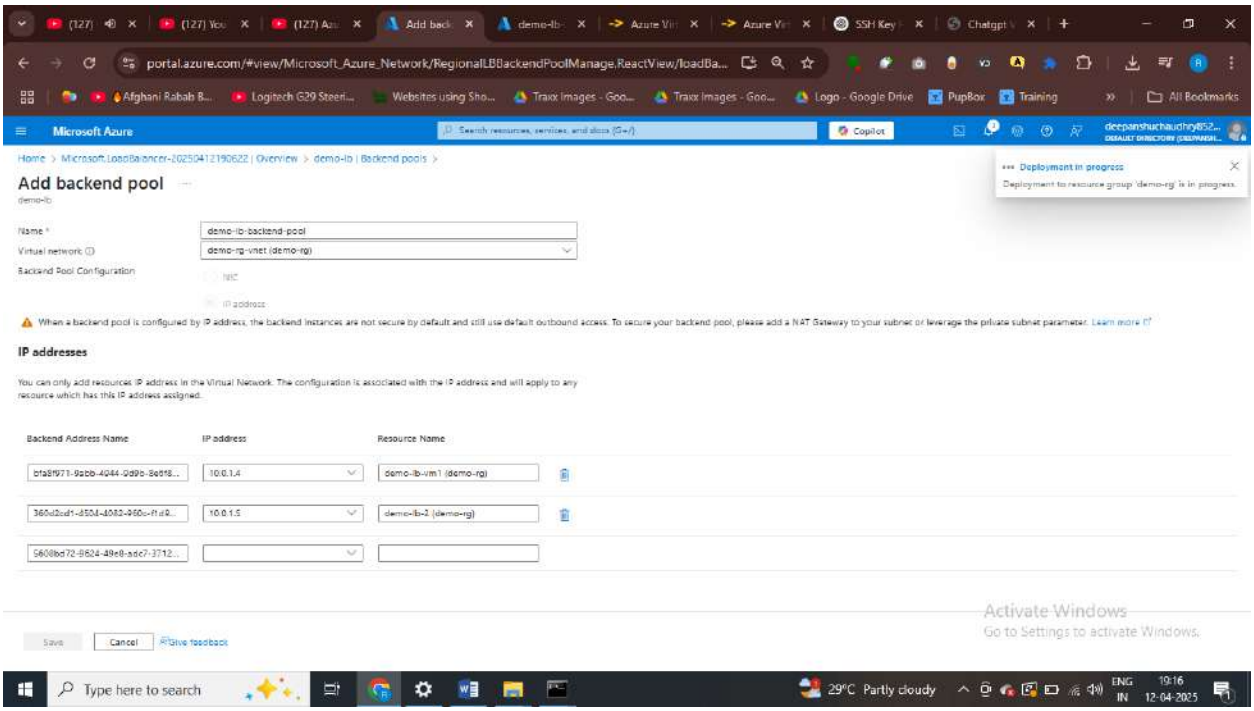


now create backend pool and assign vm in this backend pool

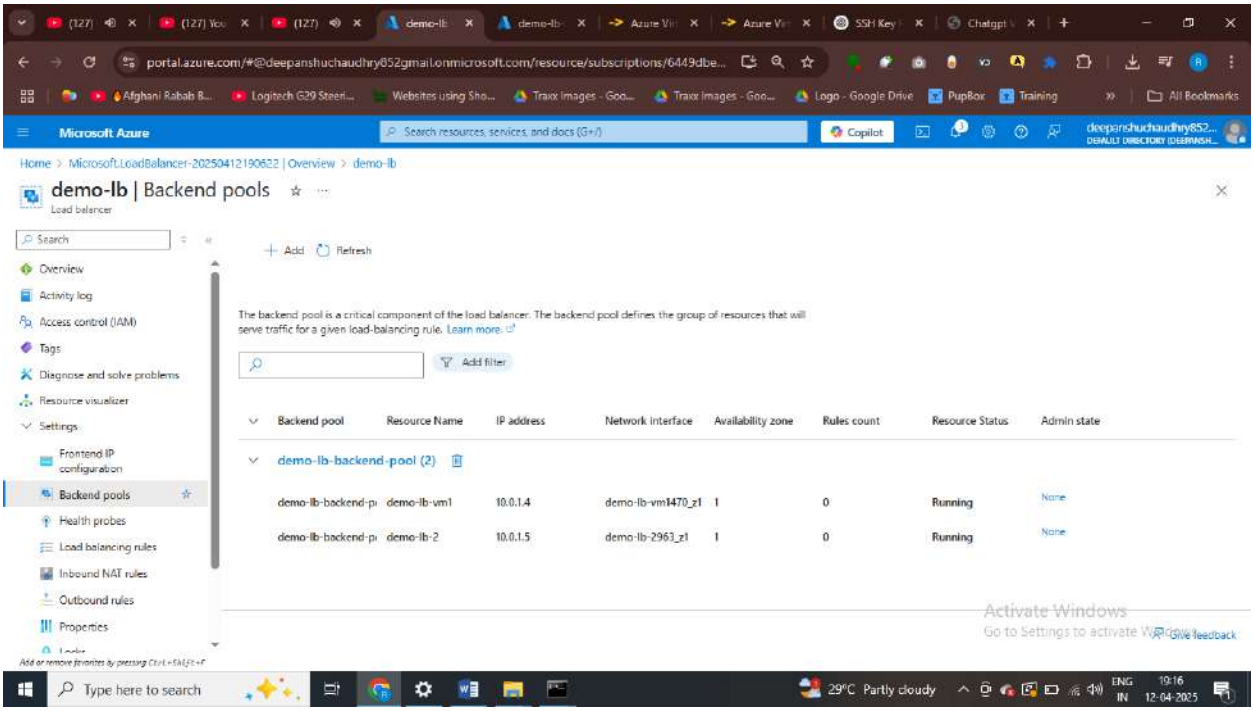


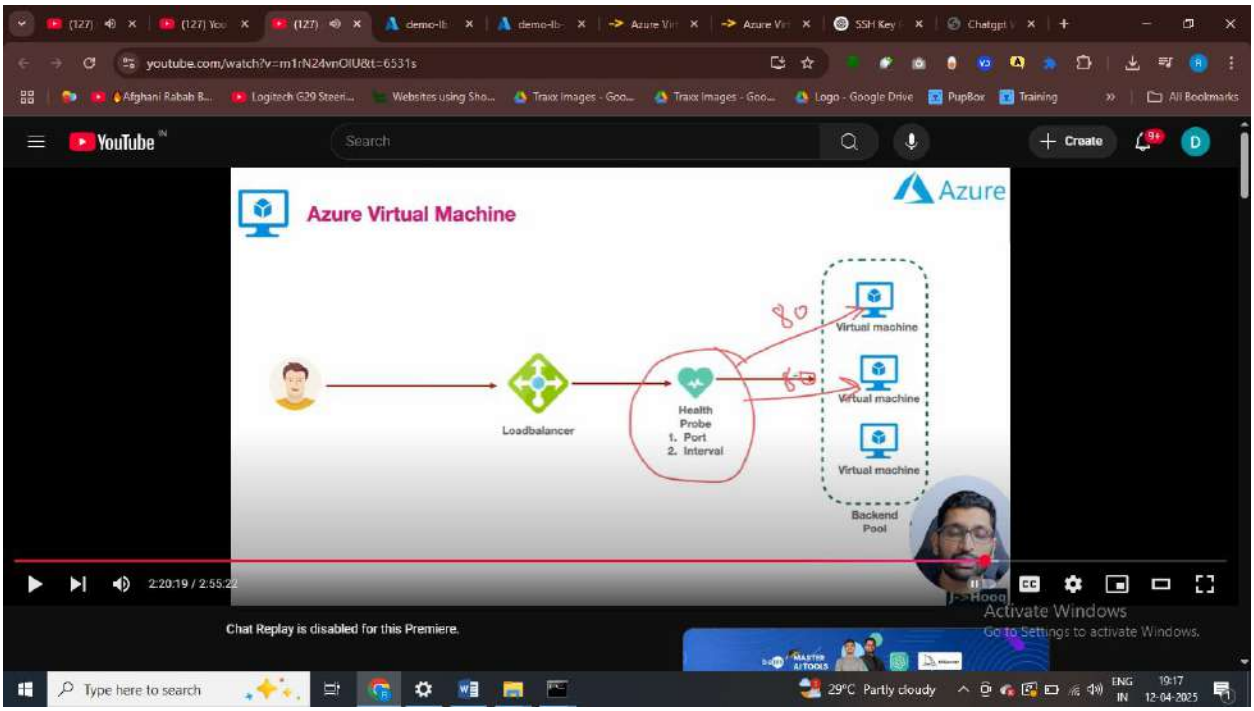
choose two vm inside backend pool





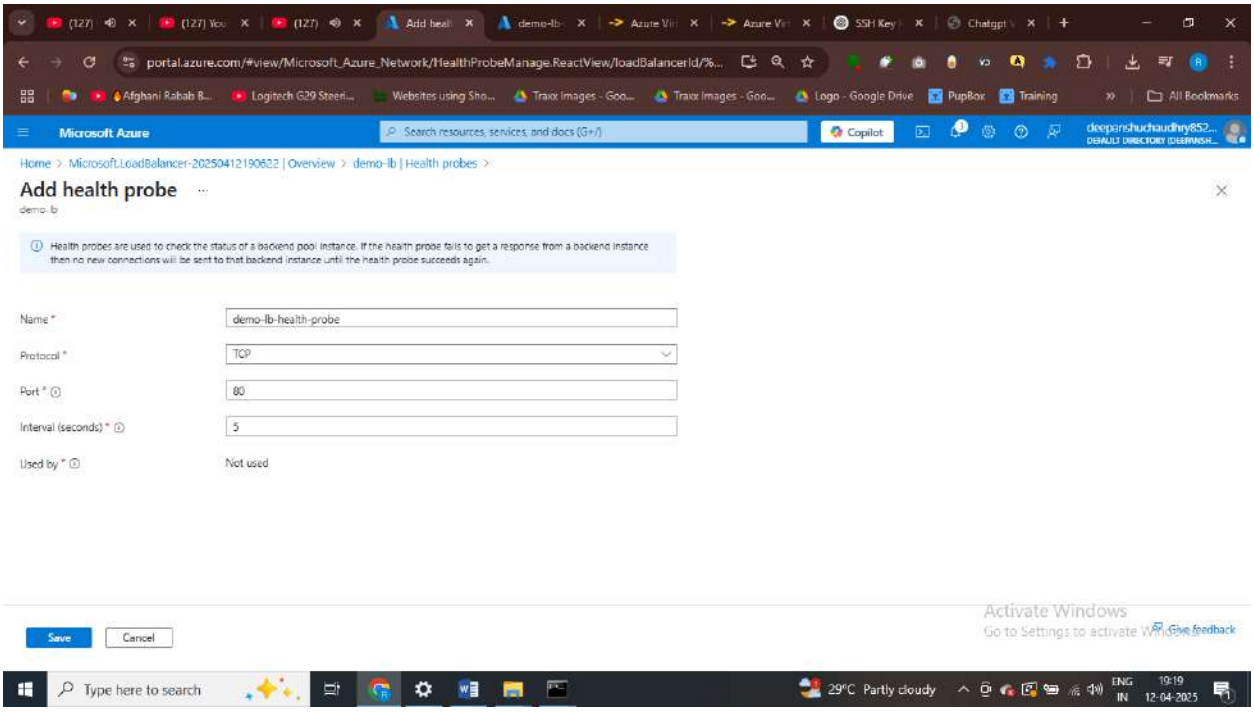
Inside backnd pool we have two VM



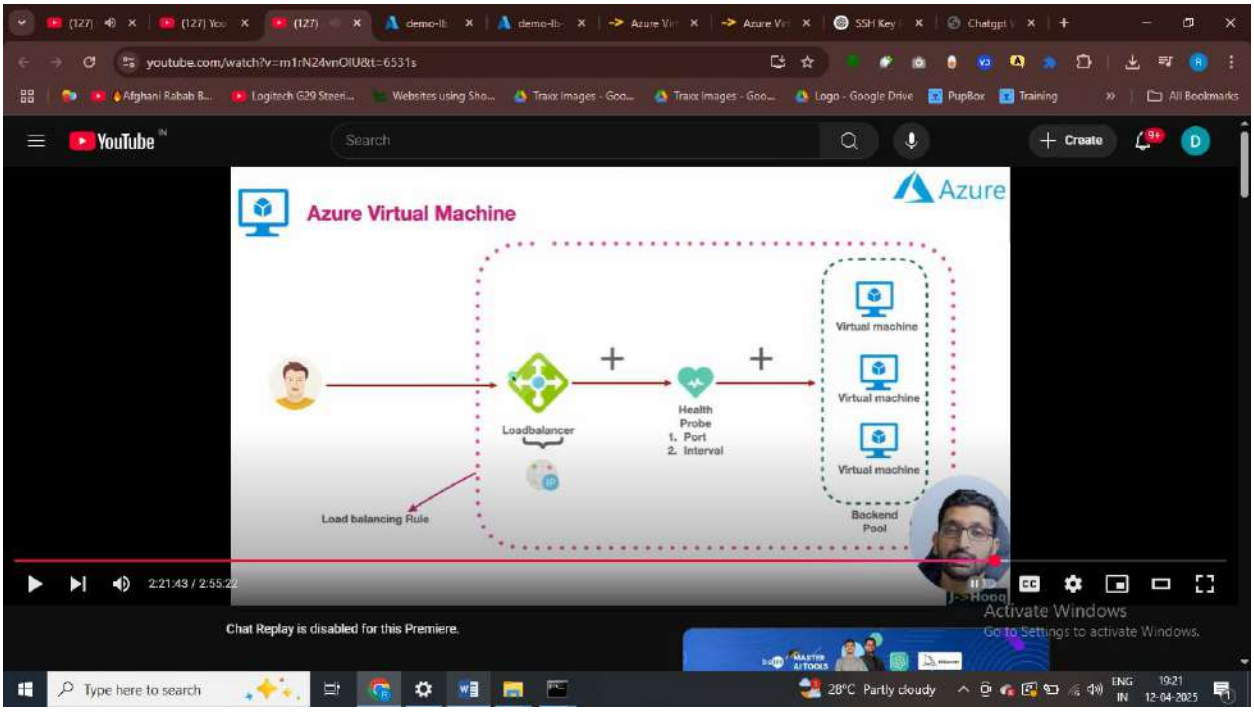


now create health probe so that request is going to only healty vm

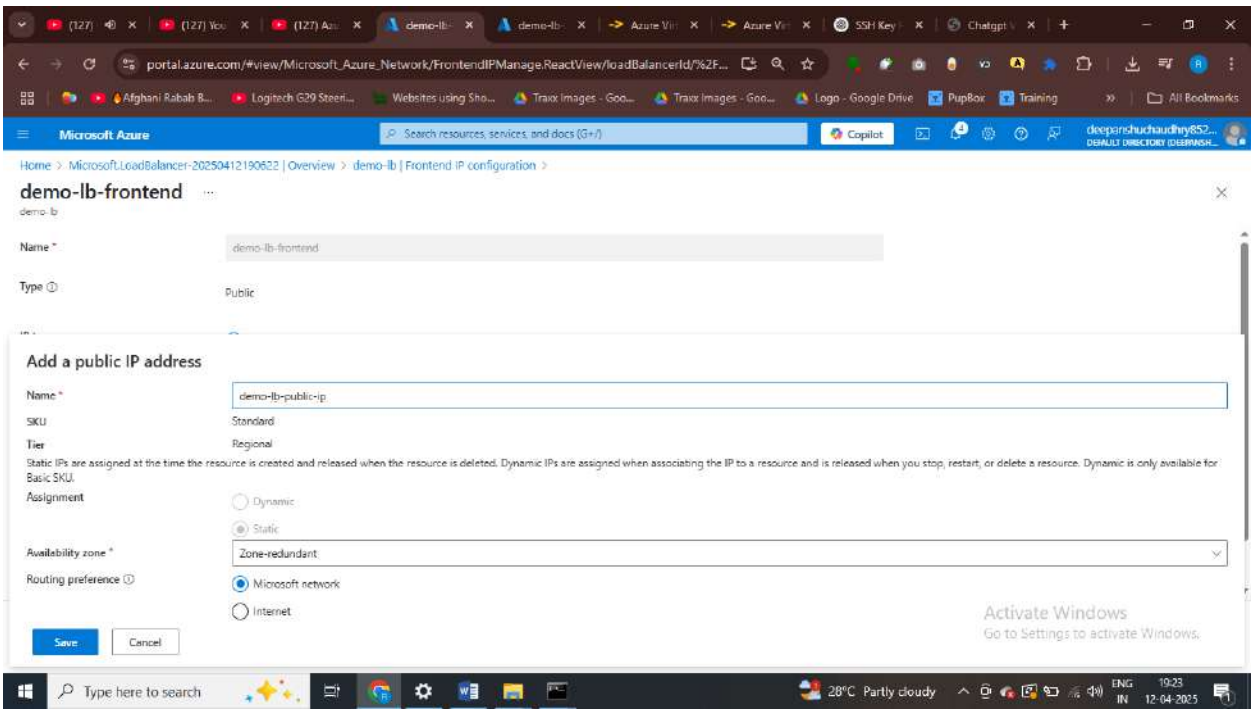
keep on poling at every 5 seconds



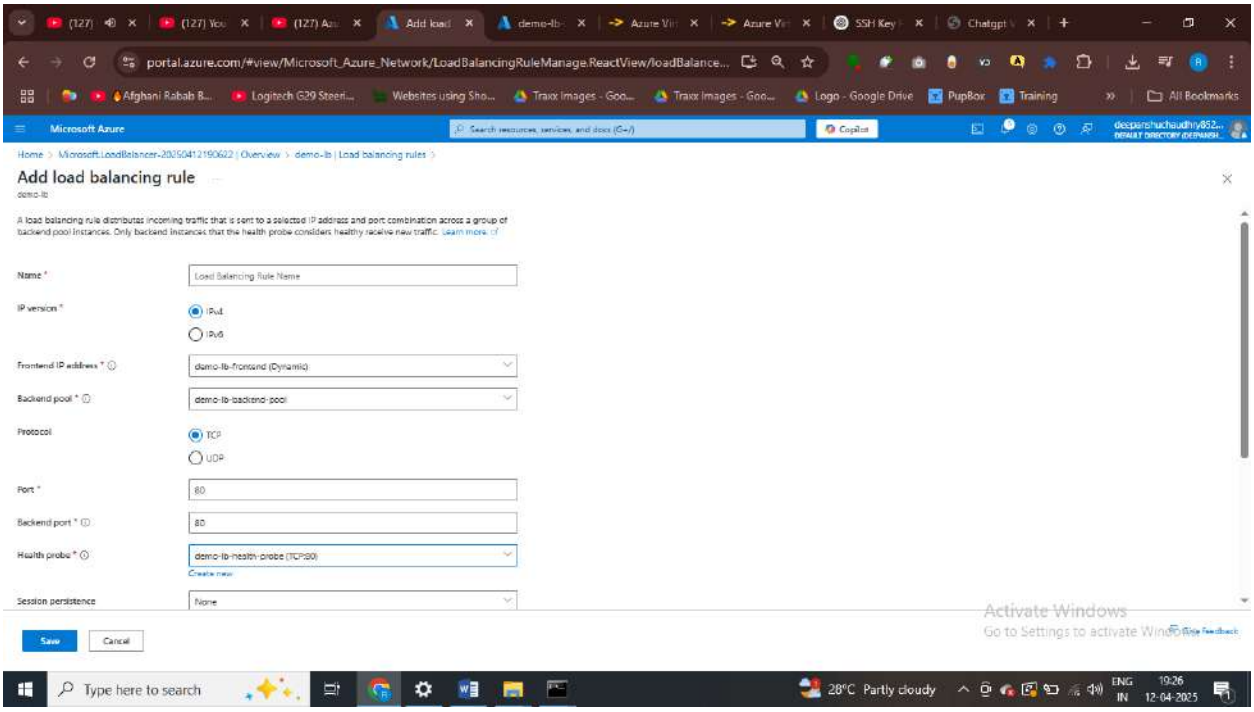
To attach everything we need load baclncer role -



#create frontend ip add - not used used ip prefix -



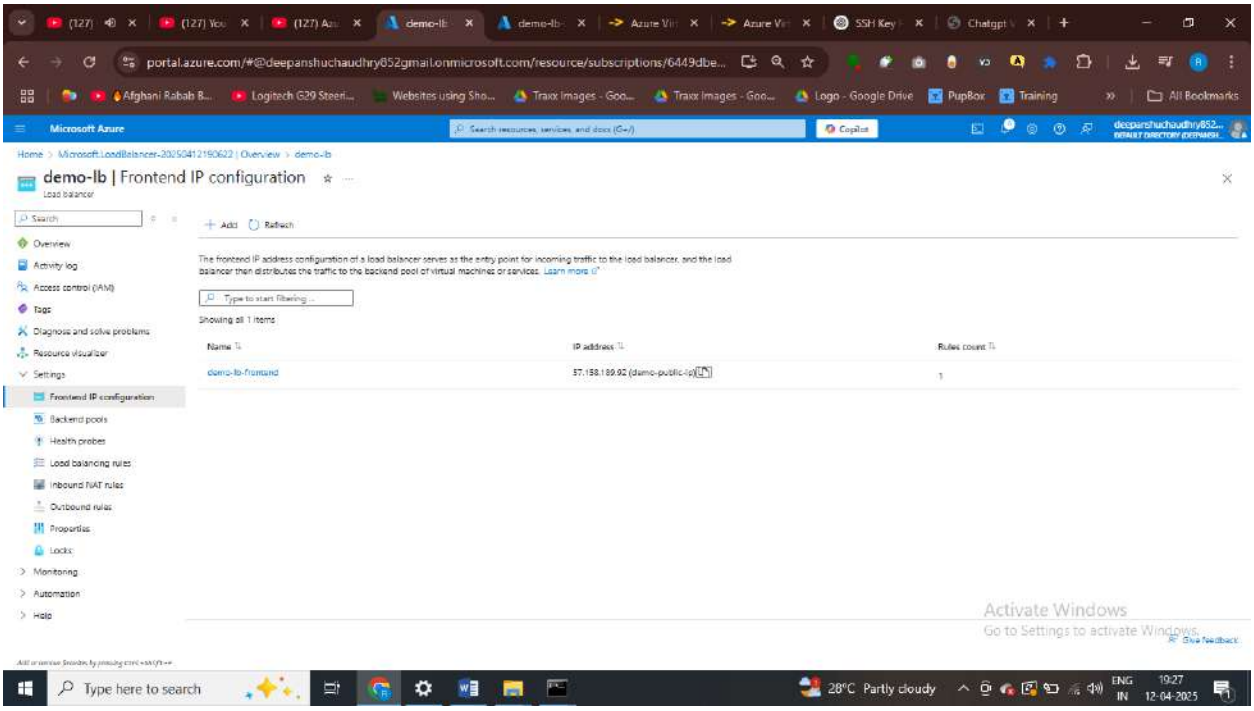
It will create forntned configuration with public IP



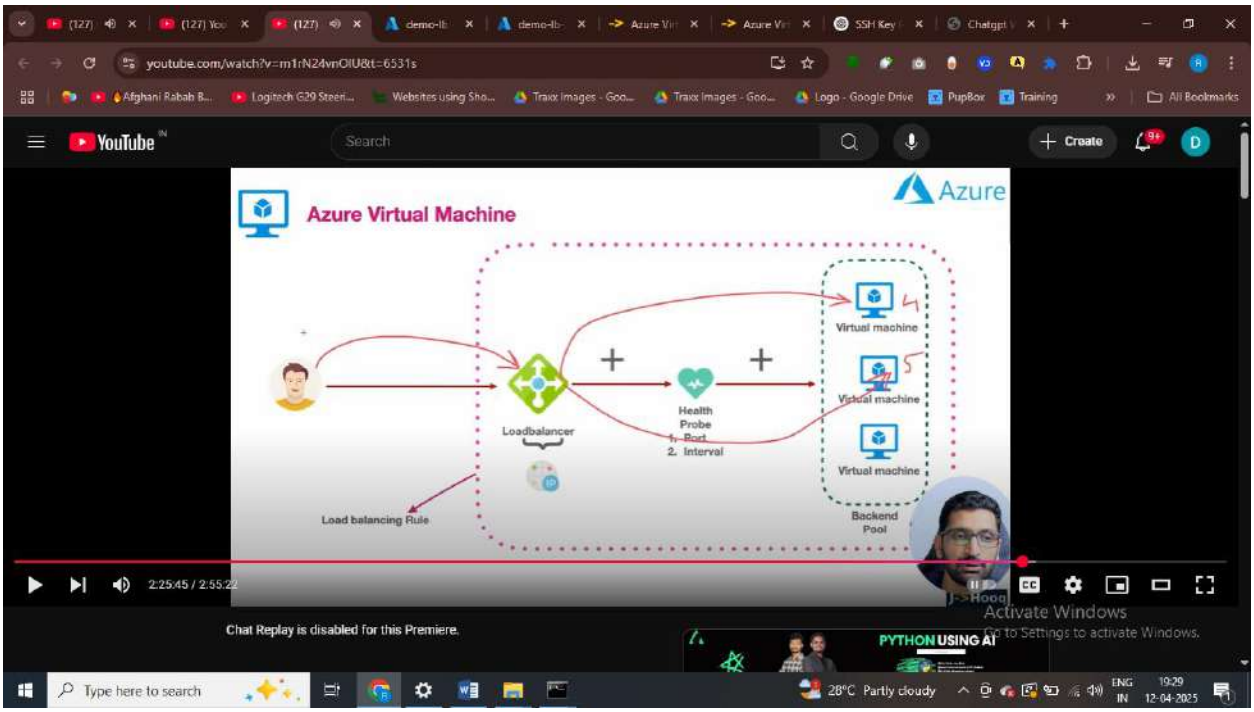
now try to access load balancer using public ip

with these public ip we can acess our Load Balancer and can also access both VM

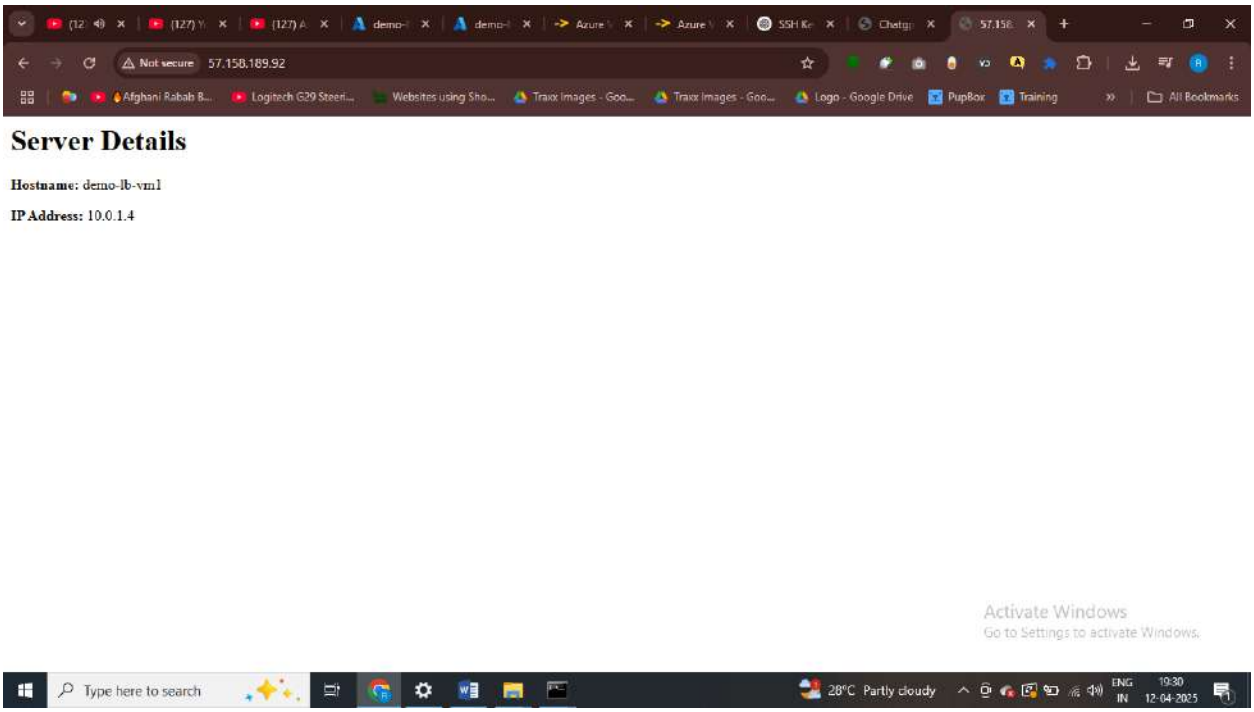
,



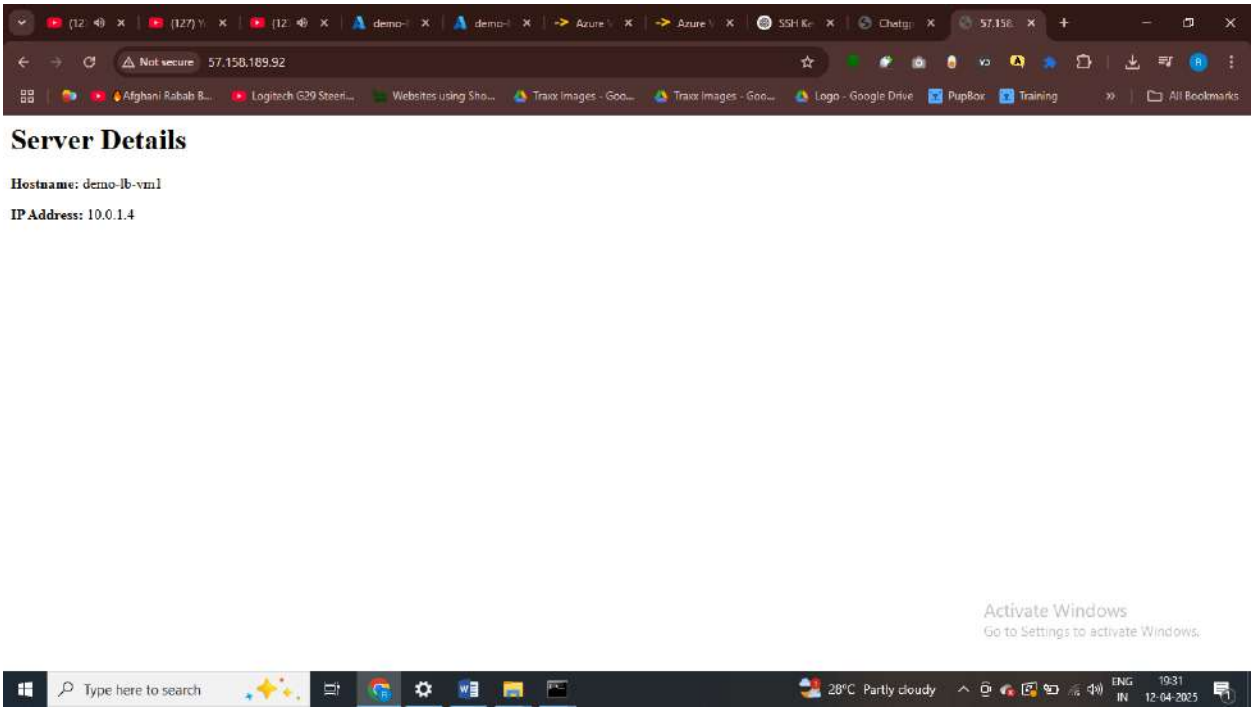
Load baclner automatticly readirect request to these Virtual machine

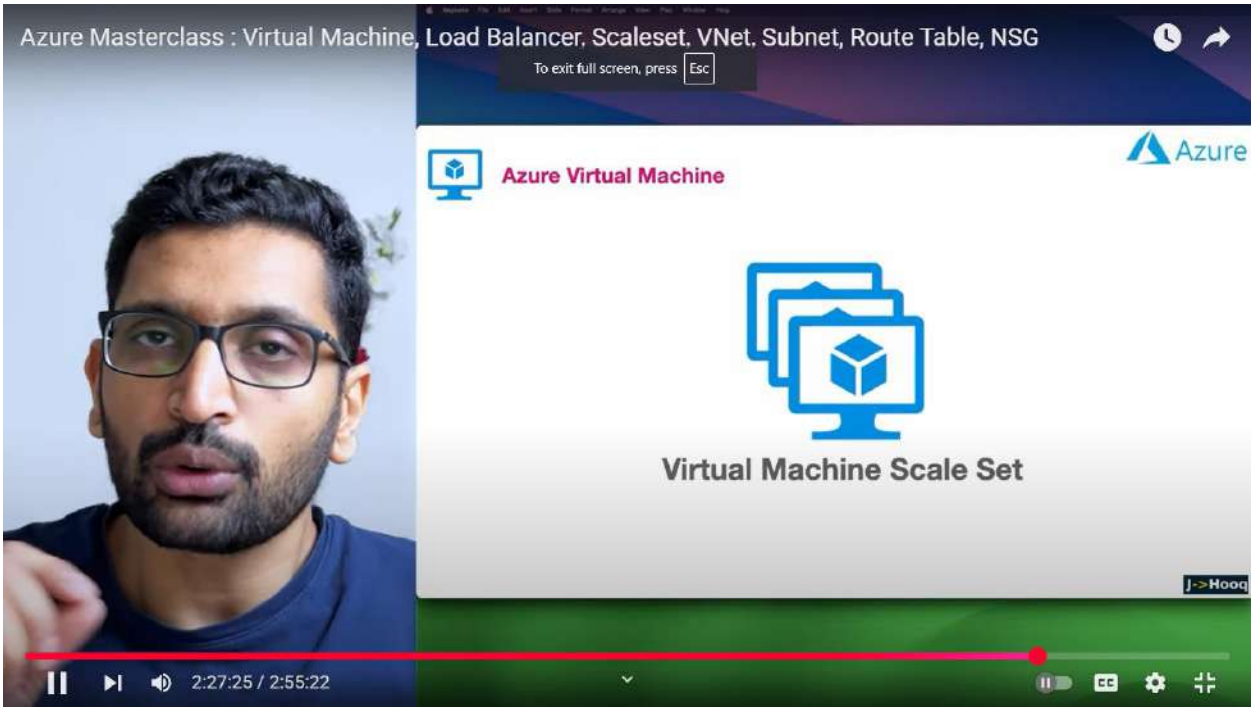


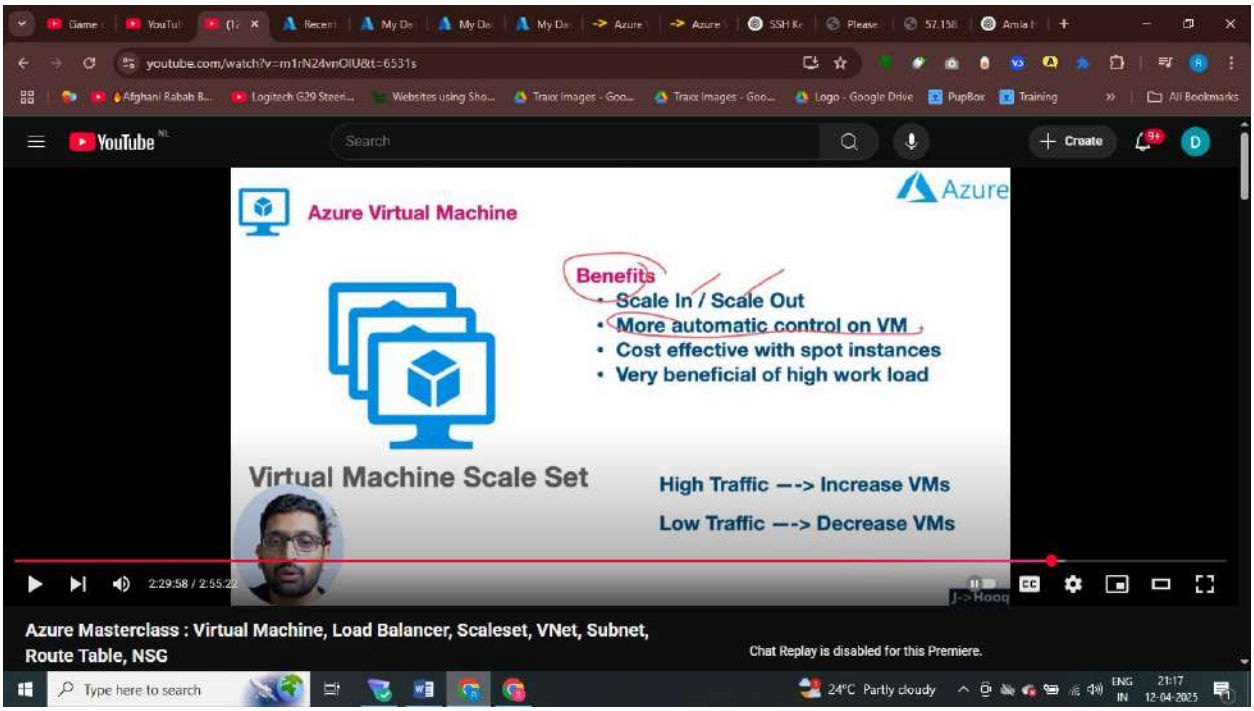
using public ip we can direct reqauest to both the load balancer



now it’s redirecting request to this first VM – so it redicret automatioclaly

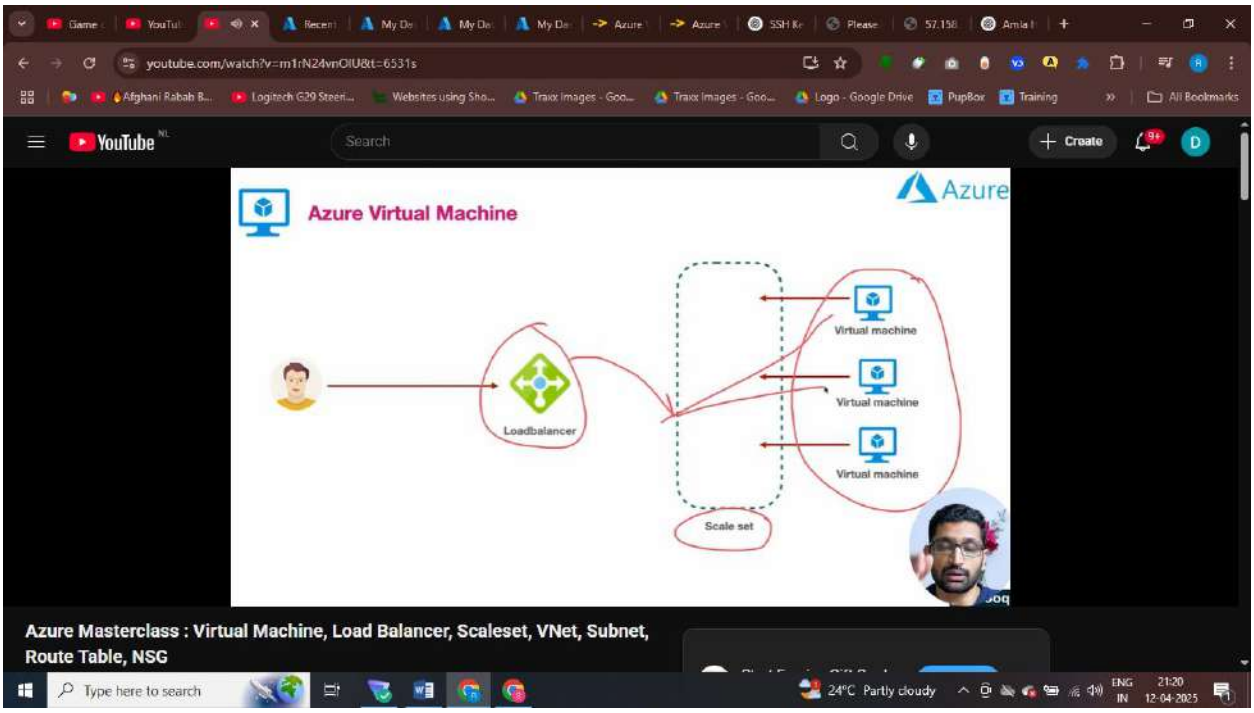




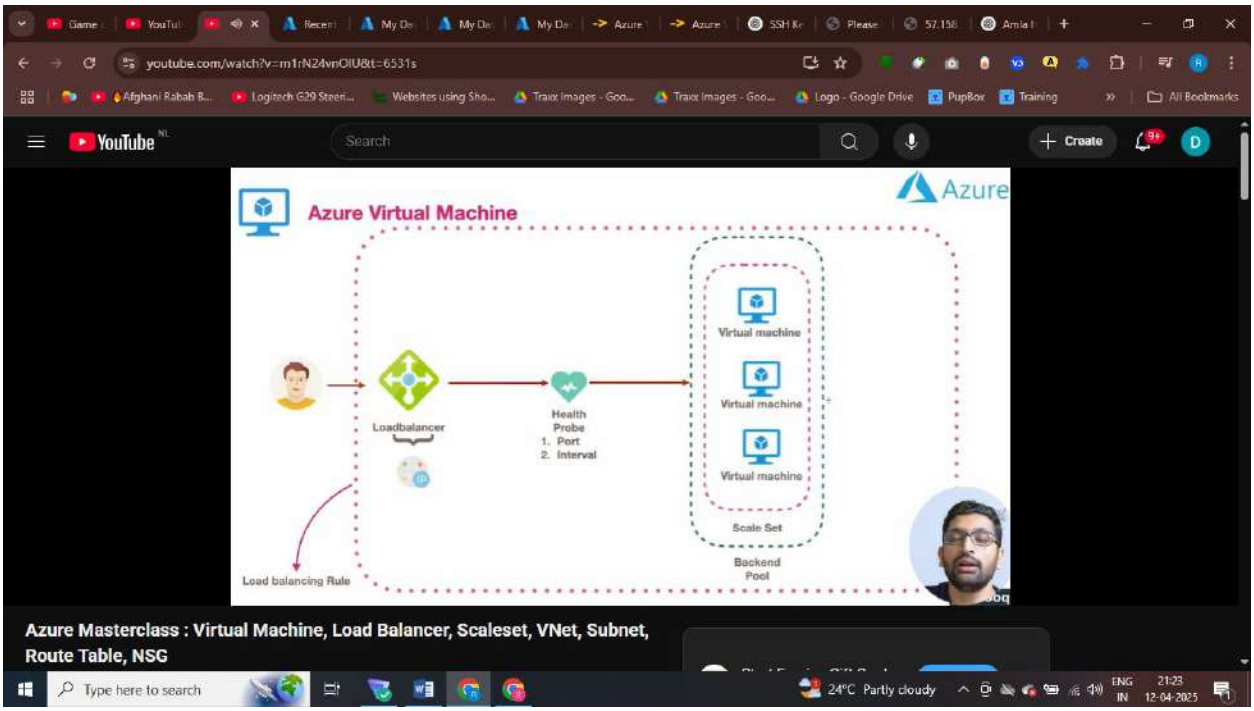


if we need 10 vm then we can specify in scale set

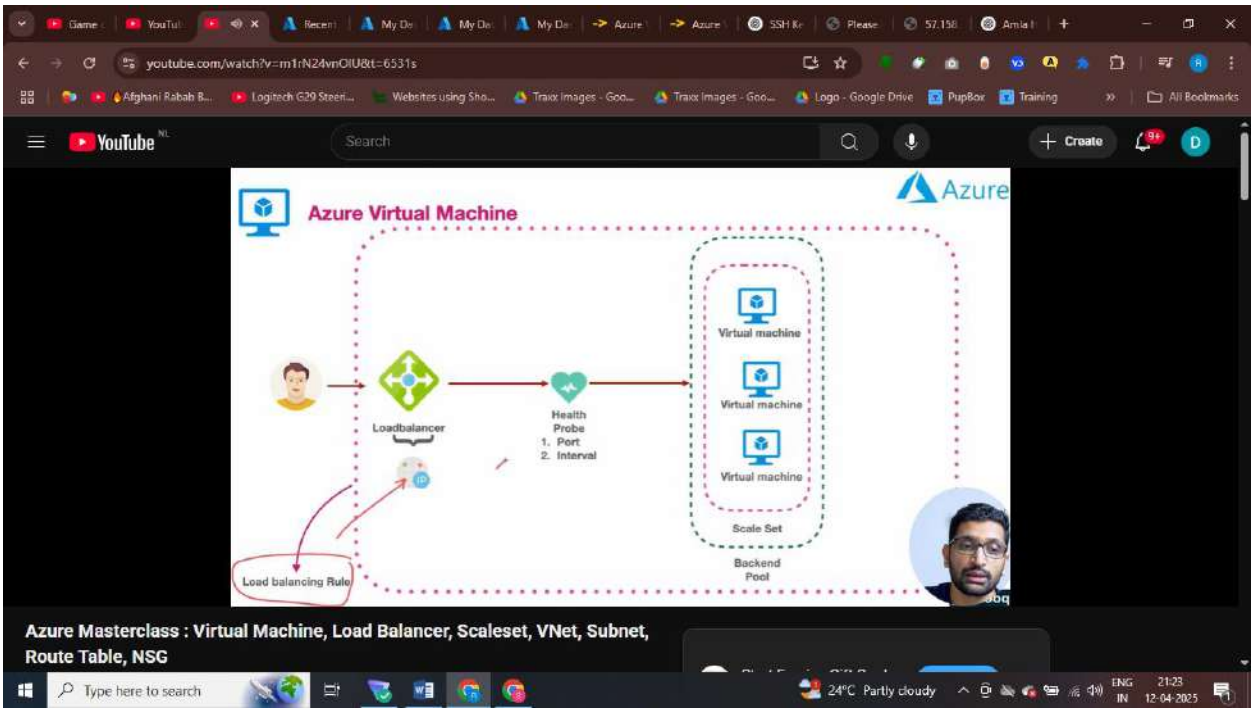
Inside scale set define VM THAT we need 3 Virtual mahcines her3



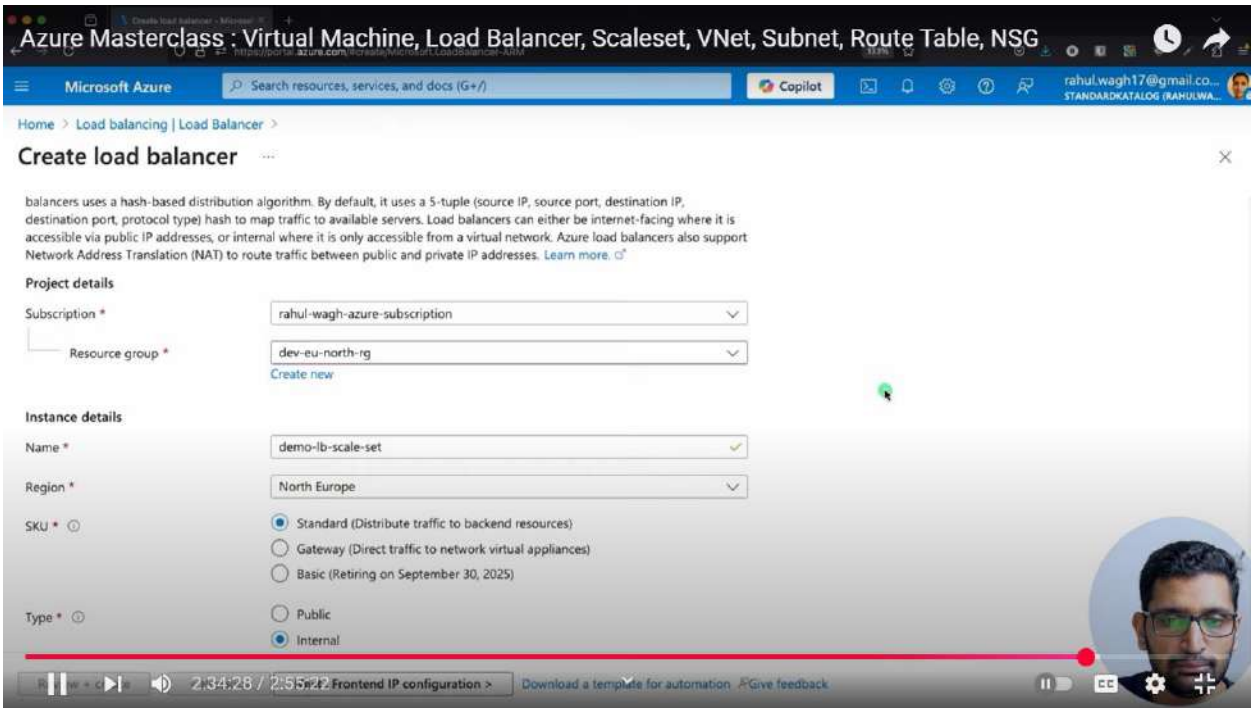
Backend poorl redicre



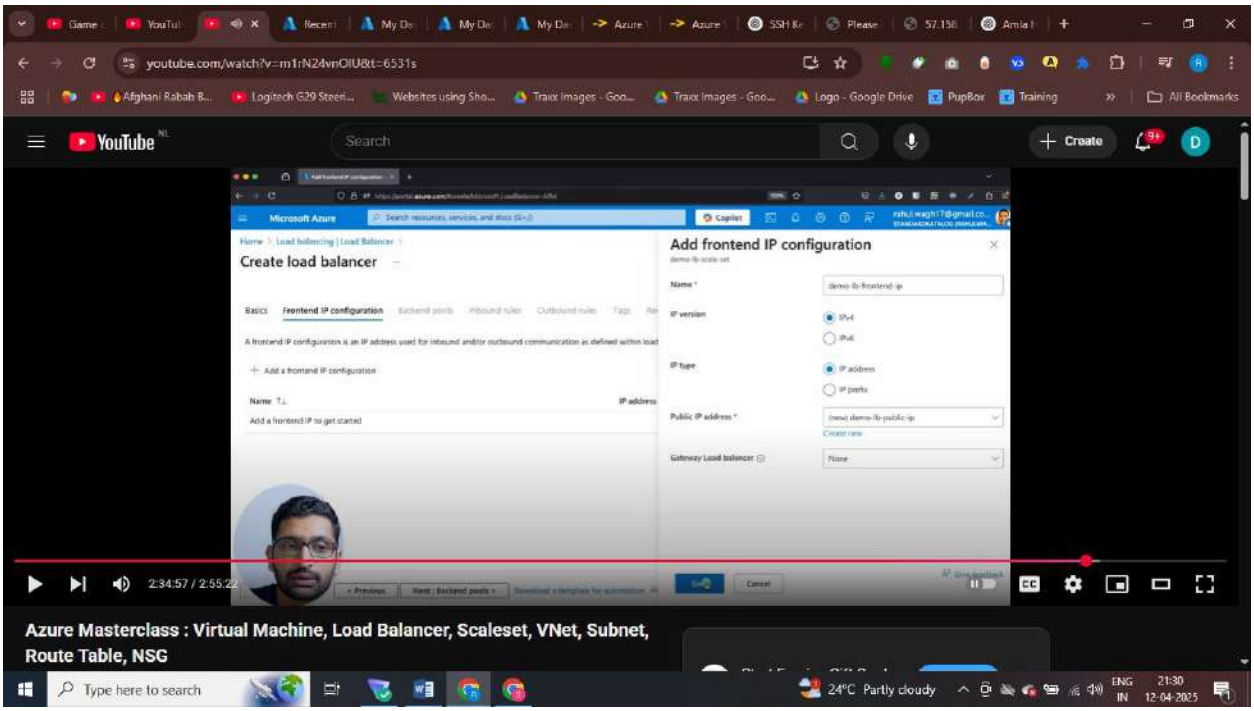
Inside scale set we have eevery VM and then we need to package everything inside load balancing role

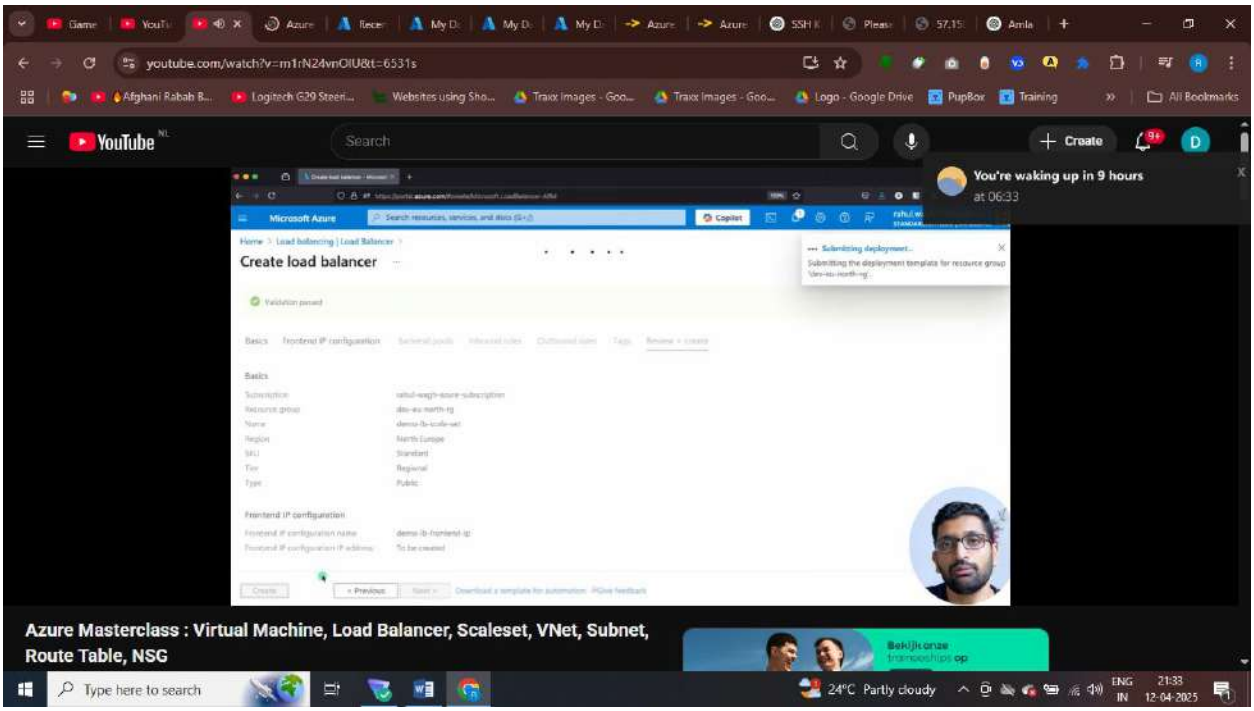


First crate load baalcner and but first you need to have reosurce gp prenet and vnet also and subnet all the things



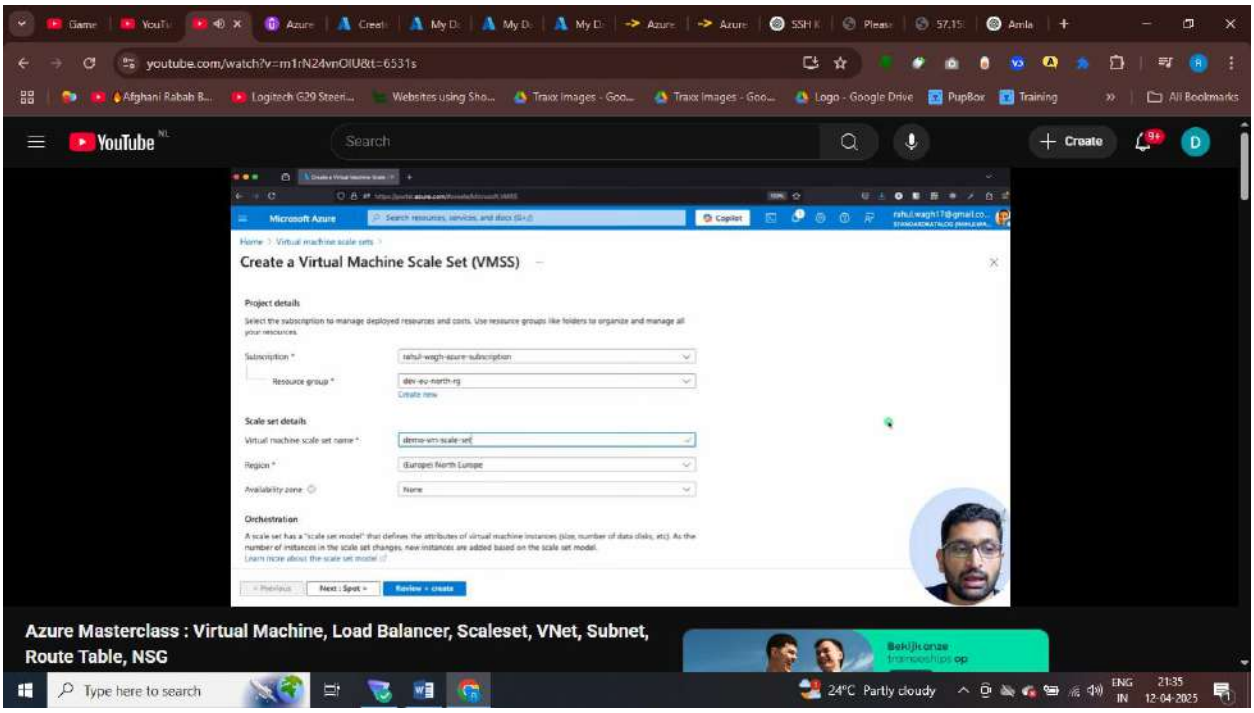
add frontned configurations



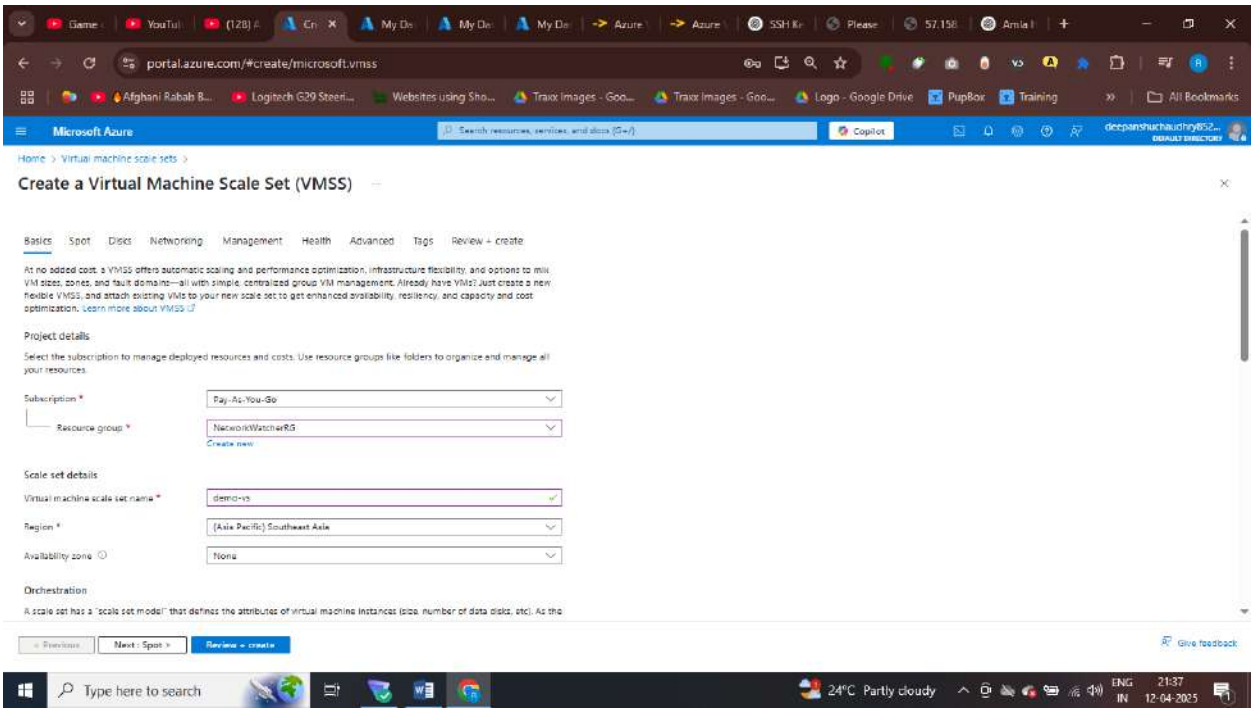


crated a load balancer

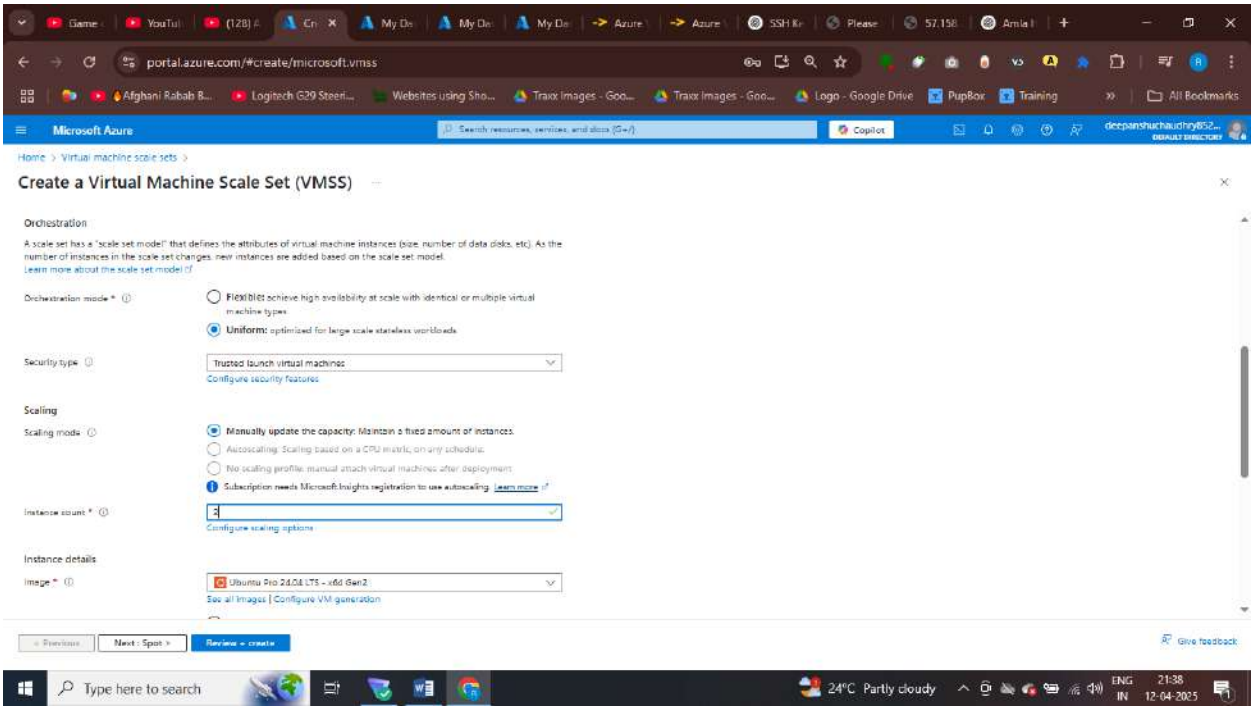
now we need to create scale set

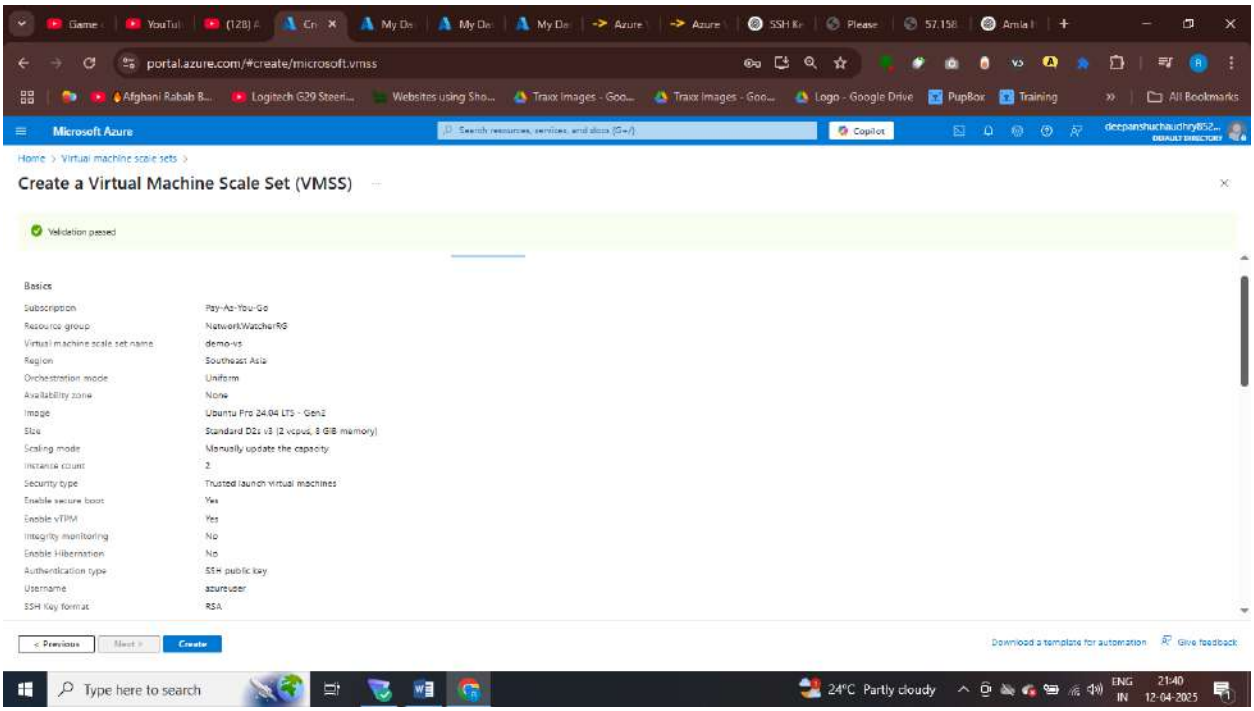


#

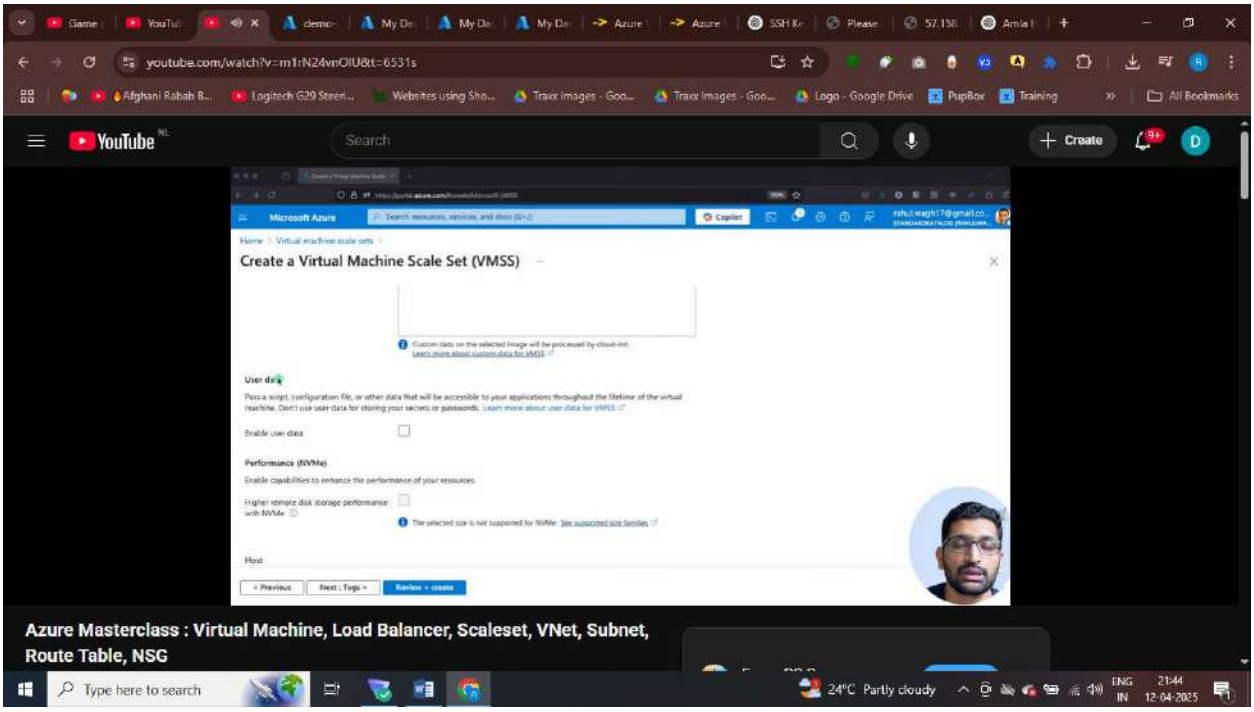


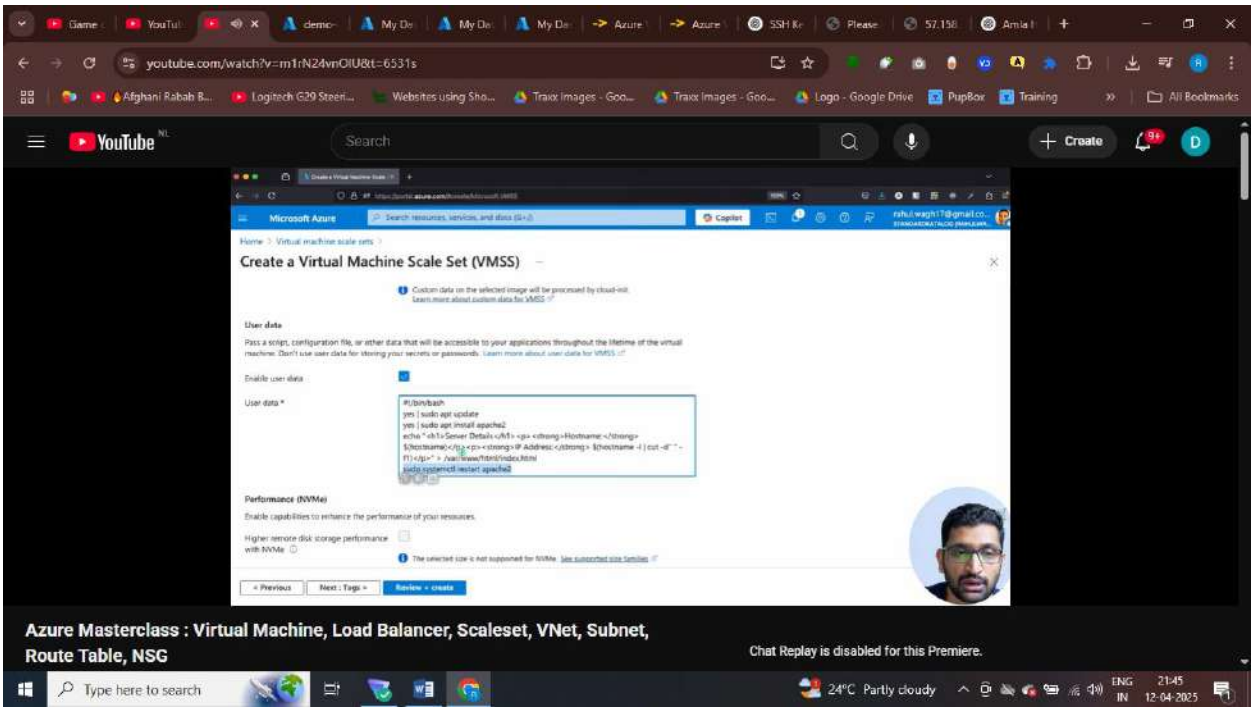
atlest 2 Vm KEEP it running



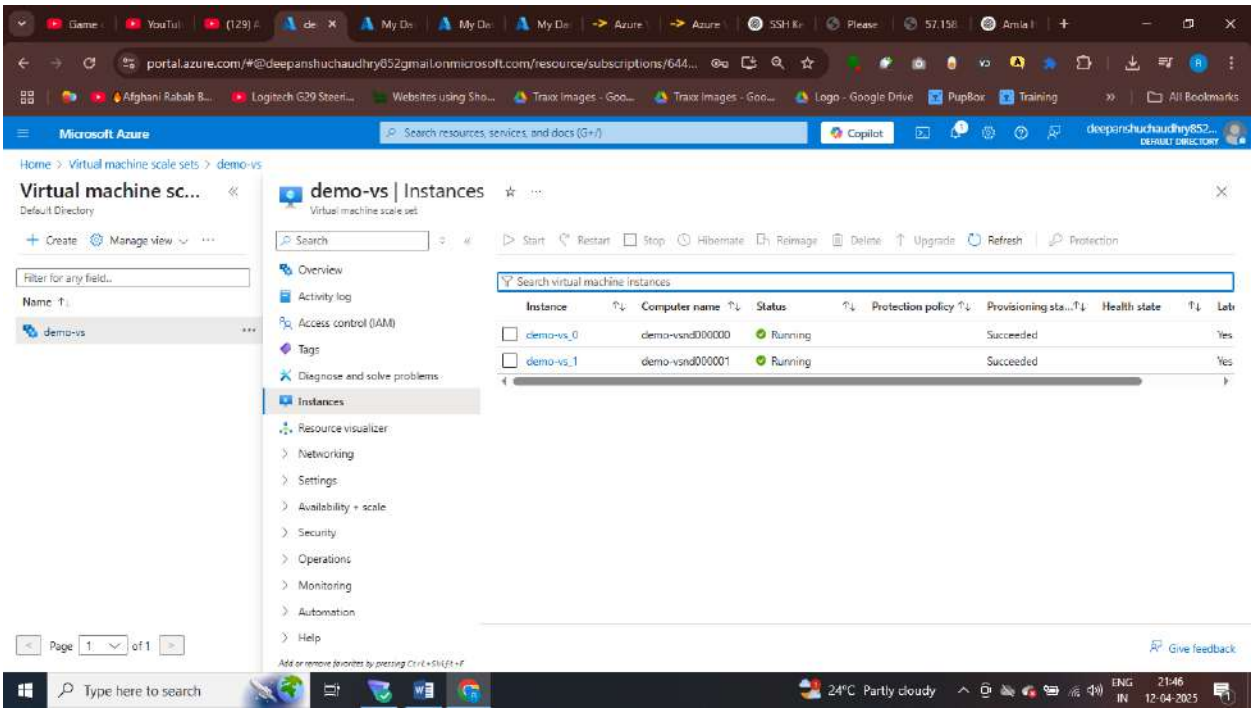


Installing apache2 server ,

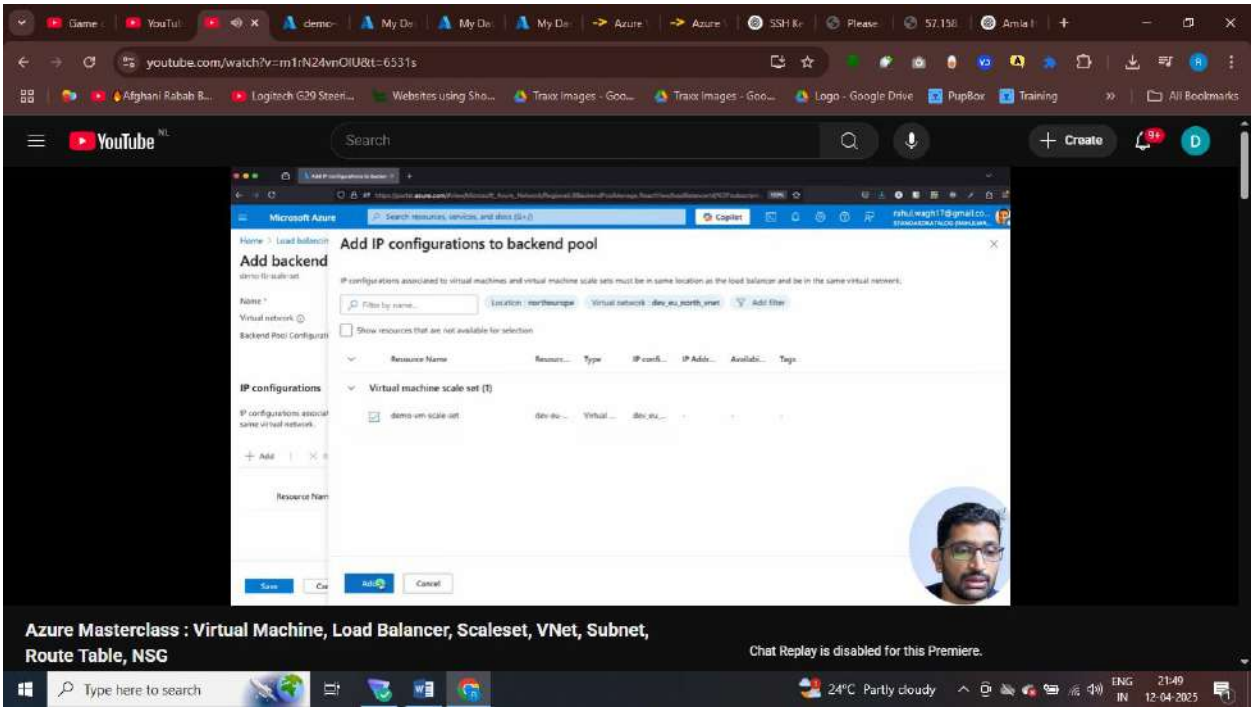




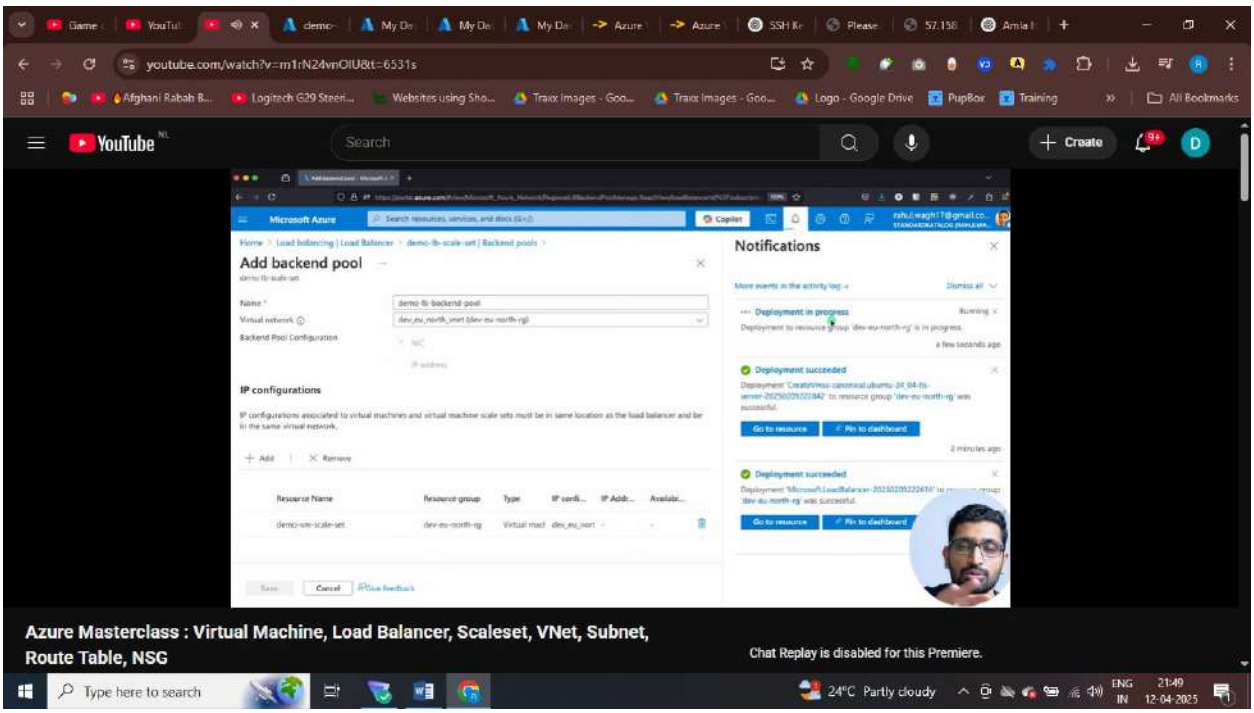
isnside virtual scale our 2 isnance are running



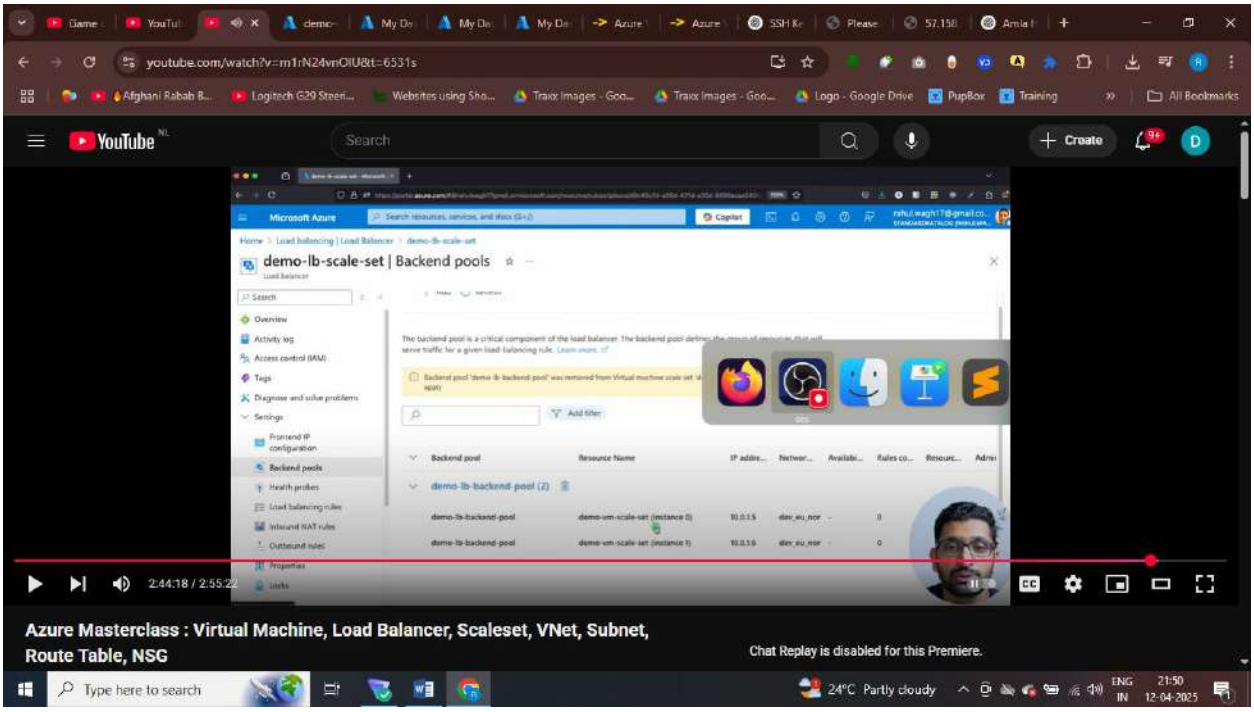
#isnide backend pool attaching oour scale set -



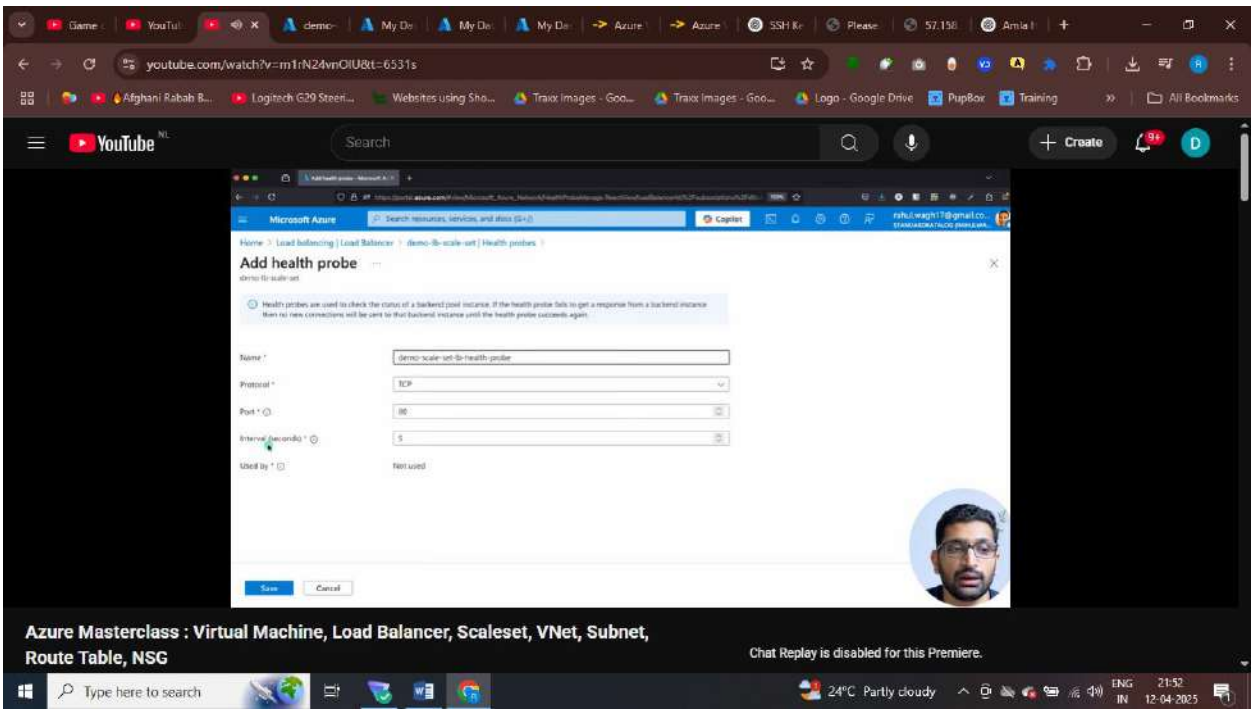
Now deploying oru backend pool



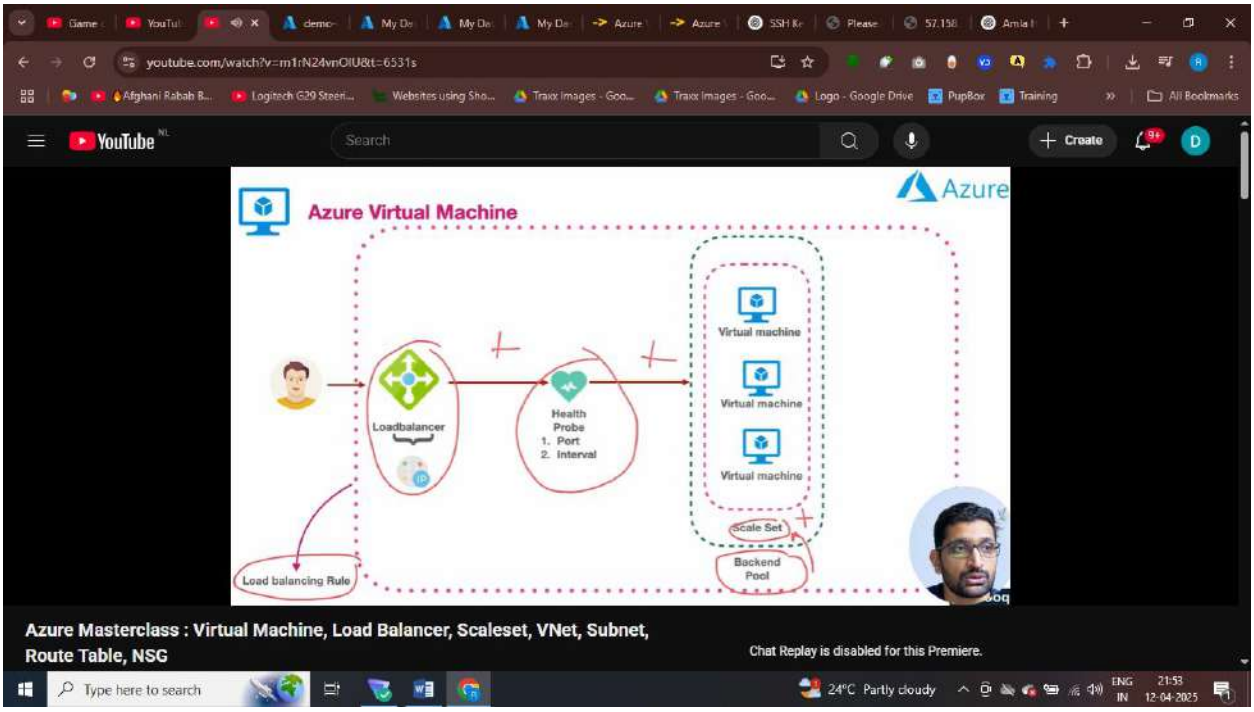
Now sacle set attach with load balancer and working succesfuuly

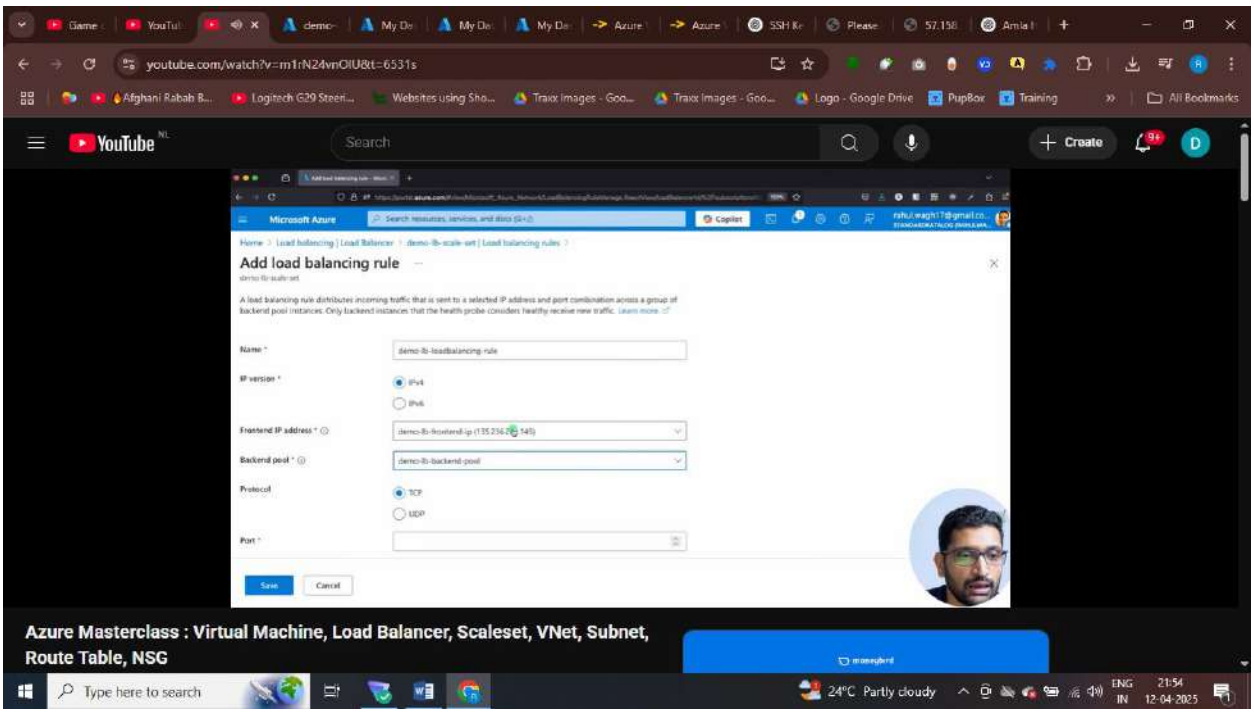


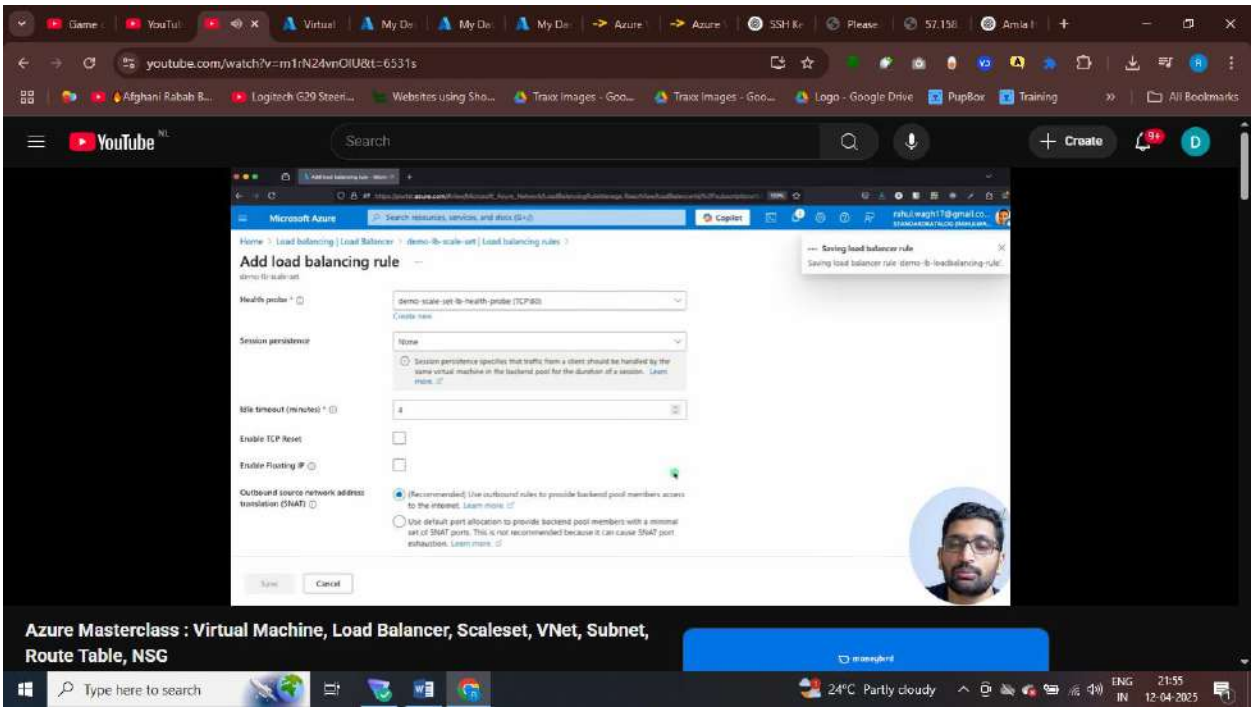
adding helath probe so that traffic is redirect to healty instalnce only



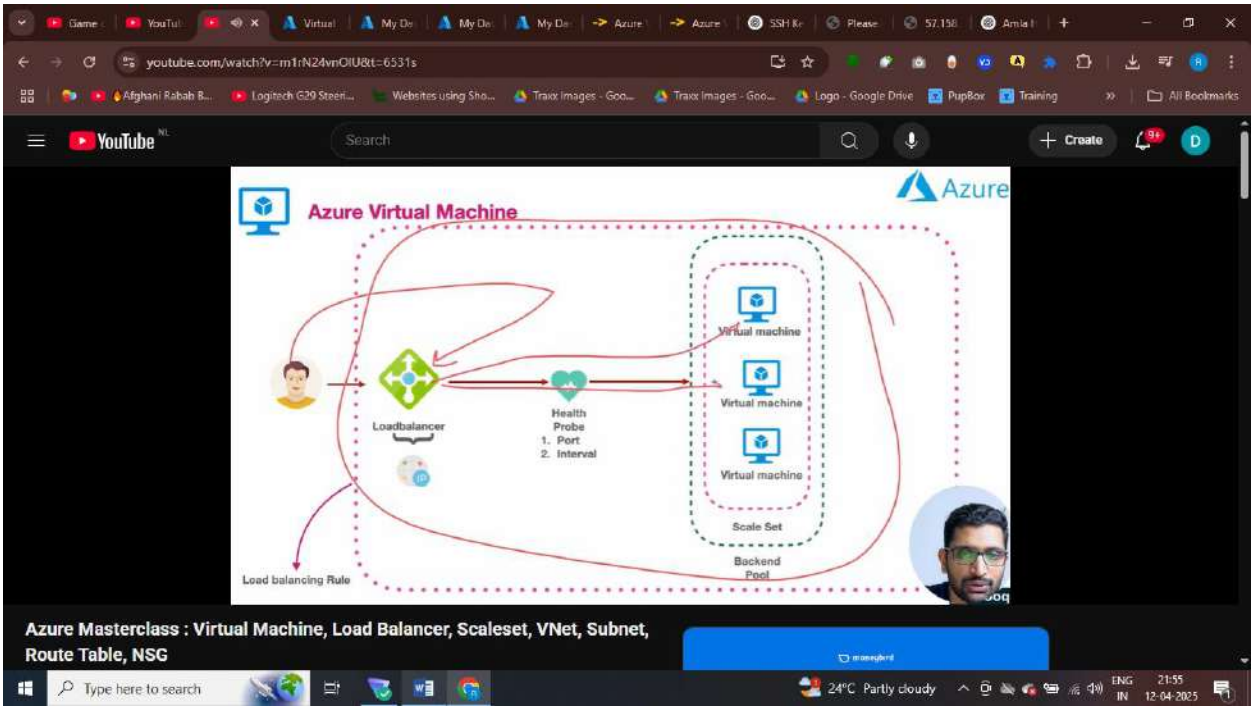
Now create load balancer role so that eveyrhing is clubbed together



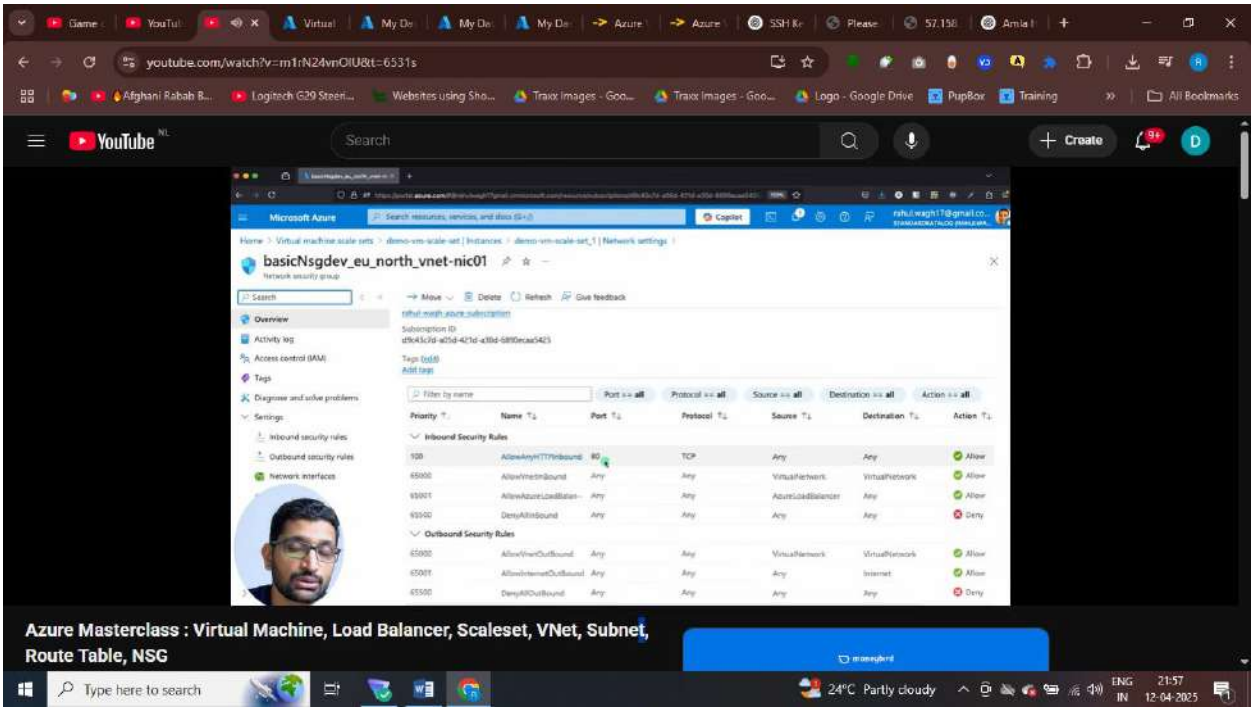




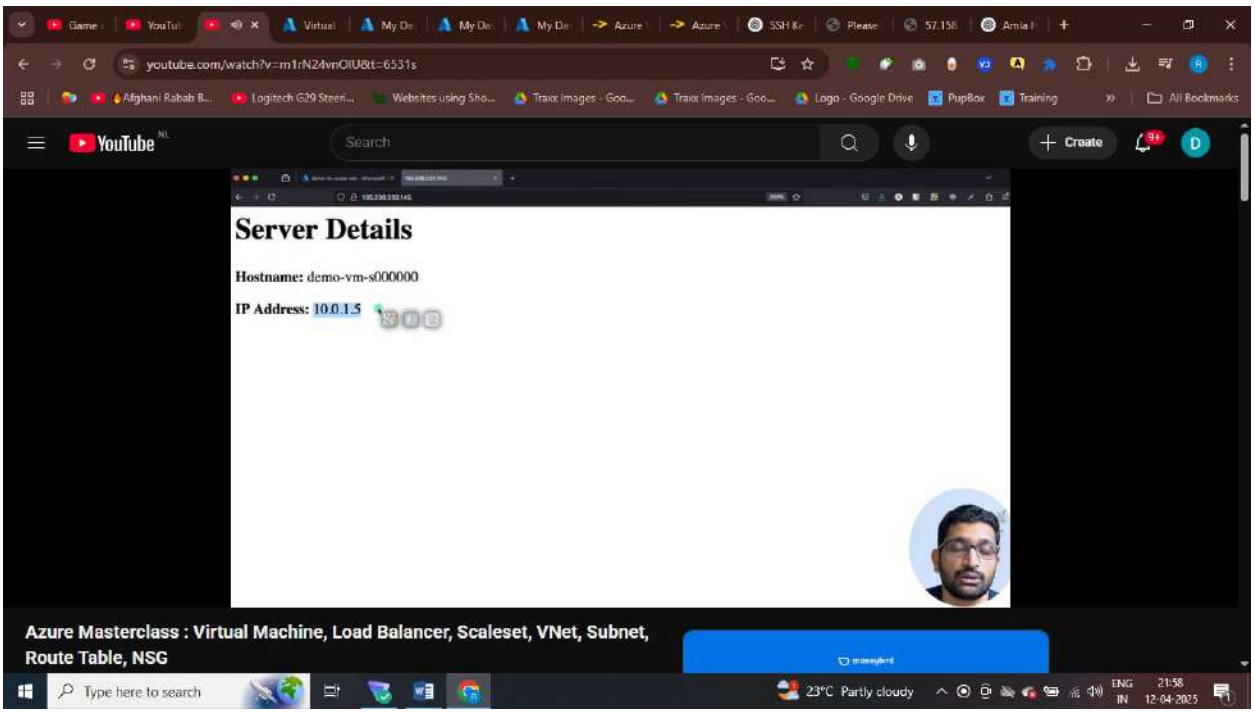
now our load balcner is ready can process request – but pleaes allow port 80 inside VM so that user can user can send request to load balancer using frontned ip that load balancer have

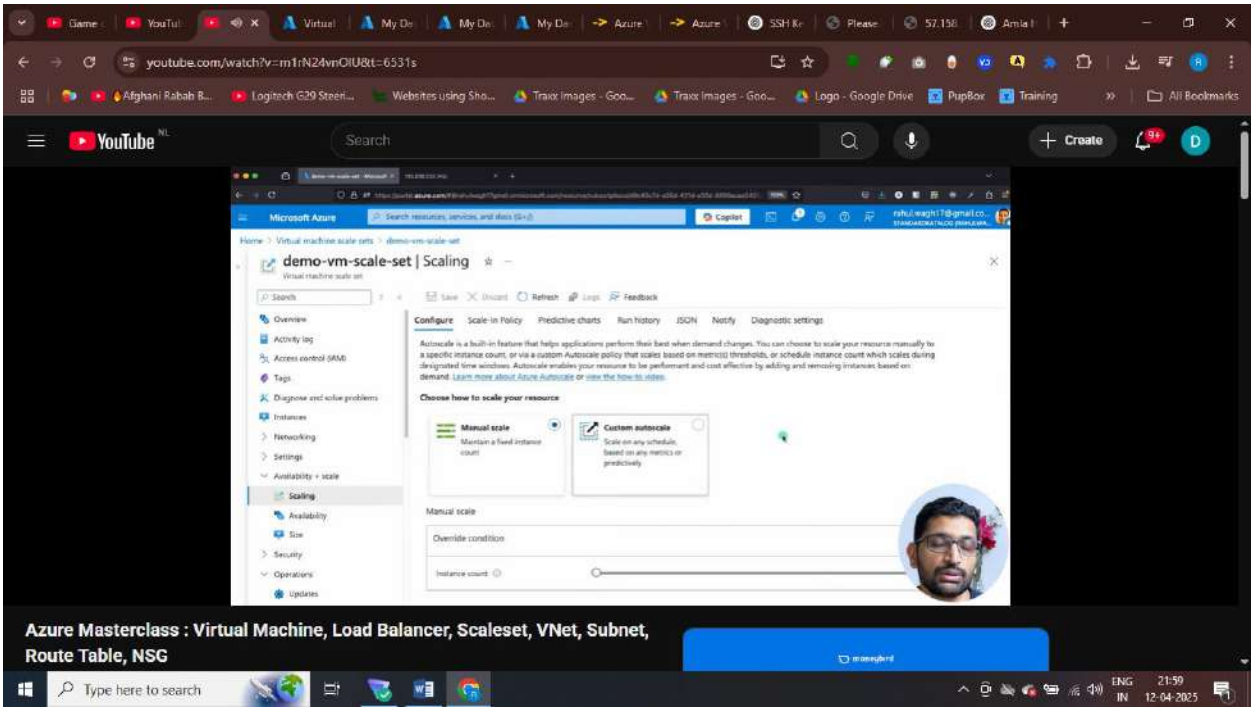


Now load balancer is ready and request routed throught load balancer

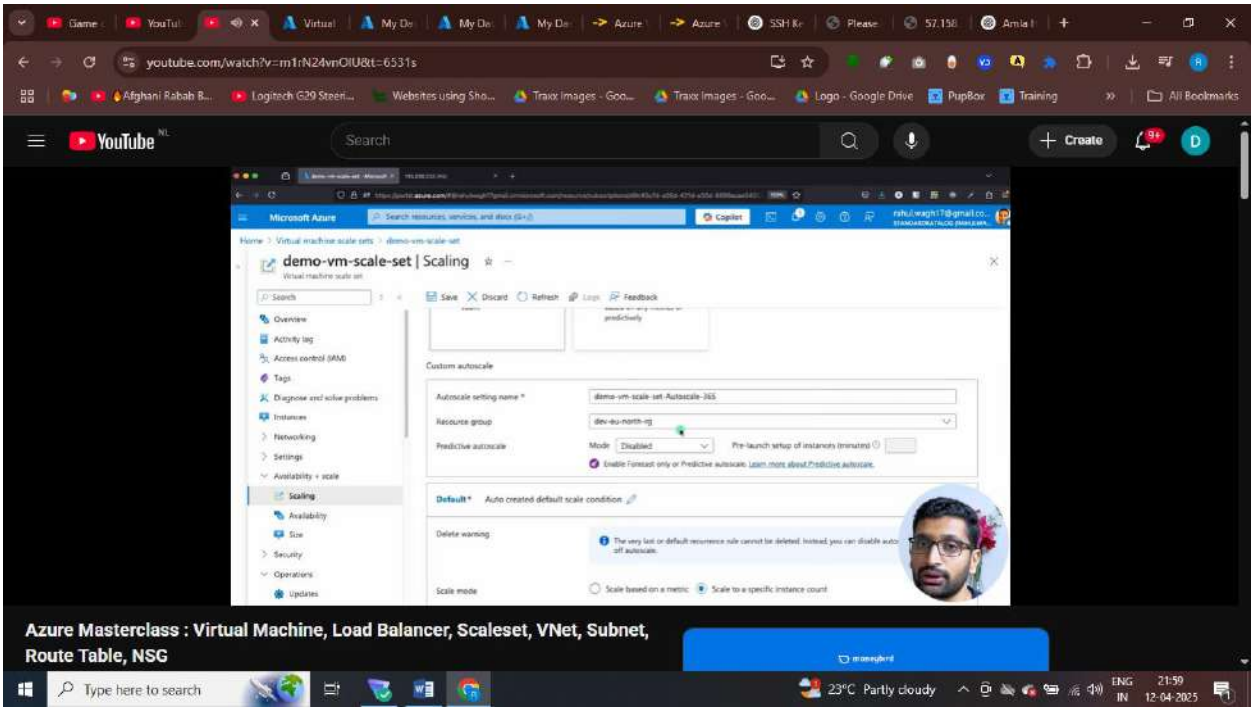


Using load balancer and virtual scale and sending request

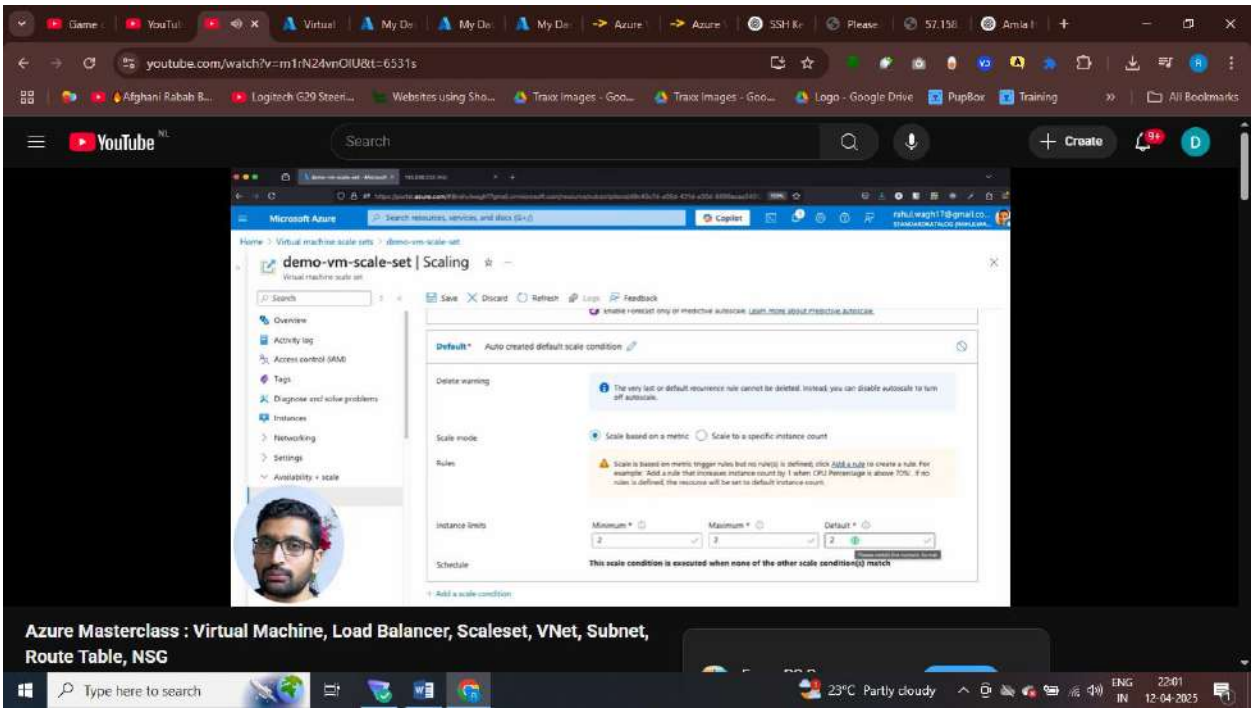




Adding custome scaline for our VM



If cpu capacity start reaching 85 perncet add more cpu then – use granulatiy - for high and low incomeing traffic



USE GIT FOR SSH INTO Machines

$ chmod 400 demo-vm_key1.pem user121@DESKTOP-JFJ21I5 MINGW64 ~/Downloads $ ssh -i demo-vm-key1.pem azureuser@20.205.172.113 Warning: Identity file demo-vm-key1.pem not accessible: No such file or directory. The authenticity of host '20.205.172.113 (20.205.172.113)' can't be established. ED25519 key fingerprint is SHA256:gE1V+5kNWsMt70kRDjBfvsSosfXdPVJLzAH5N2n42HM. This key is not known by any other names. Are you sure you want to continue connecting (yes/no/[fingerprint])? yes Warning: Permanently added '20.205.172.113' (ED25519) to the list of known hosts. azureuser@20.205.172.113: Permission denied (publickey). user121@DESKTOP-JFJ21I5 MINGW64 ~/Downloads

ChatGPT said:

You're getting two main issues here during your SSH attempt:

● Issue 1: File Not Found

```
bash
CopyEdit
Warning: Identity file demo-vm-key1.pem not accessible: No such file or
directory.
```

This means that your `ssh` command can't find the PEM file.

✅ Fix:

Make sure the file name and path **exactly match**. Your PEM file is called `demo-vm_key1.pem` (with an underscore), but your SSH command uses `demo-vm-key1.pem` (with a hyphen).

So, you should run:

```
bash
CopyEdit
ssh -i demo-vm_key1.pem azureuser@20.205.172.113
```

● Issue 2: Permission Denied (publickey)

```
bash
CopyEdit
azureuser@20.205.172.113: Permission denied (publickey).
```

This usually means:

1. The private key is wrong or mismatched.
2. The username is incorrect.
3. The SSH key isn't added to the Azure VM properly.

✅ Fix Checklist:

- 🔑 **Key File:** Ensure `demo-vm_key1.pem` is the **private key** that matches the **public key** added to the Azure VM.
- 👤 **Username:** Confirm the Azure VM's username is really `azureuser` (it might be something else).
- 🔐 **VM Configuration:** Ensure the public key was added correctly during VM setup (you can check in the Azure portal > VM > Reset password > SSH Public Key).

✅ Try Again:

```
bash
CopyEdit
chmod 400 demo-vm_key1.pem
ssh -i demo-vm_key1.pem azureuser@20.205.172.113
```

If it still doesn't work, let me know:

- What OS the VM is running.
- If you're sure about the username.
- If you have access to the Azure Portal to reset the SSH credentials.

Want help checking or resetting it on the Azure Portal?

4o

You said:

user121@DESKTOP-JFJ21I5 MINGW64 ~/Downloads $ ssh -i demo-VM_key1.pem azureuser@20.205.172.113 Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1021-azure x86_64) * Documentation: https://help.ubuntu.com * Management: https://landscape.canonical.com * Support: https://ubuntu.com/pro System information as of Sun Apr 13 03:23:50 UTC 2025 System load: 0.11 Processes: 128 Usage of /: 5.9% of 28.02GB Users logged in: 0 Memory usage: 4% IPv4 address for eth0: 10.0.0.4 Swap usage: 0% Expanded Security Maintenance for Applications is enabled. 0 updates can be applied immediately. The programs included with the Ubuntu system are free software; the exact distribution terms for each program are described in the individual files in /usr/share/doc/*/copyright. Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by applicable law. To run a

command as administrator (user "root"), use "sudo <command>". See "man sudo_root" for details.
azureuser@demo-VM:~$

ChatGPT said:

Nice! 🎉 You're in!

You've successfully SSH'd into your Azure VM running **Ubuntu 24.04.2 LTS**:

```
ruby
CopyEdit
azureuser@demo-VM:~$
```

□ Quick Tips Now That You're In:

1. **Update the system** (recommended after login):

   ```
   bash
   CopyEdit
   sudo apt update && sudo apt upgrade -y
   ```

2. **Check available disk and memory:**

   ```
   bash
   CopyEdit
   df -h        # Disk space
   free -h      # Memory
   ```

3. **Check network/public IP:**

   ```
   bash
   CopyEdit
   curl ifconfig.me
   ```

4. **Create a new user or add SSH keys:**

   ```
   bash
   CopyEdit
   sudo adduser myuser
   sudo usermod -aG sudo myuser
   ```

5. **Exit the session when done:**

   ```
   bash
   CopyEdit
   exit
   ```

If you want help setting up something on the VM (Docker, Nginx, Python, Node, etc.), just say the word!

4o

You said:

ssh -i demo-VM_key1.pem azureuser@20.205.172.113 - expalin the little about this cmd

ChatGPT said:

Sure! Let's break down the SSH command:

```
bash
CopyEdit
ssh -i demo-VM_key1.pem azureuser@20.205.172.113
```

🔍 Breakdown:

Part	Meaning
`ssh`	The command to **start a secure shell (SSH)** connection to a remote server.
`-i demo-VM_key1.pem`	The `-i` option specifies the **identity file**, which is your **private key** (`.pem` file). This is used to authenticate you securely without a password.
`azureuser@20.205.172.113`	This is the **remote login info**: ◈ `azureuser` → the **username** on the remote VM ◈ `20.205.172.113` → the **public IP address** of your Azure VM

🛡 What it's doing:

This command says:

"SSH into the server at `20.205.172.113` using the username `azureuser`, and authenticate with the private key file `demo-VM_key1.pem`."

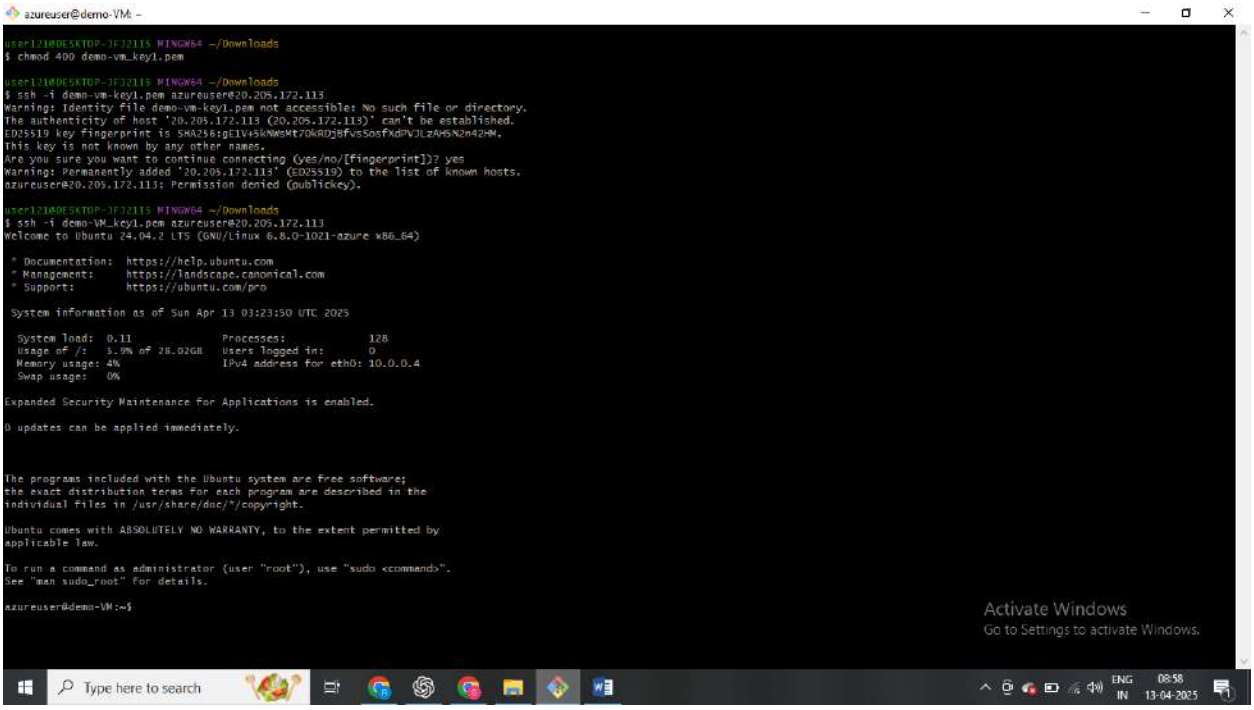
💡 Tip:

Make sure:

- The `.pem` file has proper permissions (`chmod 400`).
- The username (`azureuser`) matches what was set during VM creation.
- The public IP (`20.205.172.113`) is correct and accessible.

Let me know if you want to automate this or set up a config file for easier reuse (`~/.ssh/config`).

#Install Jnekins on todays video




```
sudo apt update
```

Install Java

```
sudo apt update
sudo apt install openjdk-17-jre
```

Verify Java is Installed

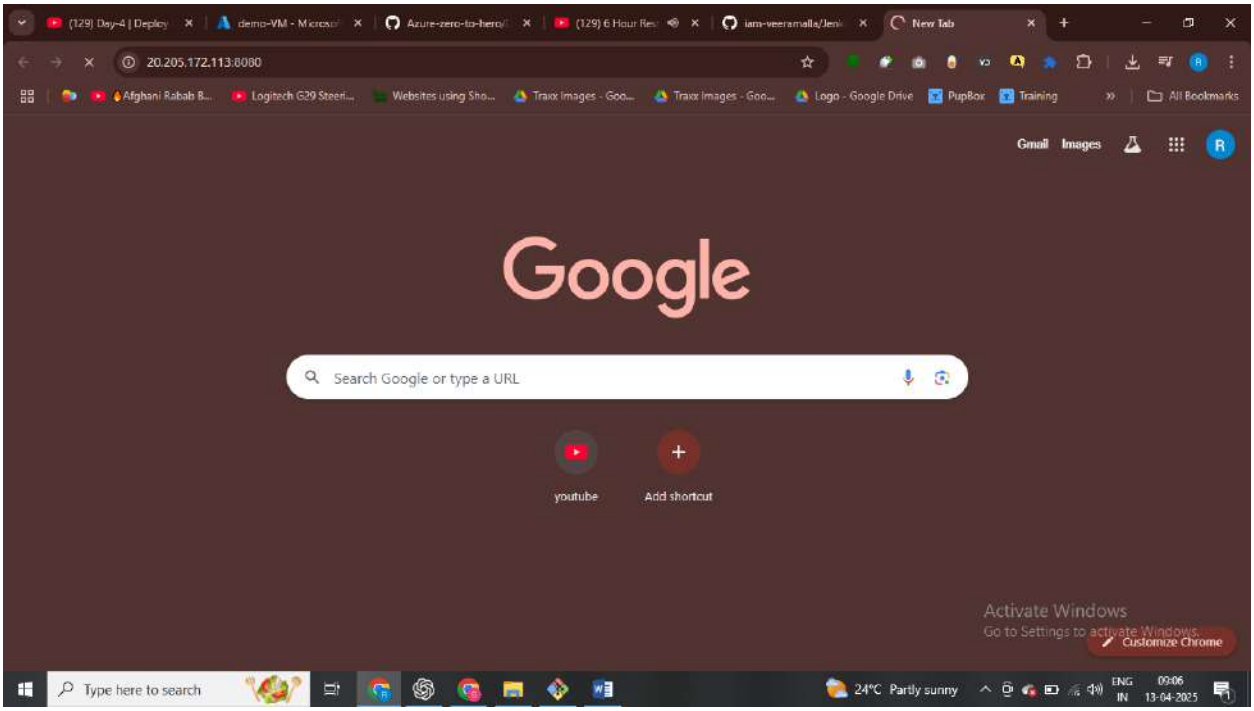
```
java -version
```

Now, you can proceed with installing Jenkins

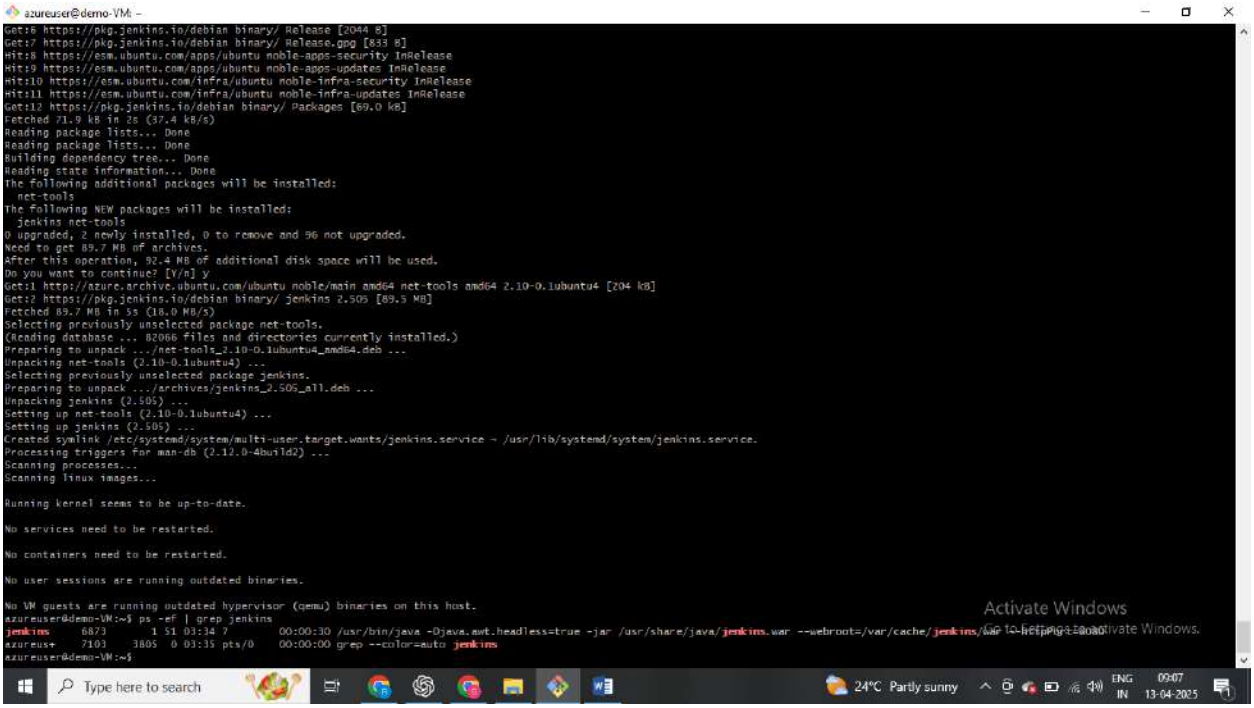
```
curl -fsSL https://pkg.jenkins.io/debian/jenkins.io-2023.key | sudo tee \
  /usr/share/keyrings/jenkins-keyring.asc > /dev/null
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install jenkins
```

**Note: ** By default, Jenkins will not be accessible to the external world due to the inbound traffic restriction by AWS. Open port 8080 in the inbound traffic rules as show below.

Jenkins run on port 8080 try to access using it public ip

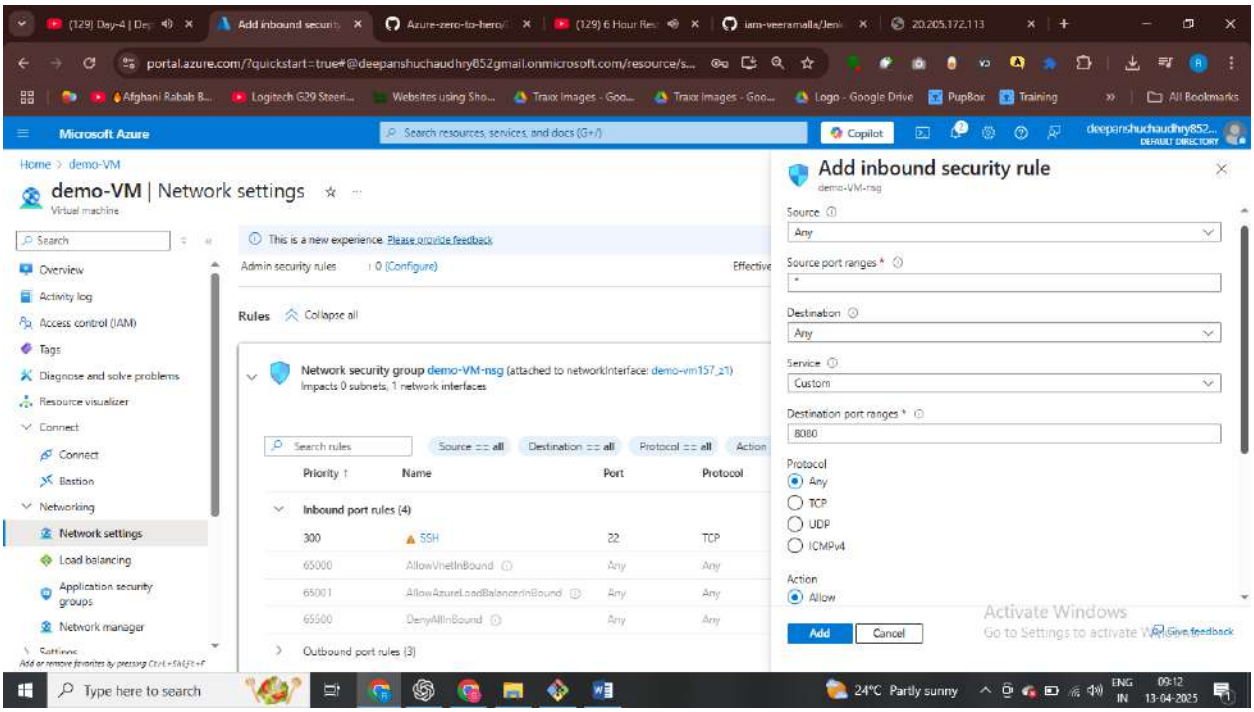


Checking Jenkins process

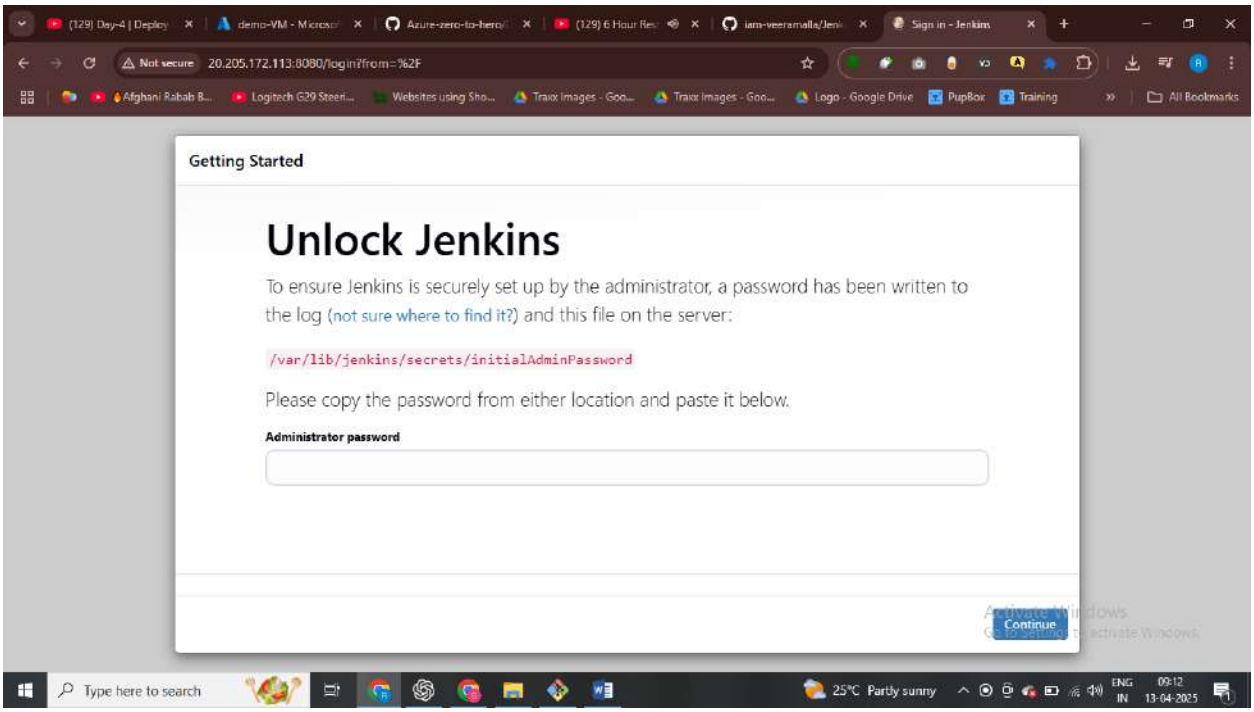


Inbound traffic coming to your appn , ssh is traffic to come to vm so open port 22

Source * open appn to everyone – no restriction – but in again it will open to specific ip



Now Jenkins accesbsile by opening port 8080



Docker Slave Configuration

Run the below command to Install Docker

```
sudo apt update
sudo apt install docker.io
```

Grant Jenkins user and Ubuntu user permission to docker deamon.

```
sudo su -
usermod -aG docker jenkins
usermod -aG docker ubuntu
systemctl restart docker
```

Once you are done with the above steps, it is better to restart Jenkins.

```
http://<ec2-instance-public-ip>:8080/restart
```

The docker agent configuration is now successful.

Install Jenkins.

Pre-Requisites:

- Java (JDK)

Run the below commands to install Java and Jenkins

Install Java

```
sudo apt update
sudo apt install openjdk-17-jre
```

Verify Java is Installed

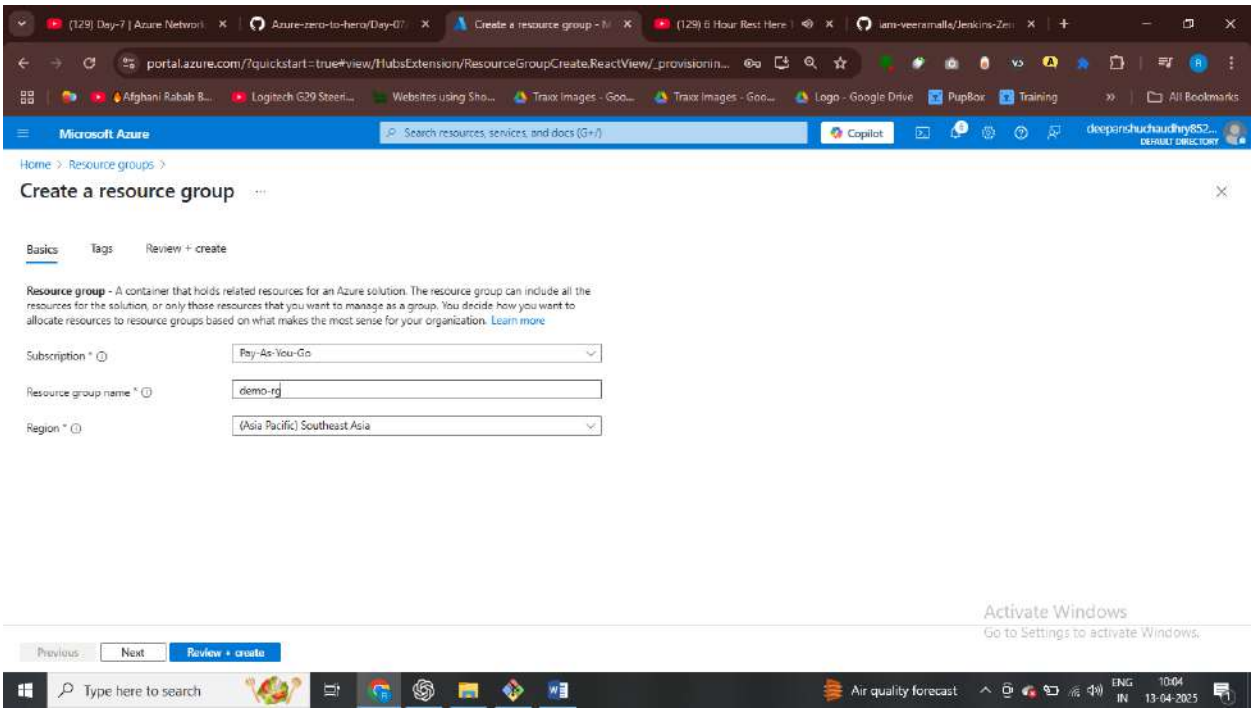
```
java -version
```

Now, you can proceed with installing Jenkins

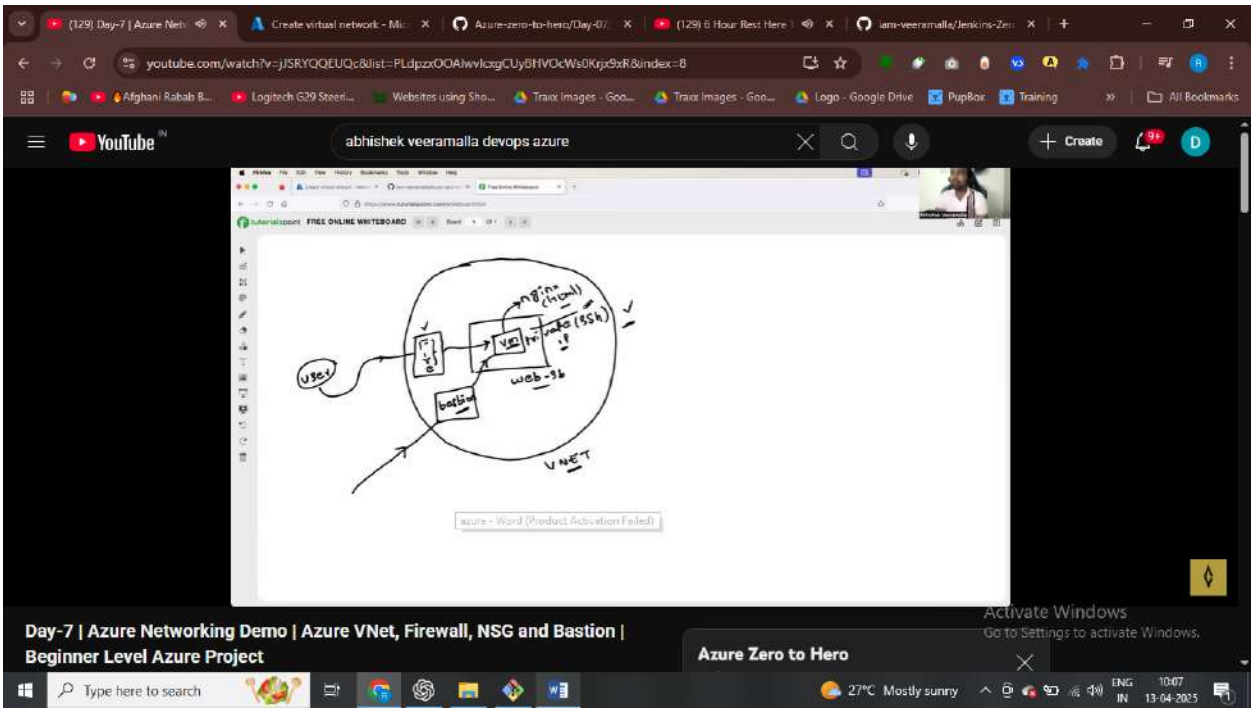
```
curl -fsSL https://pkg.jenkins.io/debian/jenkins.io-2023.key | sudo tee \
  /usr/share/keyrings/jenkins-keyring.asc > /dev/null
echo deb [signed-by=/usr/share/keyrings/jenkins-keyring.asc] \
  https://pkg.jenkins.io/debian binary/ | sudo tee \
  /etc/apt/sources.list.d/jenkins.list > /dev/null
sudo apt-get update
sudo apt-get install Jenkins#
```

out appn is deploiyed in public subnet by default

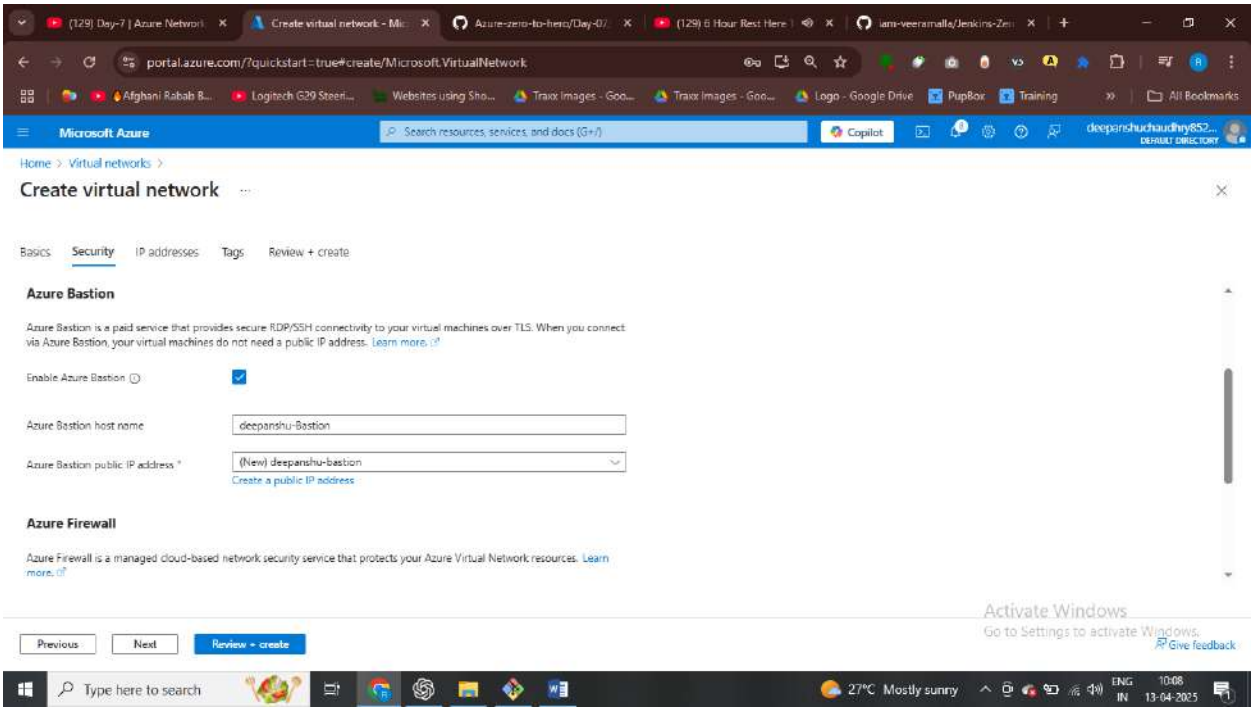
AZURE NETWORKIN BY ABHISHEK DAY 8

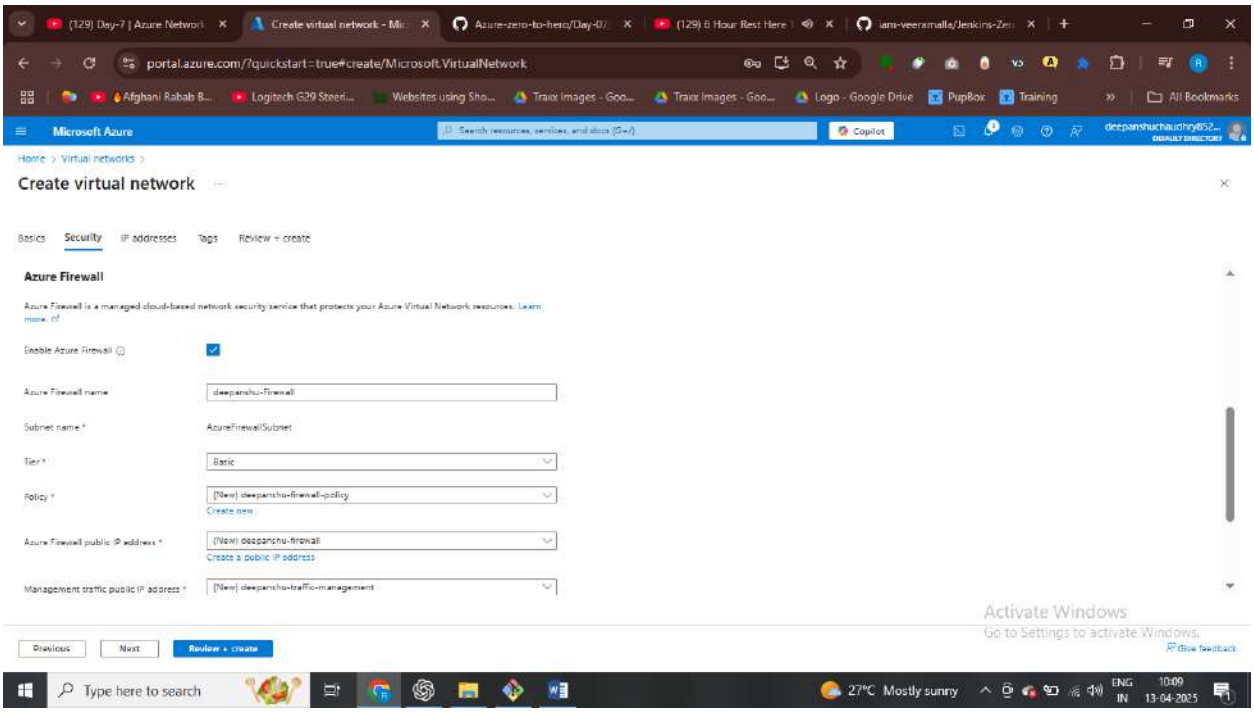


creating a resource gp

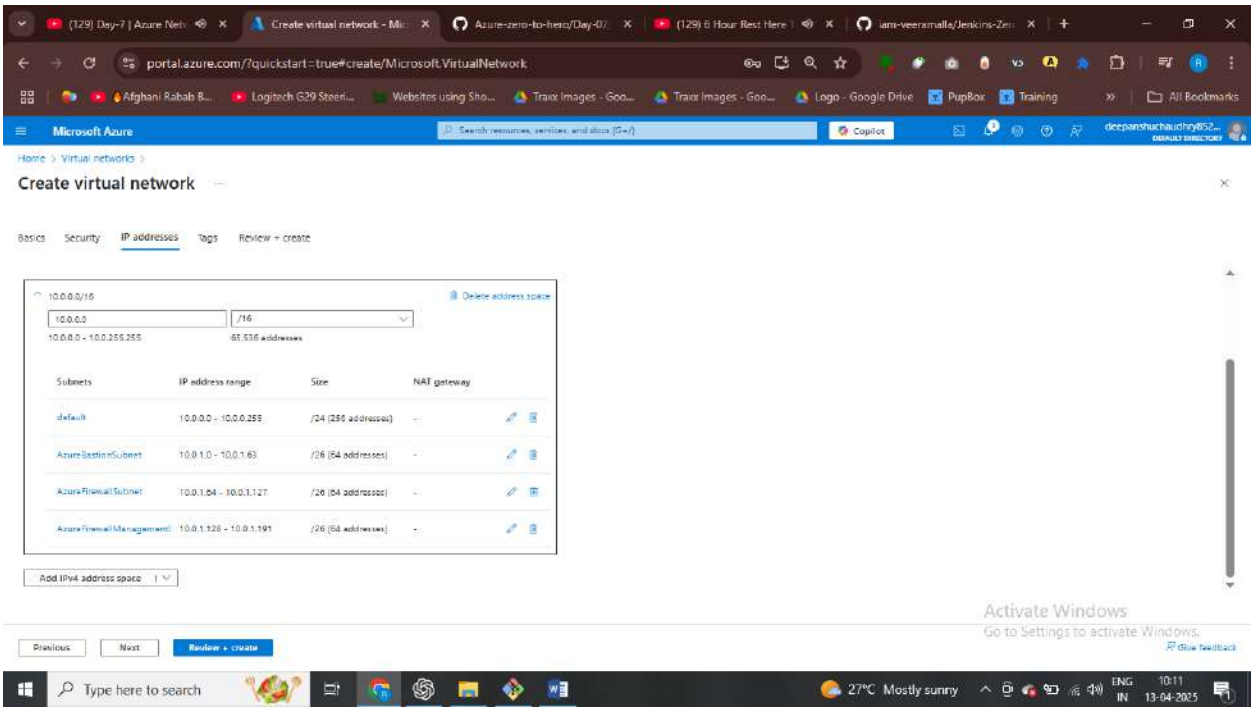


VM need to have private ip addr so we need to anable bositon host



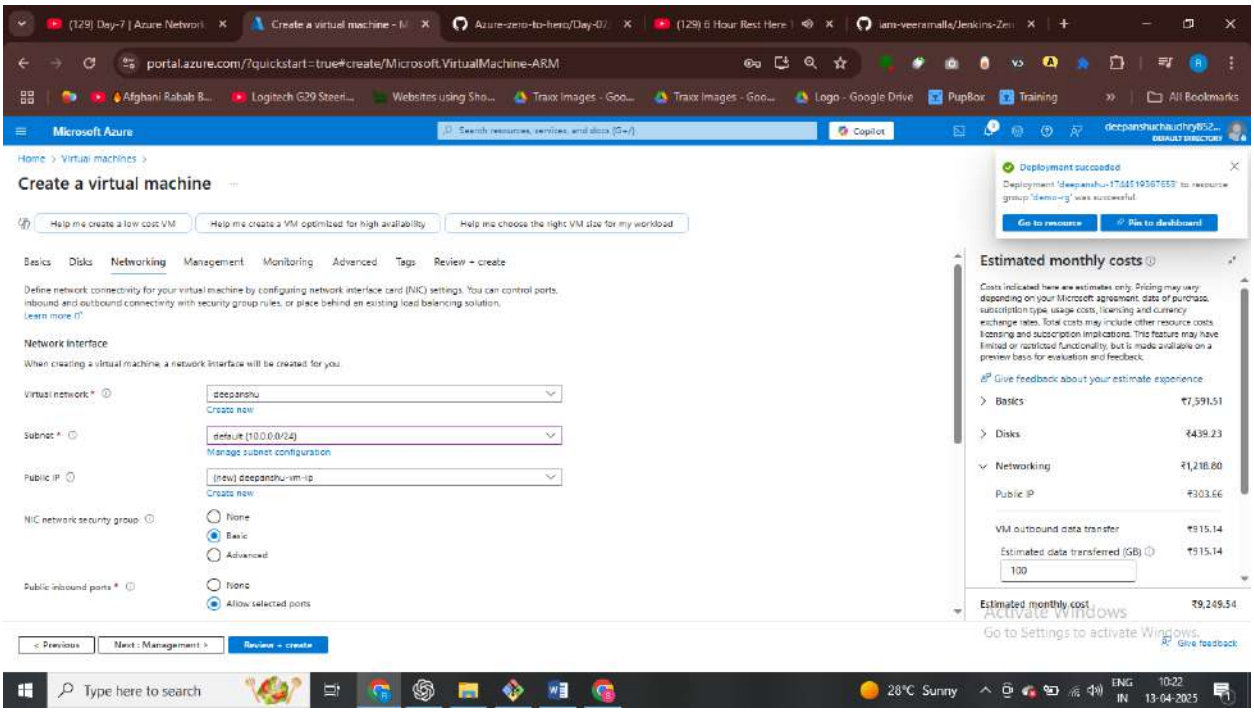


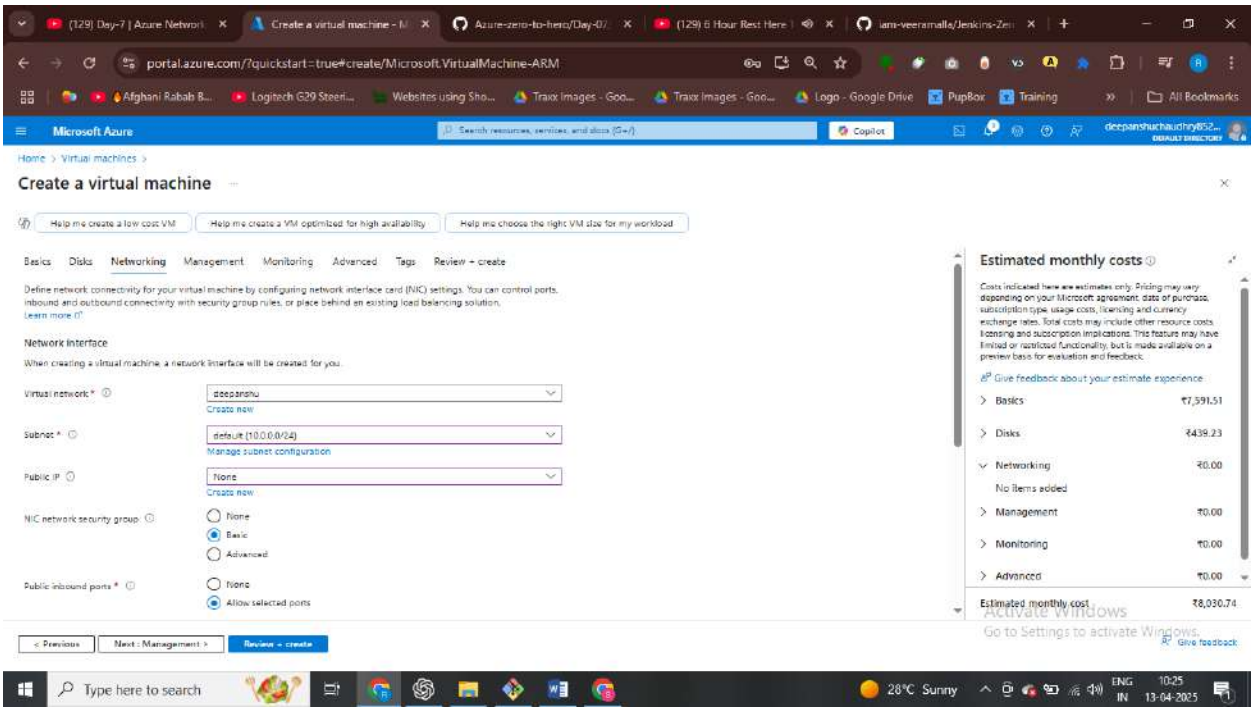
Use ddos to prevent from hacker for your VM



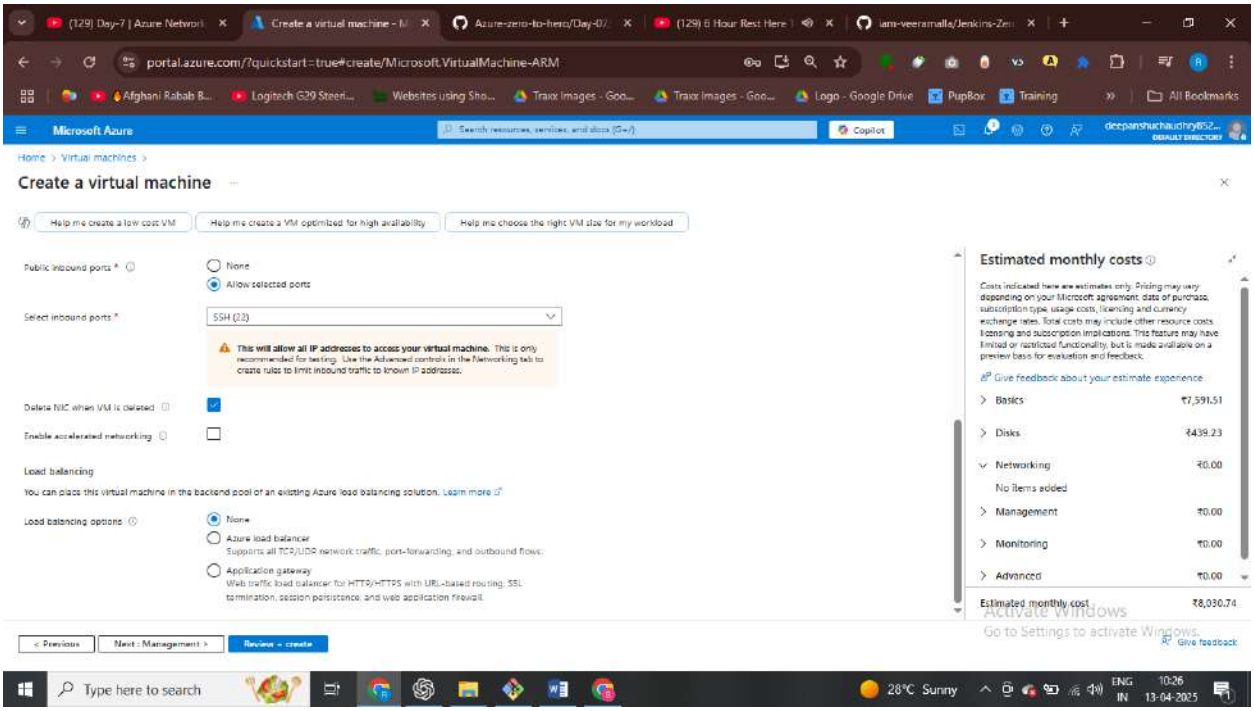
creat a vnet and create 4 subnet one for bositon one is default where our appn is deploy

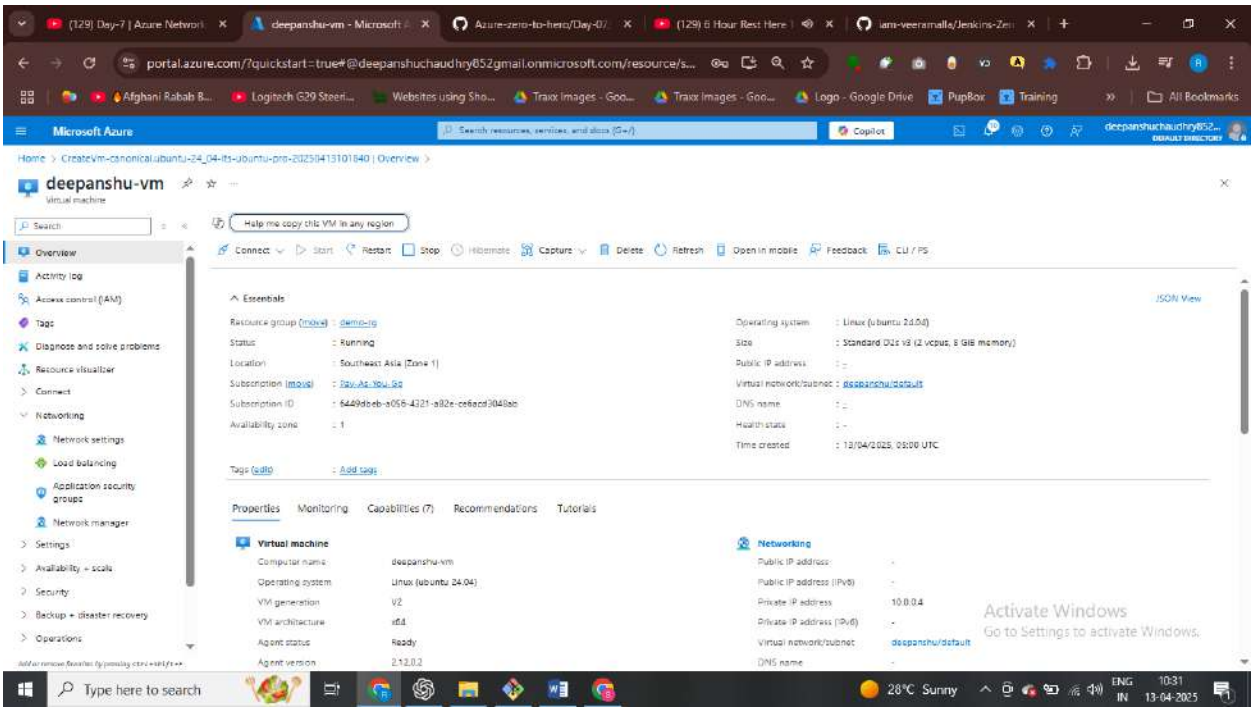
select default subnet that we have created – put my appn on the default Vnet





we don't want public ip for our subnet





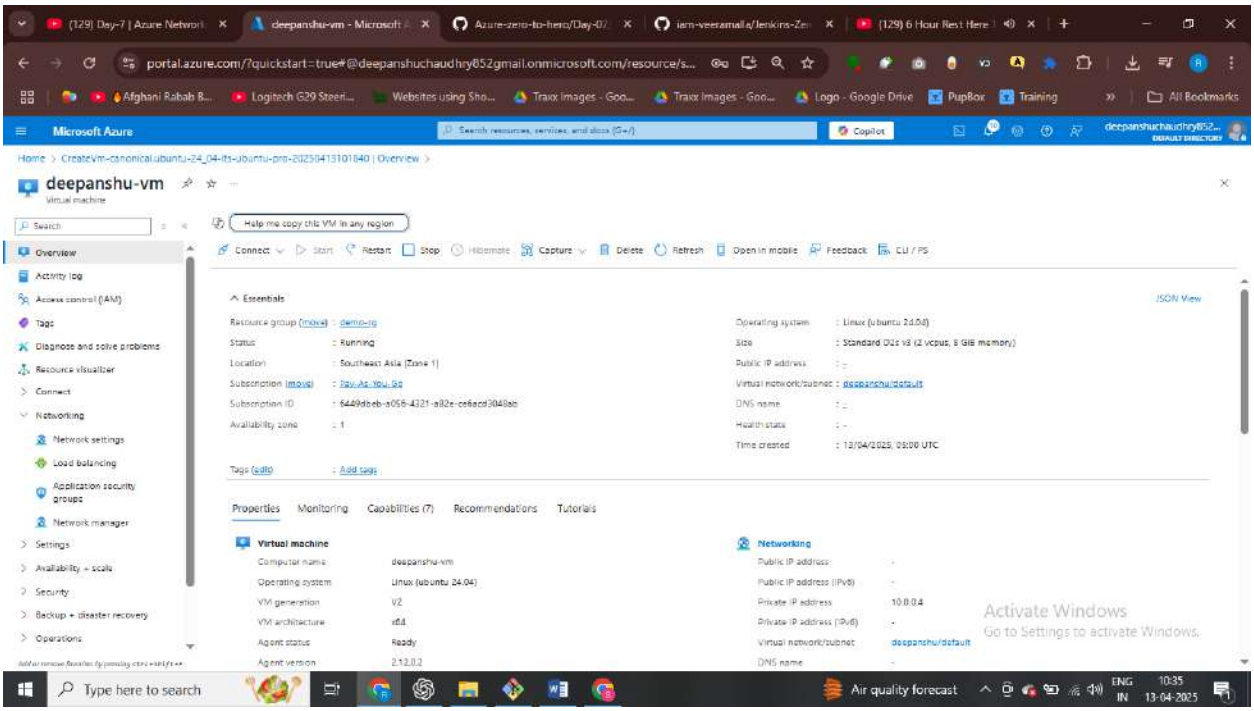
our vm has started but it don't have any ip adder so how we can ssh into it – we will use boisdion

What it does:

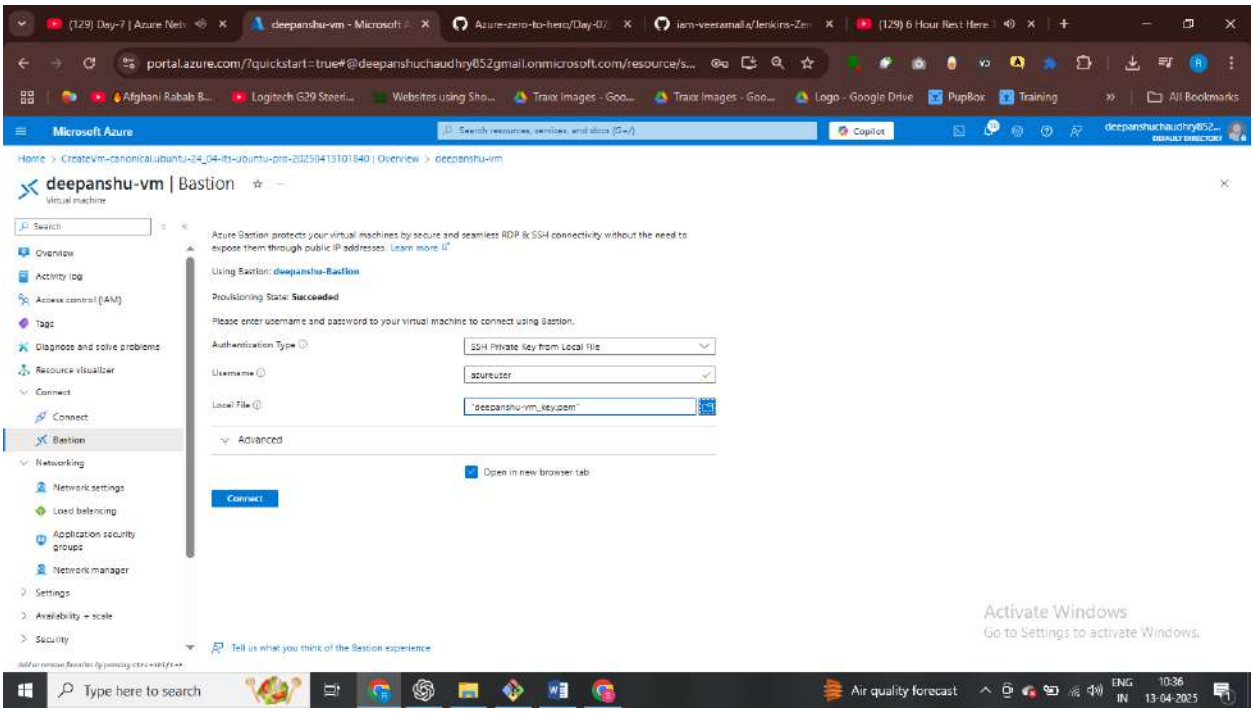
- Provides **RDP or SSH** access to VMs **via browser** through the Azure Portal.
- **NO need for public IPs** on the VM.
- **NO open ports** like 22 (SSH) or 3389 (RDP) on NSGs.
- Fully managed by Azure, no manual patching or maintenance.

Key Features:

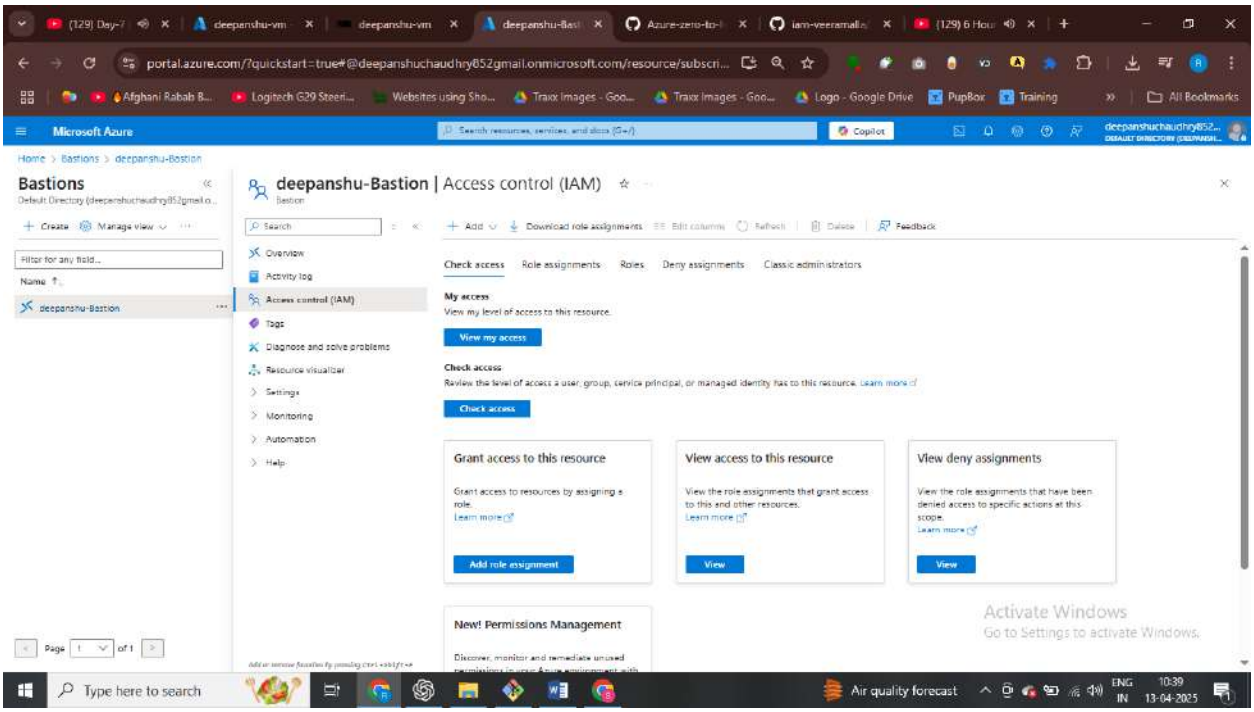
Feature	Description
🔒 No Public IP	VMs stay private
🌐 Browser-based access	Directly from Azure portal
🔥 No open RDP/SSH ports	More secure
🛠 Easy setup	Just deploy Bastion in the same VNet
📜 Logging	Works with Azure Monitor & logging solutions



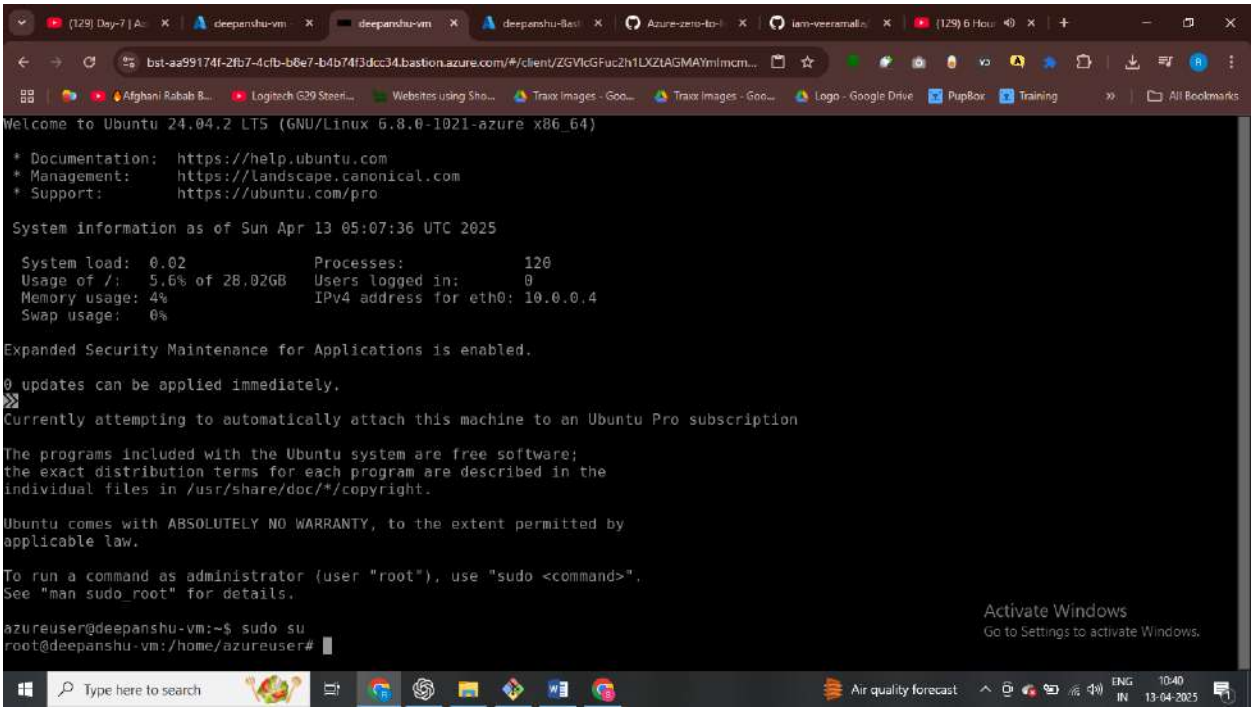
We want to ssh via bastion so we can connect to VM using private key file we are using



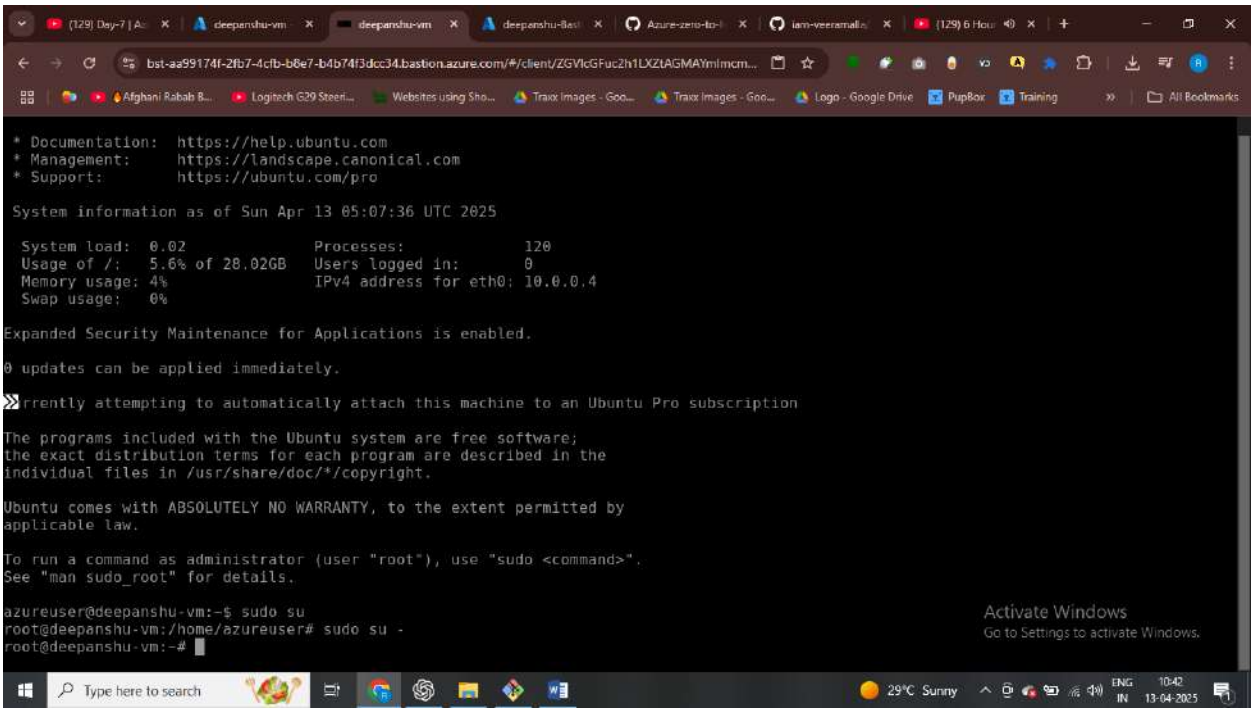
We are using bositon as proxy so that we can access our nginx VM



in the bosition VM , sudo su login as root user



Changing the user as root user



azureuser@deepanshu-vm:~$ sudo su

root@deepanshu-vm:/home/azureuser# sudo su -

root@deepanshu-vm:~# apt-get update^

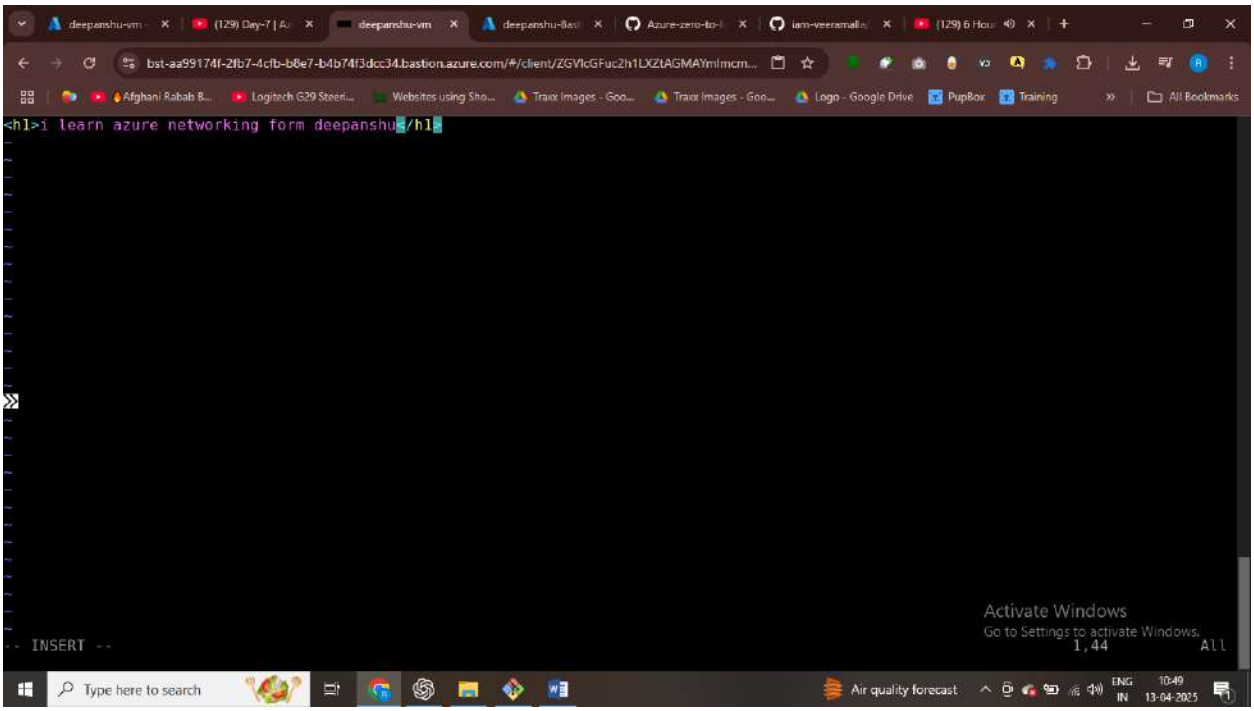
root@deepanshu-vm:~# apt-get install nginx -y

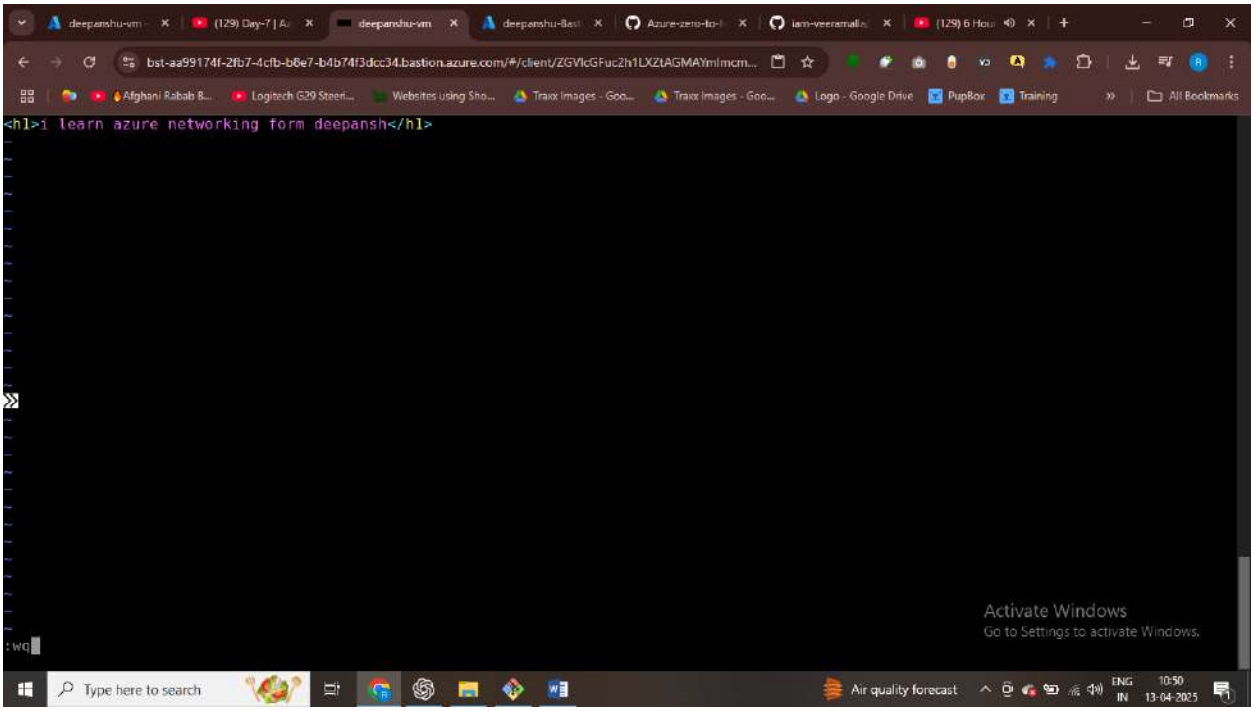
root@deepanshu-vm:~# cd /var/www/html

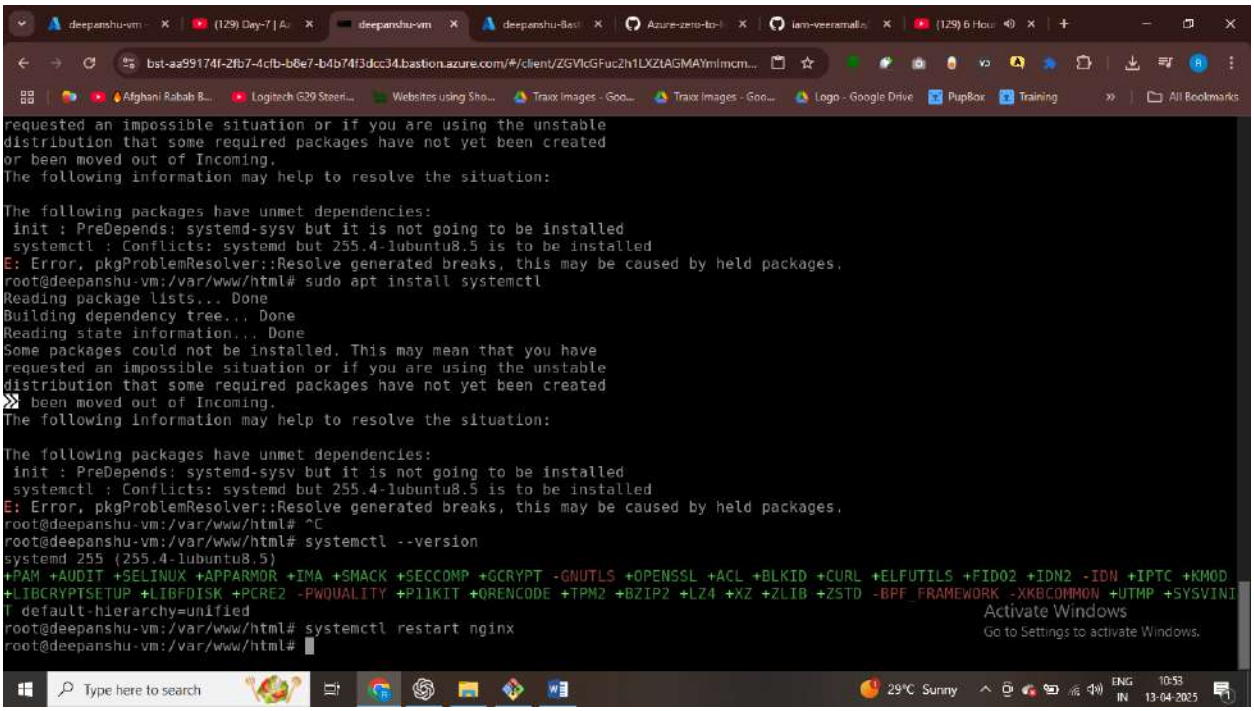
root@deepanshu-vm:/var/www/html# ls

index.nginx-debian.html

vim index.html

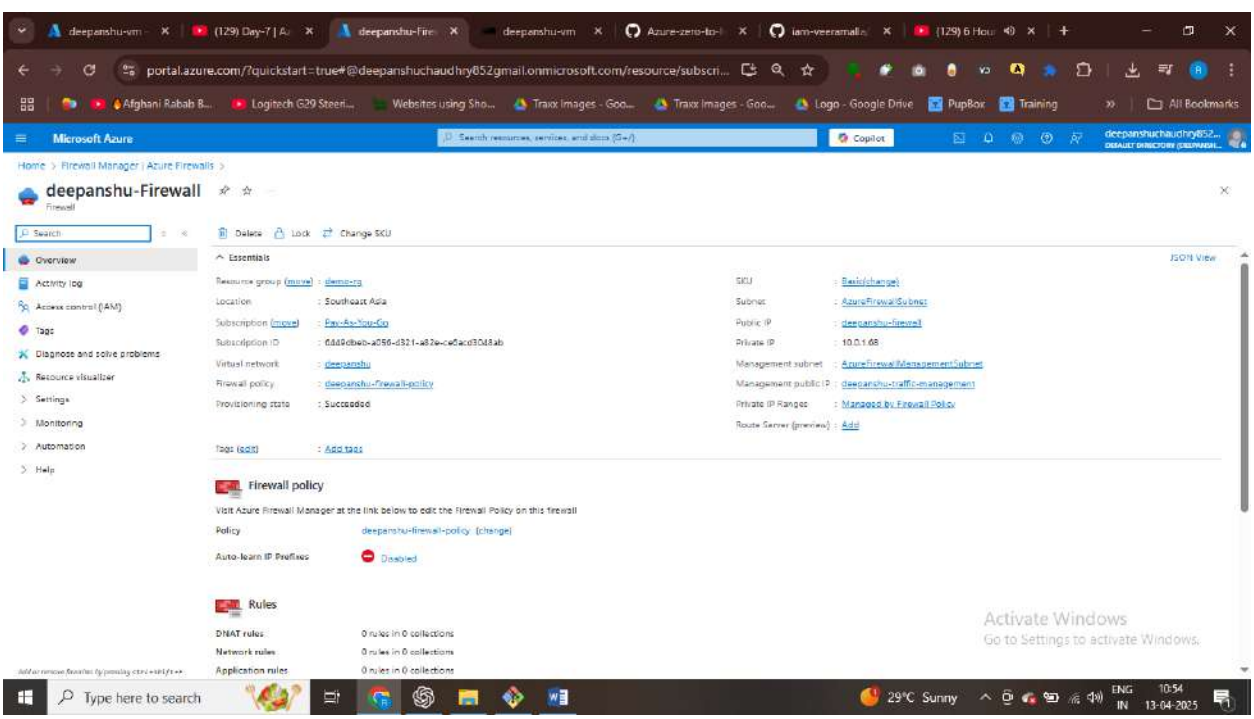

bst-aa99174f-2fb7-4cfb-b8e7-b4b74f3dcc34.bastion.azure.com/#/client/ZGVlcGFuc2h1LXZtAGMAYmlmcm...
<h1>i learn azure networking form deepanshu</h1>
-- INSERT --
1,44
All
Activate Windows
Go to Settings to activate Windows.

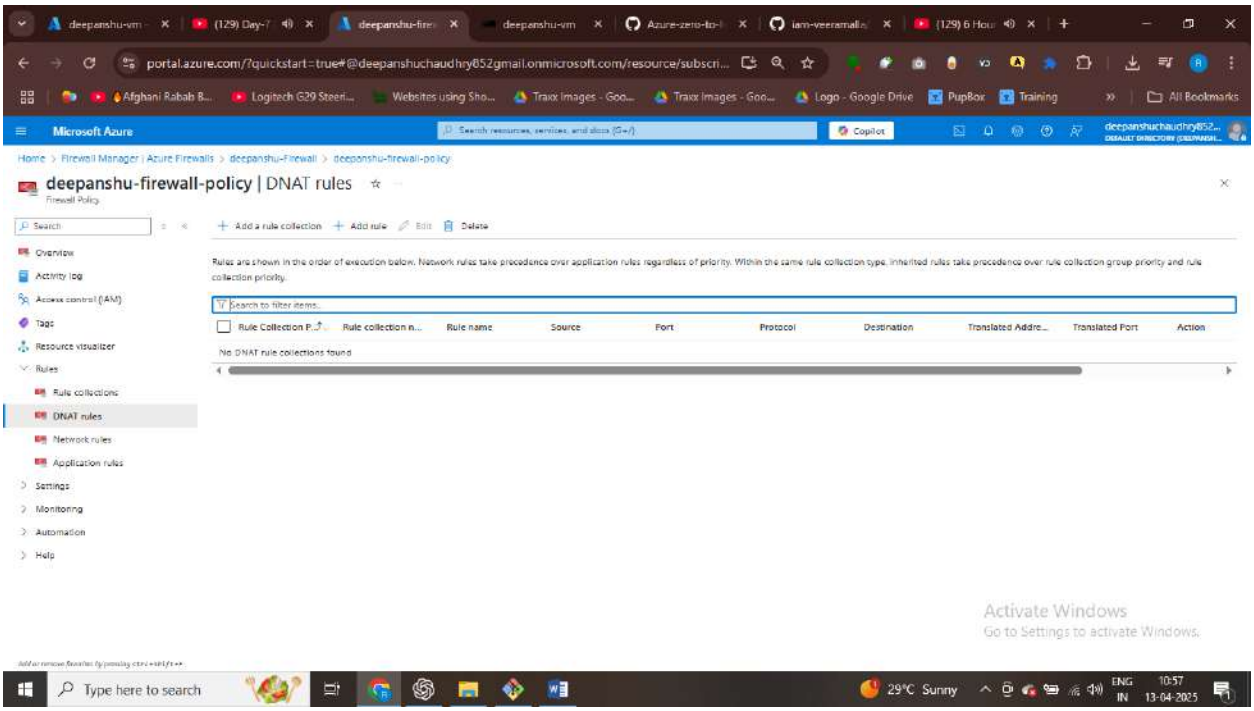

bst-aa99174f-2fb7-4cfb-b8e7-b4b74f3dcc34.bastion.azure.com/#/client/ZGVlcGFuc2h1LXZtAGMAYmlmcm...
<h1>i learn azure networking form deepansh</h1>
:wq
Activate Windows
Go to Settings to activate Windows.



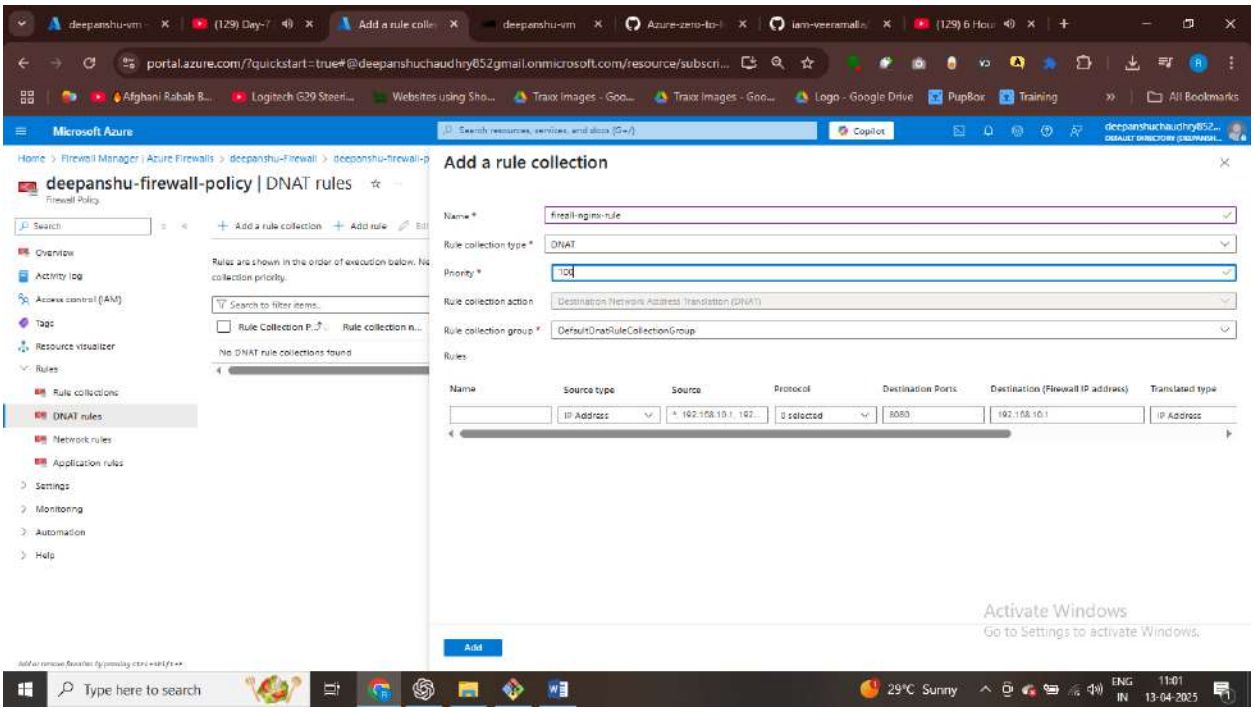
Now configure firewalal if someone try to access it using firewall then rqust go to VM

Open firewall and go to firewall policy

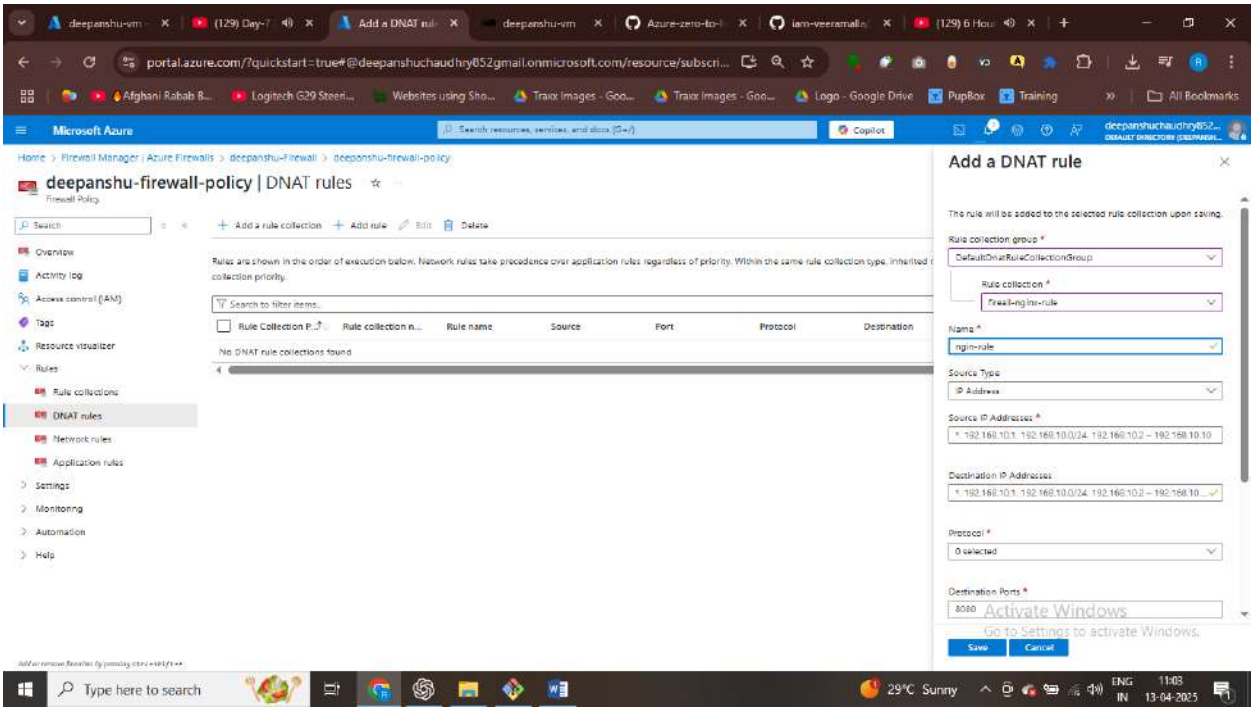




Rule with least no take max priotrity , this one has higher priority – suppose any other user also working and assign prioty 200 = then our prioty get higher value

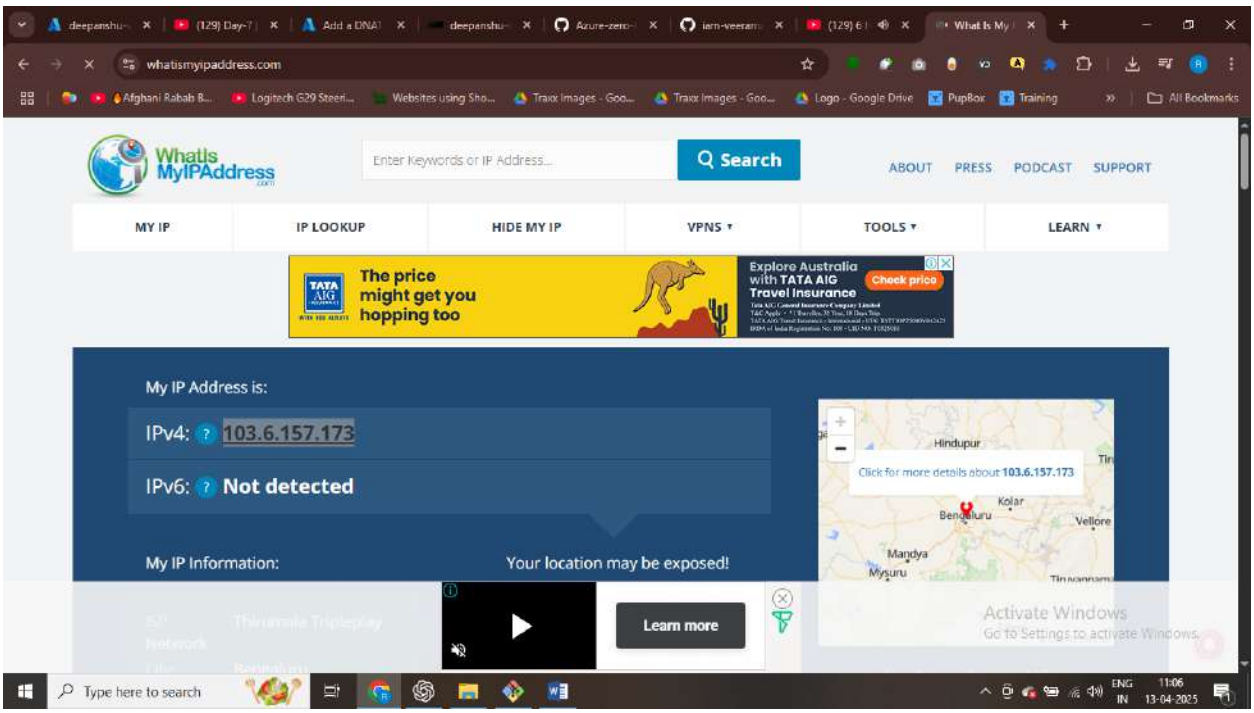


Now add rule colln using add rule

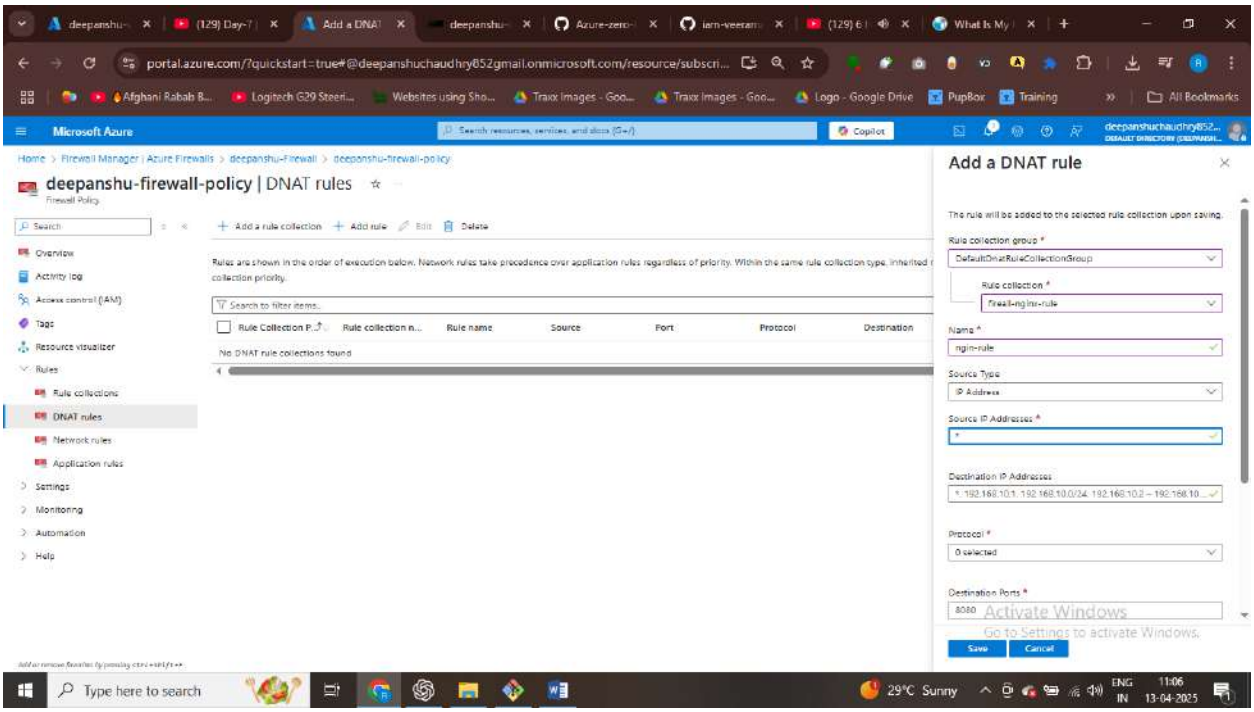


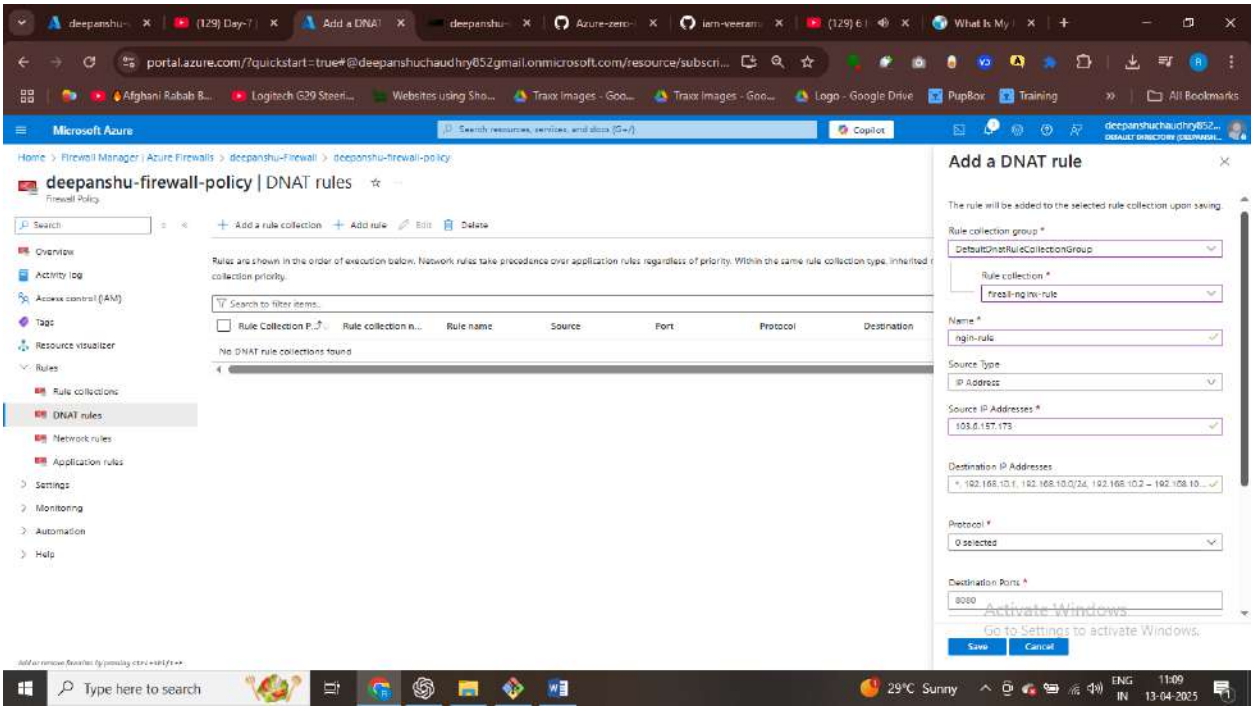
soure I have given only my ip – who want to access this appn – restrict it to myself only

copy my ip address



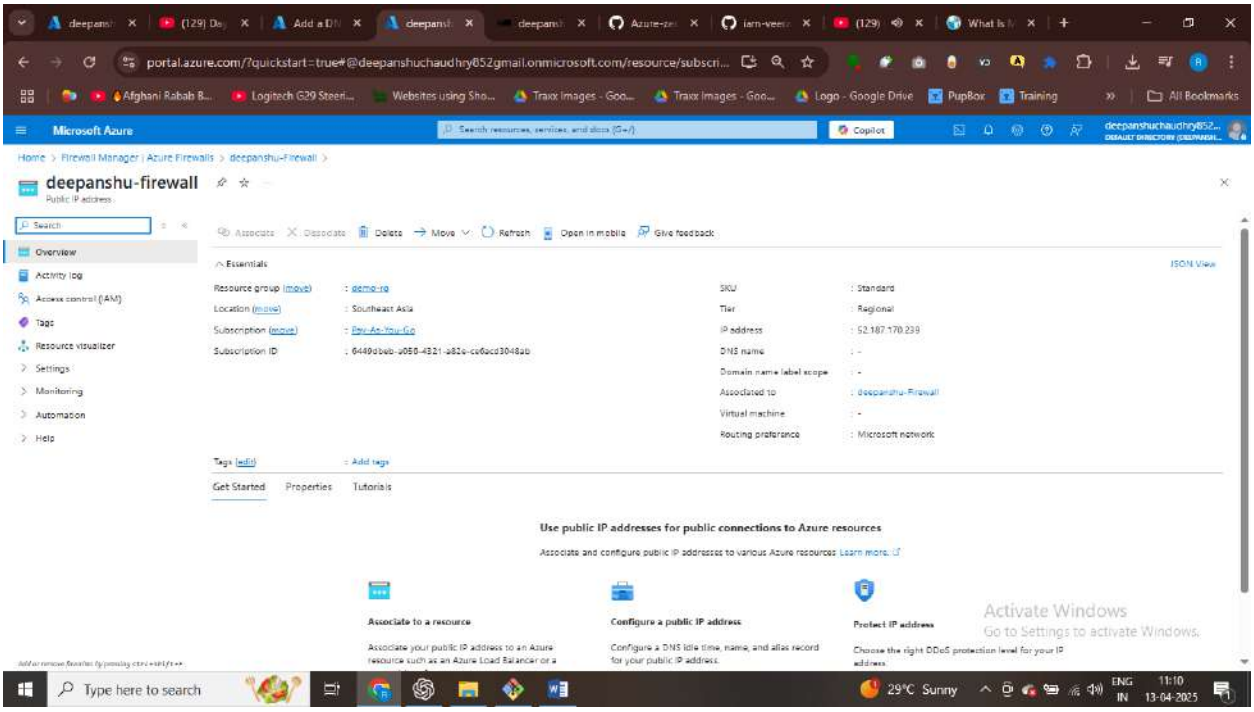
Source type * - allow everyone to acces our VM – but I restrict to myself only – sourc ip – who try to access our VM



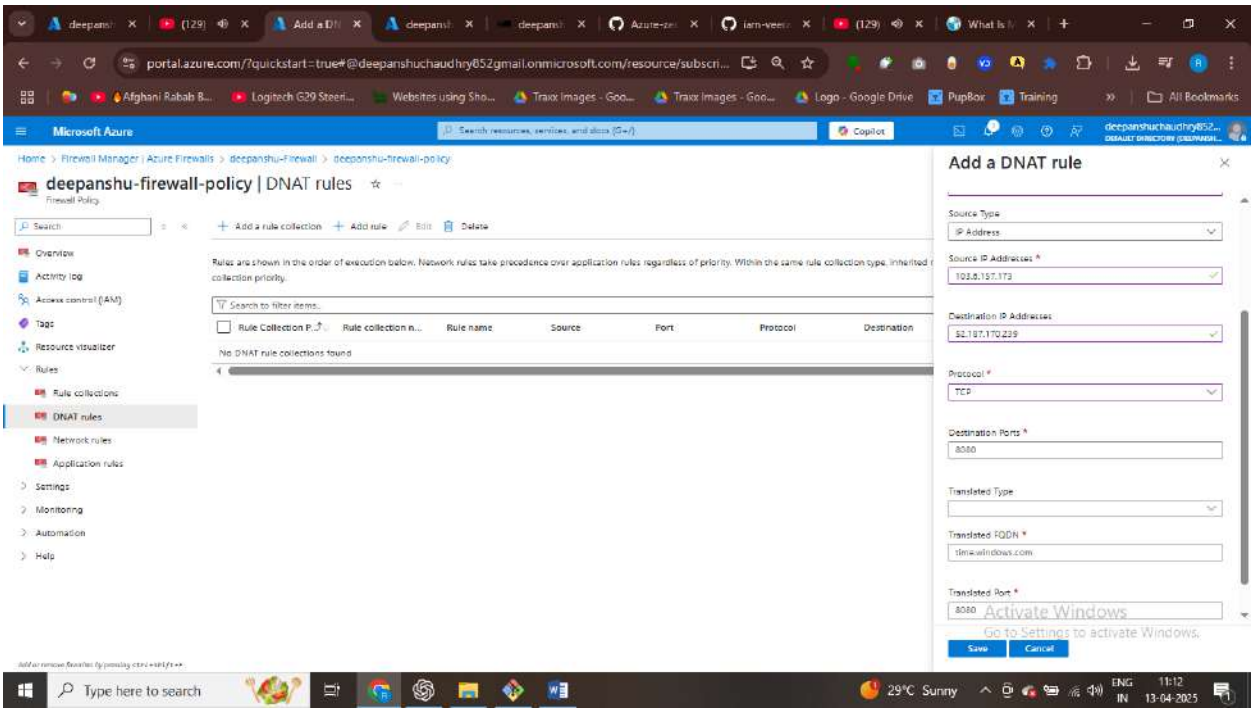


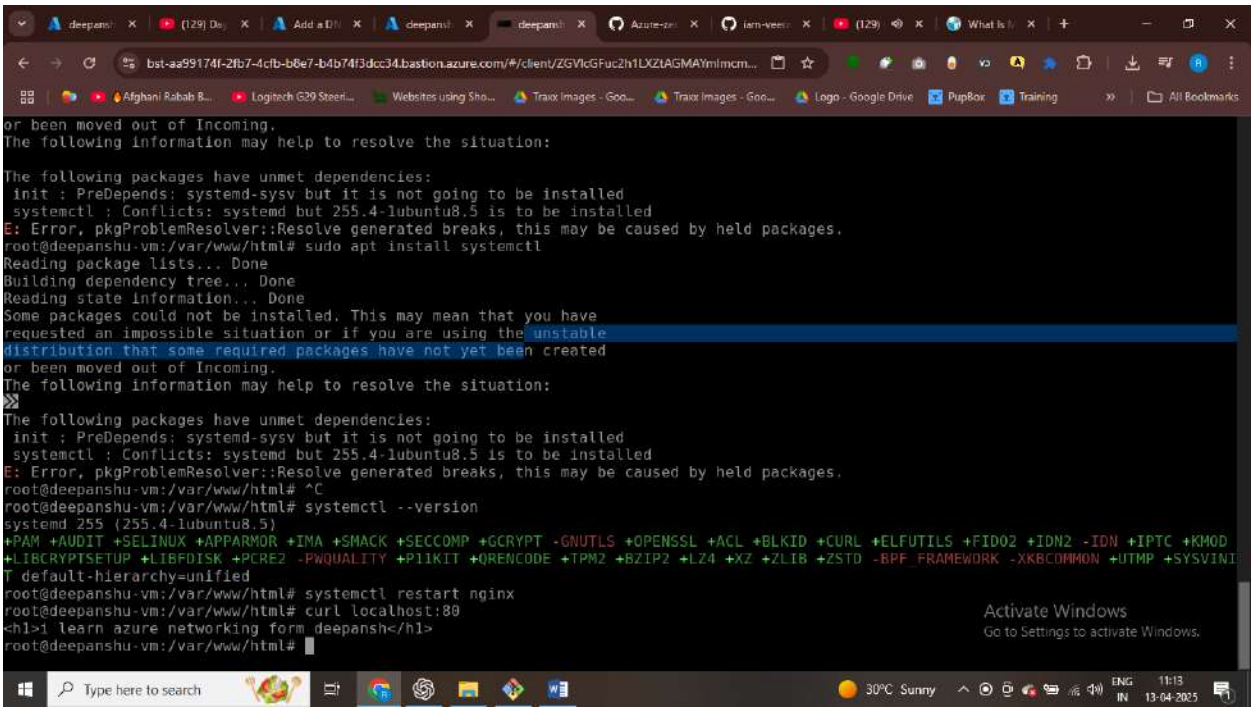
And destination what we want to access

Get public ip of firewall not privat eip

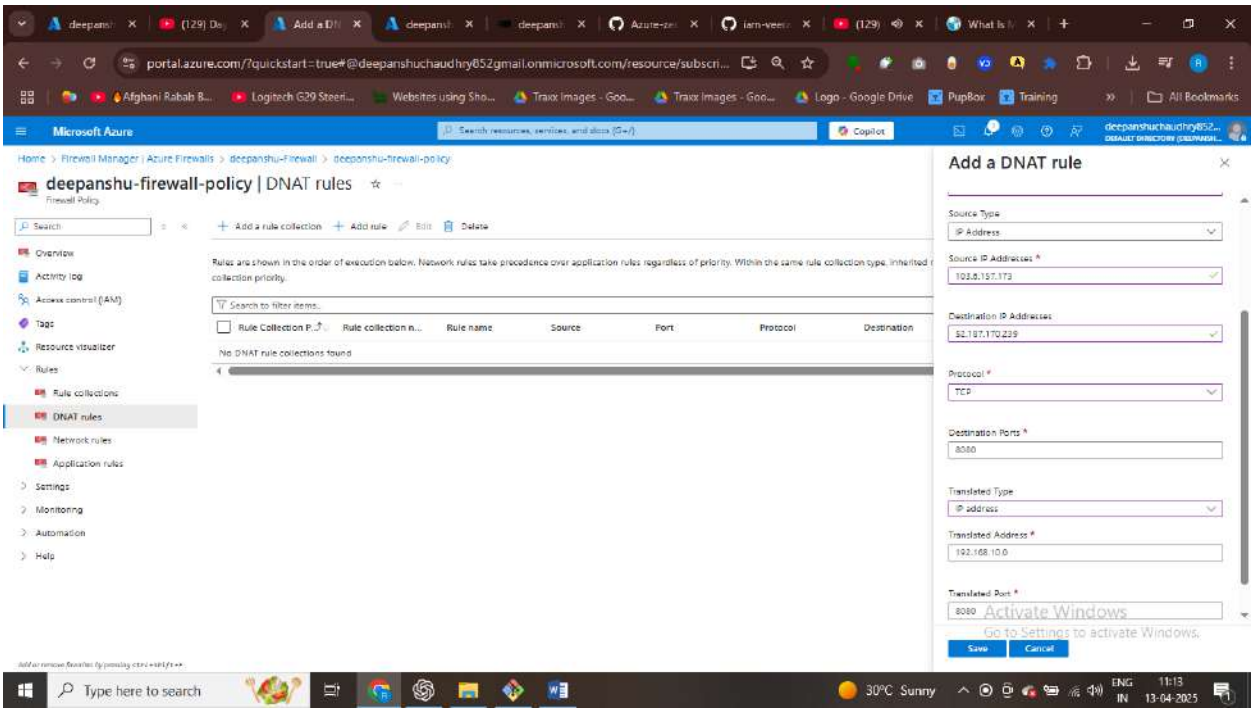


you can choose any port – but nginx run on port 80 so chose port 80n

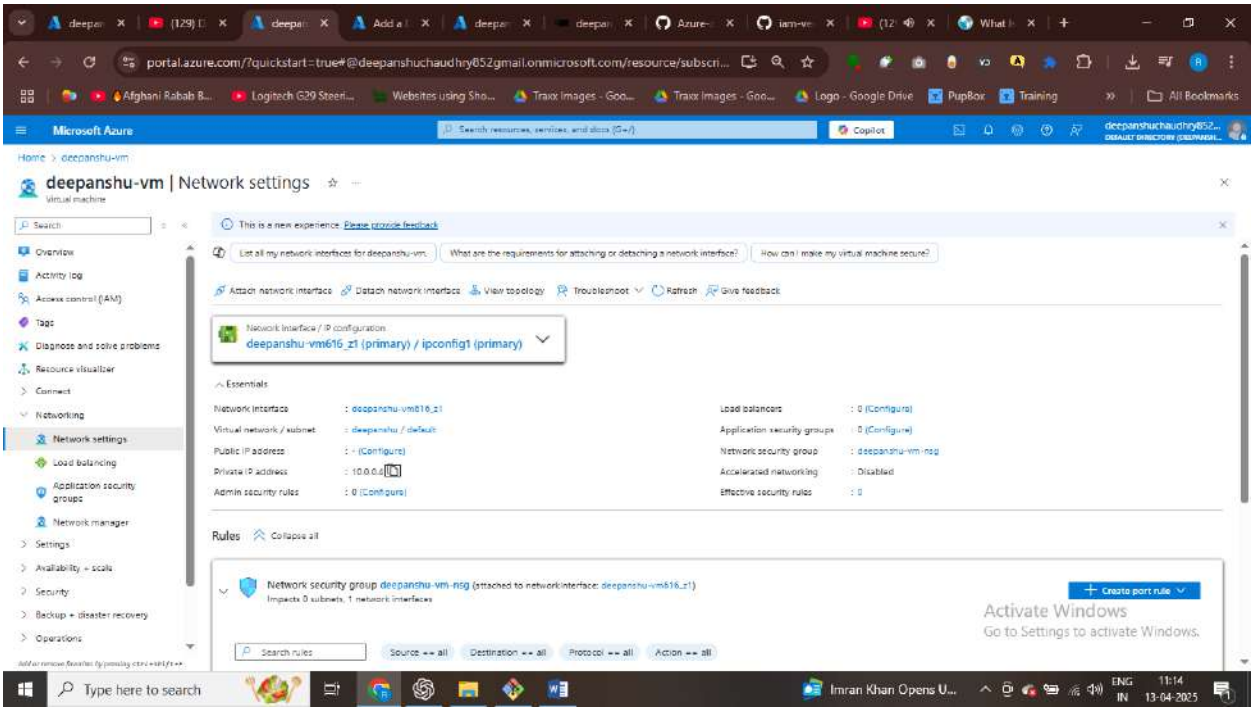


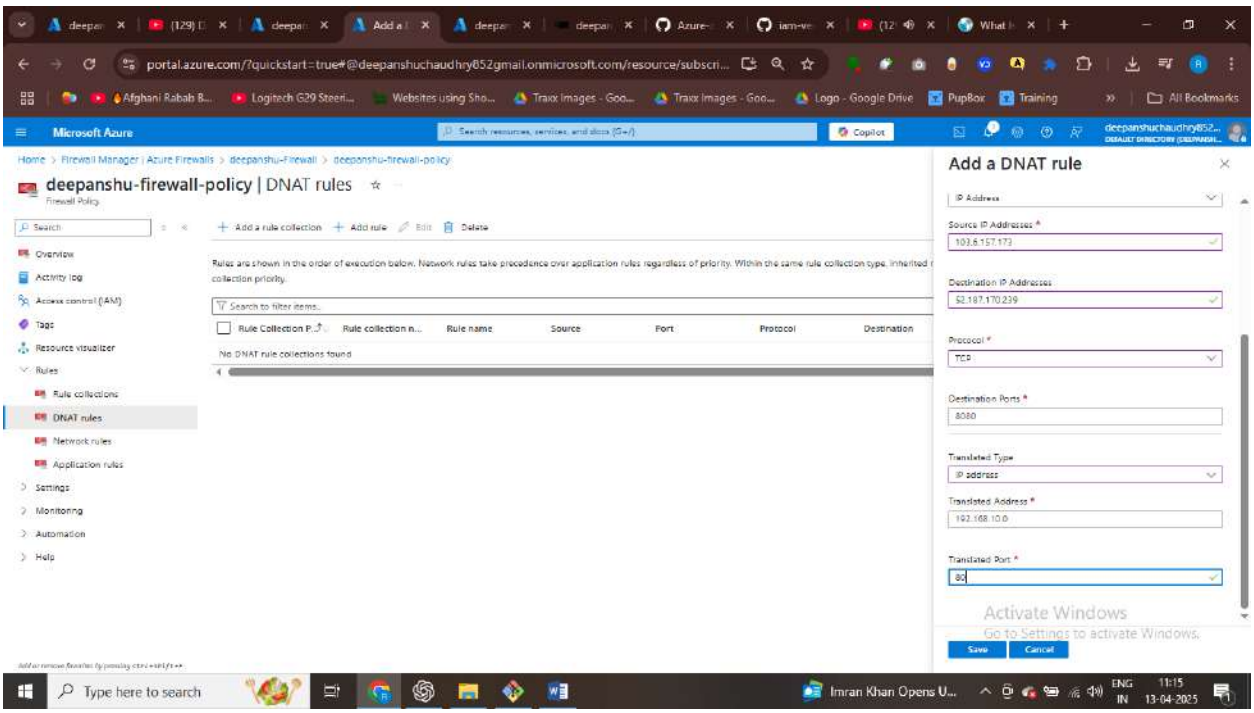


translate ip adddre – ip add of VM



Geeting privvate ip address of VM

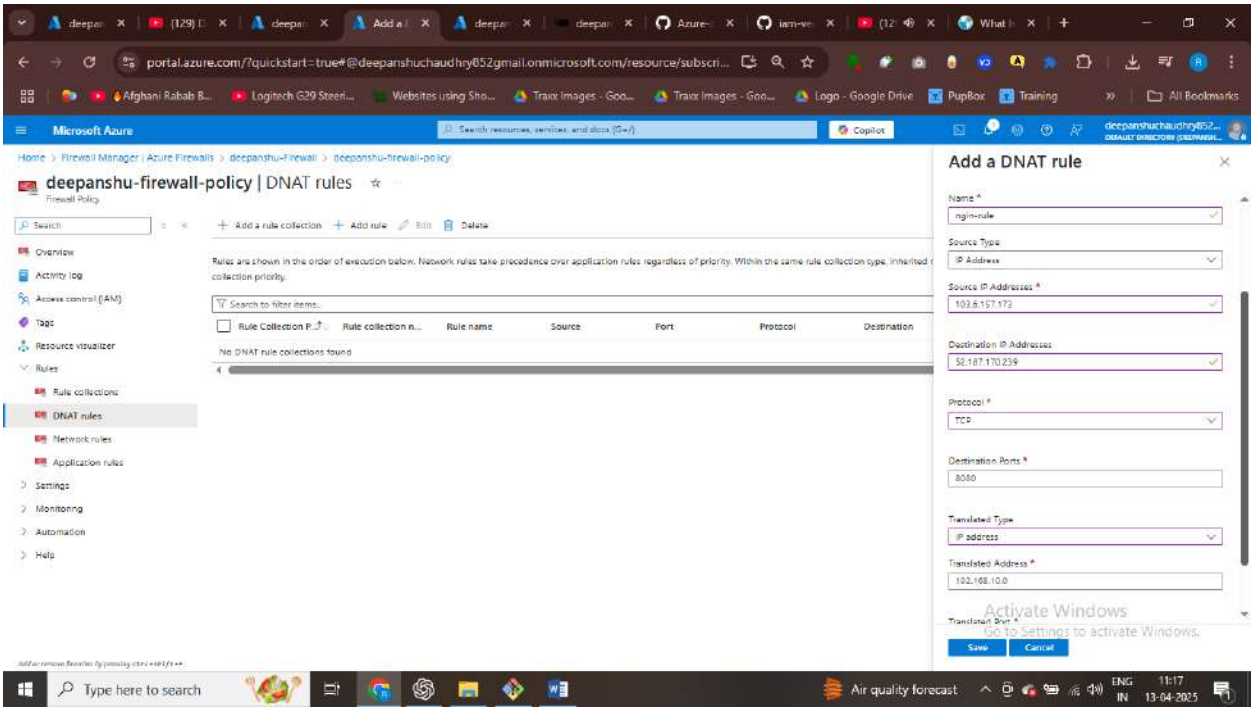




Source whoever try to access the nginx appn – provide the ip adder of one particular user and if

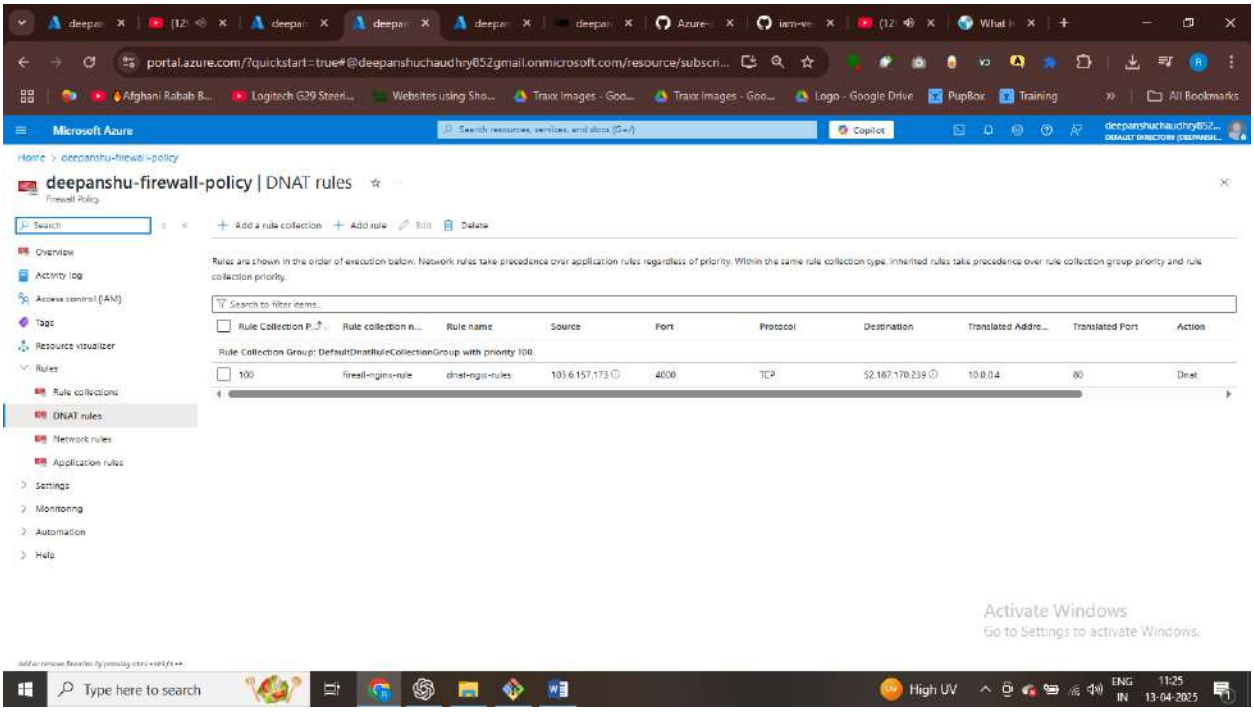
There are multiple users – you can provide subnet range or individual ip addresses

Destionation – not the nginx destination here – it's our firewall destination

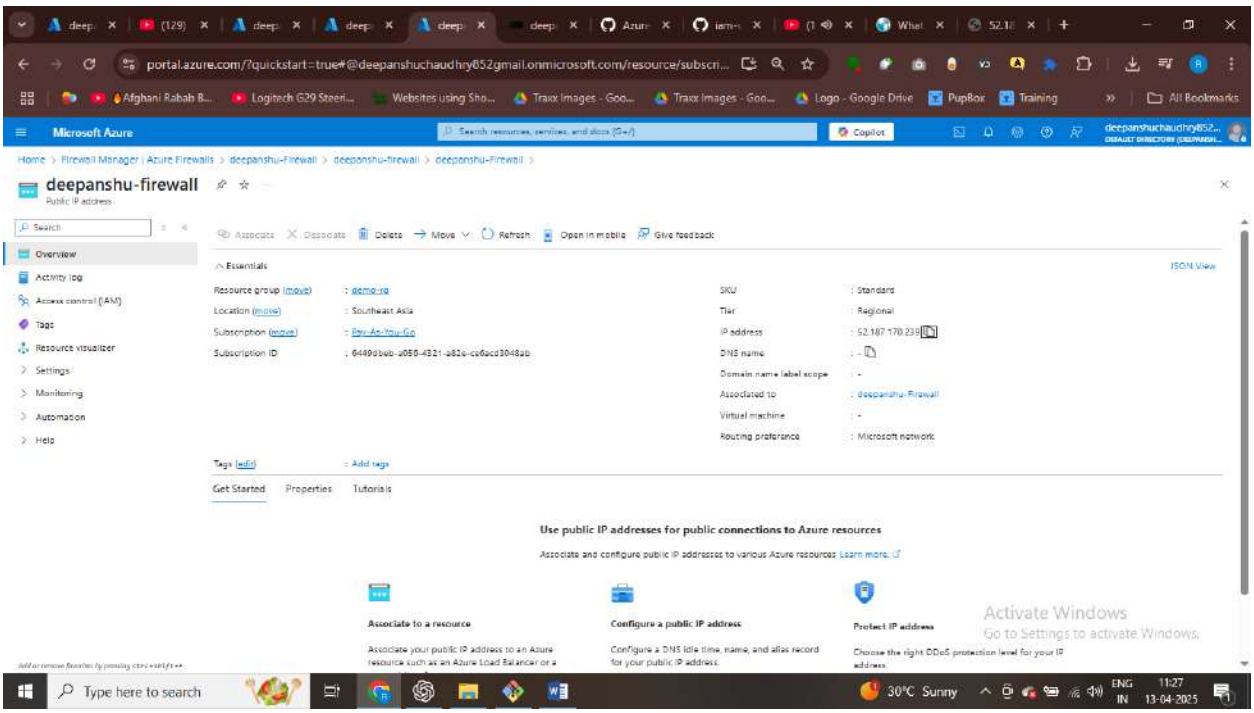


So the request we are sending to the firewall is going to private Ip ADDRESS OF SUBNET WHERE our vm and gninx running and the request forwared on the port 80

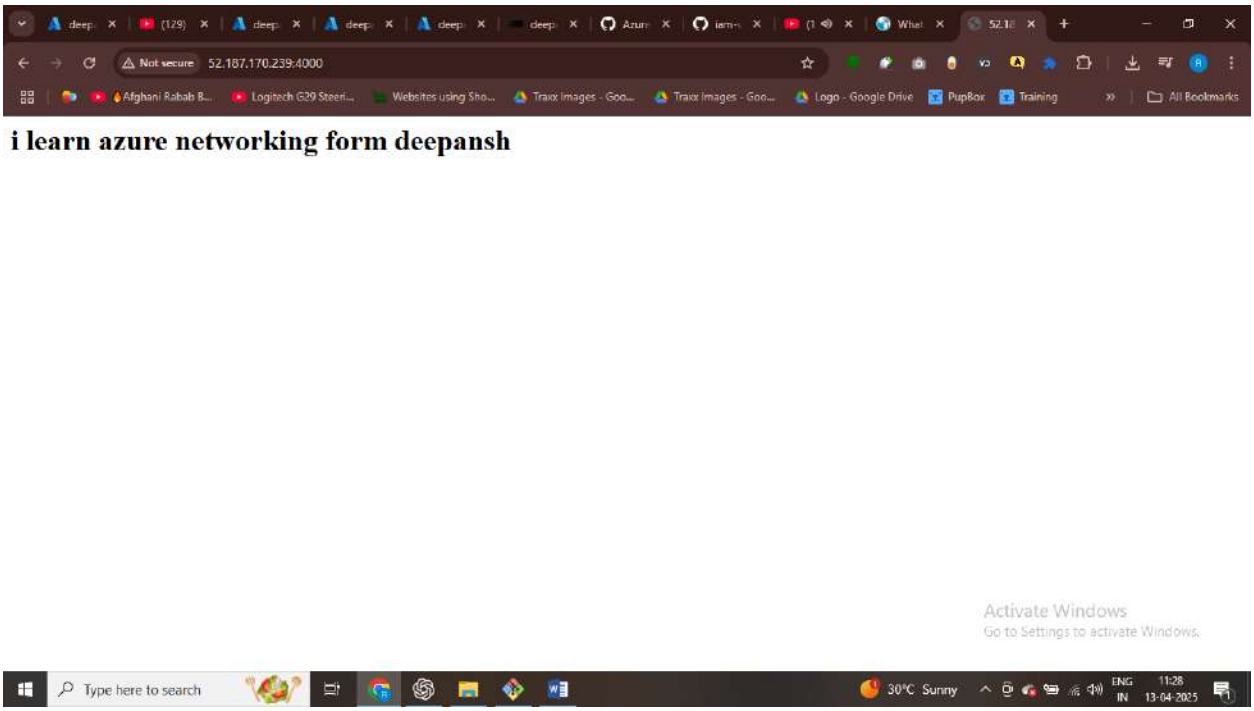
after that add rule collections



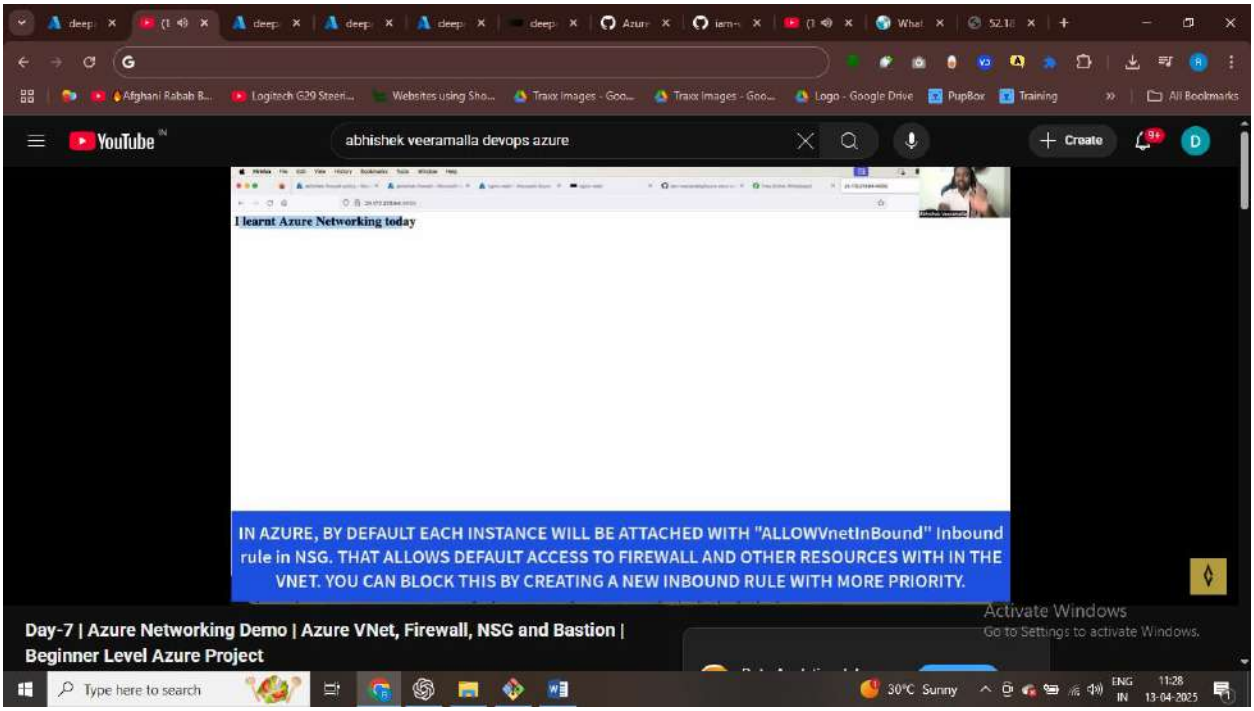
Dnat successfully now try to access nginx – server



using ip add of firewall try to access nginx server



Map 4000 port with nginx port



now you can try to deny http traffic

What is NSG in Azure?

NSG = Network Security Group

It acts like a **firewall** for your Azure resources (like VMs, subnets, etc.), controlling **inbound** and **outbound** traffic based on rules.

Key Components:

Component	Description
Rules	Set of inbound/outbound rules
Priority	Number (100–4096) to decide rule order
Source / Destination	IP, IP range, Service Tag (like Internet, VirtualNetwork)
Port	e.g., 22 for SSH, 80 for HTTP
Protocol	TCP, UDP, or Any
Action	Allow or Deny
Direction	Inbound or Outbound

🔁 Priority Logic:

Lower priority number = evaluated first
Once a rule matches, **no further rules are checked**

Where Can You Attach NSGs?

- **Network Interface (NIC)** – Controls traffic to a **specific VM**
- **Subnet** – Controls traffic to **all VMs in the subnet**

✅ You can attach NSGs to either or both!

What is an ASG?

ASG = Application Security Group

It allows you to **logically group VMs** (or NICs) and then apply **NSG rules** to these **groups**, instead of individual IPs.

🔥 Think of it like assigning **labels or tags** to VMs — then you can write NSG rules using **those labels**, not hardcoded IPs.

Why Use ASGs?

Benefit	Description
✅ **Dynamic Grouping**	No need to update IPs when VMs change
✅ **Simplified NSG rules**	Target groups instead of IP addresses
✅ **Scalability**	Easy to manage large numbers of VMs
✅ **Better organization**	Group VMs by app layer (Web, App, DB)

ASG + NSG Flow:

1. Create ASGs (e.g., `WebASG`, `AppASG`, `DBASG`)
2. Attach ASG to VM NICs
3. In NSG, create rules like:

   Allow traffic from `WebASG` → `AppASG` on port 5000

Important Notes:

- **ASG works only within the same VNet**
- You can **assign multiple ASGs** to a NIC

how can you block the access to a your vm from a subnet ?

By default traffic is allowed between subnets with in the VNet in Azure. This is because of a default NSG rule "AllowVnetInBound".

The priority of this rule is 65000, so we need to create a Deny rule with less than 65000 priority number.

Are Azure NSGs stateful or stateless ?

ChatGPT said:

Great question, Deepanshu! 🔥

✅ Azure NSGs are Stateful 🔄

□ What does Stateful mean?

When you allow **inbound traffic**, the **response (outbound)** is **automatically allowed**, and vice versa.

You **don't need to create return path rules** for the opposite direction.

Example: If you host a host an application on port 80 in azure vm and allow inbound traffic for customers to access it. You don't need to open port 80 in outbound traffic to send response back to the customer.

What is the difference between Azure Firewall and NSG ?

Firewall: Designed for controlling both outbound and inbound traffic to and from resources within a Virtual Network (VNet).

NSG: Typically associated with subnets or individual network interfaces to control traffic within a VNet and between VNets.

Nsg for subnets and firewall for vnet

What are the advantages of resource groups in azure ?

ChatGPT said:

Great question, Deepanshu! 💡
Azure Resource Groups (RGs) are super useful for organizing and managing your Azure resources efficiently.

✅ Advantages of Resource Groups in Azure

💼 Feature	✅ Benefit
🗂 **Logical Grouping**	You can group related resources (VMs, storage, VNet, etc.) by application, environment (dev/test/prod), or department.

💼 Feature	✅ Benefit
👥 **Access Control (RBAC)**	Assign **permissions** (e.g., Reader, Contributor) at the **resource group level**, instead of per-resource.
💸 **Cost Management**	Track and manage **costs per resource group** for budgeting and chargebacks.
Isolation & Security	Resource groups can help **isolate workloads** (e.g., payments vs user services) and apply **security rules** differently.

What is the difference between Azure User Data and Custom Data ?

User data is a new version of custom data and it offers added benefits.

Custom data vanishes after first boot, accessible only during VM creation.

. User data persists and lives in the cloud, accessible and updatable anytime

What is the difference between Azure App Gateway and Azure LB ?

Azure Application Gateway:

Operates at Layer 7 (Application layer) of the OSI model. Provides advanced application-level routing, SSL termination, and web application firewall (WAF) capabilities

Azure Load Balancer:

Operates at Layer 4 (Transport layer) of the OSI model. Distributes network traffic based on IP address and port. Suitable for generic TCP/UDP load balancing

Assume your company is using all the ideal Azure Networking setup and your application is deployed in the web subnet , Explain the traffic flow to your app ?

User Access:

- External users access the application over the internet.
- DNS resolves the application's domain name to the associated public IP address.

Internet Traffic to Azure:

-Incoming internet traffic reaches Azure through Azure Front Door, Azure Application Gateway, or Azure Load Balancer, depending on the specific requirements of the application.

- These services provide load balancing, SSL termination, and other application-level features.

Traffic Routing Within Azure:

- Traffic is directed to the public IP address associated with the Azure Application Gateway or Load Balancer.
- The gateway or load balancer routes traffic to the backend pool of the web servers in the web subnet.

Network Security Group (NSG) Enforcement:

- Network Security Groups associated with the web subnet control inbound and outbound traffic.
- NSG rules ensure that only required traffic is allowed, providing security at the network layer.
- Azure Virtual Network (VNet) Components:
- The web subnet is part of an Azure Virtual Network, which acts as an isolated network environment.
- Subnets within the VNet communicate with each other through the VNet's internal routing.

Application Servers:

- Web servers within the web subnet process incoming requests

What is Azure Bastion?

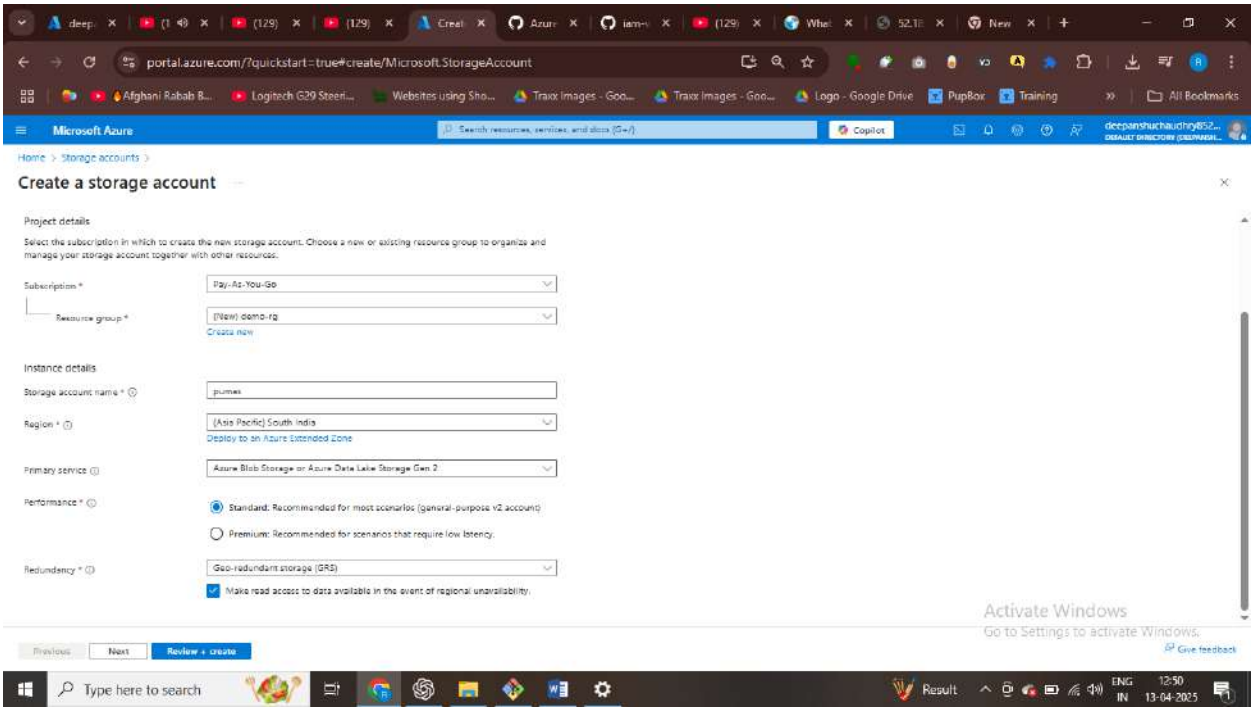
Azure Bastion is a **fully managed PaaS service** that provides **secure and seamless RDP/SSH access** to your **Azure Virtual Machines** — **without exposing them to the public internet**.

- We don't need to define public ip add for our vm rather we can driectuly use bastion for ssh and ip
-

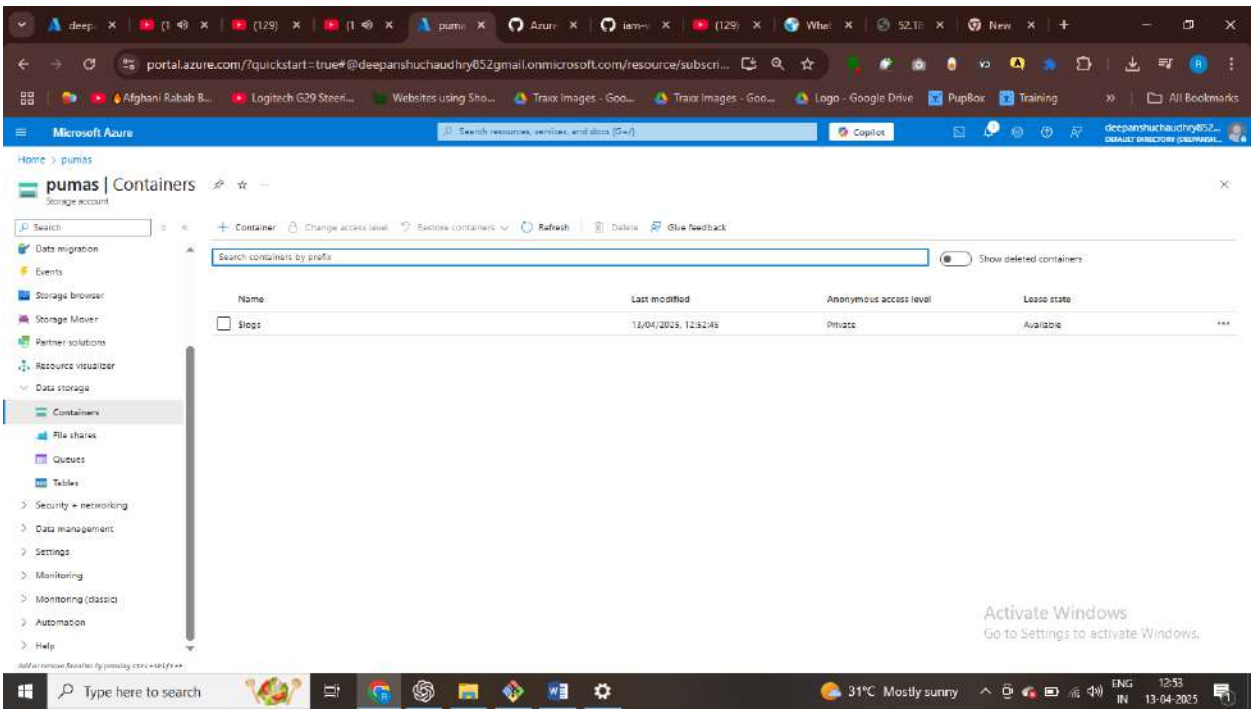
Describe the purpose of Azure Bastion and when it is used for secure remote access to virtual machines.

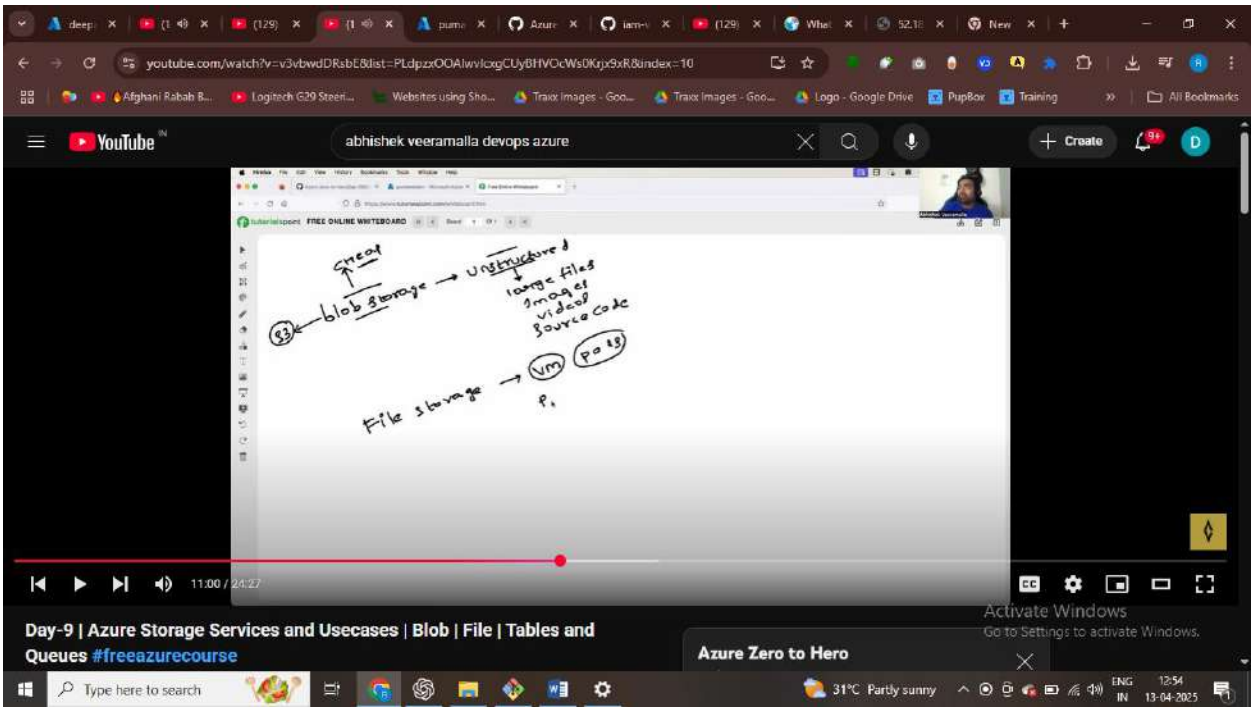
- Secure Remote Access:
- Elimination of Public Internet Exposure:
- Reduced Attack Surface:
- Azure Bastion Integration:
- Simplified Connectivity:

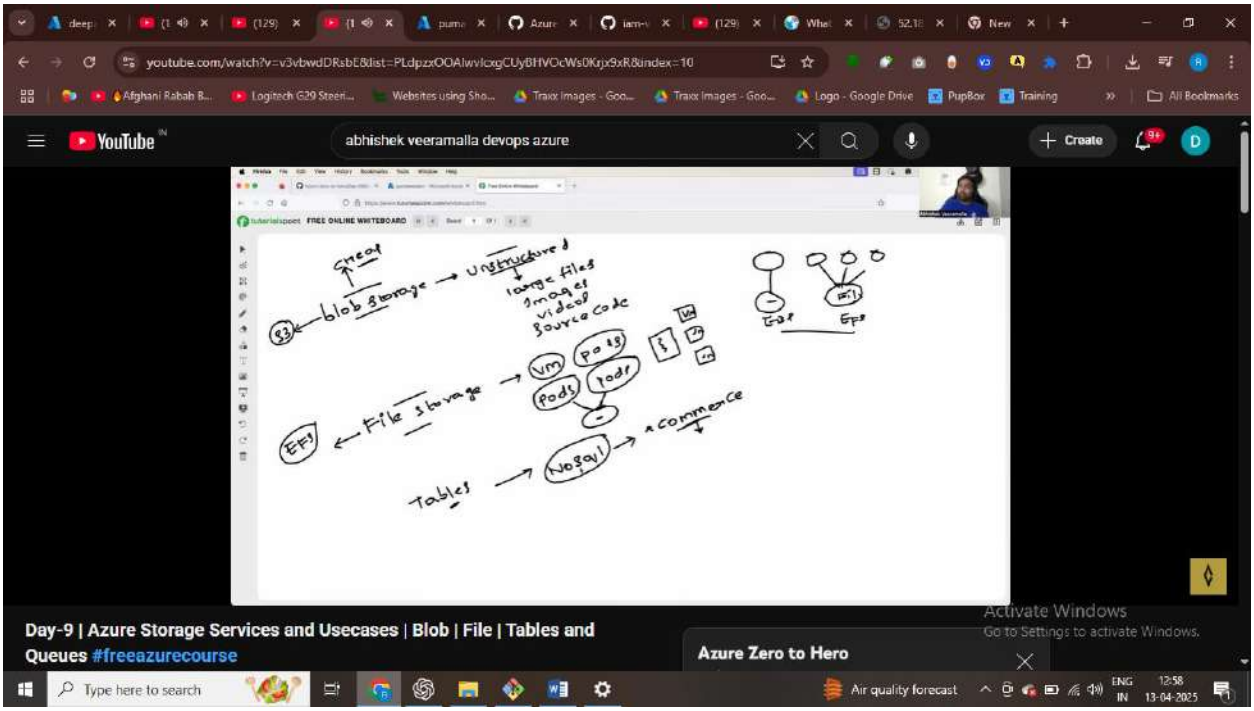
Create A storage Accounts



we are creaeting containers then we are creating blob storage- simpliar to s3







Azure file stoage – is for file sharing – you can share file within vm or in azure – using ifles hare

Azure Tables

1. What is it?

Azure Tables is a NoSQL data store service provided by Azure. It stores large amounts of semi-structured data and allows for fast and efficient querying using a key-based access model

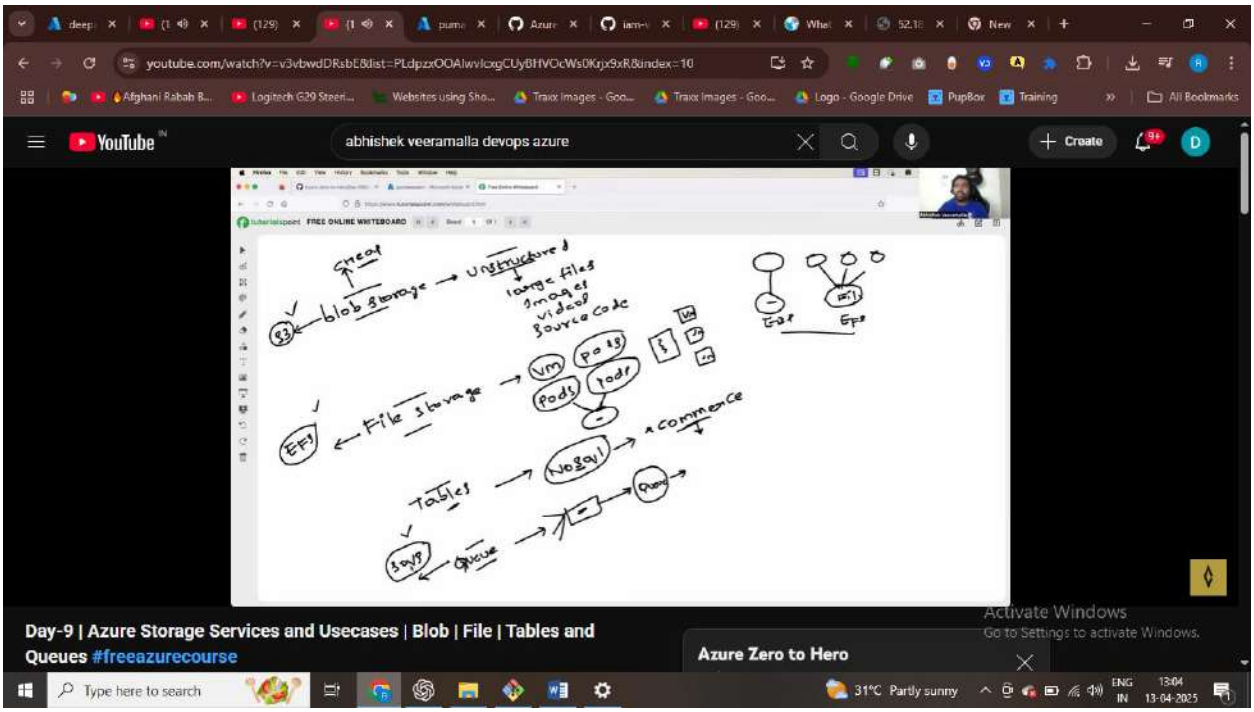
Azure Queue Storage

A DevOps engineer may use Azure Queue Storage to implement a message queue for processing background tasks or managing communication between microservices.

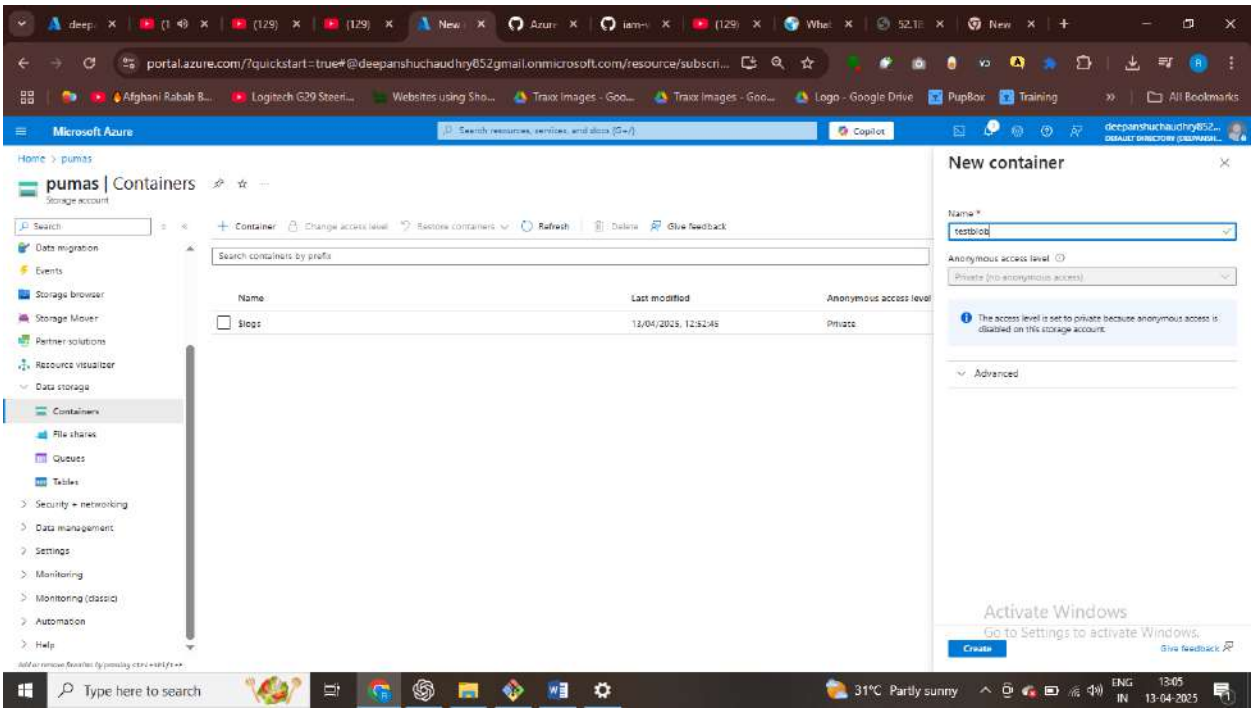
Azure Queue Storage is a service that allows you to store and manage **messages** that can be accessed asynchronously. It's a part of **Azure Storage** services and is designed to help applications **communicate** by sending and receiving message

If your appln has lot of request and you need to store the request in queue and you need to process the request – to queue the request – similar to sqs

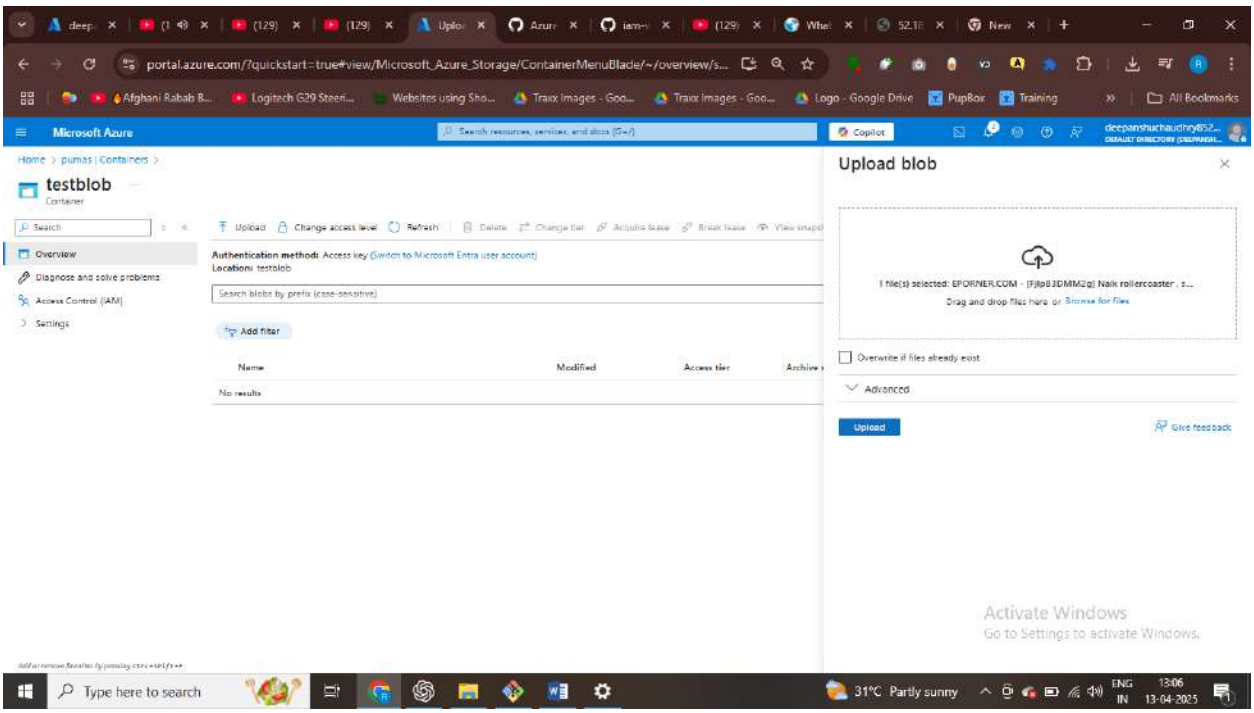
fil

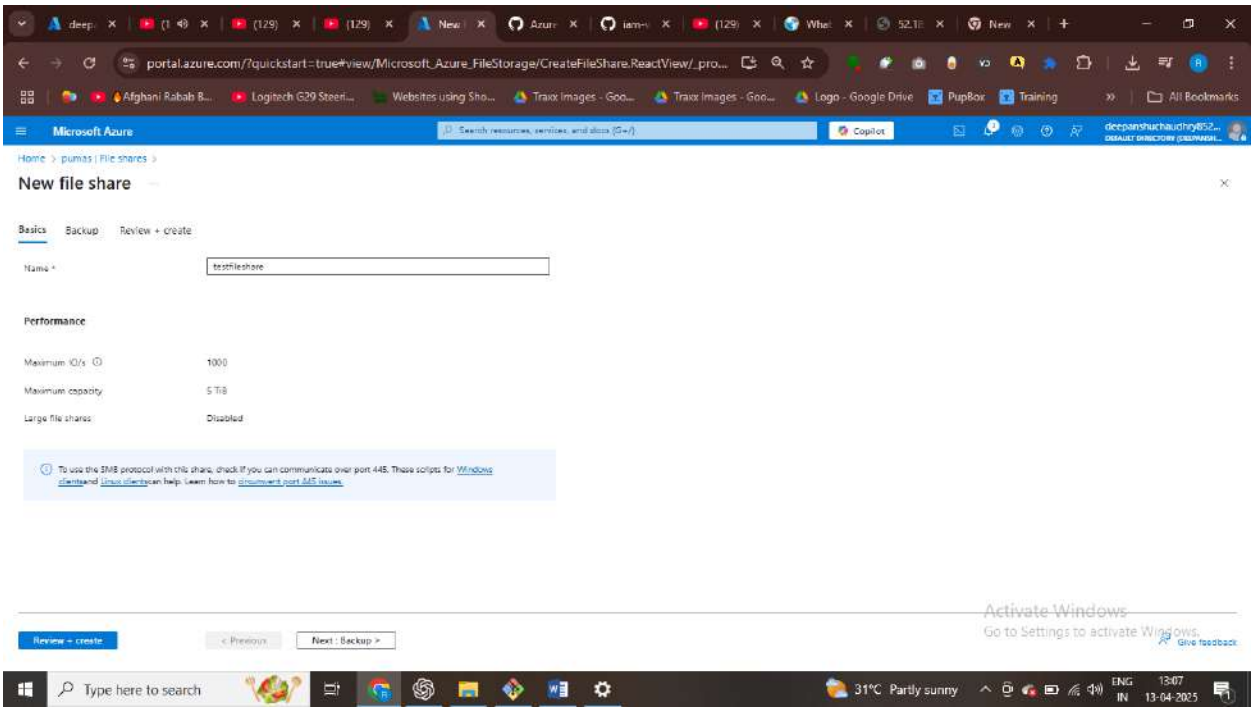


Creating blob storage

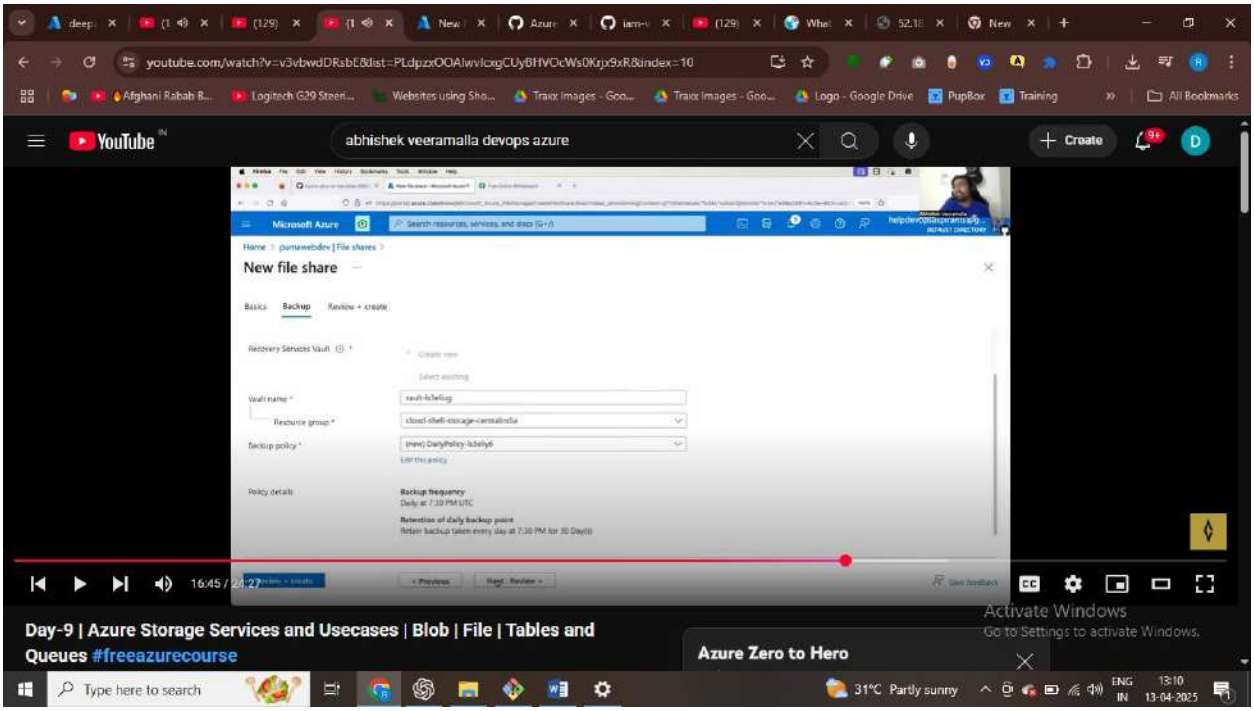


I can store any type of dta in blob stoage



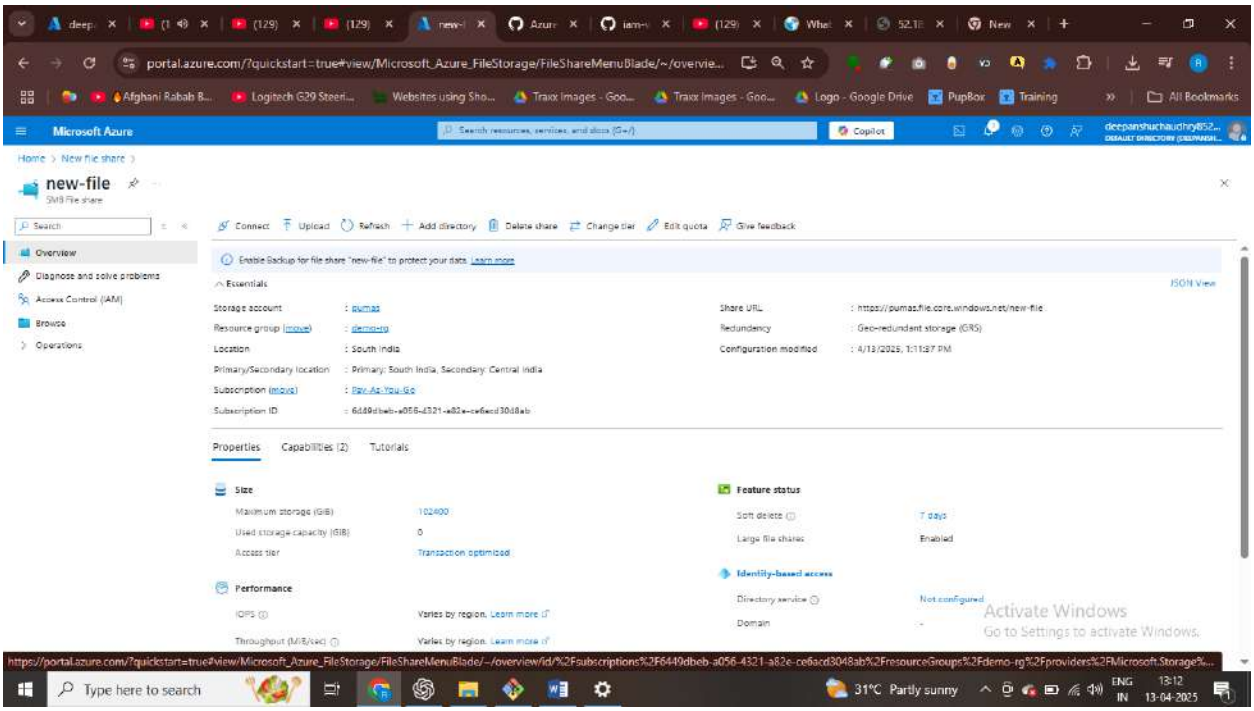


- Fiel share need to have backup as we can share files betwenn using file share



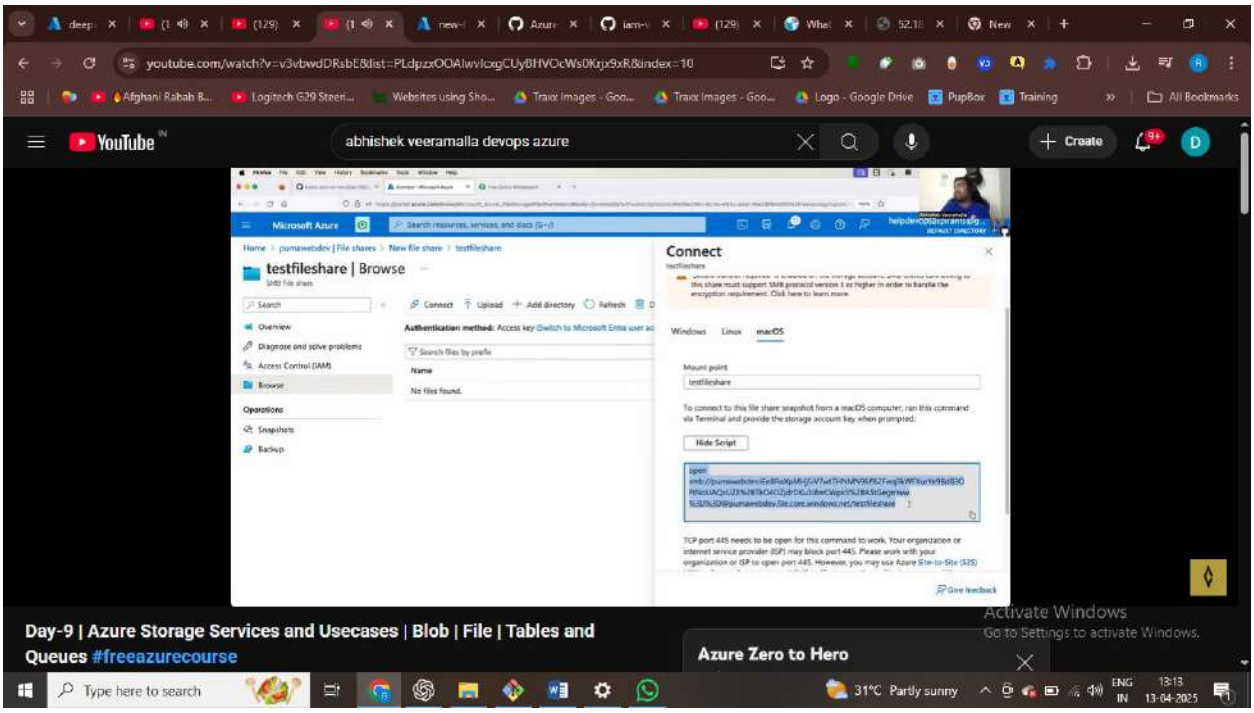
You can enable backup policy when you need backup every week or every day

Smp protocol use by azure file shar3

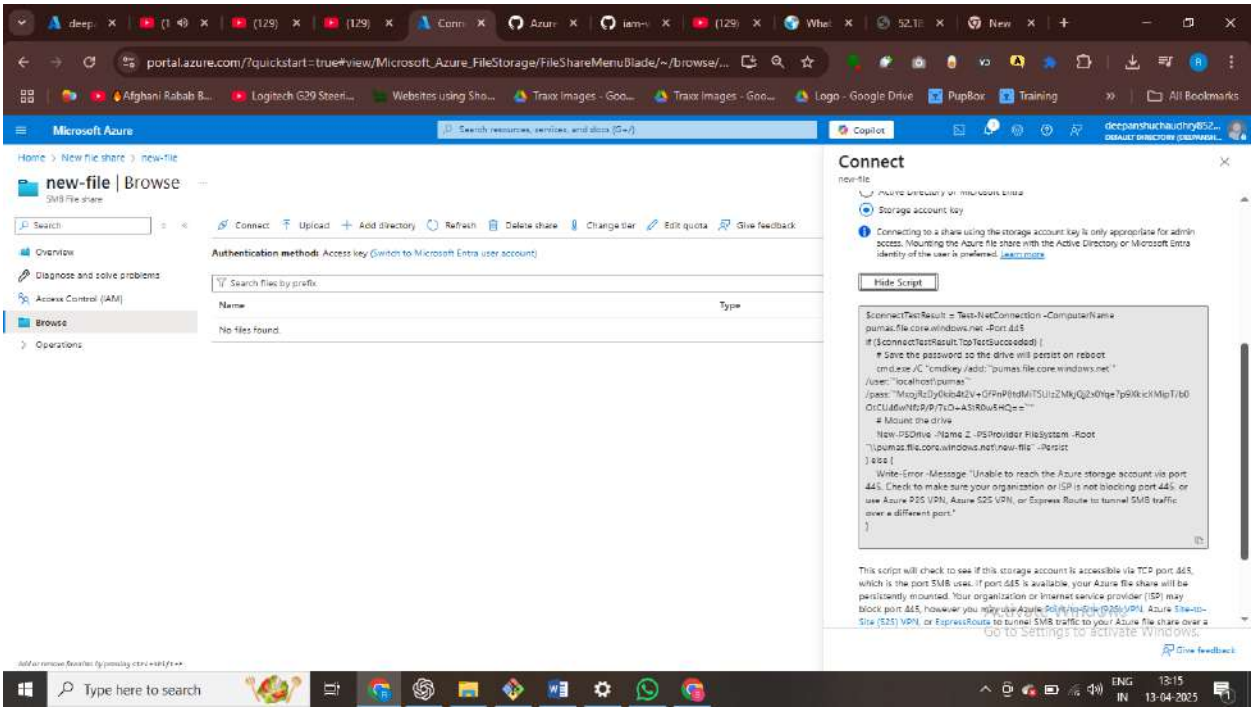


After create a file go to Browse and upload file

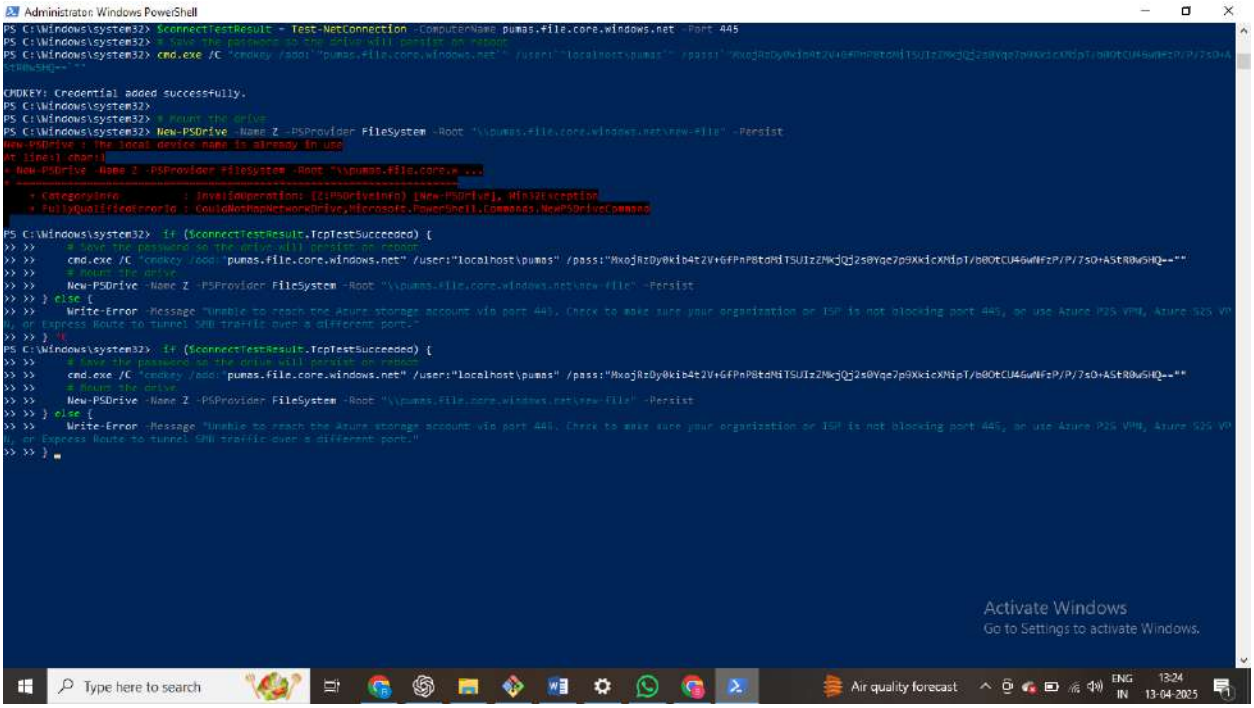
To connect to Vm open type of VM and then connect to it



Copy theis script and paste it your teminal and you connect to file share



You can store any no of files here



We are connect to file share

```
PS C:\Windows\system32> if ($connectTestResult.TcpTestSucceeded) {
>>     # Save the password so the drive will persist on reboot
>>     cmd.exe /C "cmdkey /add:`"pumas.file.core.windows.net`" /user:`"localhost\pumas`"
/pass:`"MxojRzDy0kib4t2V+GfPnP8tdMiTSUIzZMkjQj2s0Yqe7p9XkicXMipT/b0OtCU46wNfzP/P/7sO+ASt
R0w5HQ==`""
>>
>>     # Mount the drive
>>     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\pumas.file.core.windows.net\new-file" -
Persist
>> } else {
>>     Write-Error -Message "Unable to reach the Azure storage account via port 445. Check to make sure
your organization or ISP is not blocking port 445, or use Azure P2S VPN, Azure S2S VPN, or Express Route
to tunnel SMB traffic over a different port."
>> }

CMDKEY: Credential added successfully.
New-PSDrive : The local device name is already in use
At line:6 char:5
+     New-PSDrive -Name Z -PSProvider FileSystem -Root "\\pumas.file.co ...
+     ~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~
    + CategoryInfo          : InvalidOperation: (Z:PSDriveInfo) [New-PSDrive], Win32Exception
    + FullyQualifiedErrorId :
CouldNotMapNetworkDrive,Microsoft.PowerShell.Commands.NewPSDriveCommand

PS C:\Windows\system32> Get-PSDrive

Name           Used (GB)     Free (GB) Provider      Root
CurrentLocation
----           ---------     --------- --------      ----
---------------
```

Alias Alias

C 157.68 525.28 FileSystem C:\
Windows\system32

Cert Certificate \

D 22.07 225.85 FileSystem D:\

E FileSystem E:\

Env Environment

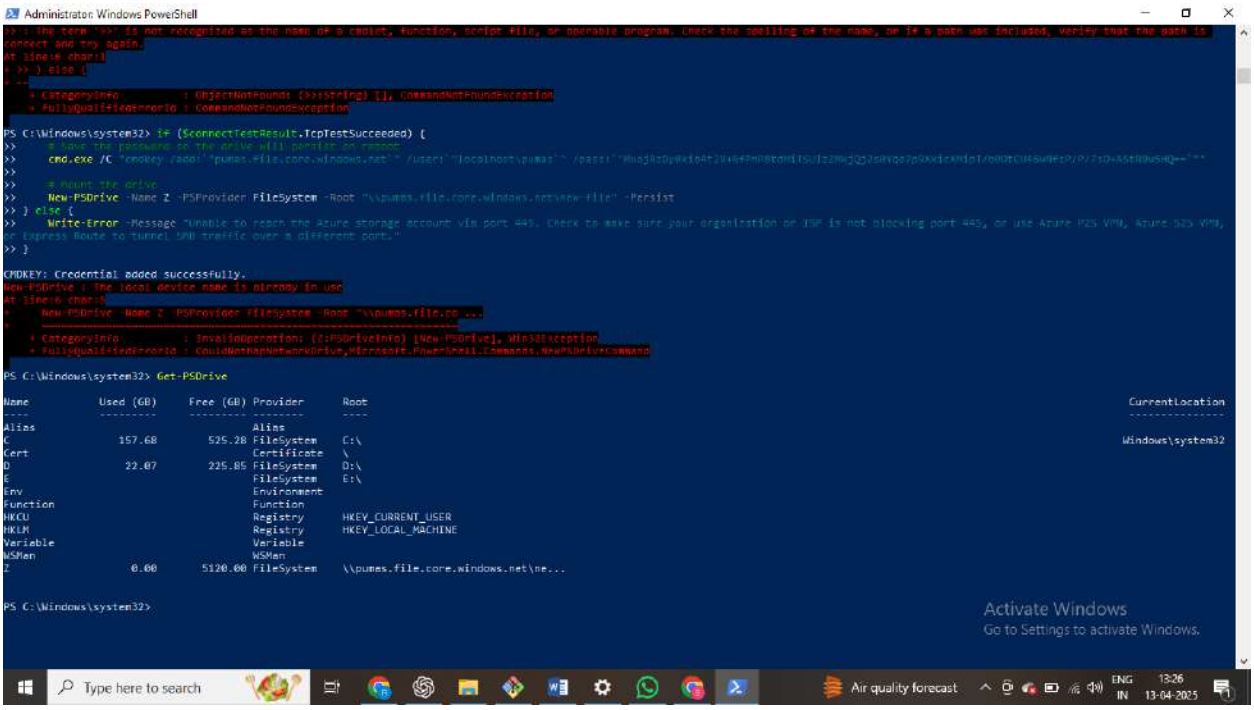
Function Function

HKCU Registry HKEY_CURRENT_USER

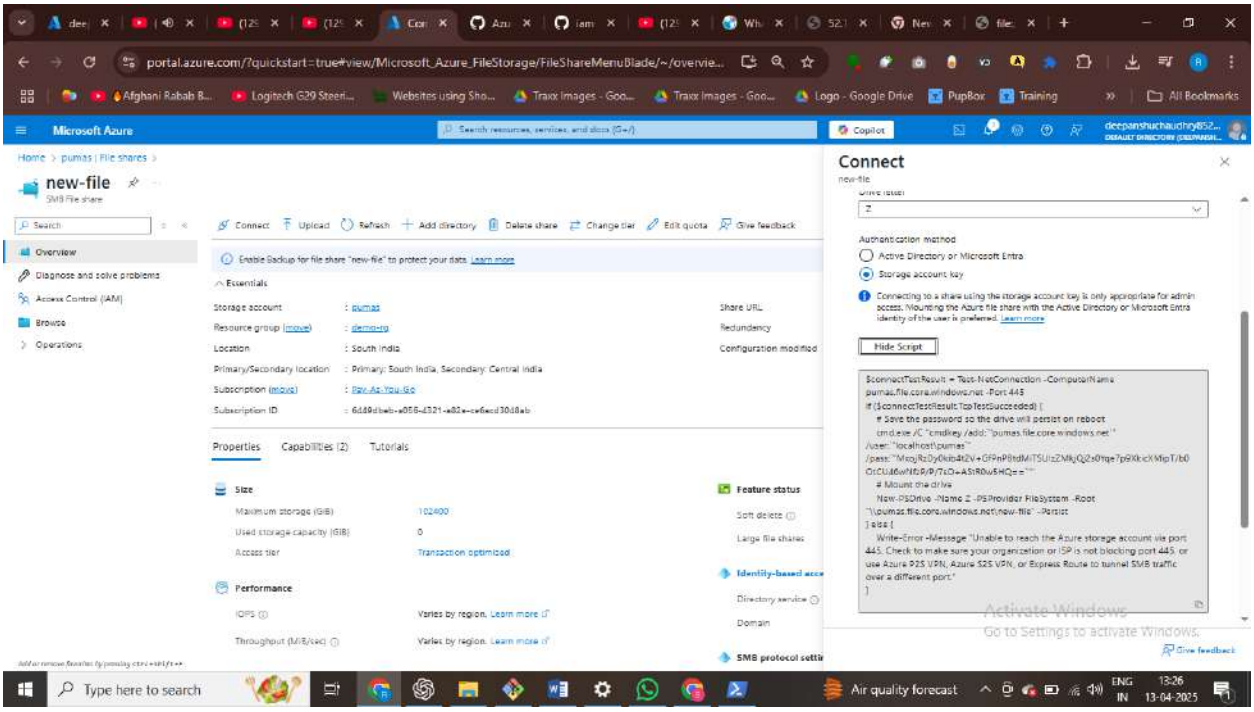
HKLM Registry HKEY_LOCAL_MACHINE

Variable Variable

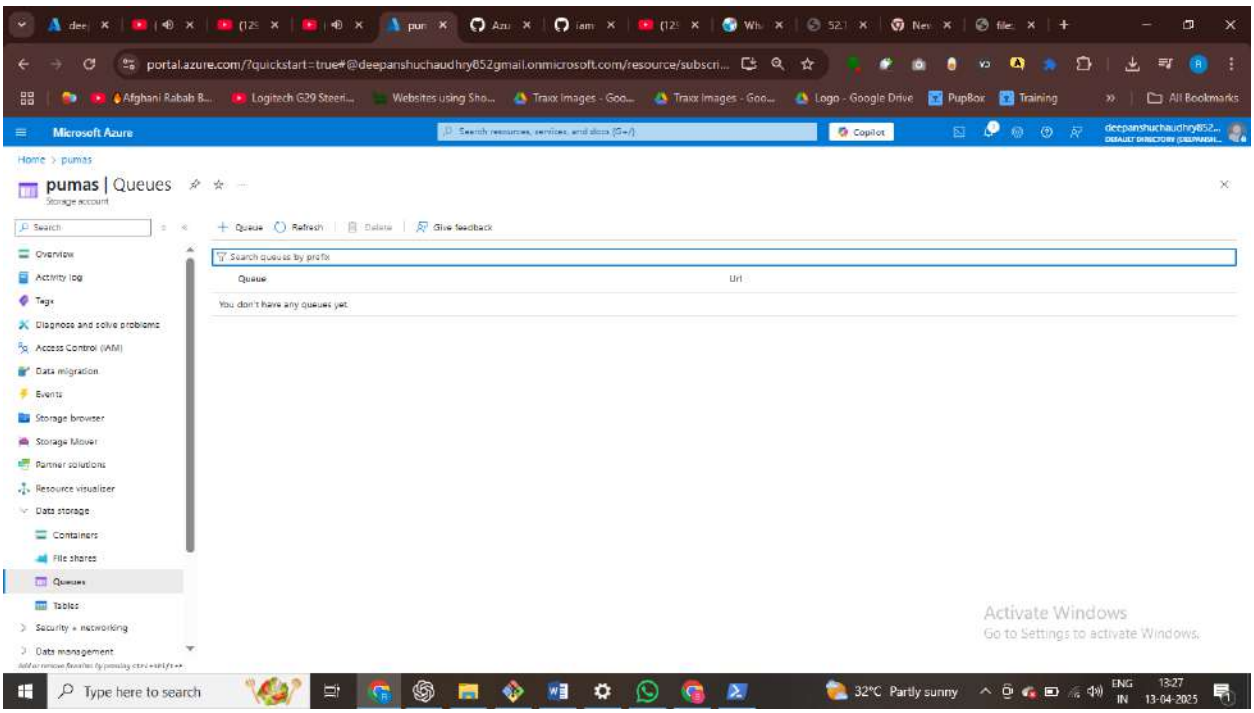
WSMan WSMan

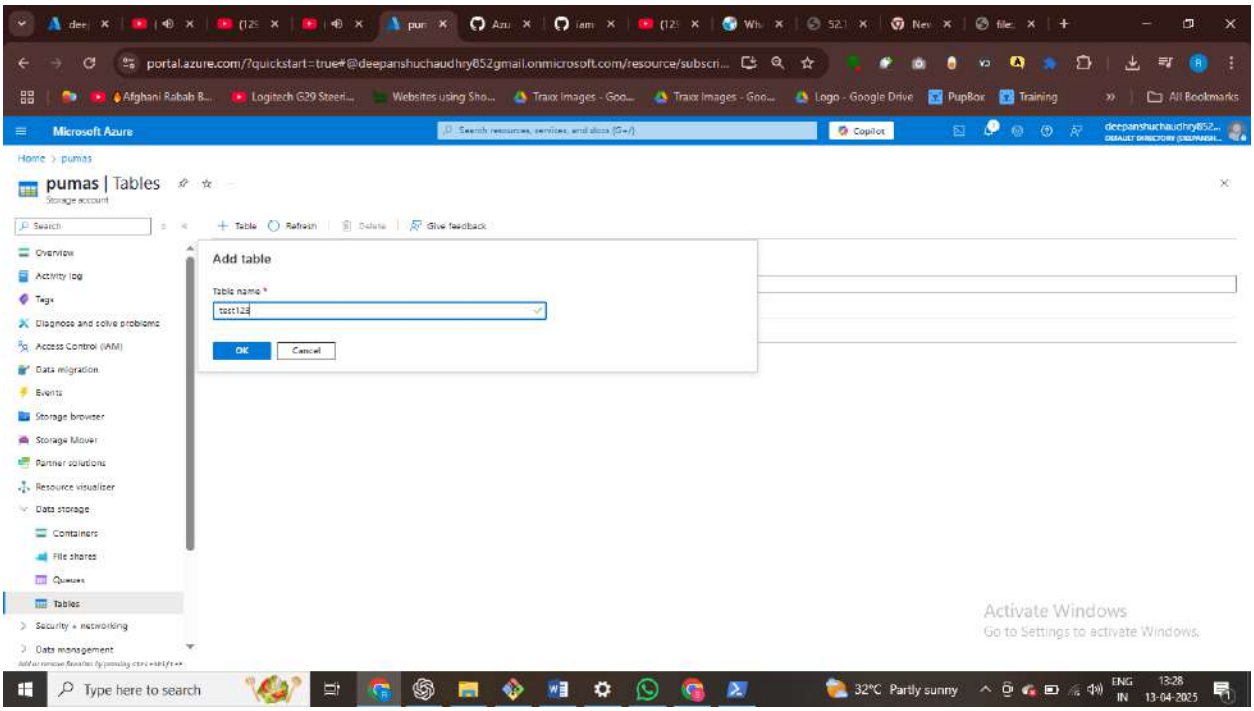


You can upload any no of ifles

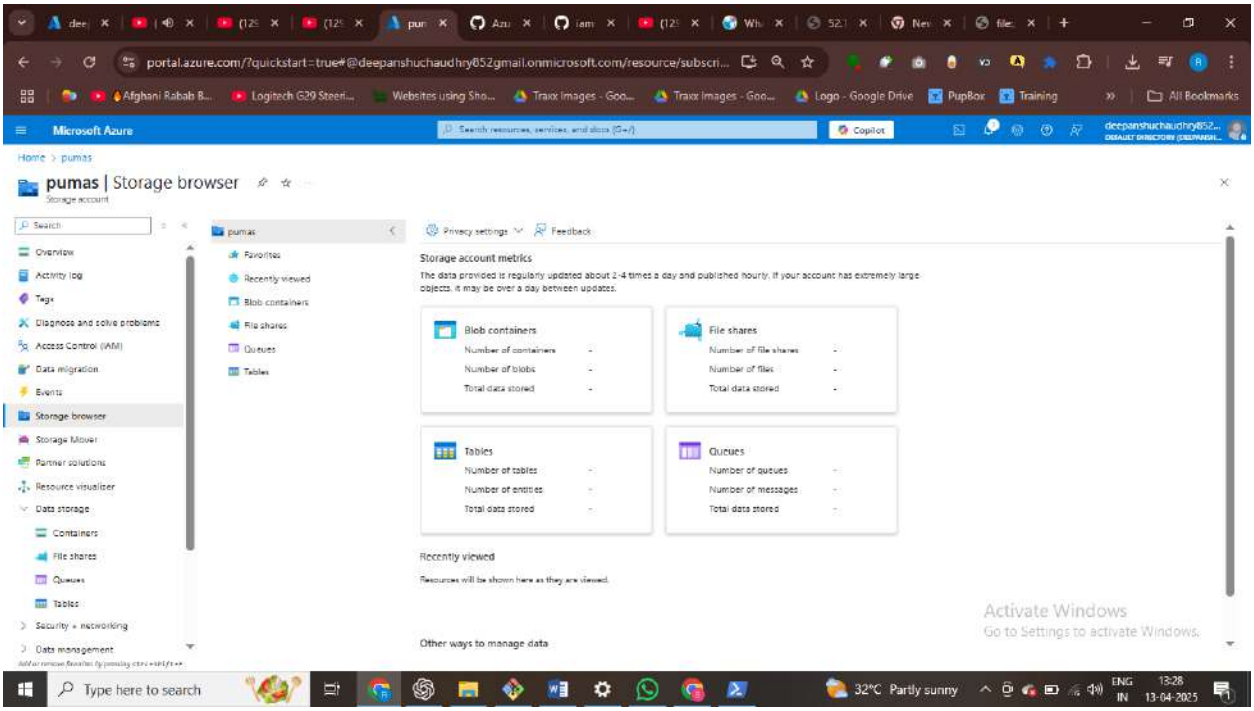


miultiple request are coming process each request in queue – in particular order

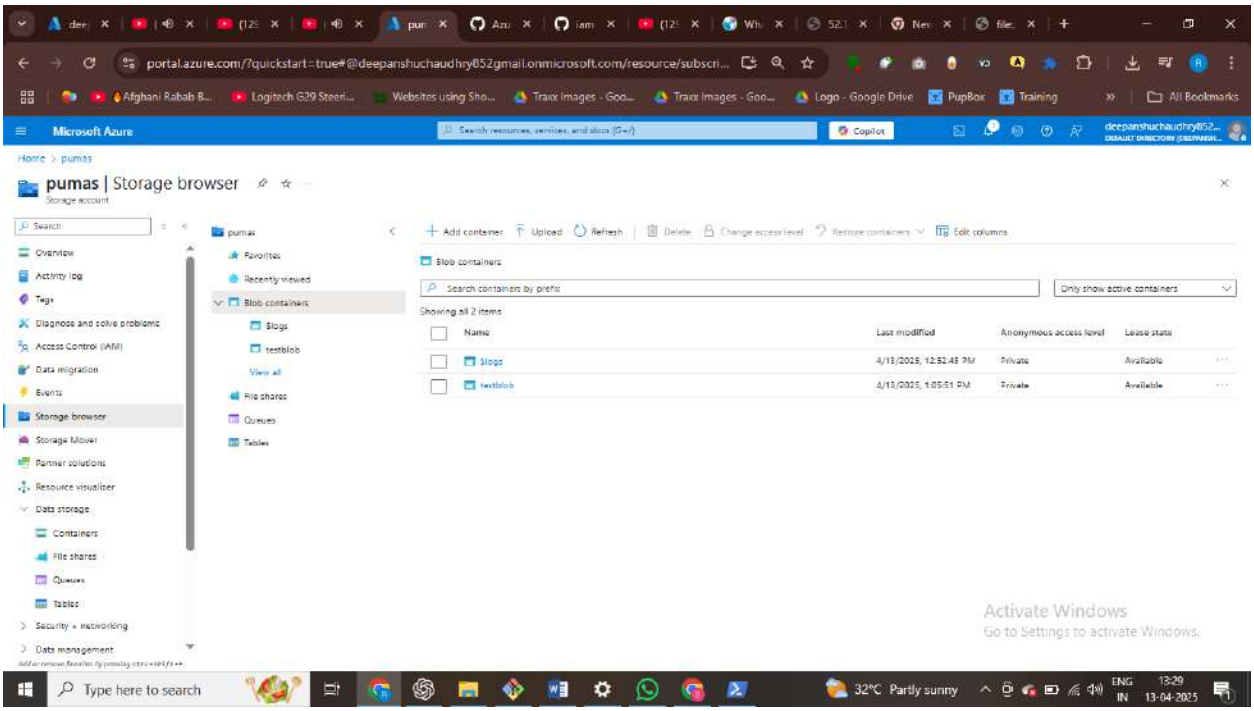




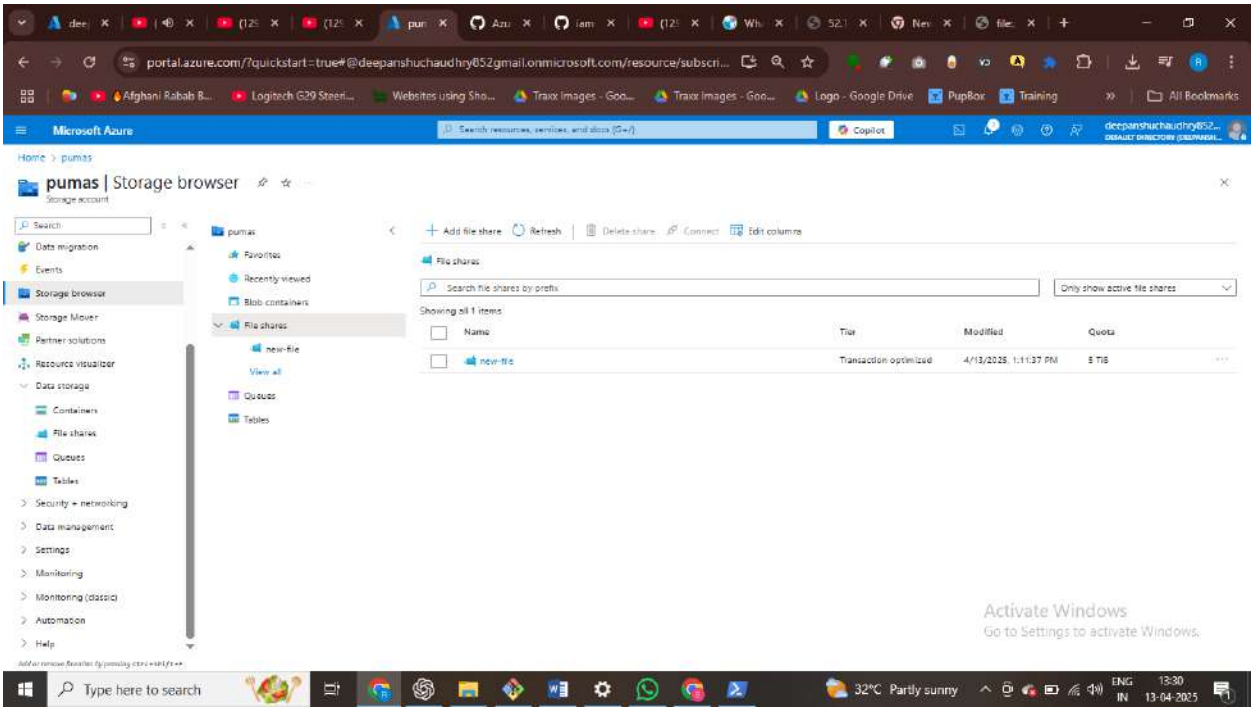
For nosql or semistrcurtre data use tables



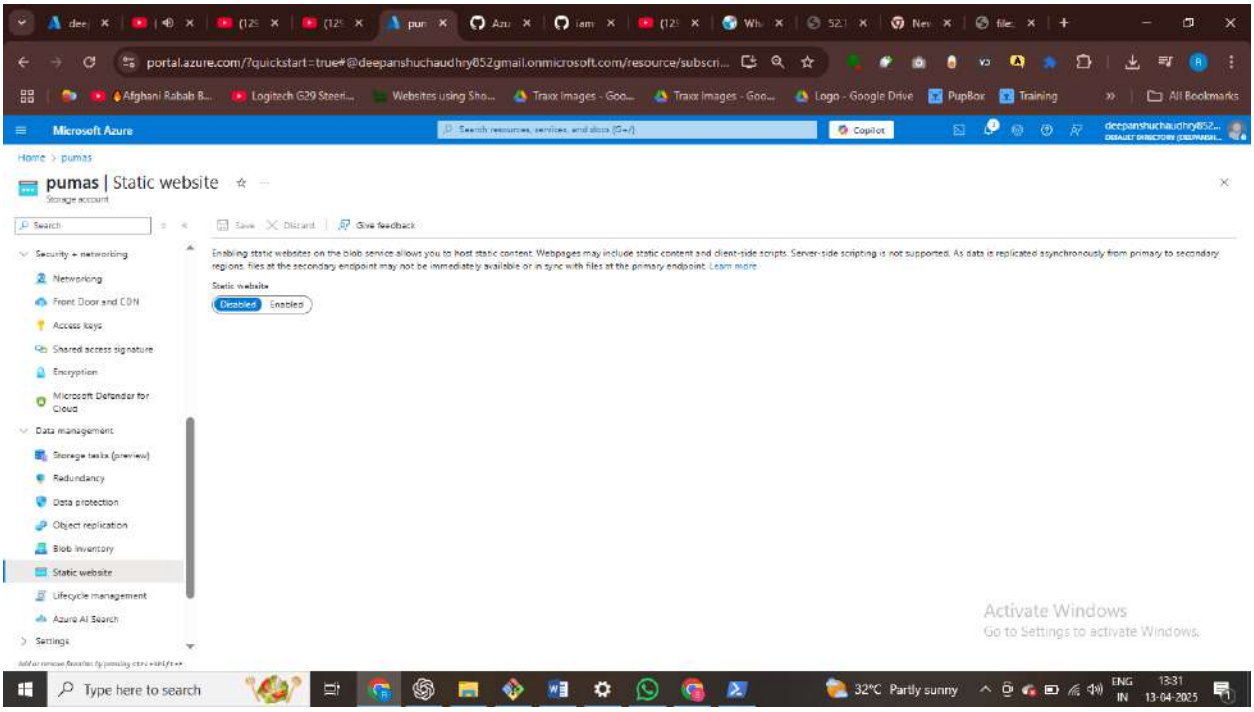
Stroge browser to retrieve all the strage account details – about reserousce



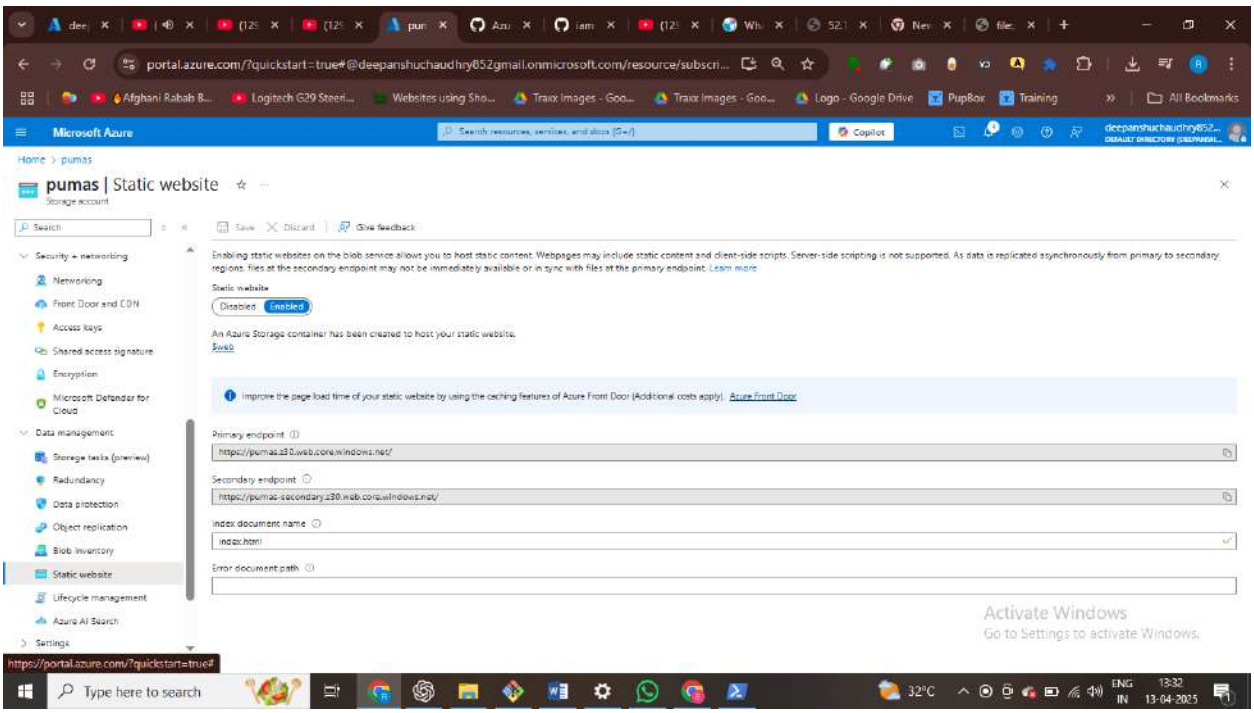
In stoage browser we have everything

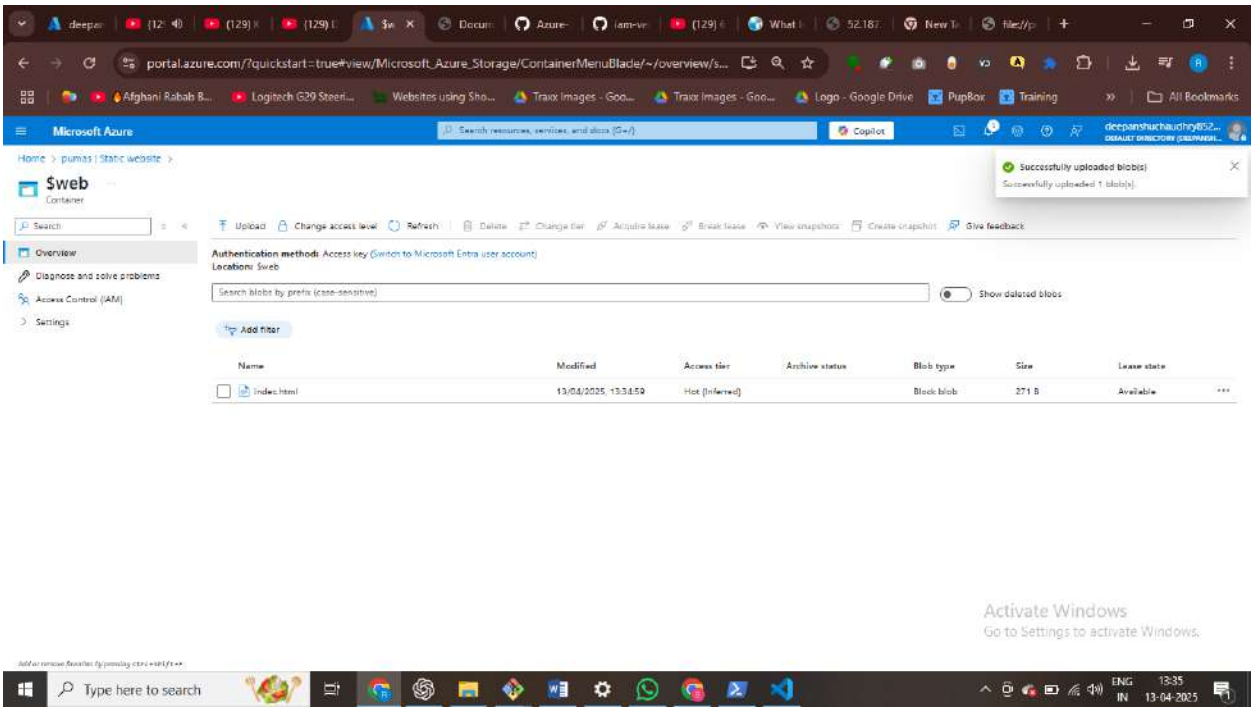


We can also host static website

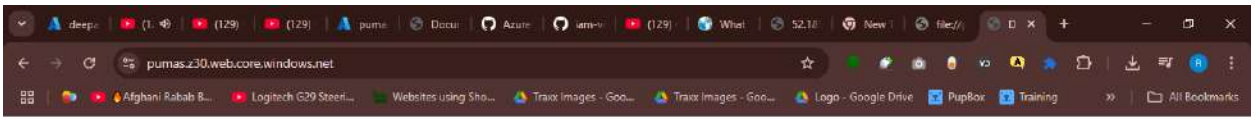


A container get crated for ours web

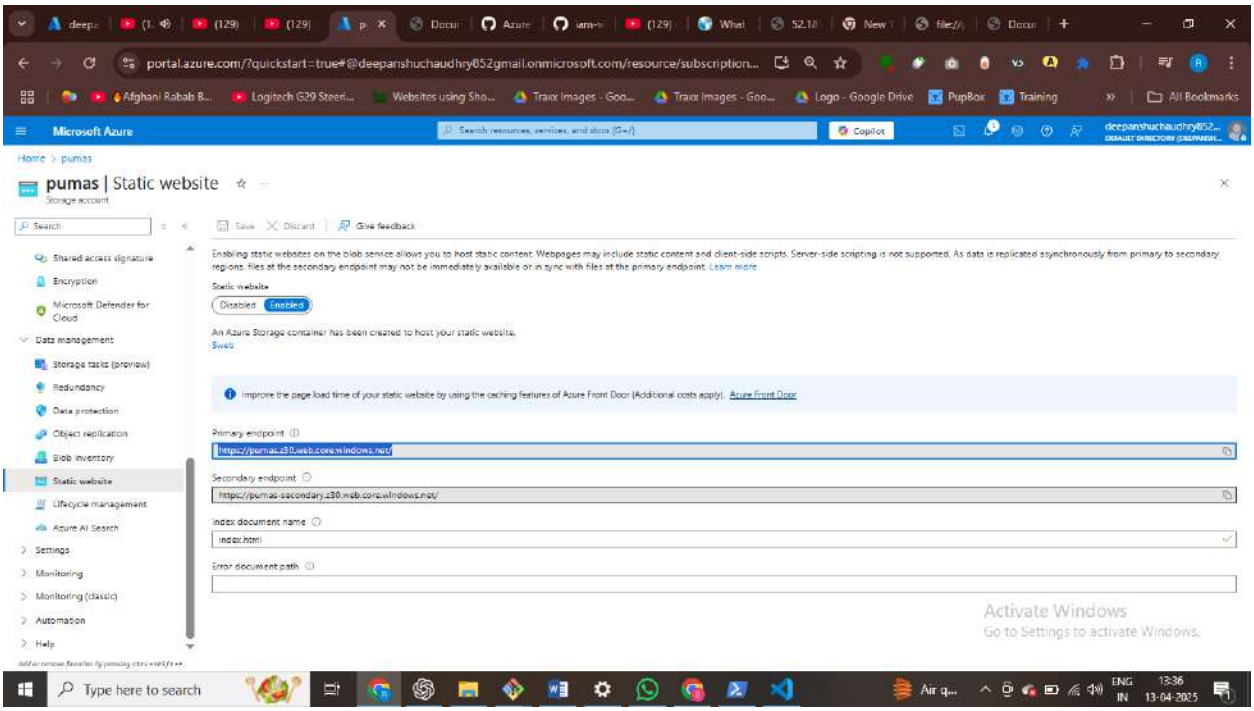




using url we can access our websigte

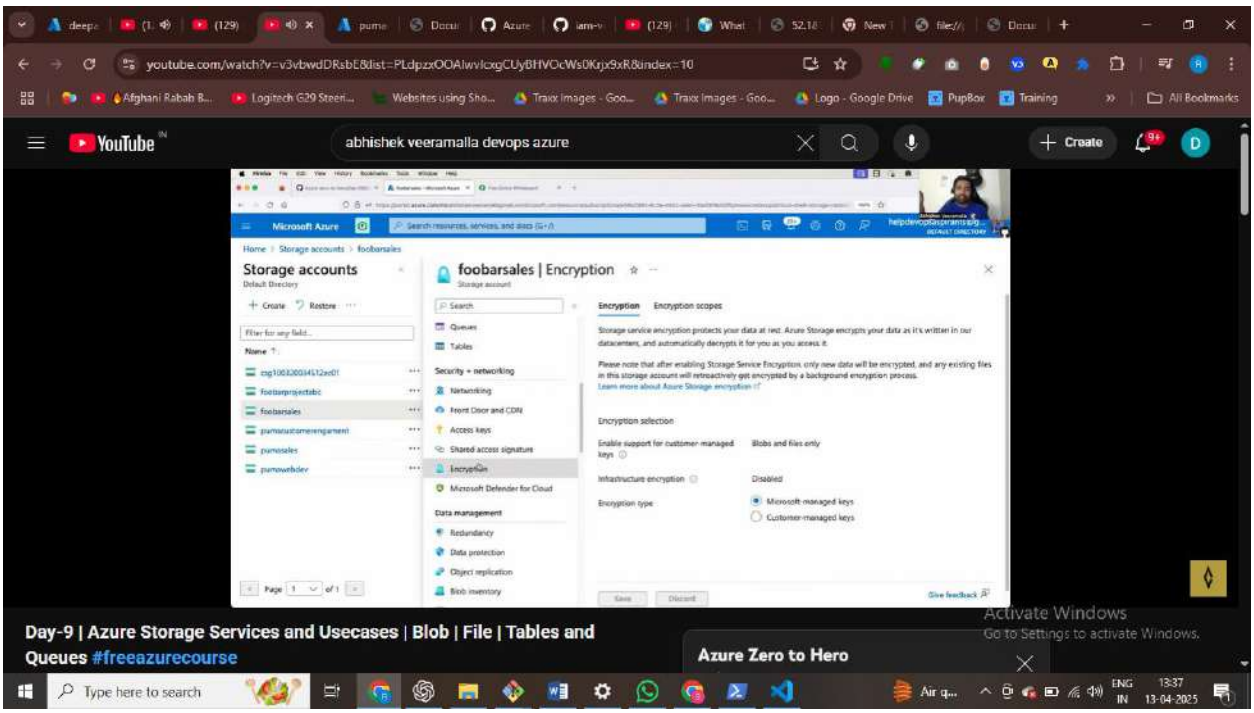


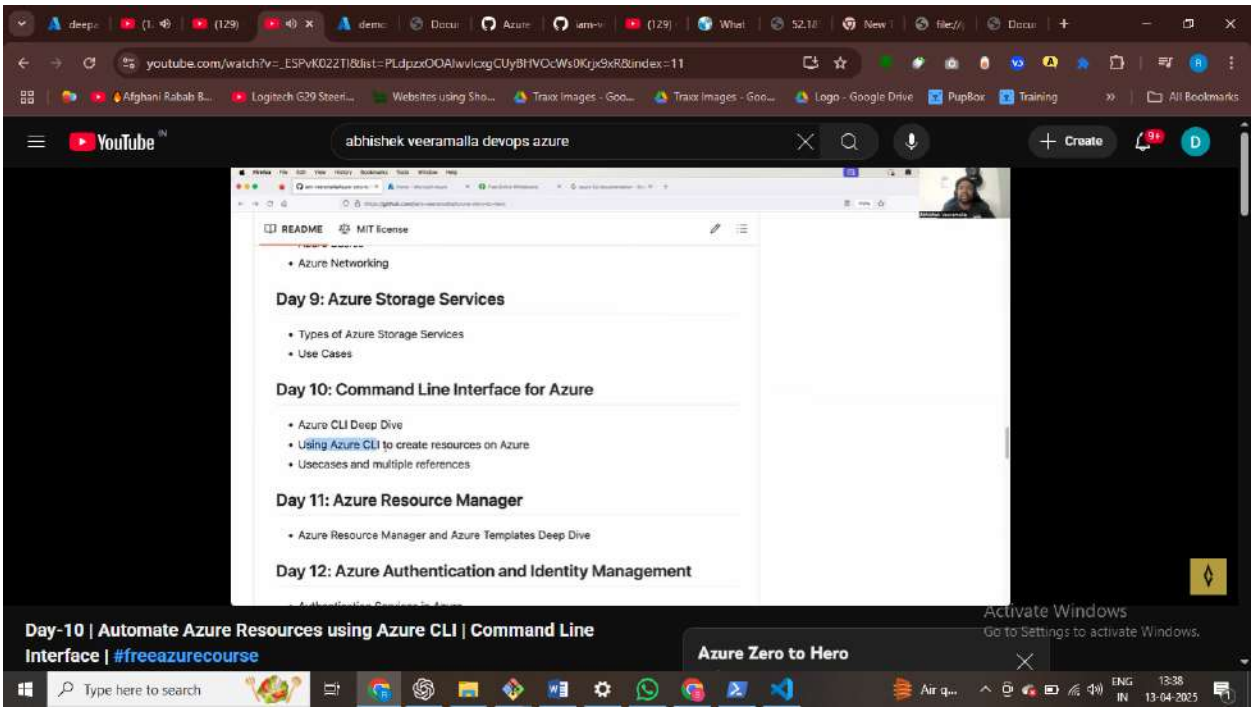
index ones are here we dont want from deepanshu



Static website using storage account hosting

We can also enctyption data while sharing file sharing



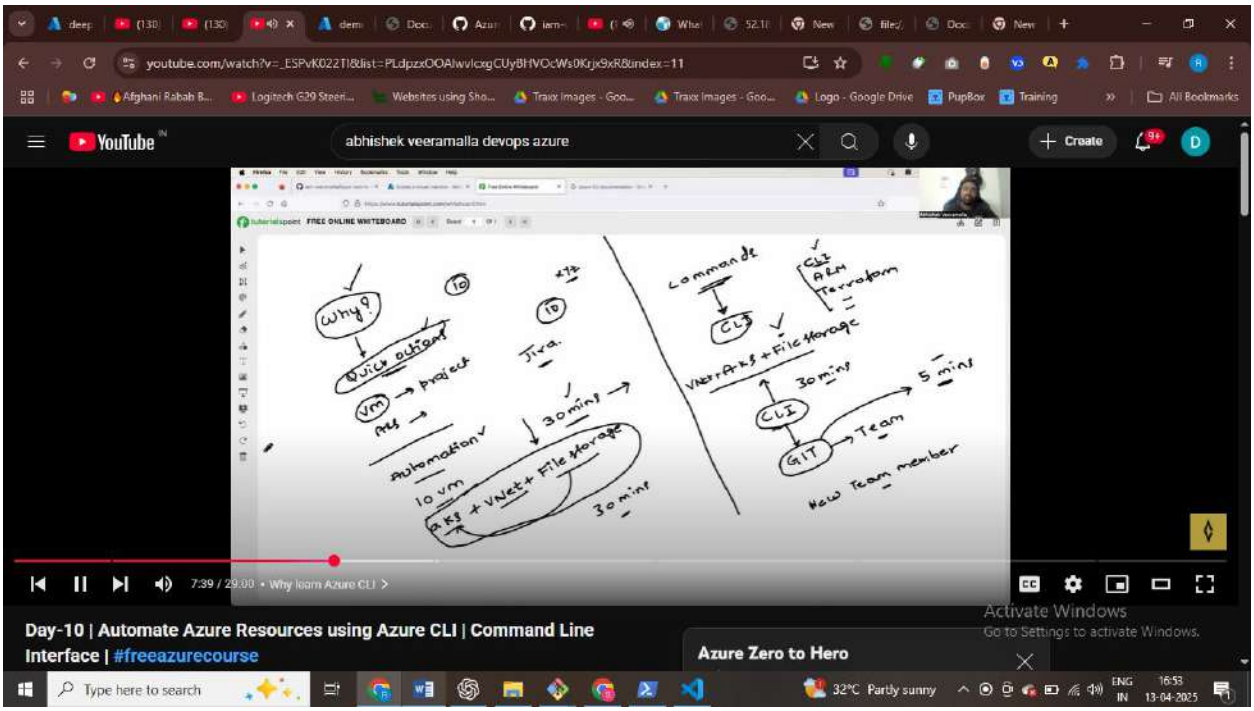


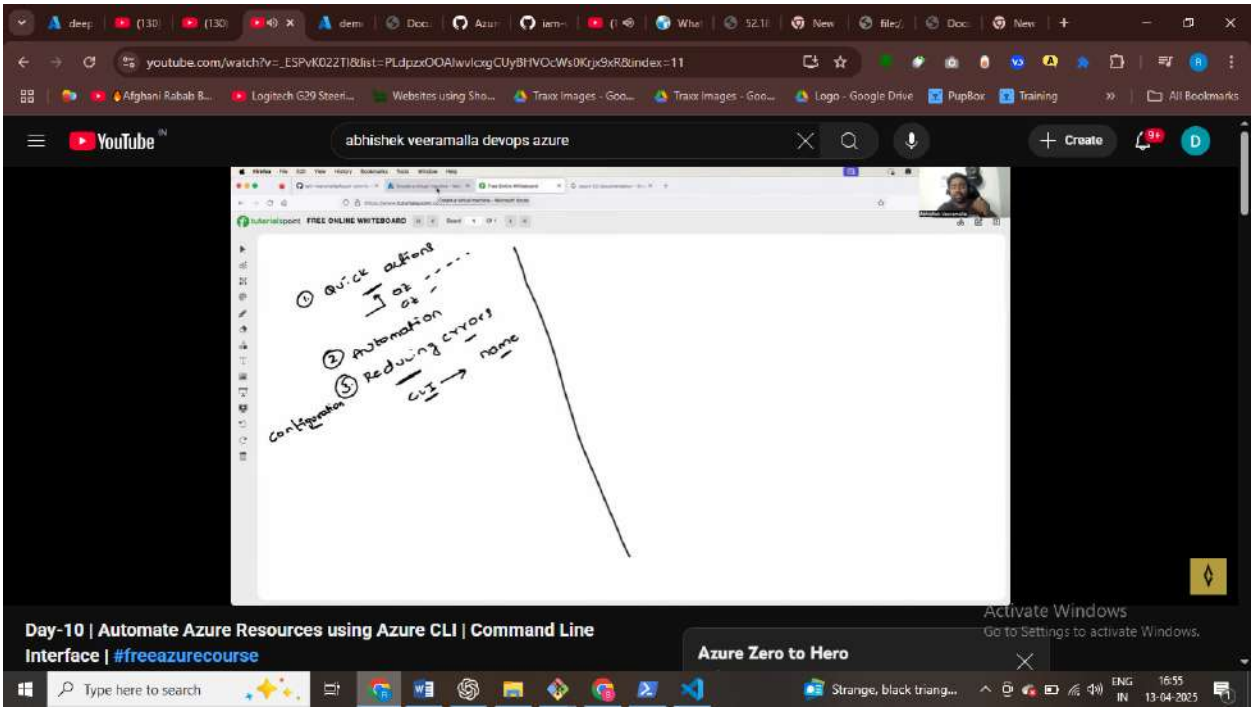
Cli for azure

If you want to create 10 Vm then you want to create virtual resource + file shares , then you can automate repetitive tasks using azure CLI

Quick actions and automation

We can resource template and terraform for automatin





Install azure cli after that check version

Administrator: Windows PowerShell

```
Windows PowerShell
Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

PS C:\Windows\system32> az version
{
  "azure-cli": "2.71.0",
  "azure-cli-core": "2.71.0",
  "azure-cli-telemetry": "1.1.0",
  "extensions": {}
}
PS C:\Windows\system32>
```

Activate Windows
Go to Settings to activate Windows.

Administrator: Windows PowerShell

```
PS C:\Windows\system32> az version
{
  "azure-cli": "2.71.0",
  "azure-cli-core": "2.71.0",
  "azure-cli-telemetry": "1.1.0",
  "extensions": {}
}
PS C:\Windows\system32> az login
Select the account you want to log in with. For more information on login with Azure CLI, see https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving tenants and subscriptions for the selection...
Authentication failed against tenant d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory': (pii). Status: Response_Status.Status_InteractionRequired, Error code: 3399614476, Tag: 557973645
If you need to access subscriptions in the following tenants, please use `az login --tenant TENANT_ID`.
d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory'
No subscriptions found for deepanshochaudhry054@gmail.com.
PS C:\Windows\system32> az login
Select the account you want to log in with. For more information on login with Azure CLI, see https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving tenants and subscriptions for the selection...
Authentication failed against tenant d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory': (pii). Status: Response_Status.Status_InteractionRequired, Error code: 3399614476, Tag: 557973645
If you need to access subscriptions in the following tenants, please use `az login --tenant TENANT_ID`.
d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory'
No subscriptions found for deepanshochaudhry054@gmail.com.
PS C:\Windows\system32> az login --tenant d822fb16-73db-404f-a2c6-82903ce57bc8
Select the account you want to log in with. For more information on login with Azure CLI, see https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving subscriptions for the selection...

[Tenant and subscription selection]

No     Subscription name    Subscription ID                       Tenant
-----  -------------------  ------------------------------------  ------------------------------------
[1] *  Pay-As-You-Go        6449dbeb-a056-4321-a82e-ce6acd3048ab  d822fb16-73db-404f-a2c6-82903ce57bc8

The default is marked with an *; the default tenant is 'd822fb16-73db-404f-a2c6-82903ce57bc8' and subscription is 'Pay-As-You-Go' (6449dbeb-a056-4321-a82e-ce6acd3048ab).

Select a subscription and tenant (Type a number or Enter for no changes):

Tenant: d822fb16-73db-404f-a2c6-82903ce57bc8
Subscription: Pay-As-You-Go (6449dbeb-a056-4321-a82e-ce6acd3048ab)

[Announcements]
With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?linkid=2271236

If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

PS C:\Windows\system32>
```

Activate Windows
Go to Settings to activate Windows.

ndows PowerShell

Copyright (C) Microsoft Corporation. All rights reserved.

Try the new cross-platform PowerShell https://aka.ms/pscore6

```
PS C:\Windows\system32> az version
{
  "azure-cli": "2.71.0",
  "azure-cli-core": "2.71.0",
  "azure-cli-telemetry": "1.1.0",
  "extensions": {}
}
PS C:\Windows\system32> az login
Select the account you want to log in with. For more information on login with Azure CLI, see
https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving tenants and subscriptions for the selection...
Authentication failed against tenant d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory': (pii).
Status: Response_Status.Status_InteractionRequired, Error code: 3399614476, Tag: 557973645
If you need to access subscriptions in the following tenants, please use `az login --tenant TENANT_ID`.
d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory'
No subscriptions found for deepanshuchaudhry852@gmail.com.
PS C:\Windows\system32> az login
Select the account you want to log in with. For more information on login with Azure CLI, see
https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving tenants and subscriptions for the selection...
Authentication failed against tenant d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory': (pii).
Status: Response_Status.Status_InteractionRequired, Error code: 3399614476, Tag: 557973645
If you need to access subscriptions in the following tenants, please use `az login --tenant TENANT_ID`.
```

d822fb16-73db-404f-a2c6-82903ce57bc8 'Default Directory'

No subscriptions found for deepanshuchaudhry852@gmail.com.

PS C:\Windows\system32> az login --tenant d822fb16-73db-404f-a2c6-82903ce57bc8

Select the account you want to log in with. For more information on login with Azure CLI, see https://go.microsoft.com/fwlink/?linkid=2271136

Retrieving subscriptions for the selection...

[Tenant and subscription selection]

No Subscription name Subscription ID Tenant

--- --- --- ---

[1] * Pay-As-You-Go 6449dbeb-a056-4321-a82e-ce6acd3048ab d822fb16-73db-404f-a2c6-82903ce57bc8

The default is marked with an *; the default tenant is 'd822fb16-73db-404f-a2c6-82903ce57bc8' and subscription is 'Pay-As-You-Go' (6449dbeb-a056-4321-a82e-ce6acd3048ab).

Select a subscription and tenant (Type a number or Enter for no changes):

Tenant: d822fb16-73db-404f-a2c6-82903ce57bc8

Subscription: Pay-As-You-Go (6449dbeb-a056-4321-a82e-ce6acd3048ab)

[Announcements]

With the new Azure CLI login experience, you can select the subscription you want to use more easily. Learn more about it and its configuration at https://go.microsoft.com/fwlink/?linkid=2271236

If you encounter any problem, please open an issue at https://aka.ms/azclibug

[Warning] The login output has been updated. Please be aware that it no longer displays the full list of available subscriptions by default.

PS C:\Windows\system32> az account show --output table

EnvironmentName HomeTenantId IsDefault Name State TenantId

--- --- --- --- --- ---

AzureCloud d822fb16-73db-404f-a2c6-82903ce57bc8 True Pay-As-You-Go Enabled d822fb16-73db-404f-a2c6-82903ce57bc8

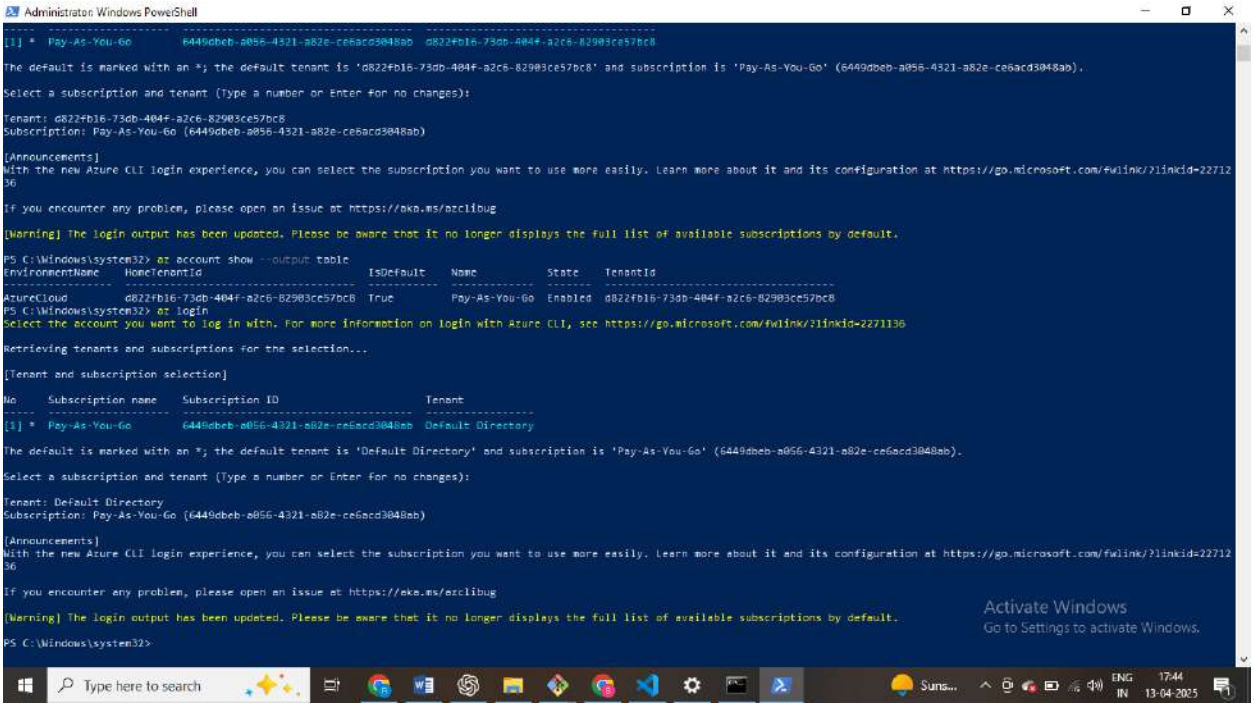
PS C:\Windows\system32>

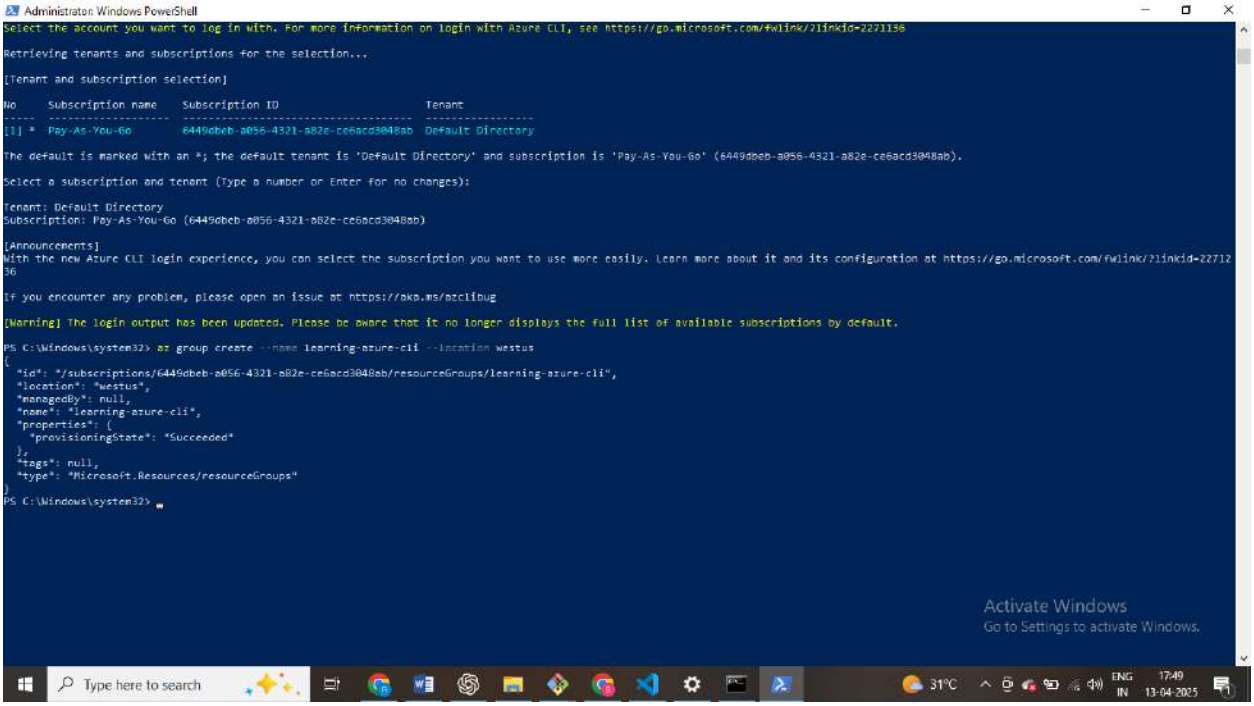
Azure CLI login cmds using poweshell

To create A vm

First we need resource gp

Then specfy variable





creating a resource gp

PS C:\Windows\system32> az group create --name learning-azure-cli --location westus

{

"id": "/subscriptions/6449dbeb-a056-4321-a82e-ce6acd3048ab/resourceGroups/learning-azure-cli",

"location": "westus",

"managedBy": null,

"name": "learning-azure-cli",

"properties": {

"provisioningState": "Succeeded"

},

"tags": null,

"type": "Microsoft.Resources/resourceGroups"

}

PS C:\Windows\system32>

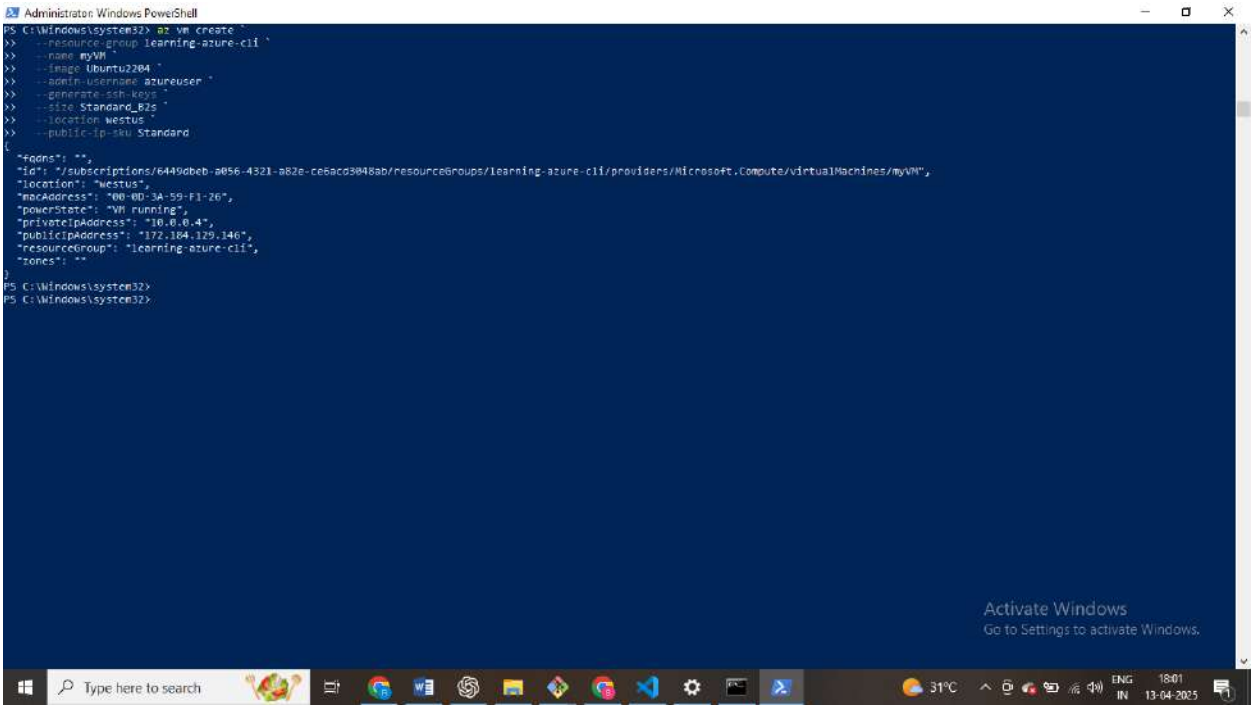
https://learn.microsoft.com/en-us/azure/azure-resource-manager/management/manage-resource-groups-cli

```
az vm create `
  --resource-group learning-azure-cli `
  --name myVM `
  --image Ubuntu2204 `
  --admin-username azureuser `
  --generate-ssh-keys `
  --size Standard_B2s `
  --location westus `
  --public-ip-sku Standard
```

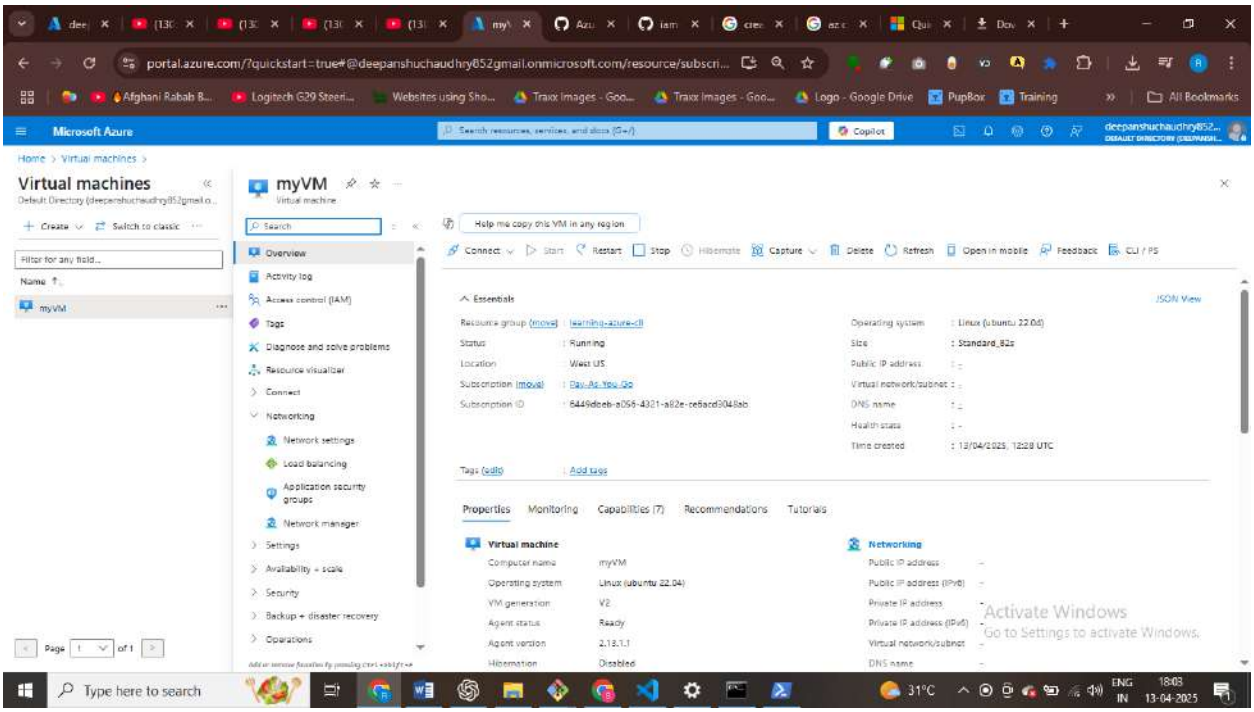
```
PS C:\Windows\system32> az vm create `
>>   --resource-group learning-azure-cli `
>>   --name myVM `
>>   --image Ubuntu2204 `
>>   --admin-username azureuser `
>>   --generate-ssh-keys `
>>   --size Standard_B2s `
>>   --location westus `
>>   --public-ip-sku Standard
{
  "fqdns": "",
  "id": "/subscriptions/6449dbeb-a056-4321-a82e-ce6acd3048ab/resourceGroups/learning-azure-cli/providers/Microsoft.Compute/virtualMachines/myVM",
  "location": "westus",
  "macAddress": "00-0D-3A-59-F1-26",
  "powerState": "VM running",
  "privateIpAddress": "10.0.0.4",
  "publicIpAddress": "172.184.129.146",
  "resourceGroup": "learning-azure-cli",
```

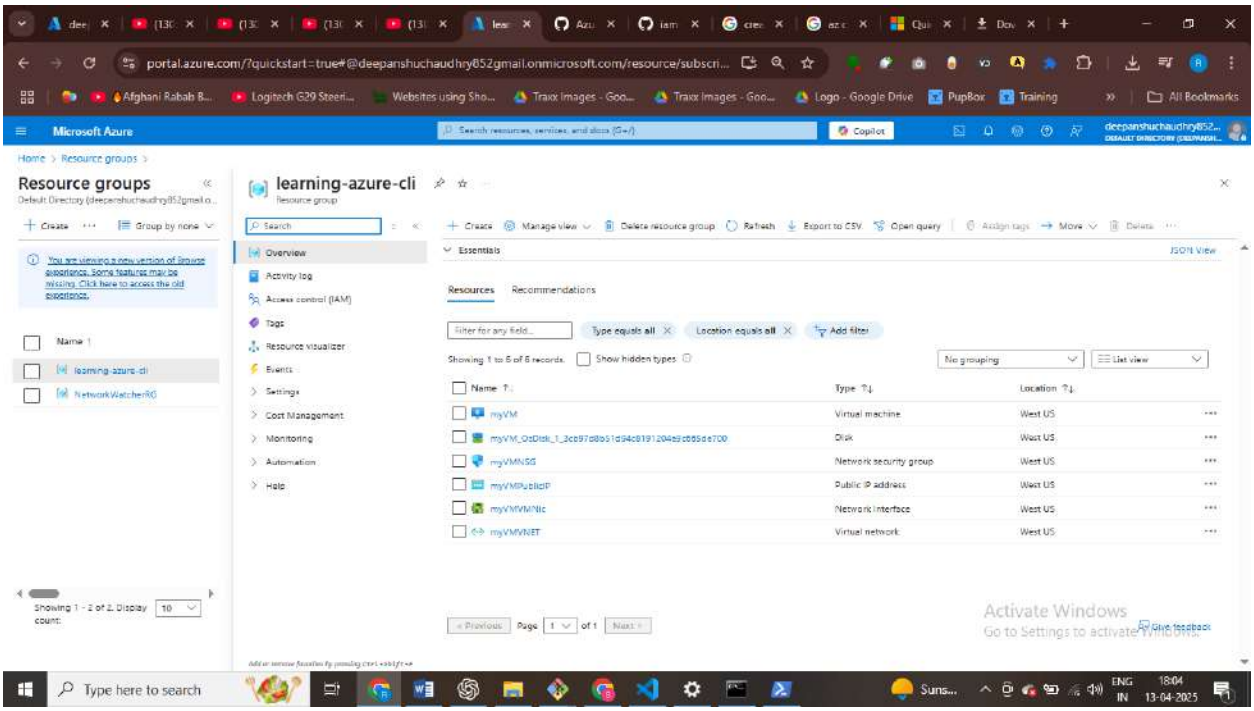
"zones": ""

}

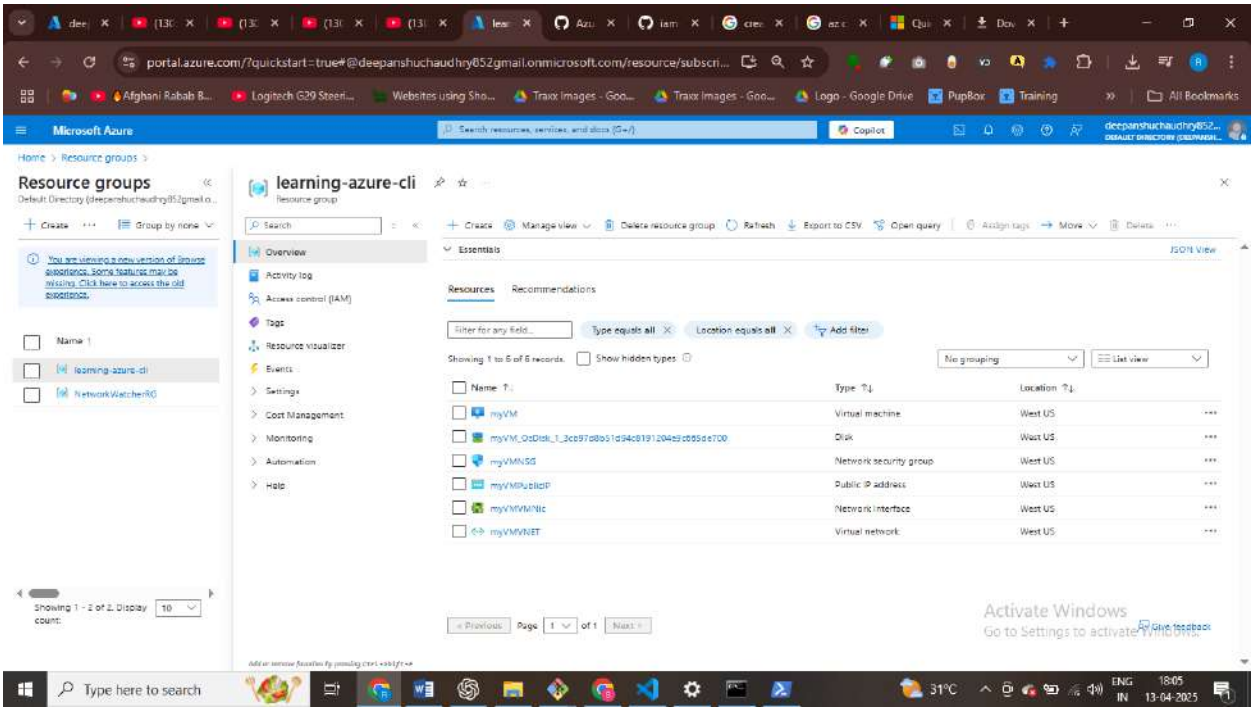


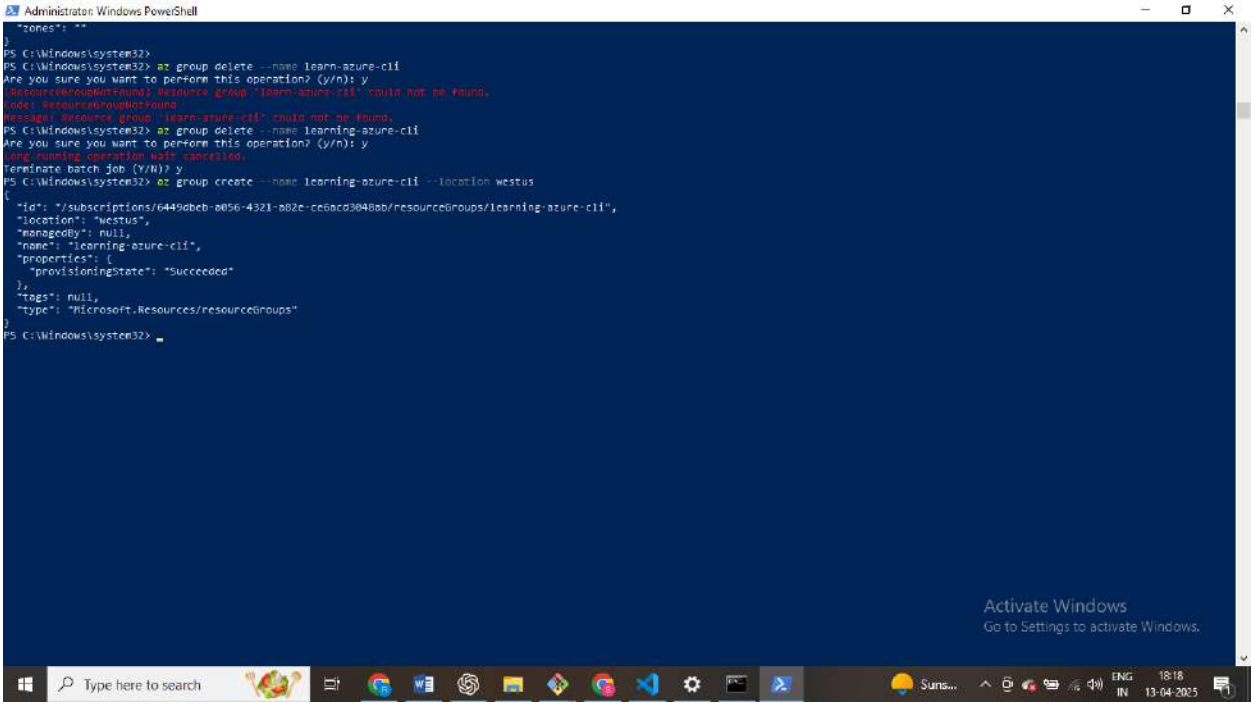
My vm has been created inside the resource gp learning-azure-cli



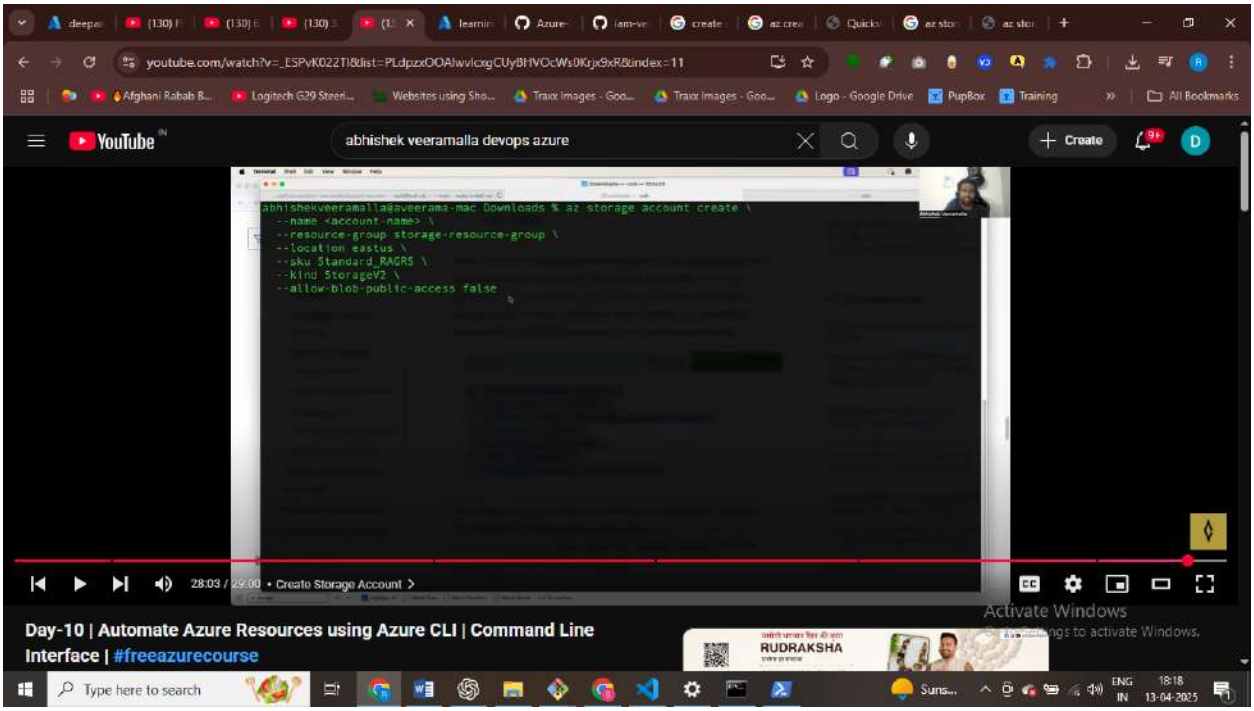


isndie resource gp you can see all the resource gp that you have created

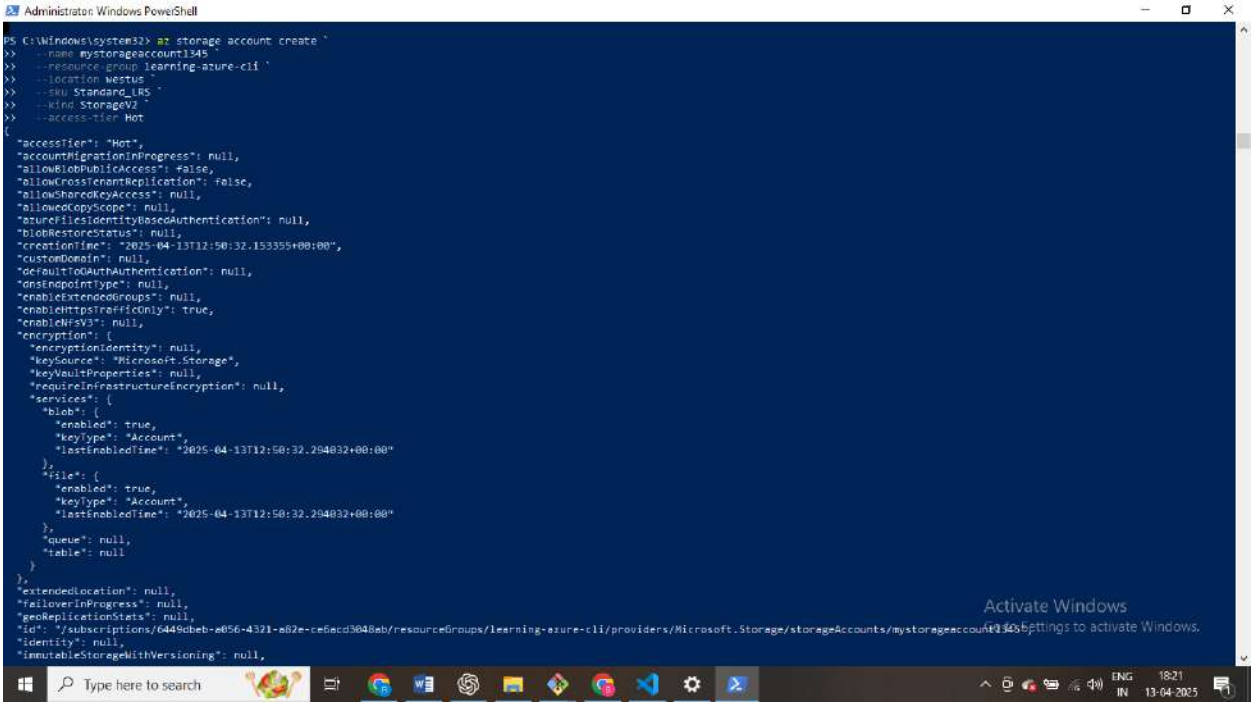




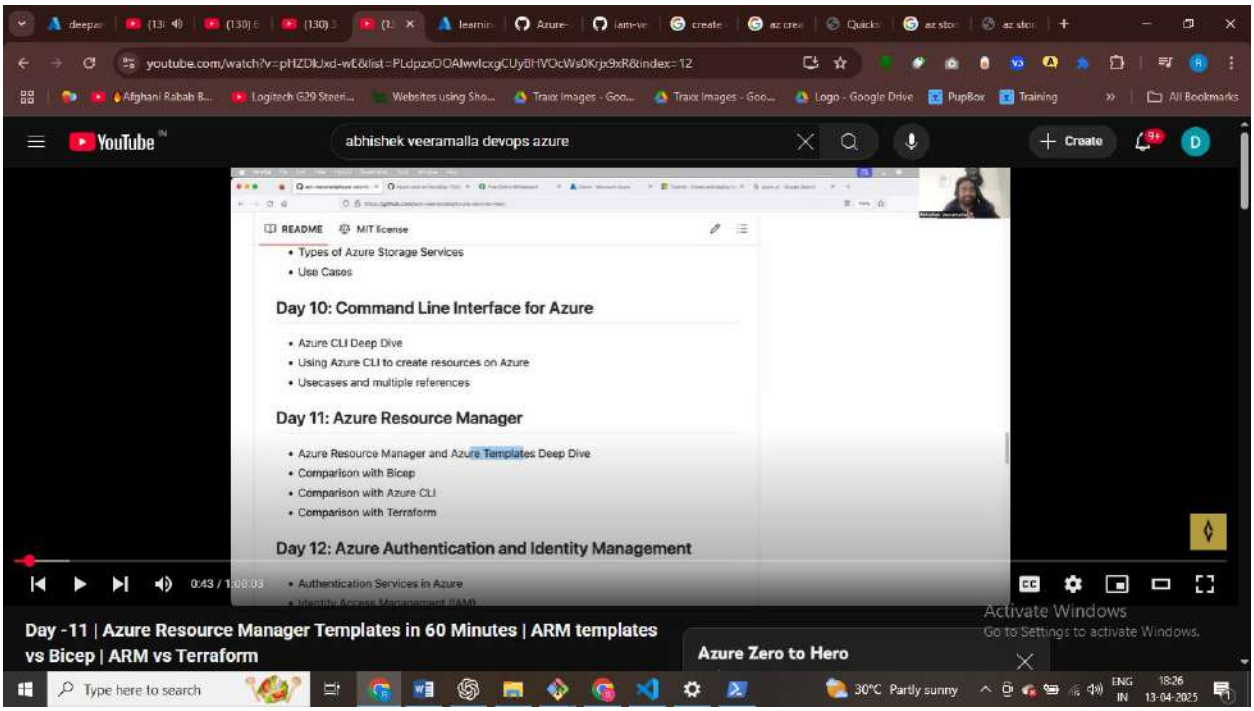
Creating resource gp again



Then creating a storage account



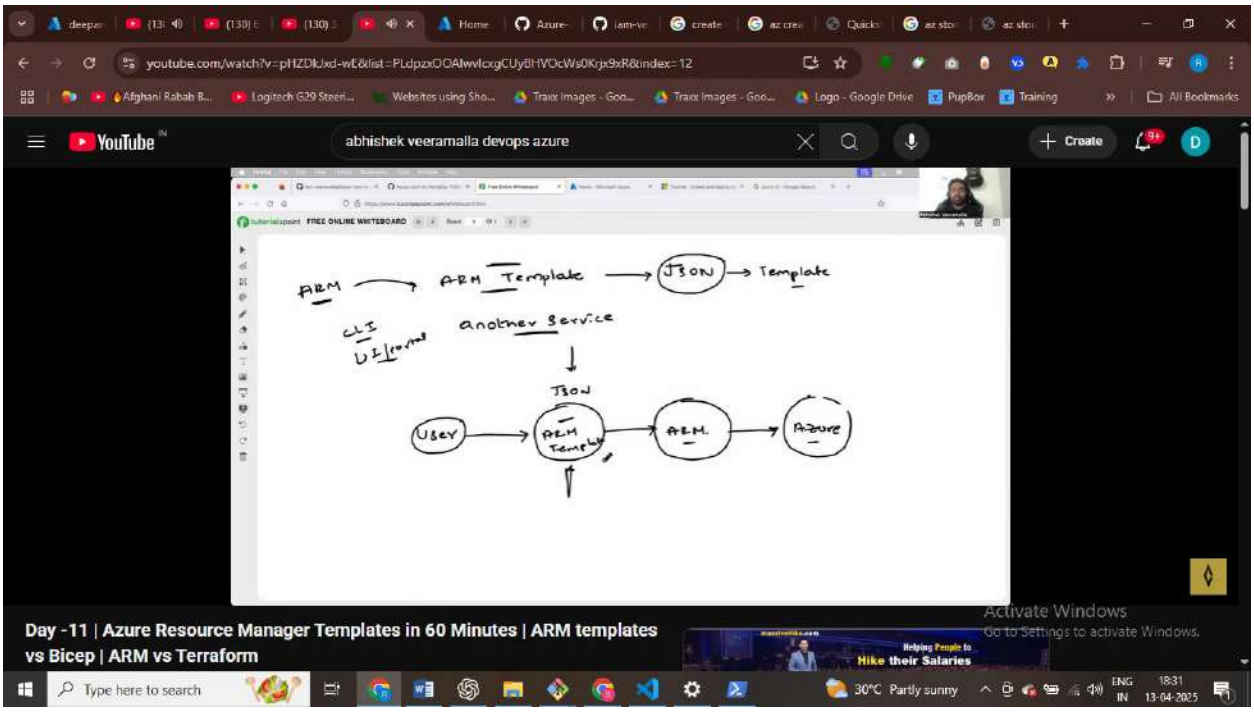
Create a storage account using azure Cli



To create diff resources such as vm subnets storage accoutns - we will use azure resourece manager

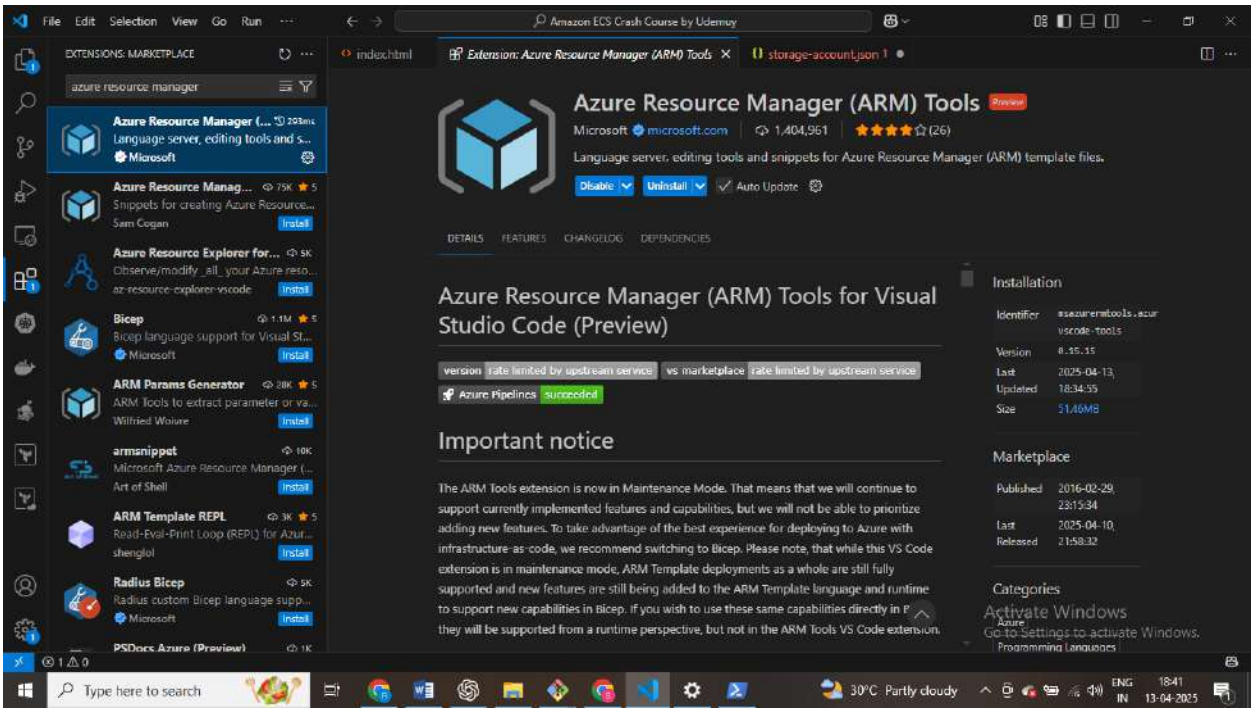
Create resrouce with micrososft azure

https://github.com/iam-veeramalla/Azure-zero-to-hero/blob/main/Day-11/01-storage-account/01-storage-account.json

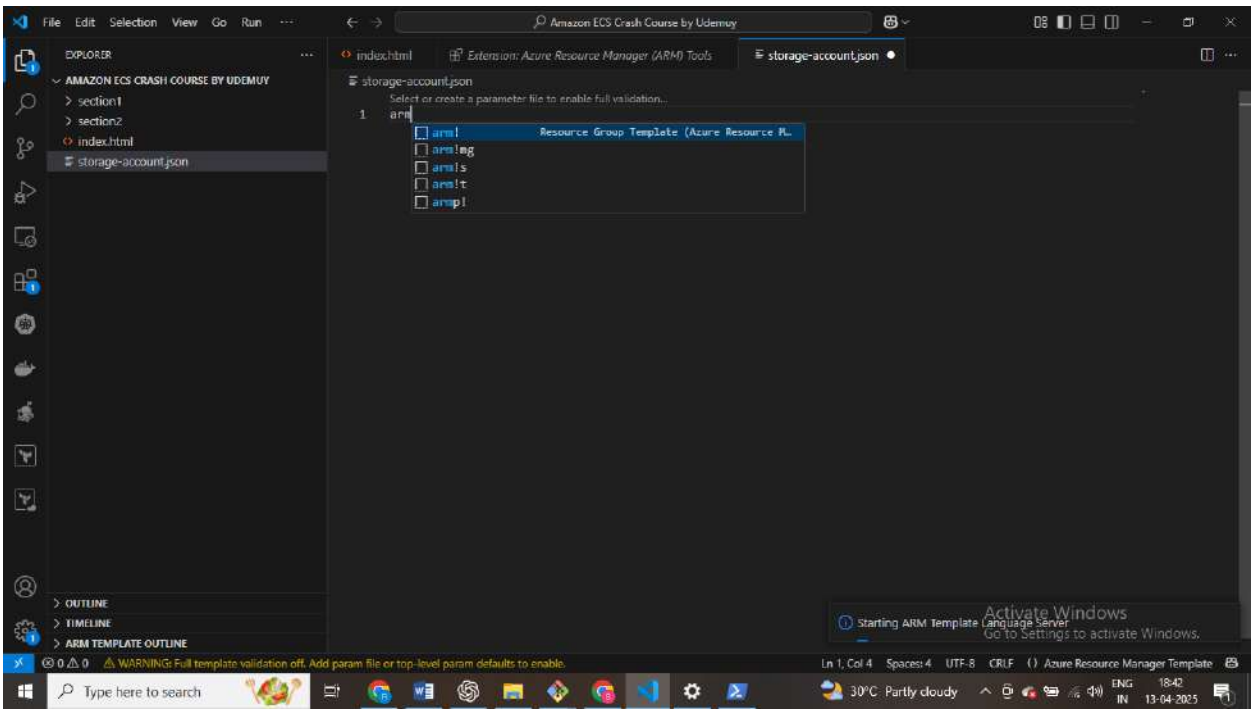


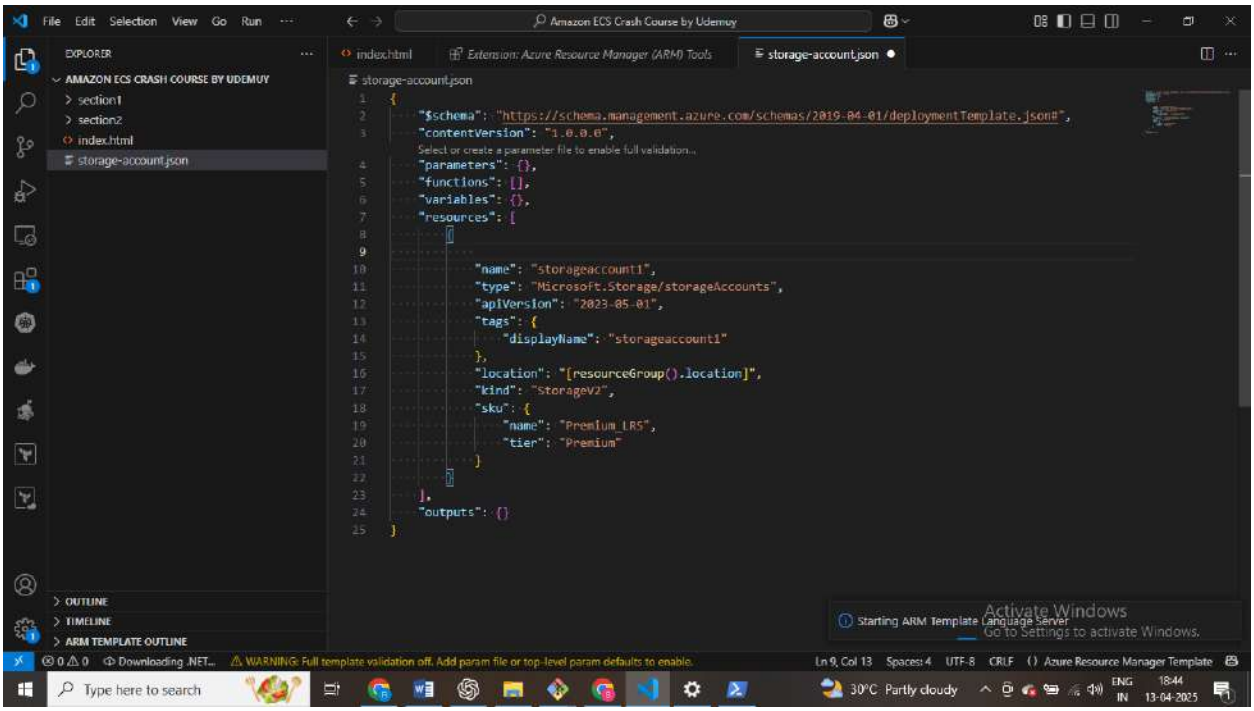
Arm template in json – we need to write json template

Writing a templte for creating a storage account

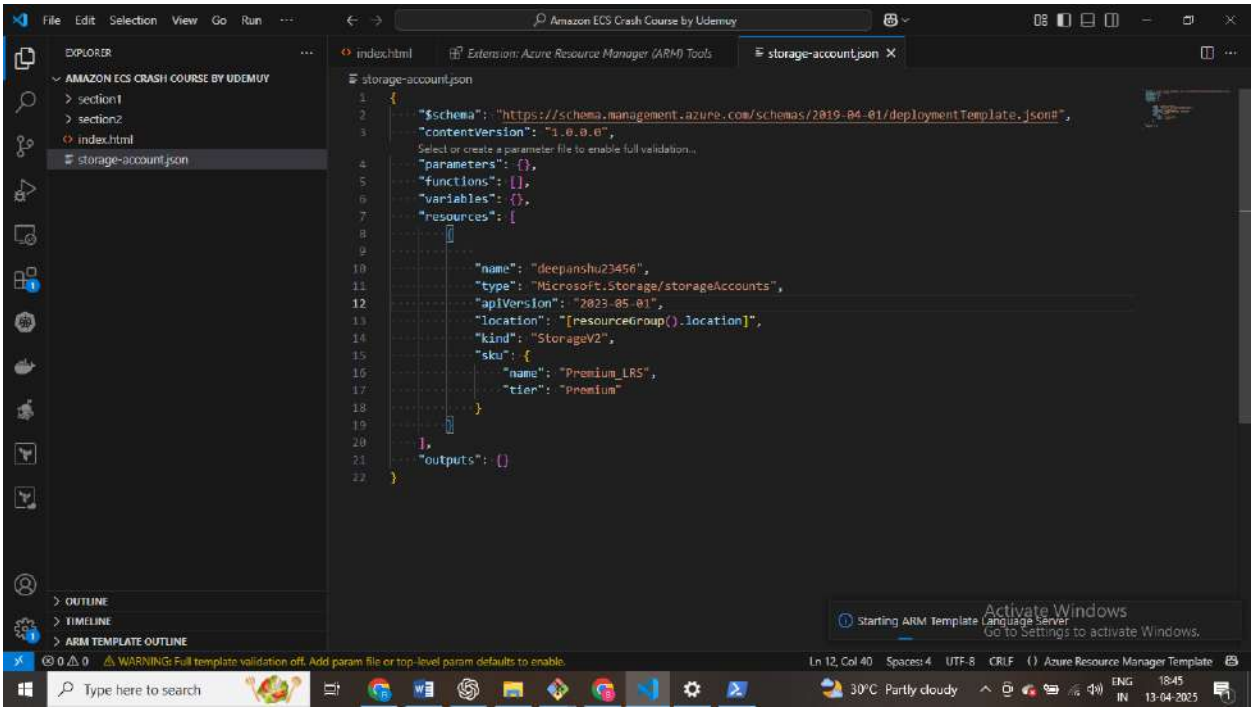


install this extensions



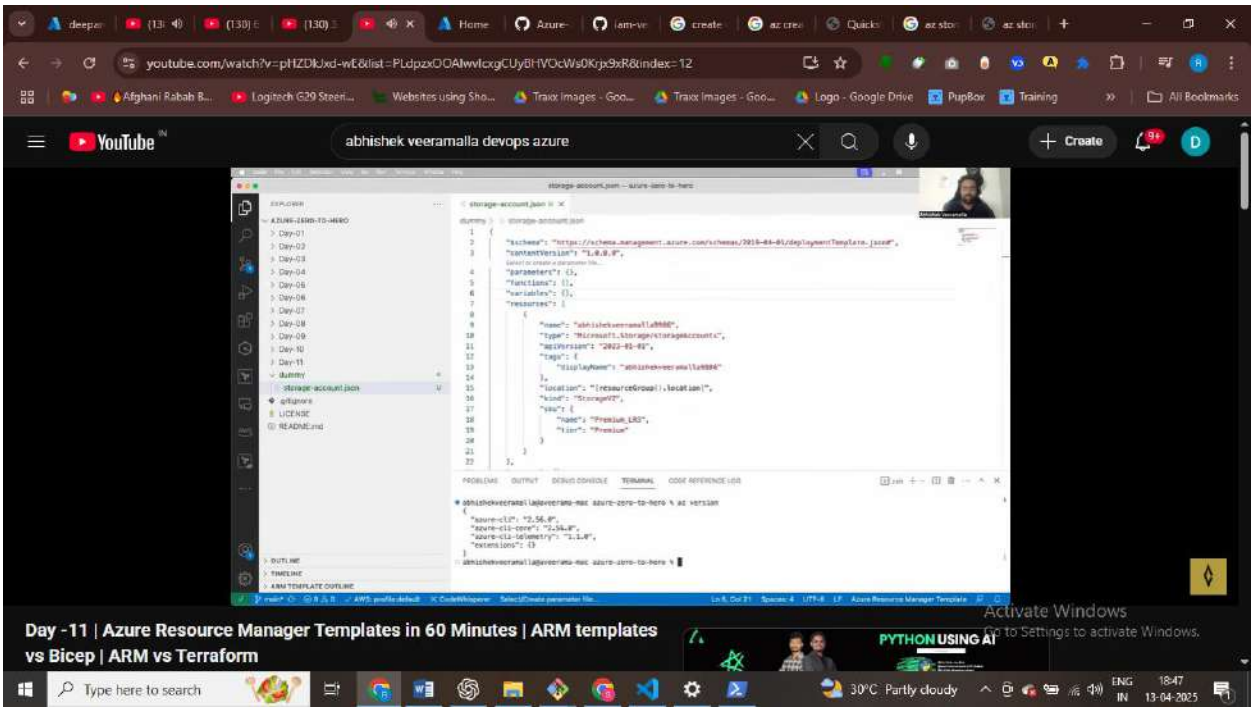


Inside resources – go to – storage-acc – type this and get all the info



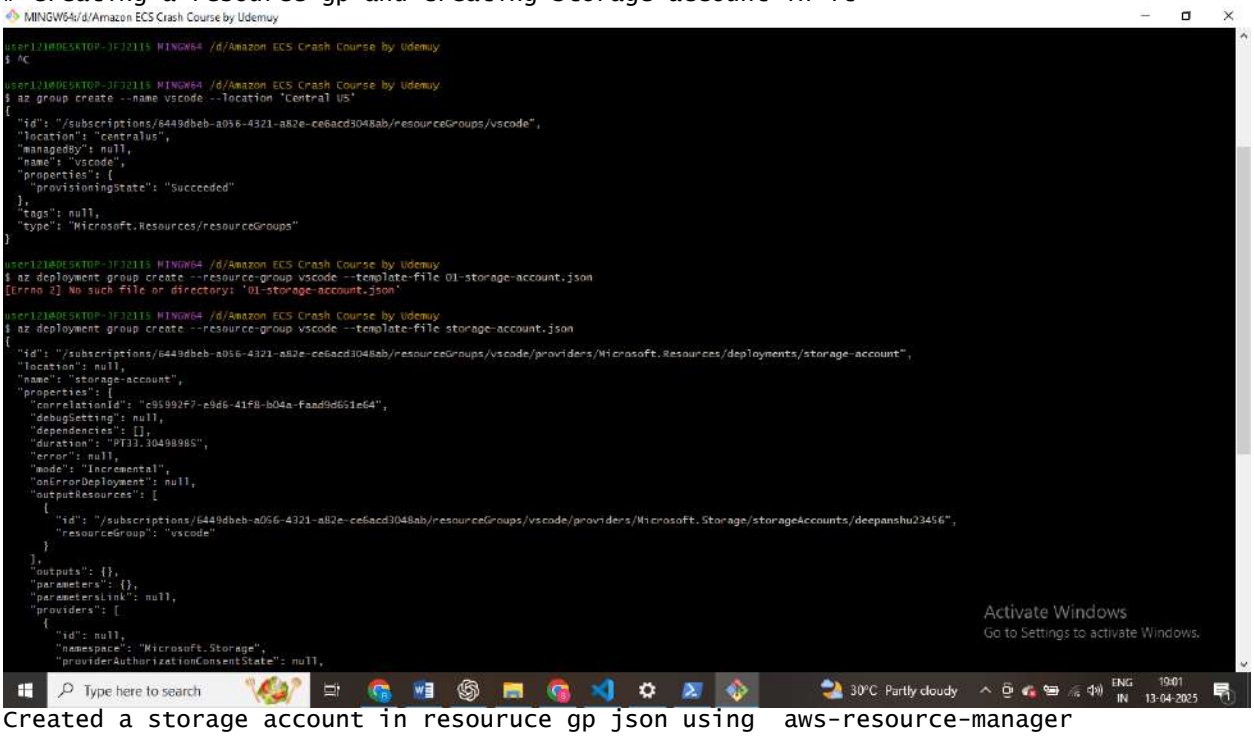
Creating a storage account

Now you have to deploy this template using azure-cli

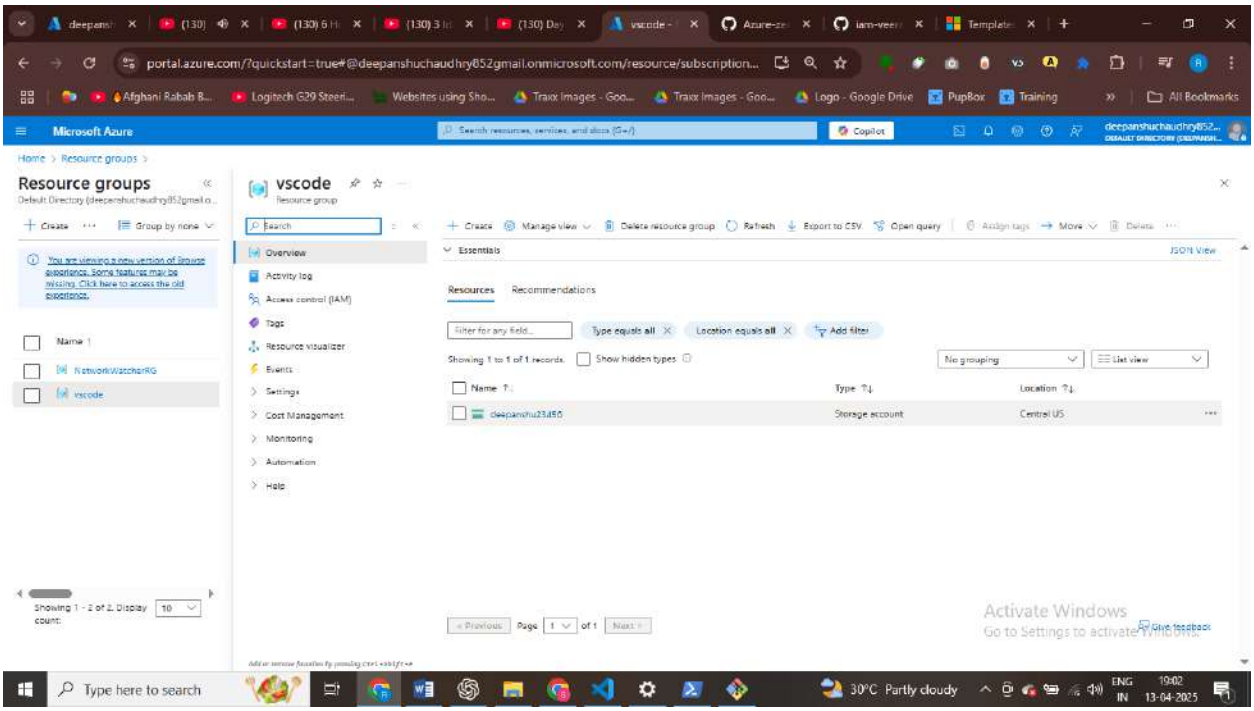



```
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {},
    "functions": [],
    "variables": {},
    "resources": [
        {

            "name": "deepanshu23456",
            "type": "Microsoft.Storage/storageAccounts",
            "apiVersion": "2023-05-01",
            "location": "[resourceGroup().location]",
            "kind": "StorageV2",
            "sku": {
                "name": "Premium_LRS",
                "tier": "Premium"
            }
        }
    ],
    "outputs": {}
}
```

```
user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az version
{
  "azure-cli": "2.71.0",
  "azure-cli-core": "2.71.0",
  "azure-cli-telemetry": "1.1.0",
  "extensions": {}
}

user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$
user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Cr^C^C

user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ ^C

user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az group create --name vscode --location 'Central US'
{
  "id": "/subscriptions/6449dbeb-a056-4321-a82e-ce6acd3048ab/resourceGroups/vscode",
  "location": "centralus",
  "managedBy": null,
  "name": "vscode",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}

user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az deployment group create --resource-group vscode --template-file 01-storage-
account.json
[Errno 2] No such file or directory: '01-storage-account.json'

user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az deployment group create --resource-group vscode --template-file storage-
account.json


# creating a resource gp and creating storage account in it
```



Created a storage account in resouruce gp json using aws-resource-manager



we have resourece gp in vscode and storage account in it we have

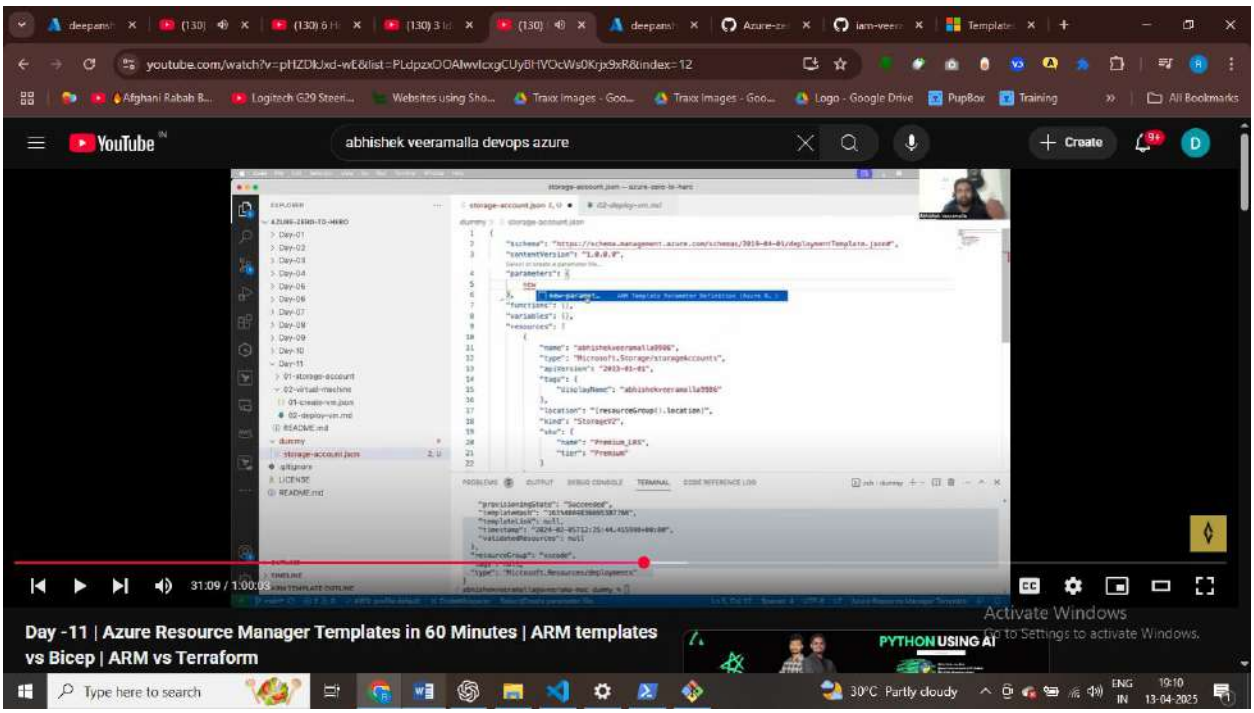
```
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-
01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {},
    "functions": [],
    "variables": {},
    "resources": [
        {

            "name": "deepanshu23456",
            "type": "Microsoft.Storage/storageAccounts",
            "apiVersion": "2023-05-01",
            "tags": {
                "displayName": "storageaccount1"
            },
            "location": "[resourceGroup().location]",
            "kind": "StorageV2",
            "sku": {
                "name": "Premium_LRS",
                "tier": "Premium"
```

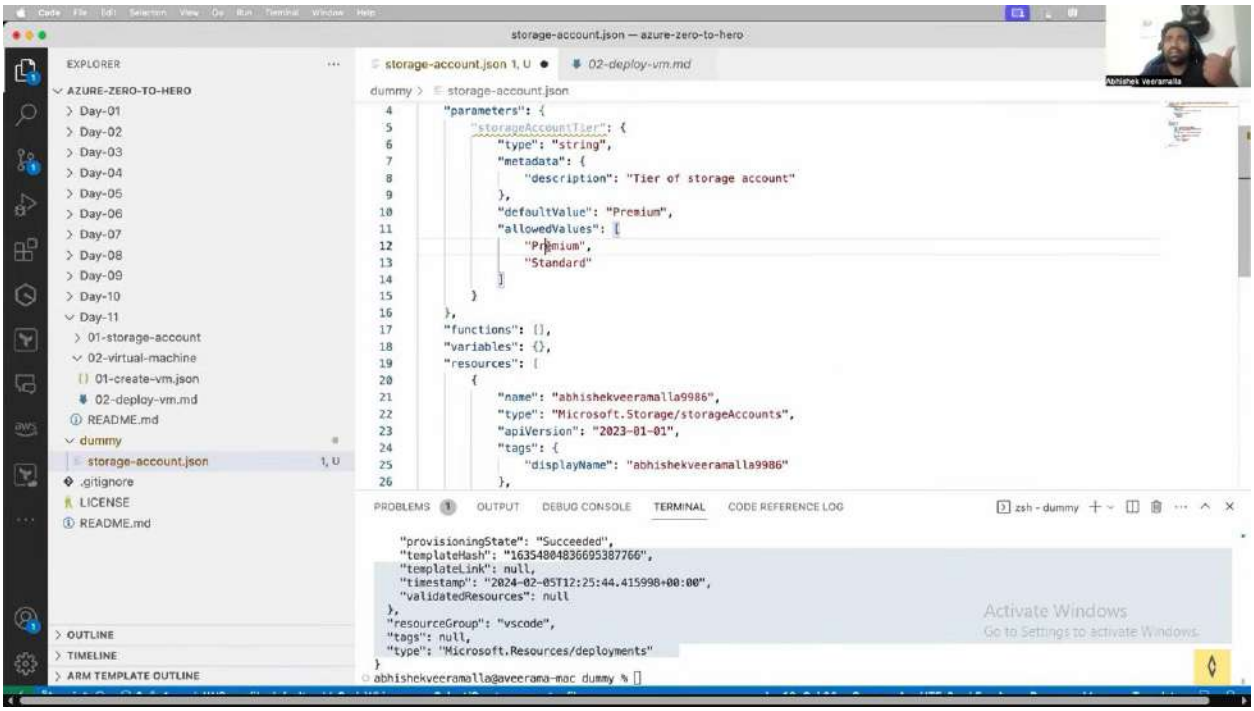
```
            }
        }
    ],
    "outputs": {}
}
```

schema validation wehat we have weriiten in this template – validationg names here and so all

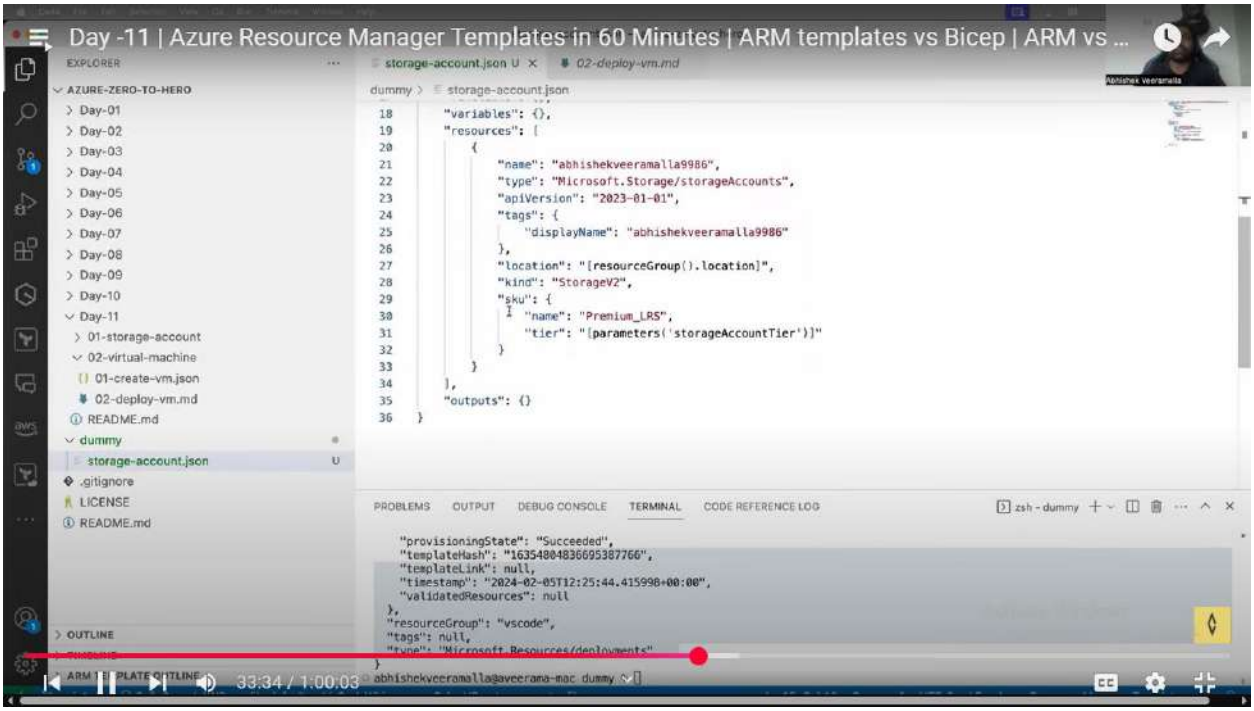
version controlling – like controlling verisons

Parameters – instead of hardcoding thing like this - tier and all – you can use pareamters –yyou can give default value standeard

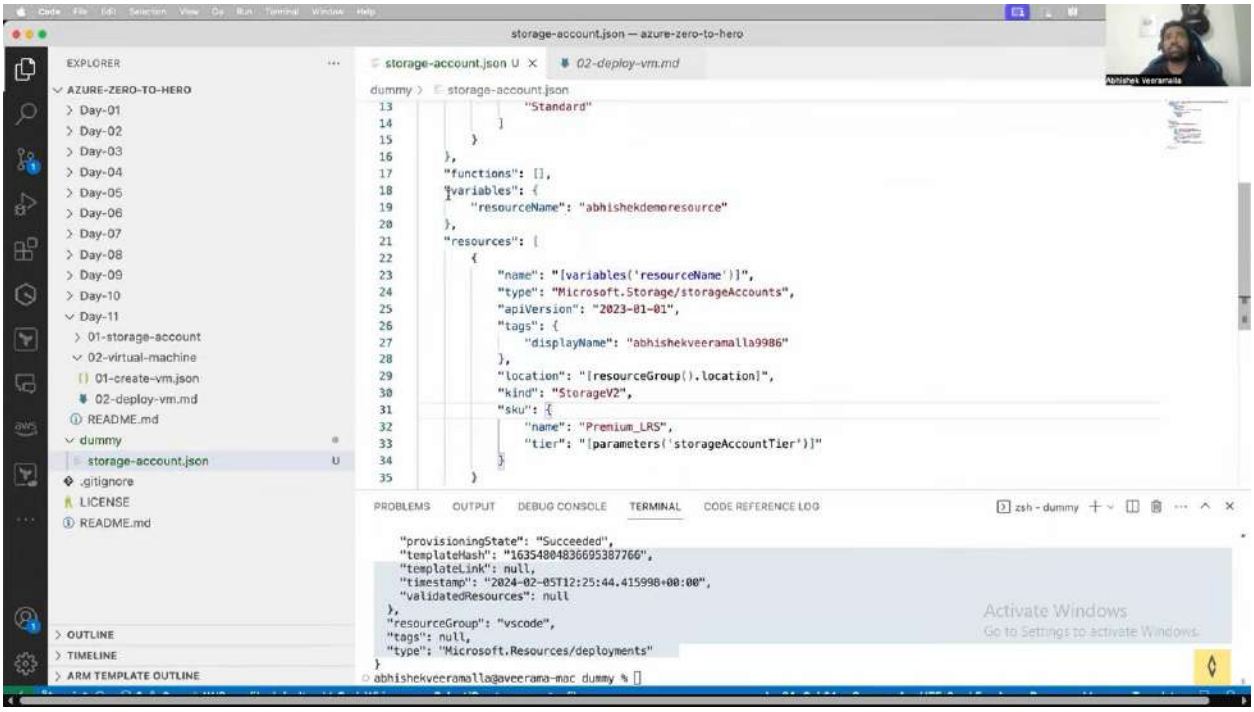




After use this parameter inside your json file



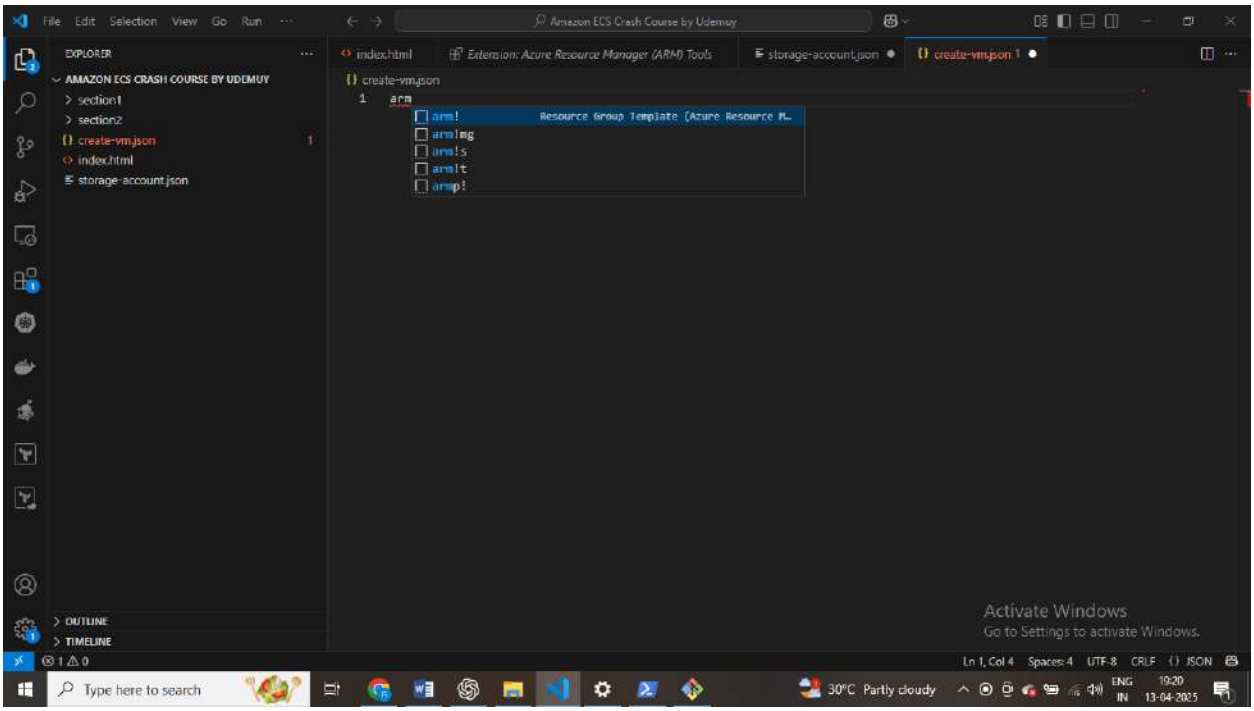
Variable resusiblity of code – multiple field in this template



arm template for the app gateway we need to create it

Functions – we have customize any logic – generate the variable at runtime – generate dynamic storage acc name - use function for it

Every time user exec this – diff storage name we want – we can use fucn




```
{
    "$schema": "https://schema.management.azure.com/schemas/2019-04-
01/deploymentTemplate.json#",
    "contentVersion": "1.0.0.0",
    "parameters": {},
    "functions": [],
    "variables": {},
    "resources": [
        {
            "name": "[toLower('ubuntuVM1storageaccount')]",
            "type": "Microsoft.Storage/storageAccounts",
            "apiVersion": "2023-01-01",
            "location": "[resourceGroup().location]",
            "tags": {
                "displayName": "ubuntuVM1 Storage Account"
            },
            "sku": {
                "name": "Standard_LRS"
            },
            "kind": "Storage"
```

```
        },
        {
            "name": "ubuntuVM1-PublicIP",
            "type": "Microsoft.Network/publicIPAddresses",
            "apiVersion": "2023-04-01",
            "location": "[resourceGroup().location]",
            "tags": {
                "displayName": "PublicIPAddress"
            },
            "properties": {
                "publicIPAllocationMethod": "Dynamic",
                "dnsSettings": {
                    "domainNameLabel": "[toLower('ubuntuVM1unique')]"
                }
            }
        },
        {
            "name": "ubuntuVM1-nsg",
            "type": "Microsoft.Network/networkSecurityGroups",
            "apiVersion": "2023-04-01",
            "location": "[resourceGroup().location]",
            "properties": {
                "securityRules": [
                    {
                        "name": "nsgRule1",
                        "properties": {
                            "description": "description",
                            "protocol": "Tcp",
                            "sourcePortRange": "*",
                            "destinationPortRange": "22",
                            "sourceAddressPrefix": "*",
                            "destinationAddressPrefix": "*",
                            "access": "Allow",
                            "priority": 100,
                            "direction": "Inbound"
                        }
                    }
                ]
            }
        },
        {
            "name": "ubuntuVM1-VirtualNetwork",
            "type": "Microsoft.Network/virtualNetworks",
            "apiVersion": "2023-04-01",
            "location": "[resourceGroup().location]",
```

```
            "dependsOn": [
                "[resourceId('Microsoft.Network/networkSecurityGroups',
'ubuntuVM1-nsg')]"
            ],
            "tags": {
                "displayName": "ubuntuVM1-VirtualNetwork"
            },
            "properties": {
                "addressSpace": {
                    "addressPrefixes": [
                        "10.0.0.0/16"
                    ]
                },
                "subnets": [
                    {
                        "name": "ubuntuVM1-VirtualNetwork-Subnet",
                        "properties": {
                            "addressPrefix": "10.0.0.0/24",
                            "networkSecurityGroup": {
                                "id":
"[resourceId('Microsoft.Network/networkSecurityGroups', 'ubuntuVM1-nsg')]"
                            }
                        }
                    }
                ]
            }
        },
        {
            "name": "ubuntuVM1-NetworkInterface",
            "type": "Microsoft.Network/networkInterfaces",
            "apiVersion": "2023-04-01",
            "location": "[resourceGroup().location]",
            "dependsOn": [
                "[resourceId('Microsoft.Network/publicIPAddresses', 'ubuntuVM1-
PublicIP')]",
                "[resourceId('Microsoft.Network/virtualNetworks', 'ubuntuVM1-
VirtualNetwork')]"
            ],
            "tags": {
                "displayName": "ubuntuVM1-NetworkInterface"
            },
            "properties": {
                "ipConfigurations": [
                    {
                        "name": "ipConfig1",
```

```
                        "properties": {
                            "privateIPAllocationMethod": "Dynamic",
                            "publicIPAddress": {
                                "id":
"[resourceId('Microsoft.Network/publicIPAddresses', 'ubuntuVM1-PublicIP')]"
                            },
                            "subnet": {
                                "id":
"[resourceId('Microsoft.Network/virtualNetworks/subnets', 'ubuntuVM1-
VirtualNetwork', 'ubuntuVM1-VirtualNetwork-Subnet')]"
                            }
                        }
                    }
                ]
            }
        },
        {
            "name": "ubuntuVM1",
            "type": "Microsoft.Compute/virtualMachines",
            "apiVersion": "2023-03-01",
            "location": "[resourceGroup().location]",
            "dependsOn": [
                "[resourceId('Microsoft.Network/networkInterfaces', 'ubuntuVM1-
NetworkInterface')]"
            ],
            "tags": {
                "displayName": "ubuntuVM1"
            },
            "properties": {
                "hardwareProfile": {
                    "vmSize": "Standard_A2_v2"
                },
                "osProfile": {
                    "computerName": "ubuntuVM1",
                    "adminUsername": "azureuser",
                    "adminPassword": "azureuser@123"
                },
                "storageProfile": {
                    "imageReference": {
                        "publisher": "Canonical",
                        "offer": "UbuntuServer",
                        "sku": "16.04-LTS",
                        "version": "latest"
                    },
                    "osDisk": {
```

```
                        "name": "ubuntuVM1-OSDisk",
                        "caching": "ReadWrite",
                        "createOption": "FromImage"
                    }
                },
                "networkProfile": {
                    "networkInterfaces": [
                        {
                            "id":
"[resourceId('Microsoft.Network/networkInterfaces', 'ubuntuVM1-
NetworkInterface')]"
                        }
                    ]
                },
                "diagnosticsProfile": {
                    "bootDiagnostics": {
                        "enabled": true,
                        "storageUri":
"[reference(resourceId('Microsoft.Storage/storageAccounts',
toLower('ubuntuVM1storageaccount')), '2023-01-01').primaryEndpoints.blob]"
                    }
                }
            }
        }
    ],
    "outputs": {}
}
```

Create-vm.json

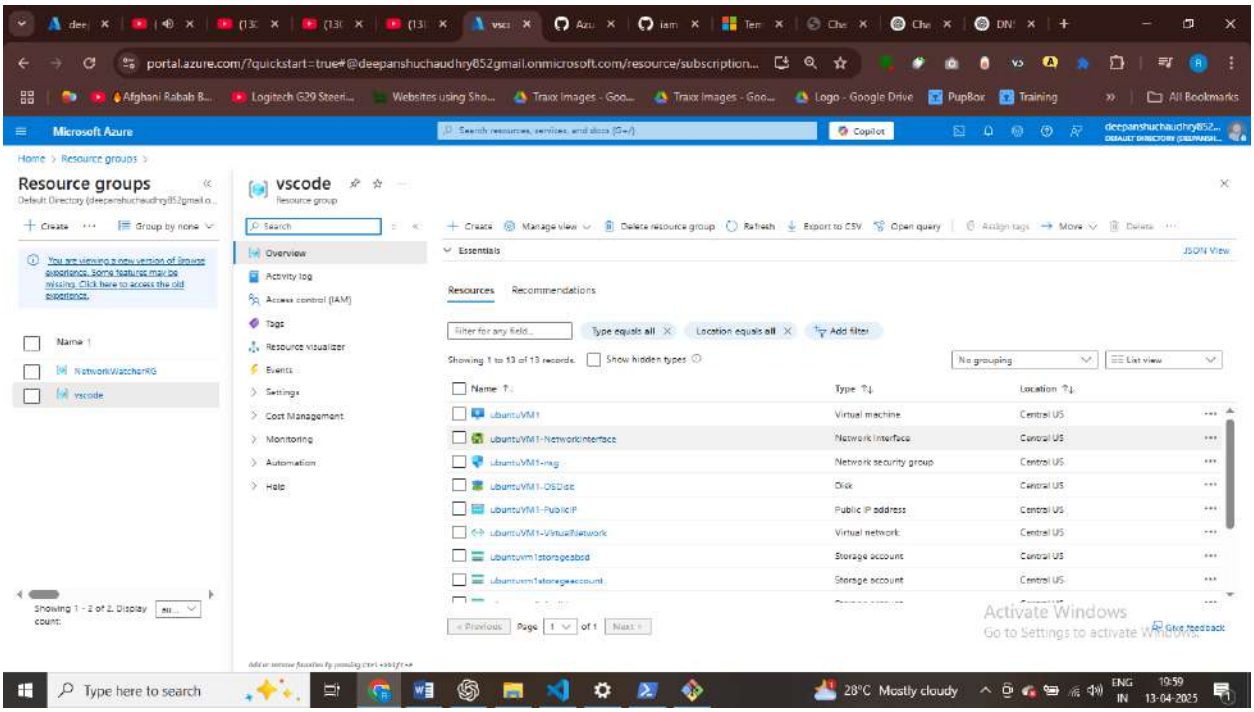
```
user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az group create --name vscode --location 'Central US'
{
  "id": "/subscriptions/6449dbeb-a056-4321-a82e-ce6acd3048ab/resourceGroups/vscode",
  "location": "centralus",
  "managedBy": null,
  "name": "vscode",
  "properties": {
    "provisioningState": "Succeeded"
  },
  "tags": null,
  "type": "Microsoft.Resources/resourceGroups"
}
user121@DESKTOP-JFJ21I5 MINGW64 /d/Amazon ECS Crash Course by Udemuy
$ az deployment group create --resource-group vscode --template-file create-vm.json
{
  "id": "/subscriptions/6449dbeb-a056-4321-a82e-
ce6acd3048ab/resourceGroups/vscode/providers/Microsoft.Resources/deployments/create-
vm",
  "location": null,
```

```
  "name": "create-vm",
  "properties": {
    "correlationId": "e1210c47-f033-44ff-94c2-7b0a76b22767",
    "debugSetting": null,
    "dependencies": [
      {
        "dependsOn": [
```

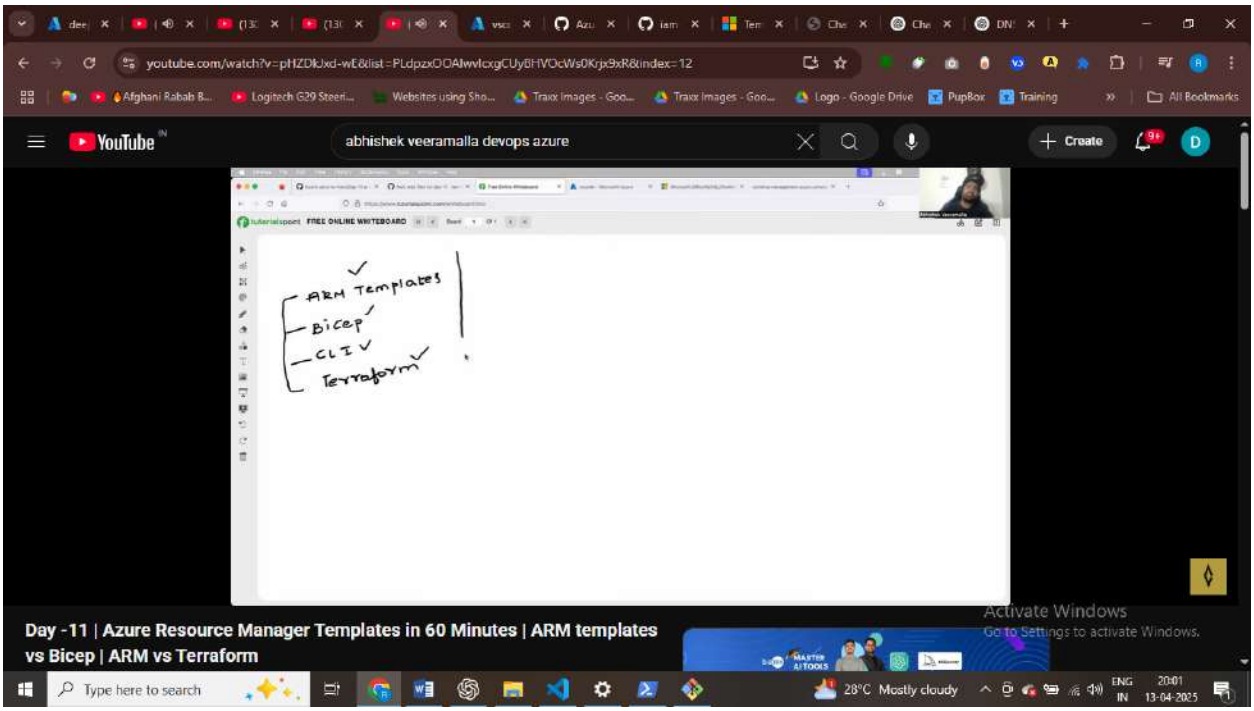

first create resource gp and then you can do – deploy your vm

Rather than hardcoded values use variables

Paremeter when we need to allow more varibles



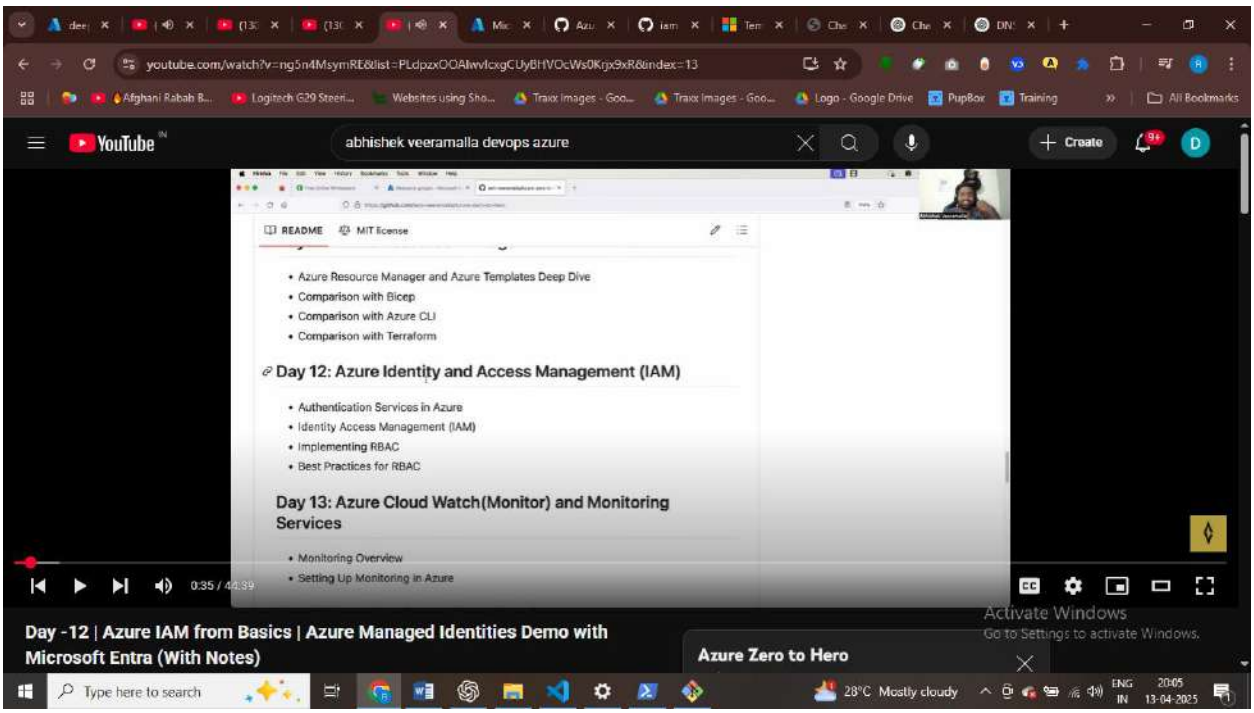
create a rg and then creating a vm and storage account as well



I now cli and terraform – for azure – arm templates – terraform you can also use

Bicep is repaalceing arm template

Arm template container – parameter , content , variables , outputs



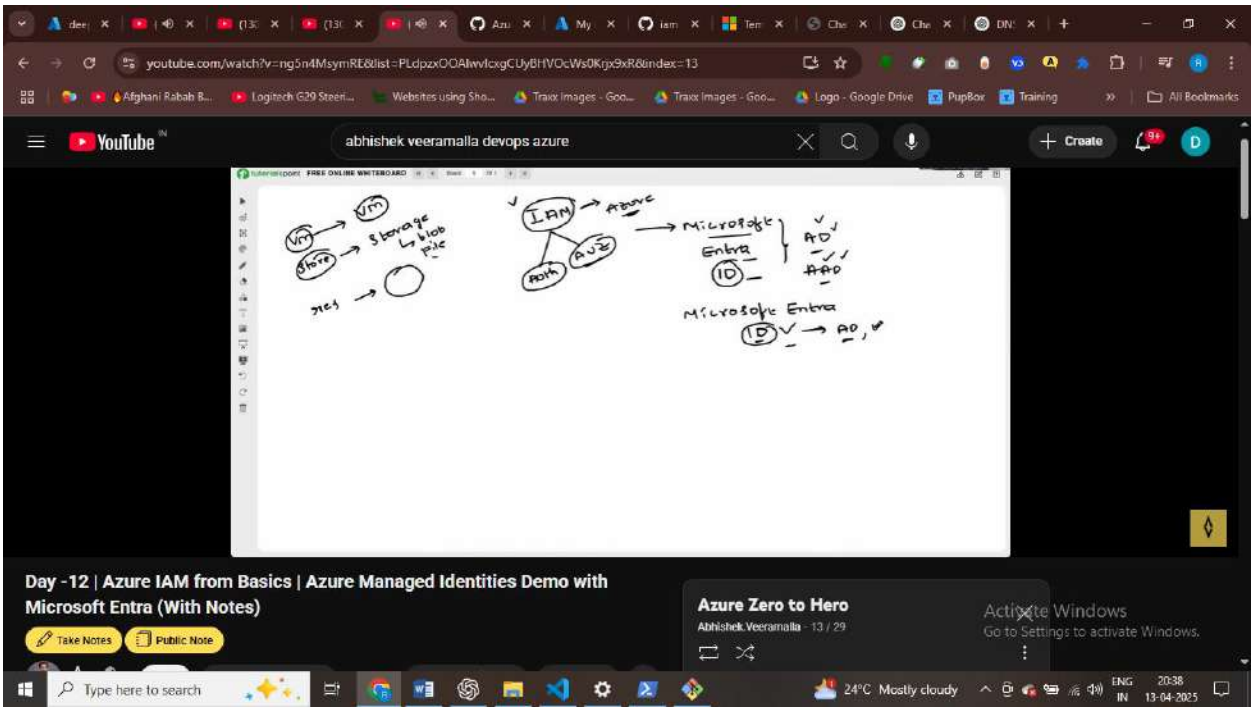
WE CANt give admistrator access to everyone – so use iam – it work on autehntaication and authraztion

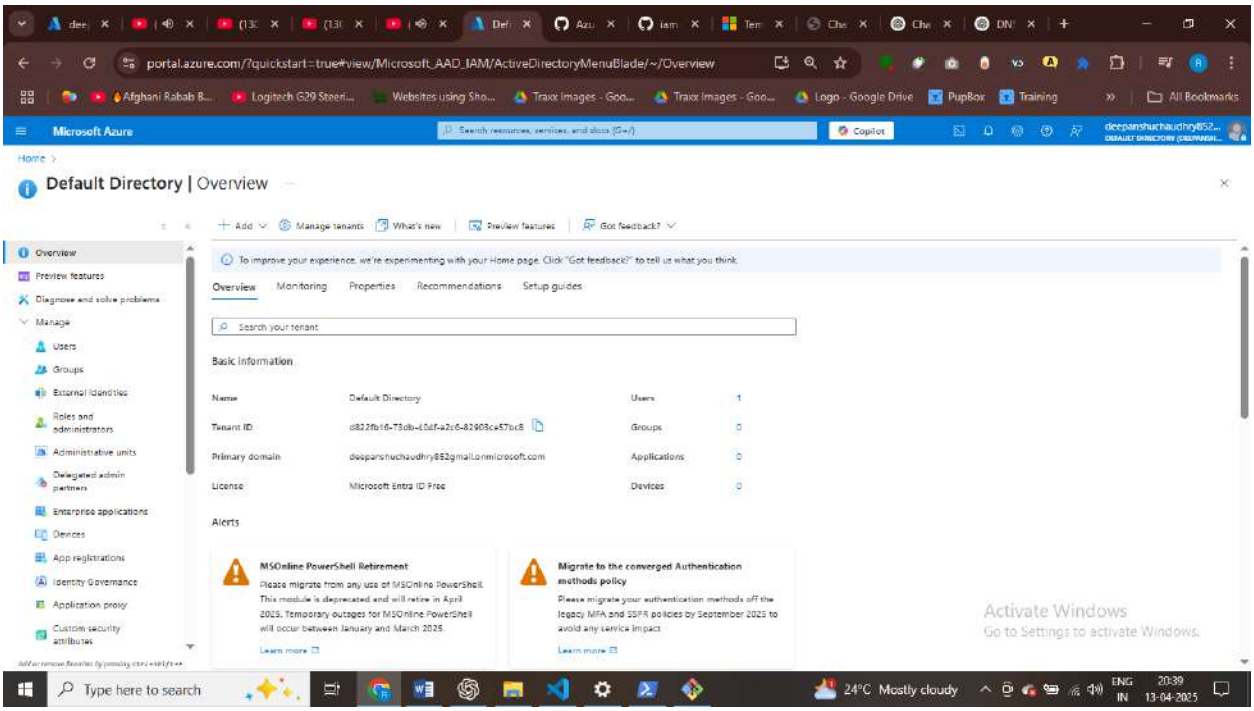
Authorize developer to create only resources developer and deny roles for deletion so that they cant delete anything

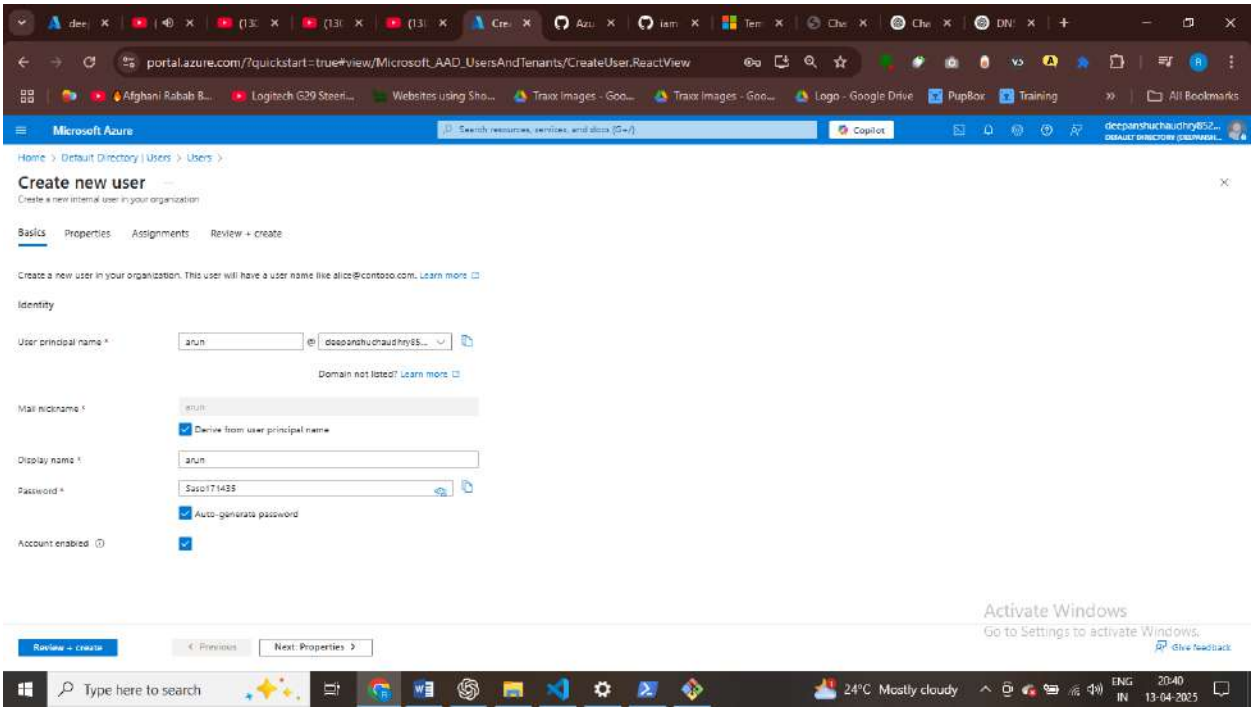
In orga we create users , we will group the people of developer ,and group the qa enginer

But for authoraztion we will use role – read only role for developer , for qa read only role for them to group

Use microsfot entra id – or Active directory

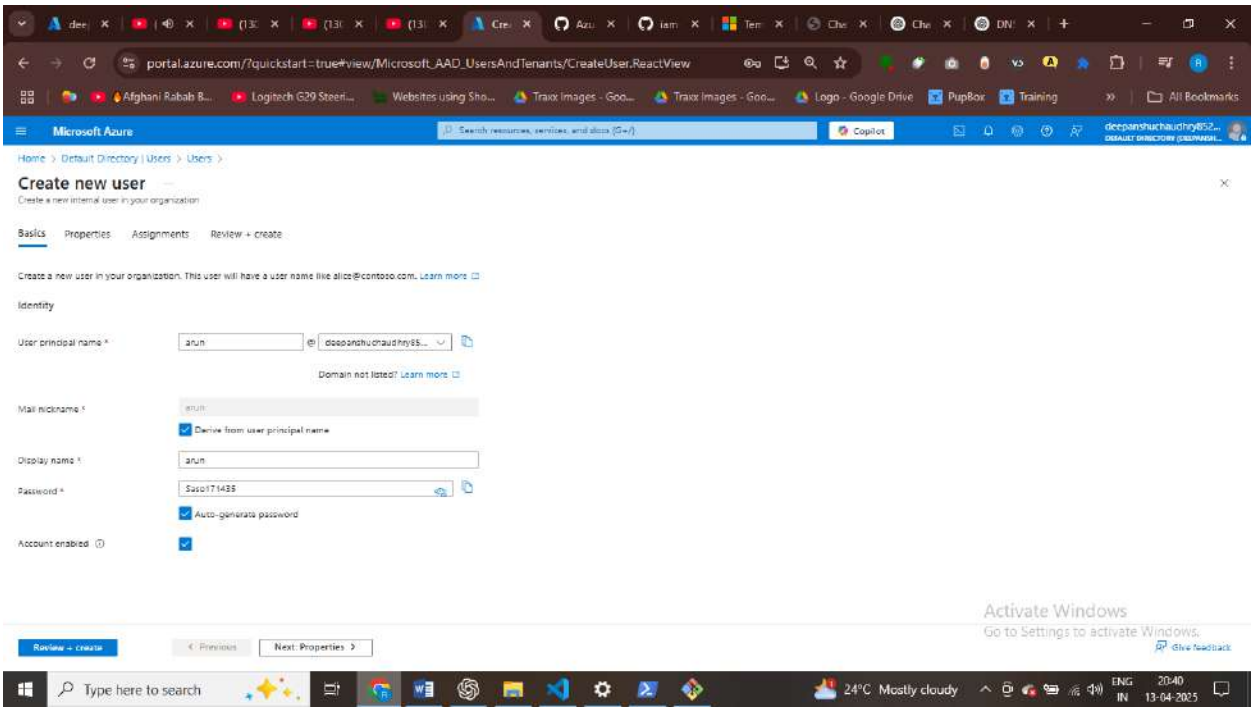




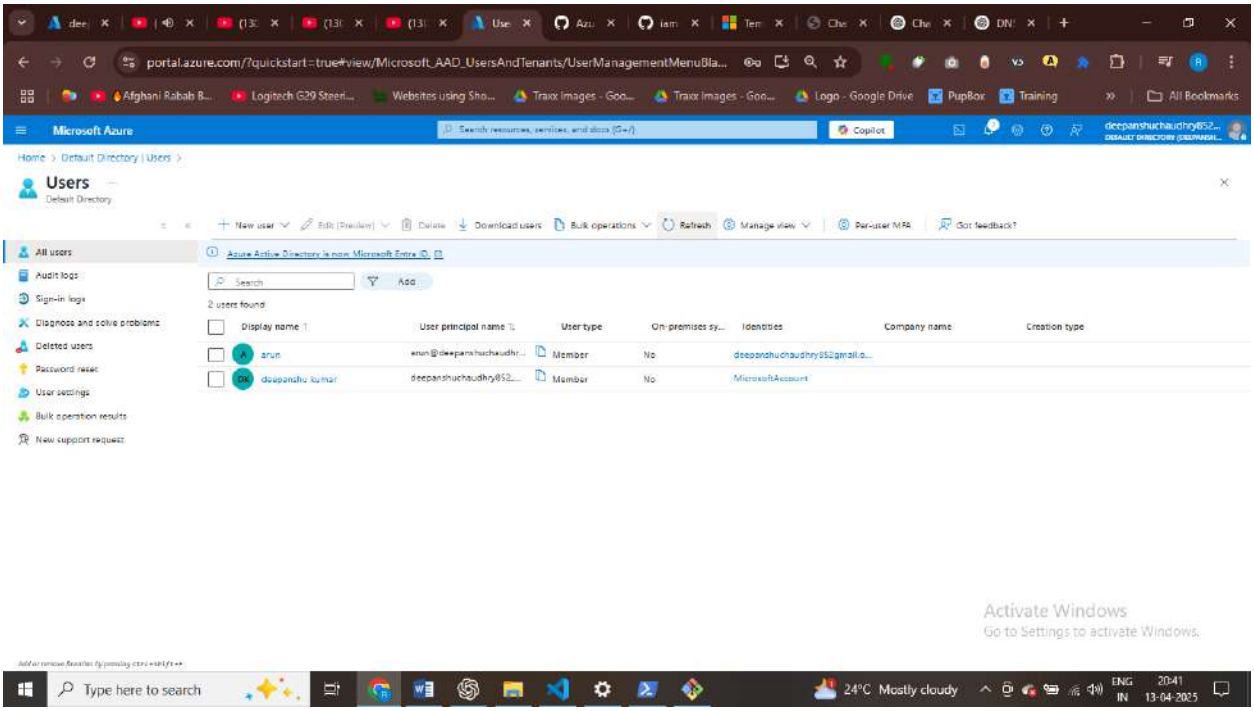


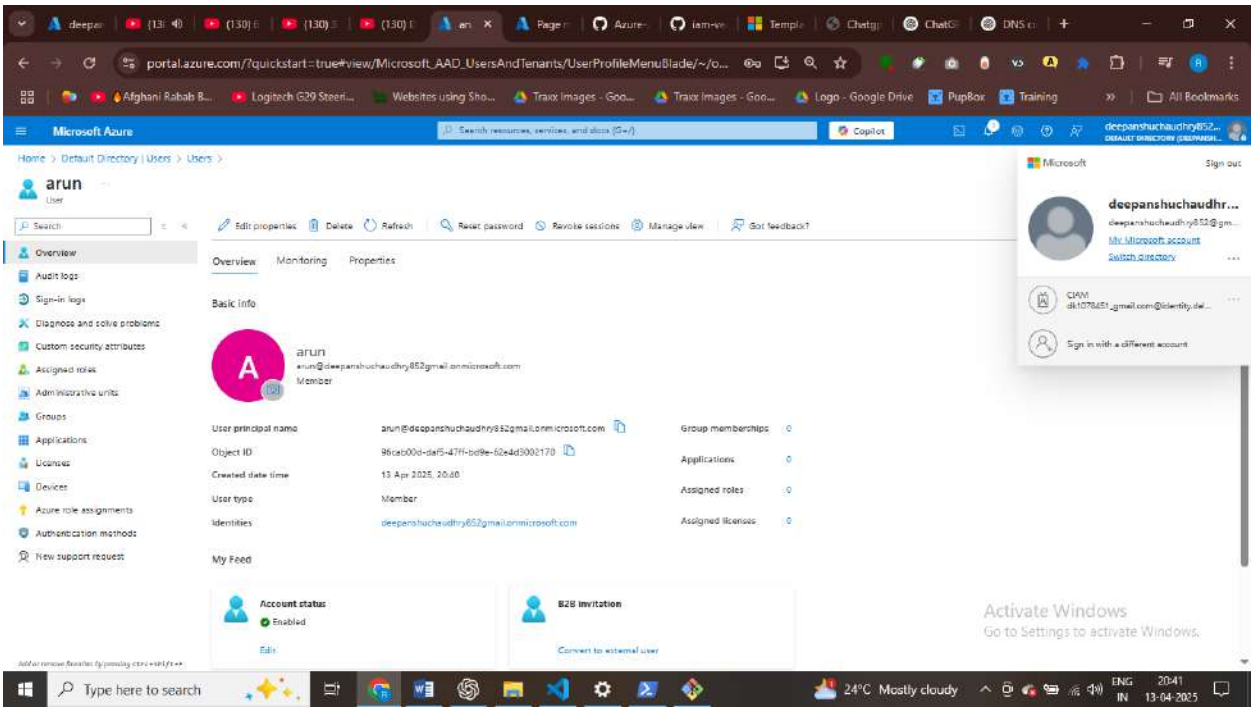
Saso171435

arun@deepanshuchaudhry852gmail.onmicrosoft.com

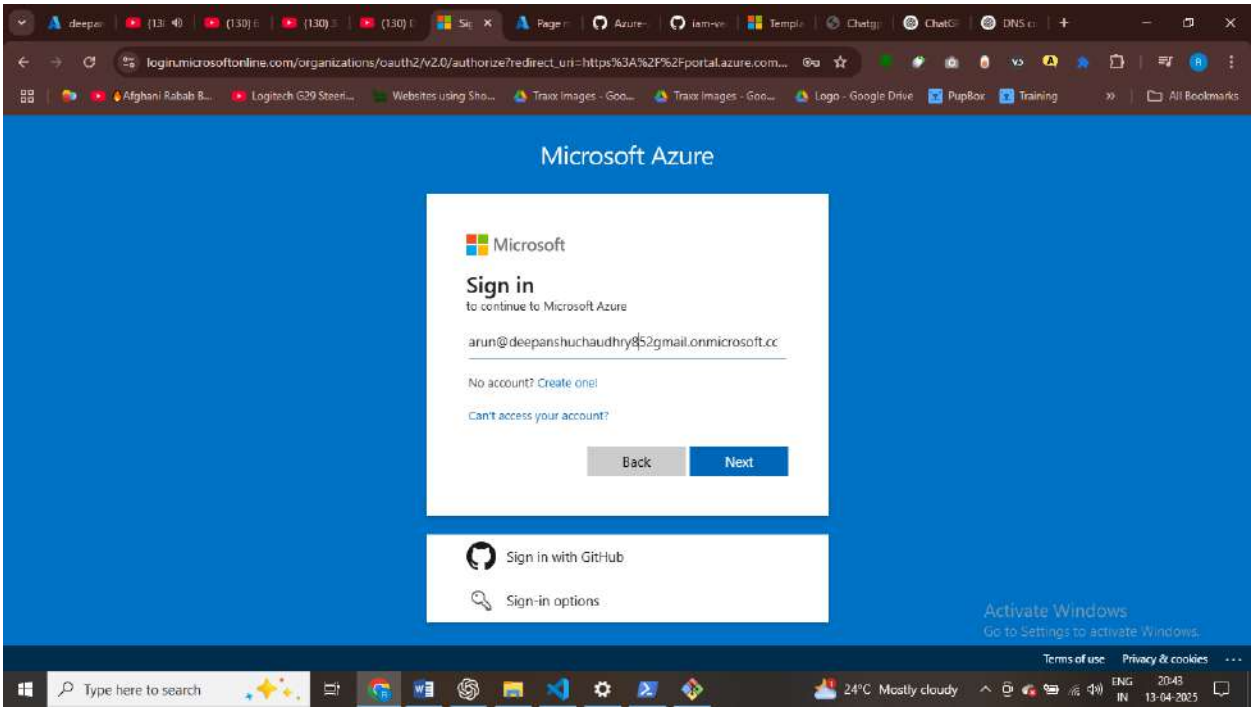


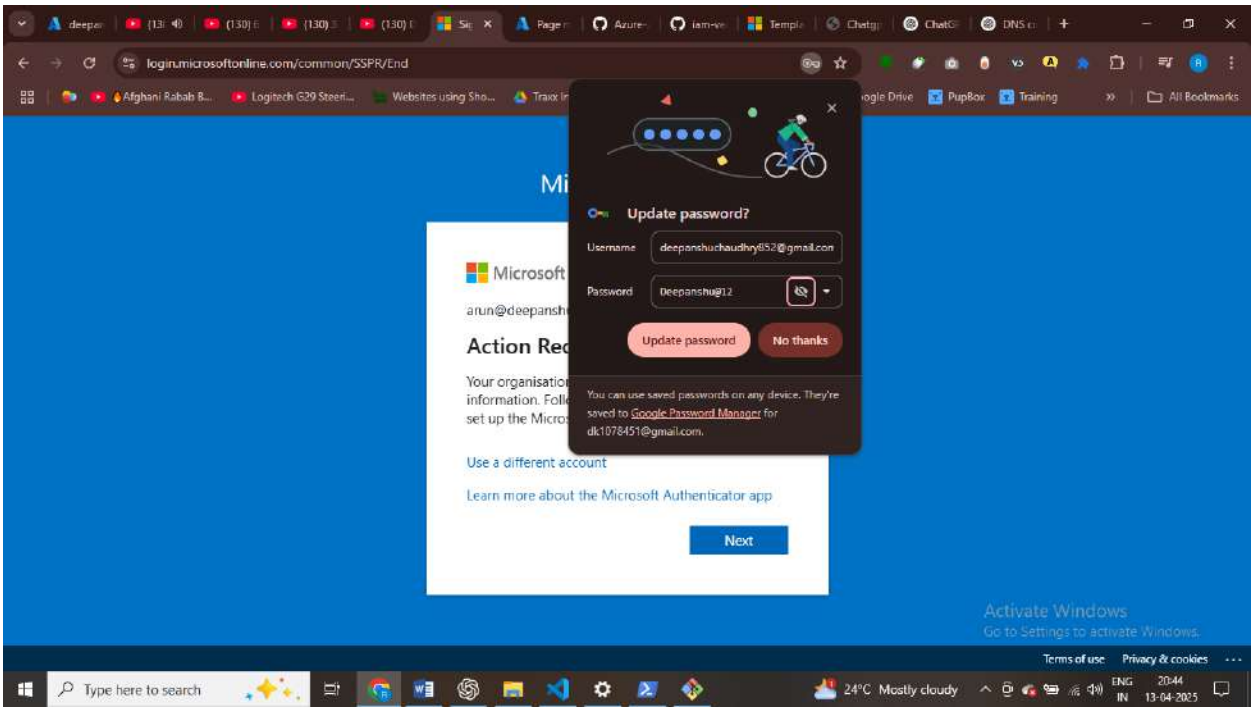
Create user arun



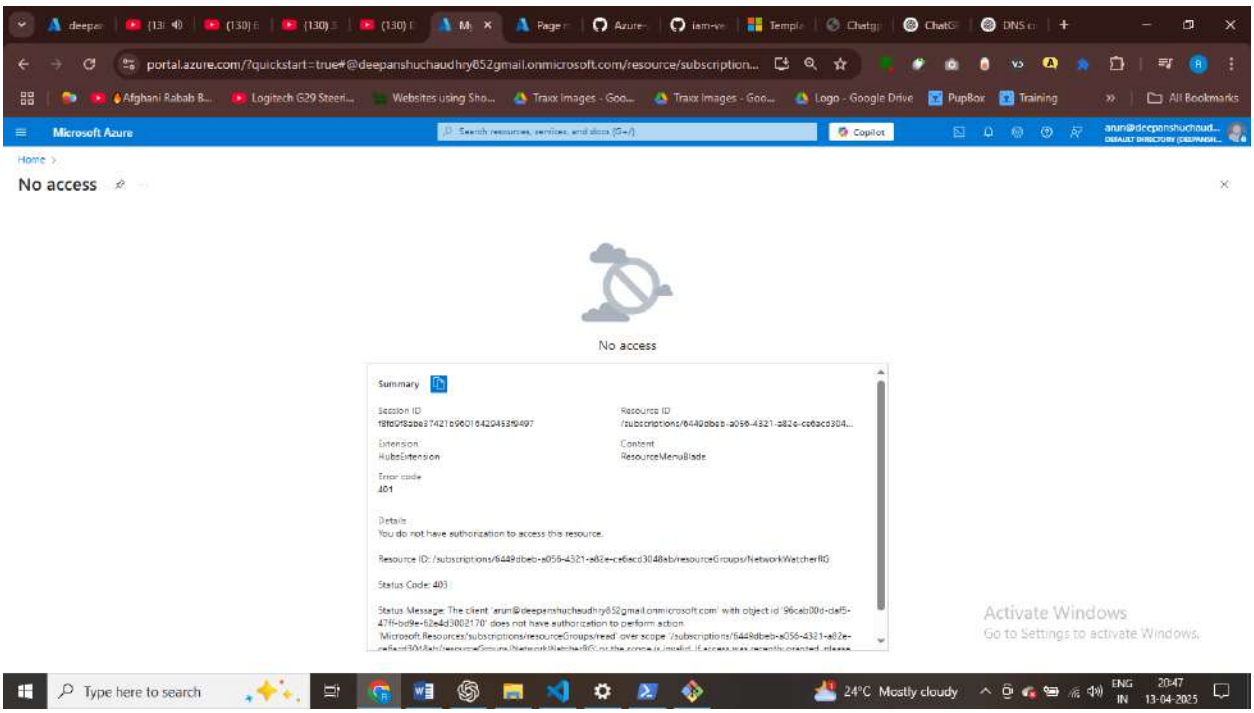


sign in with different account

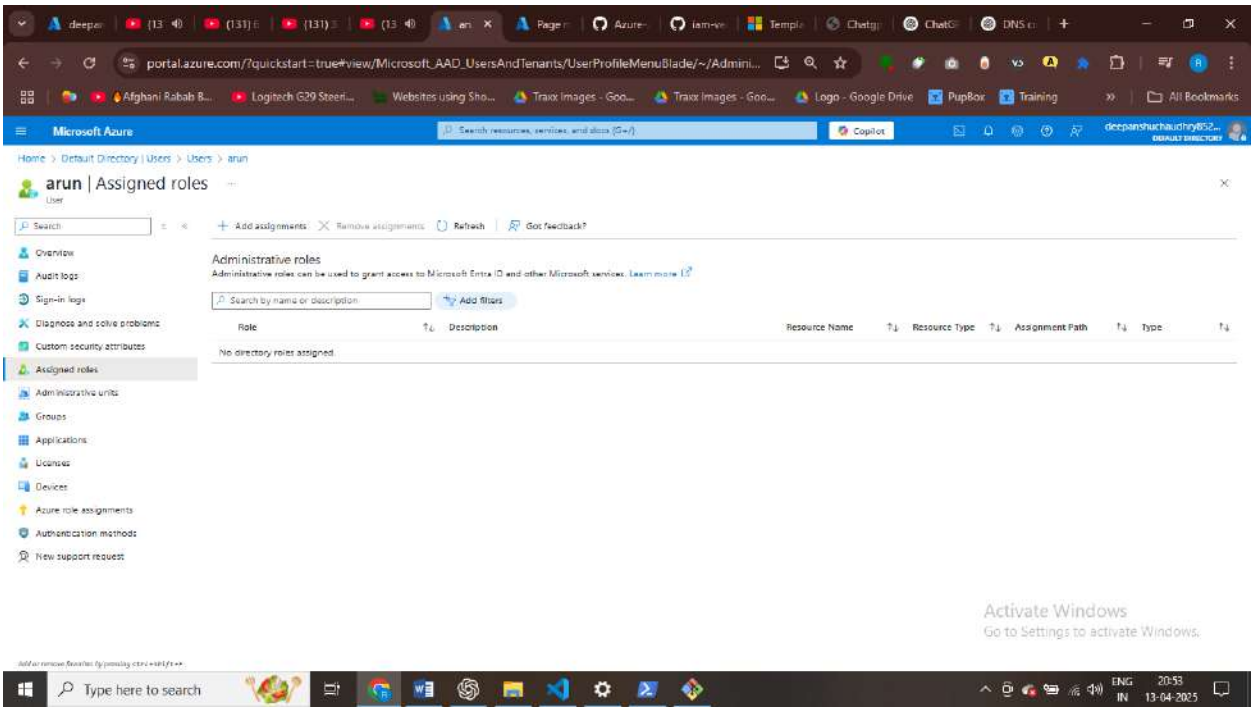




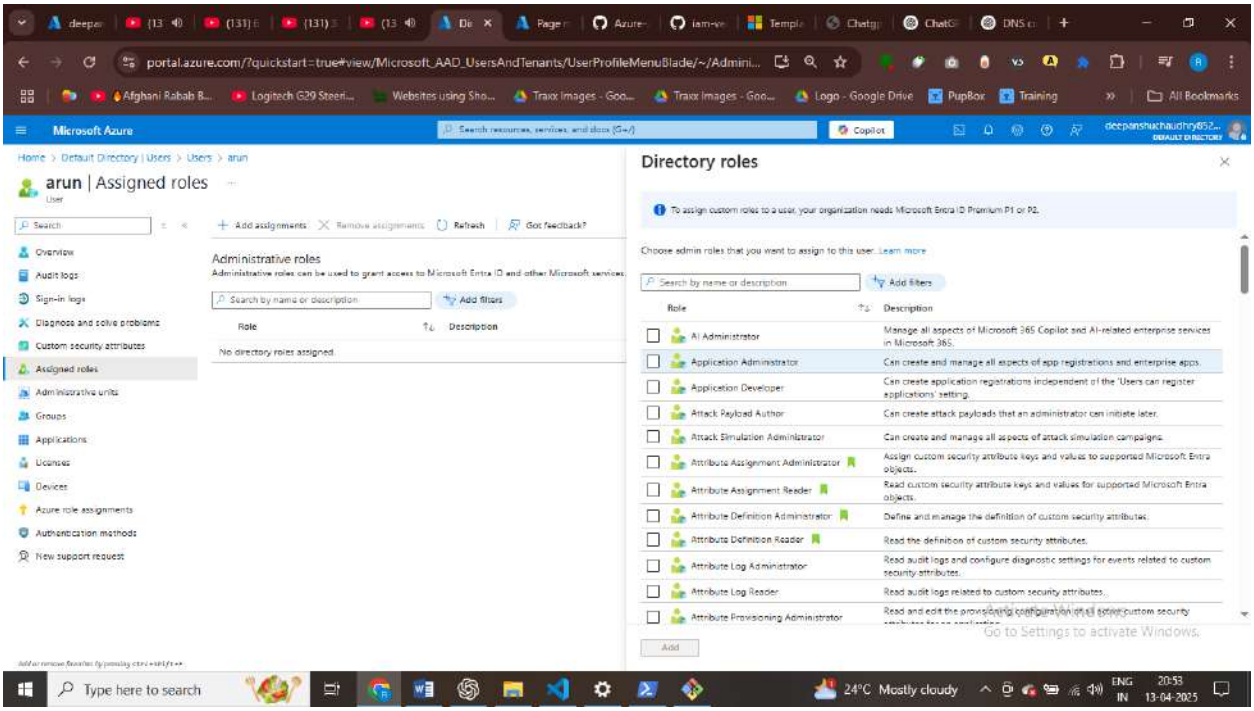
Ths user we created has no permission so no creation of rsource group



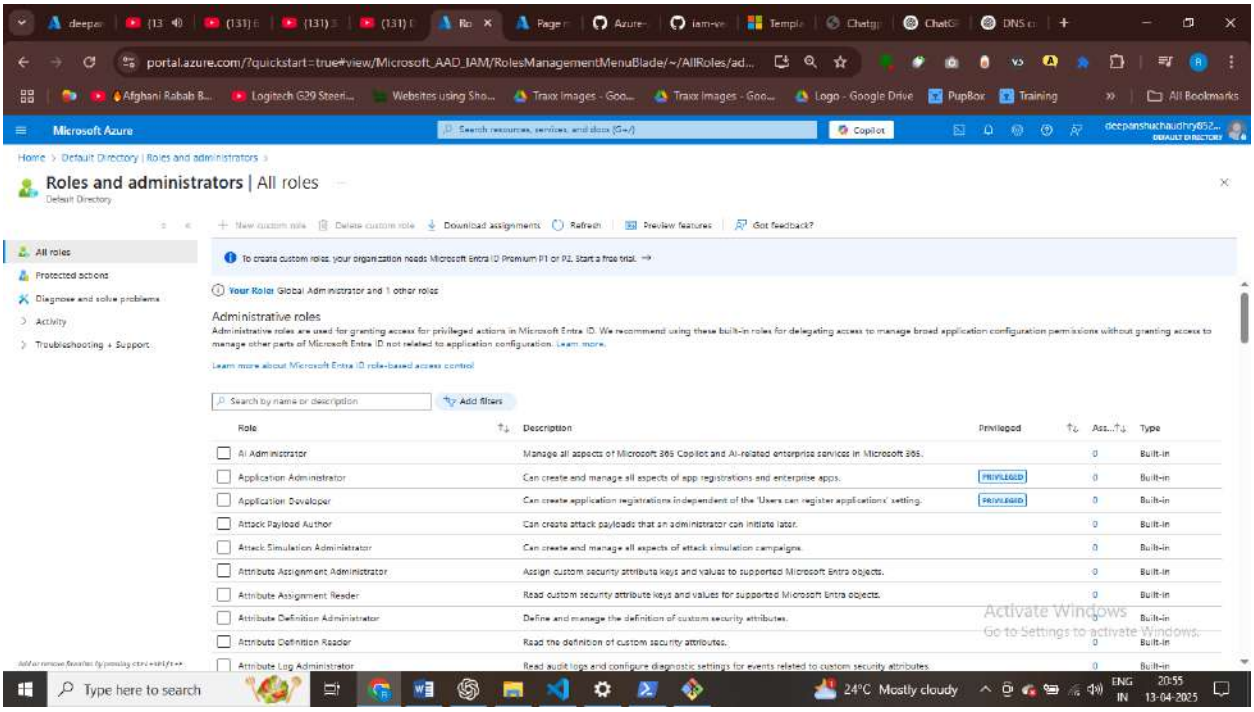
Now authorize with admin user – deepanshu give persmission to this user



We can assign this roles amd also crate our default role

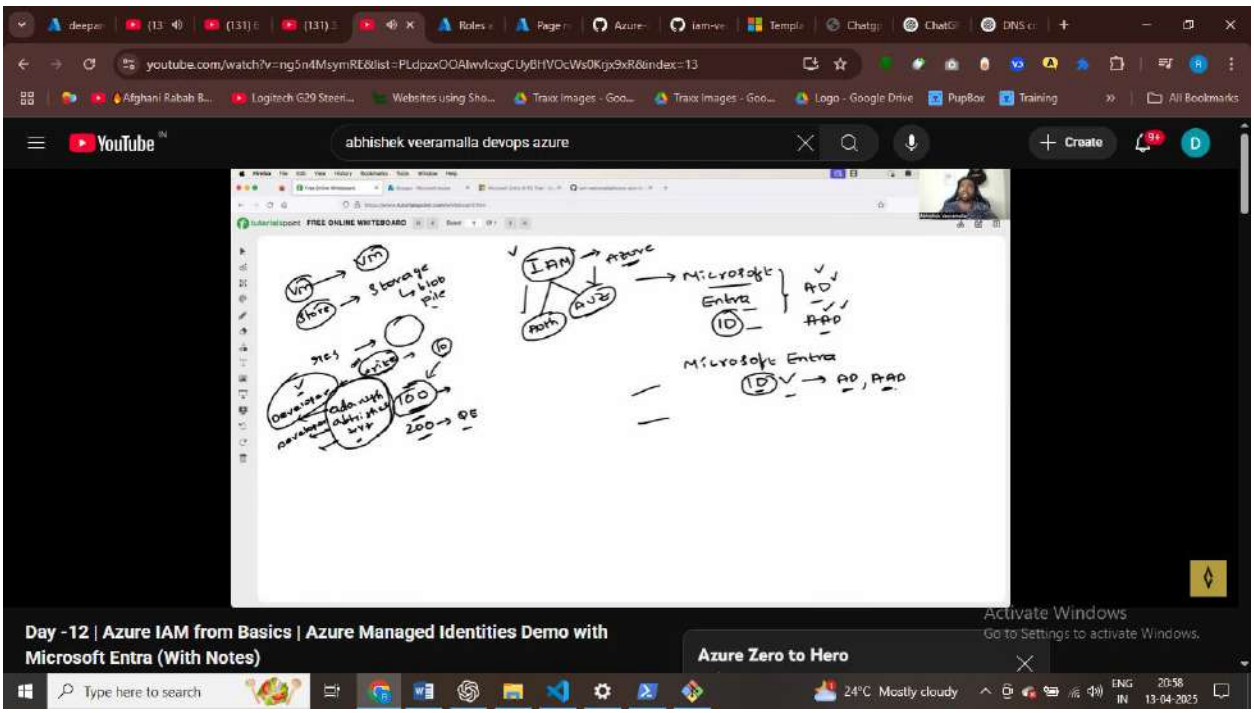


For creating custom role go to microsfot entra and from go to role and admsitrator



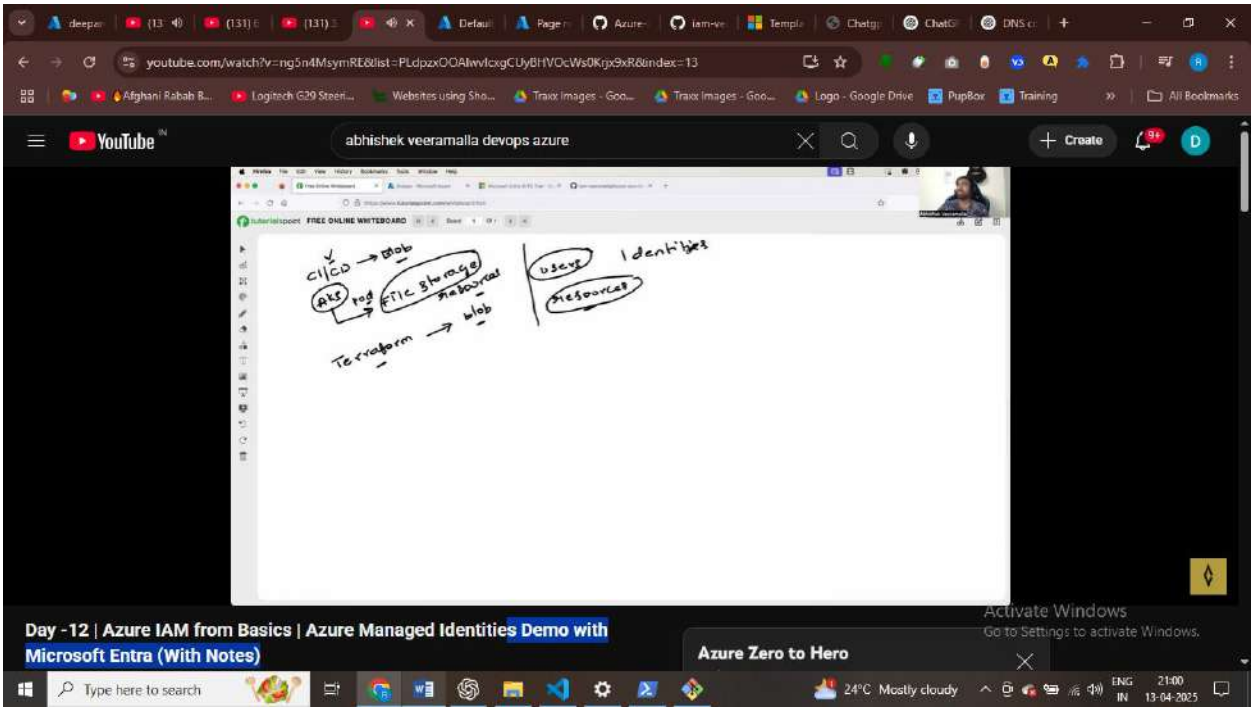
Create custome roles for develops enginerres

If we have large no of user 100 dev 100 qa then to manage them use group and assign role to group



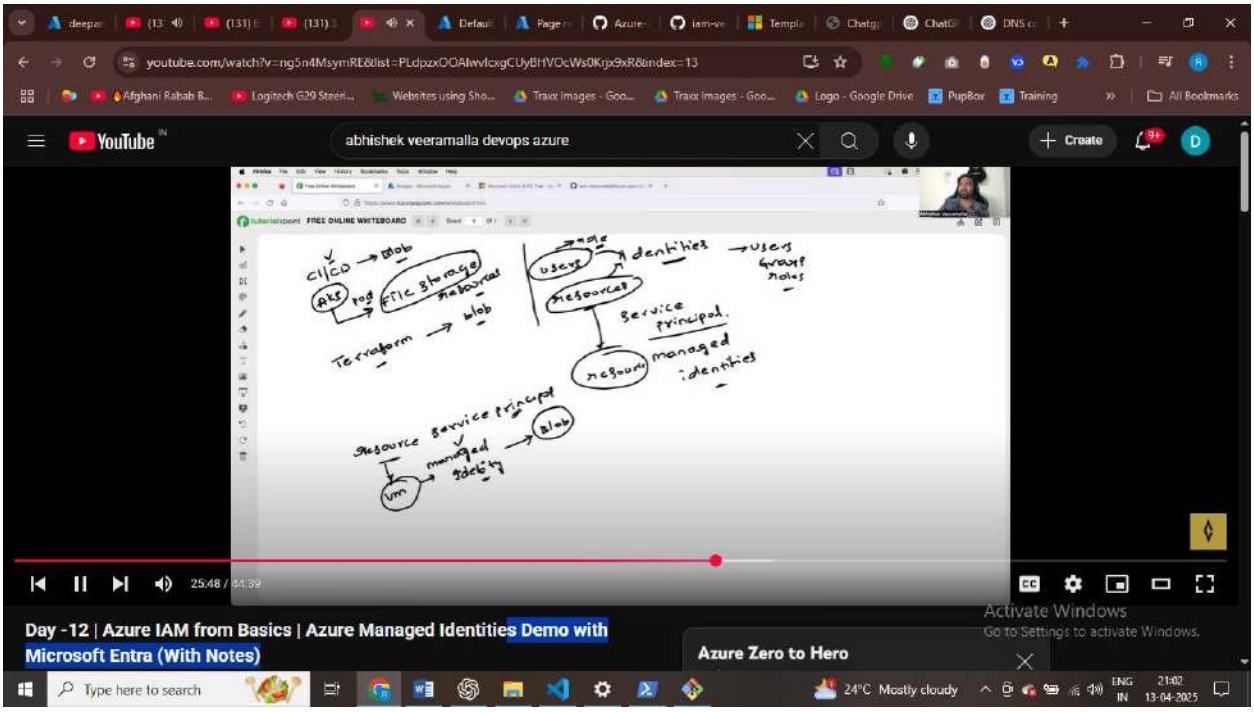
Group user into developer role

One azure resource talk to antoher azure resoureces



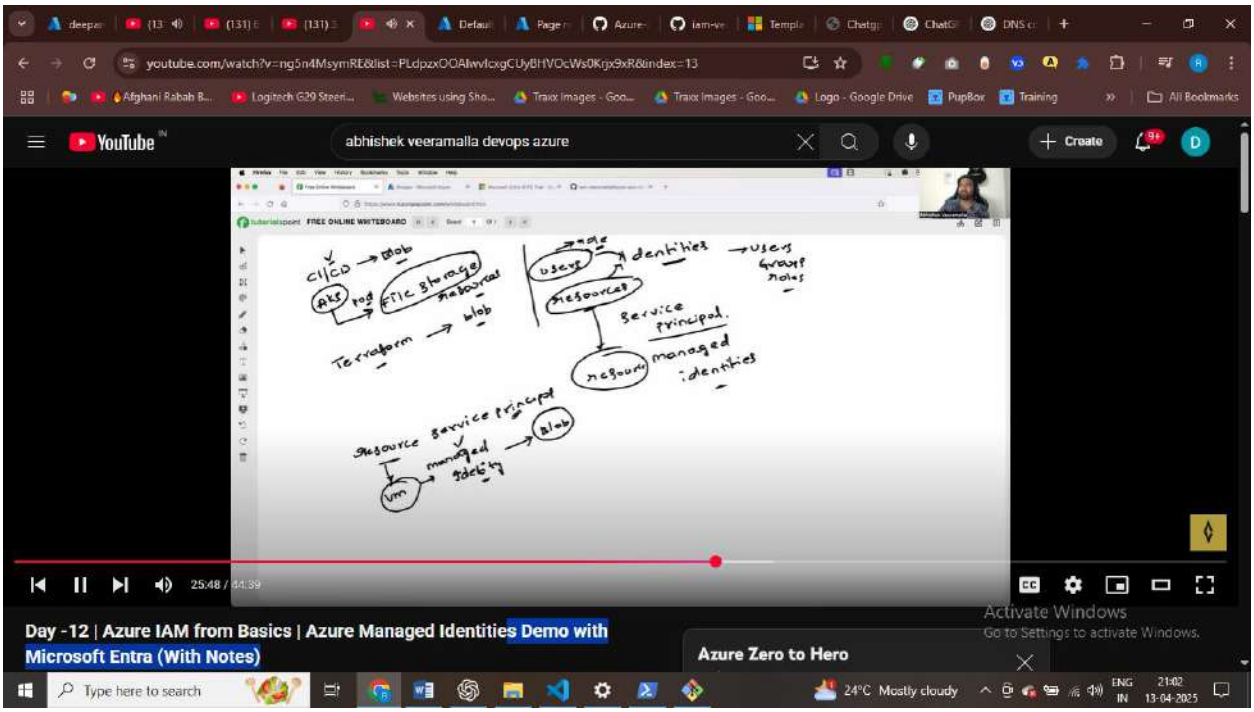
Cicd want to acces blob storage and aks want to access file storage

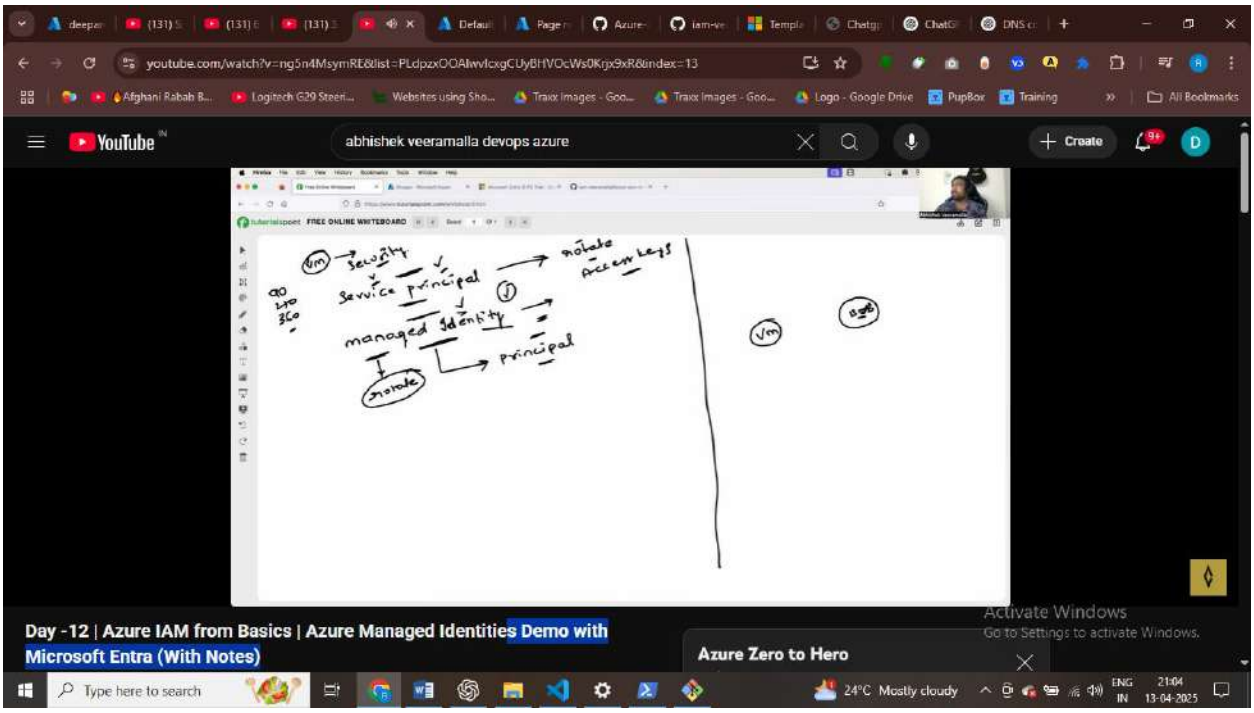
When one resource want to communicate with another resoruece we will dicsruss about principle service and manage identities



So for vm like things we have managed idnetites

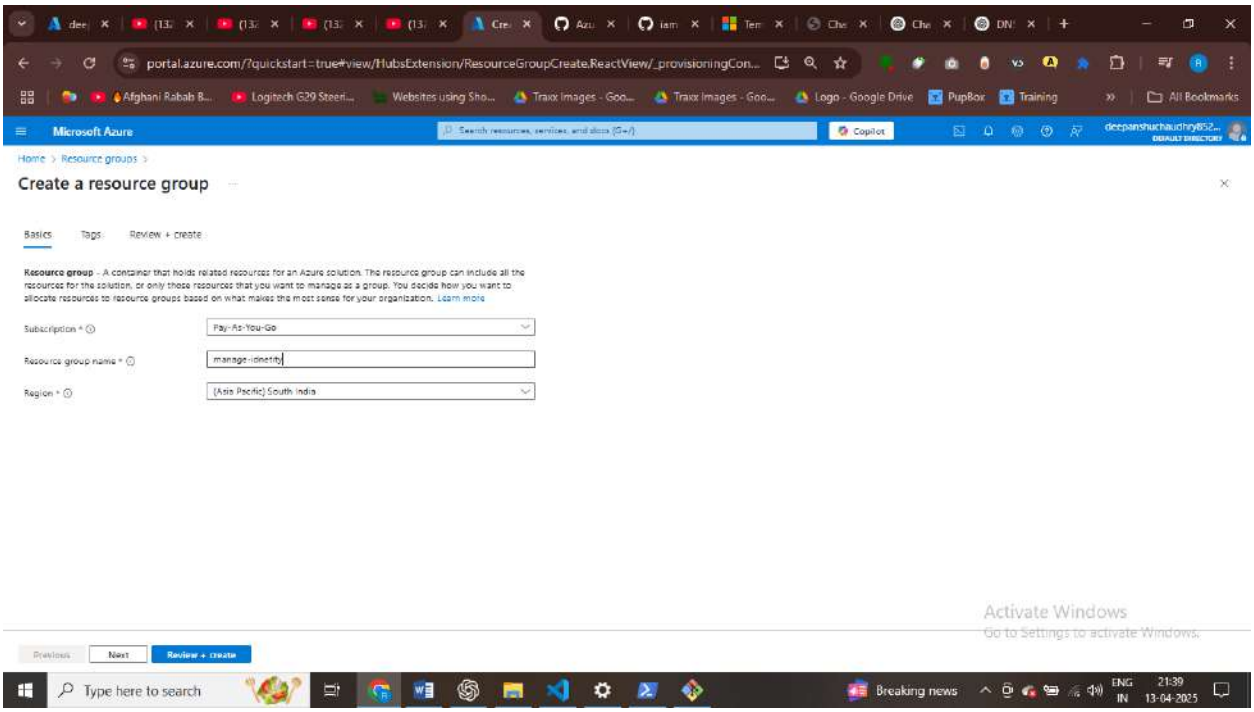
Managed idnetity azure will take care of it – for sercurity prupsoe = azure rotate it in 40 or 60 daya



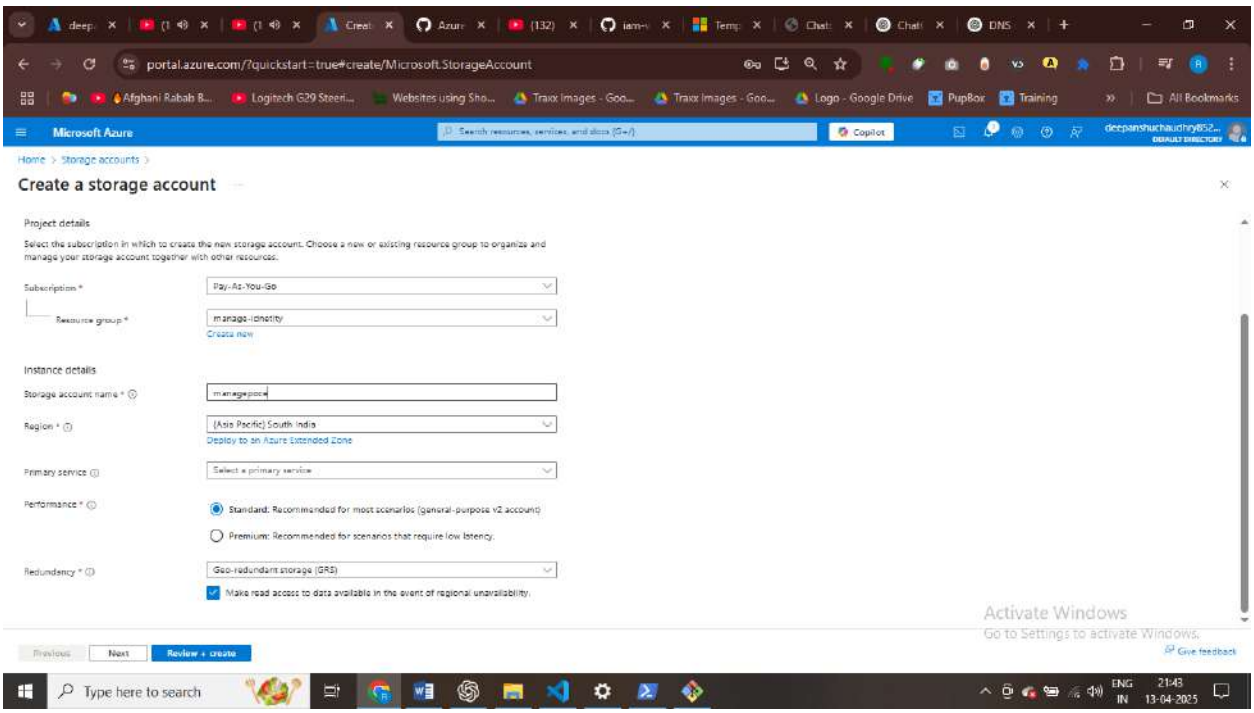


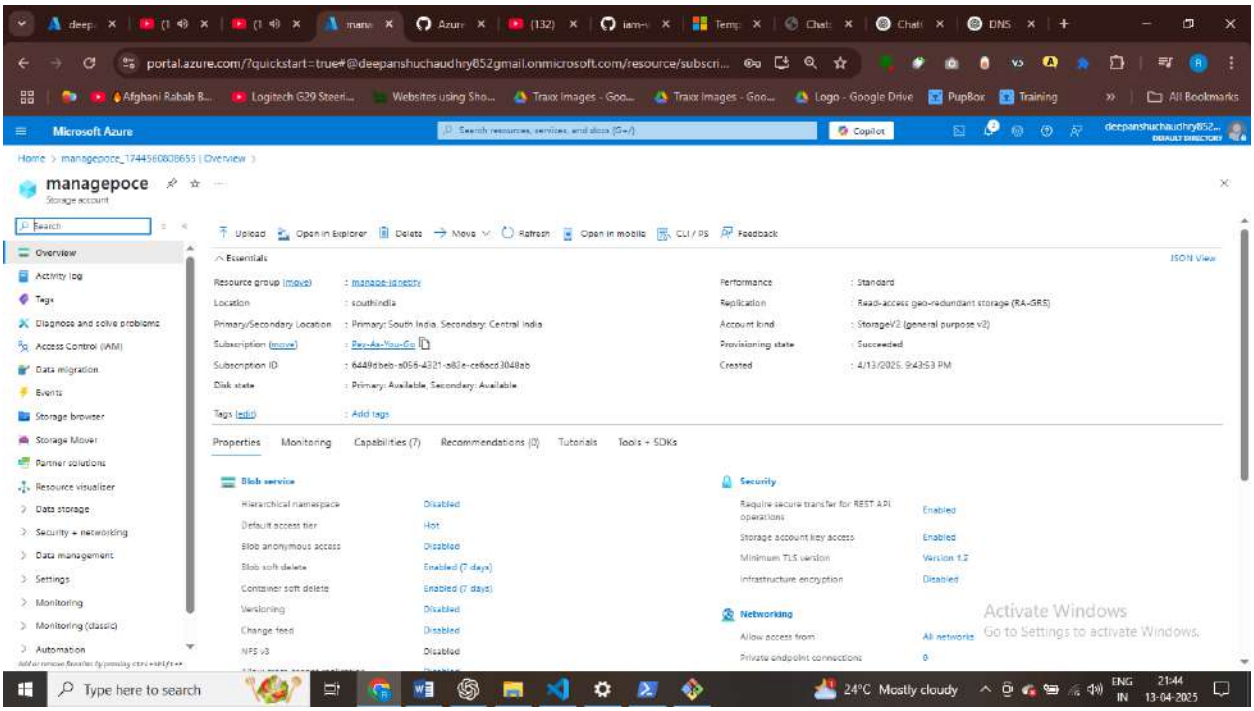
Established connection between Vm and file storage and using vm retriece file details wehat we write in it

Simple sritpt to retireve file details

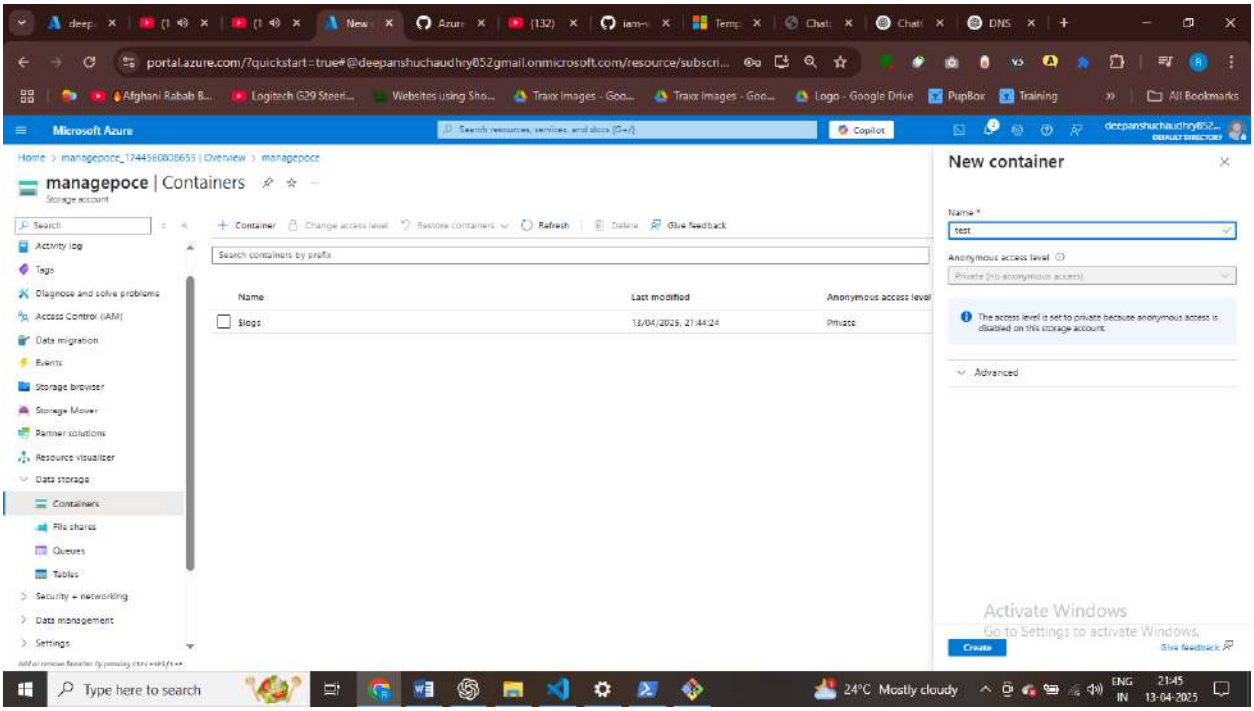


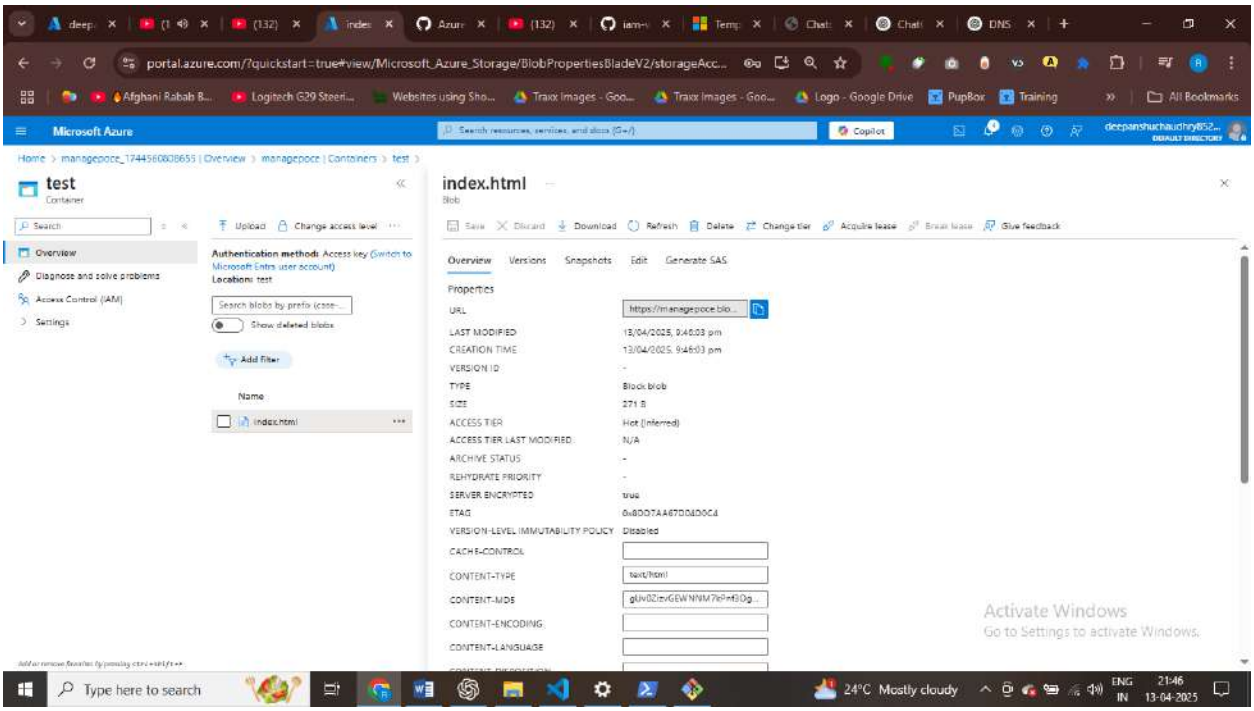
Now create virtual machine inside resource group – first create storage accounts



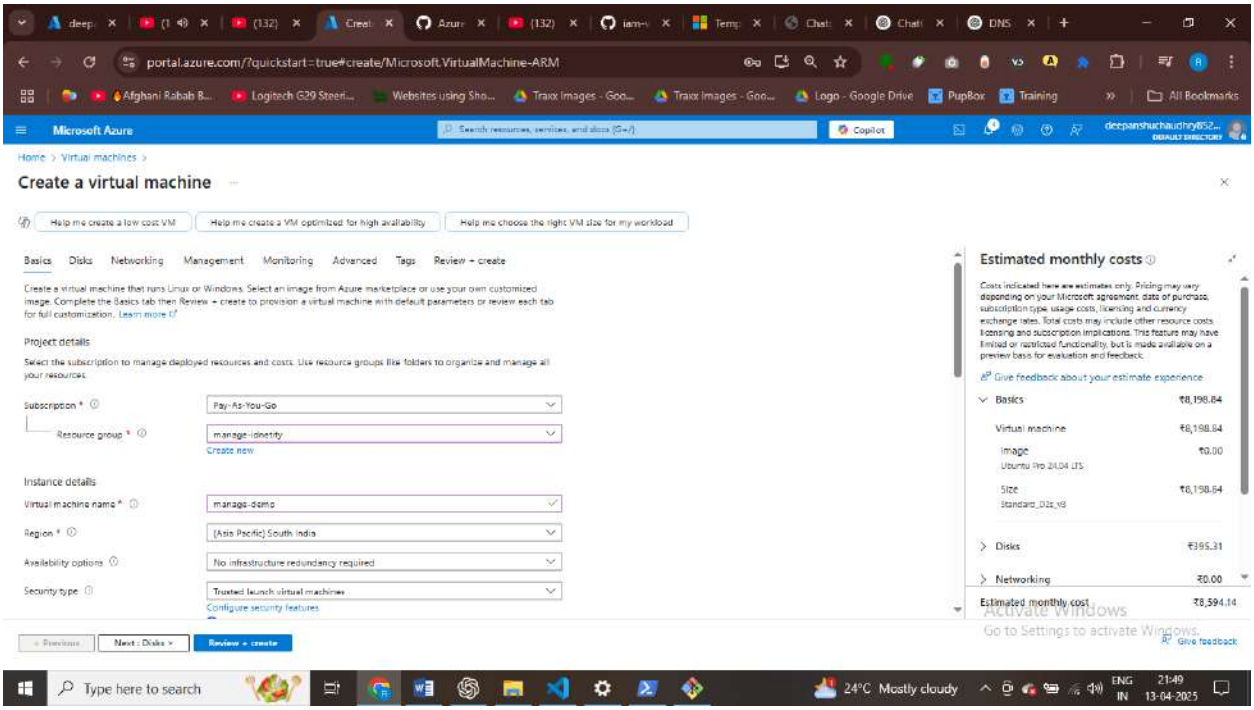


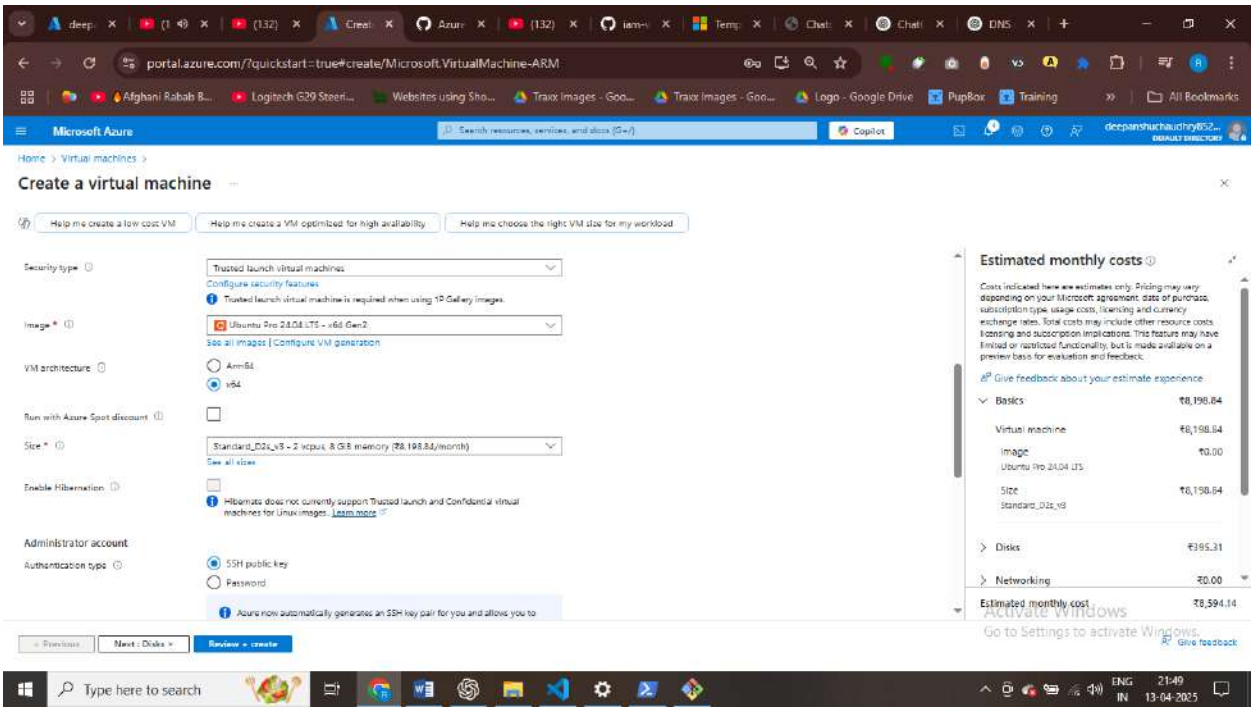
Creating a container

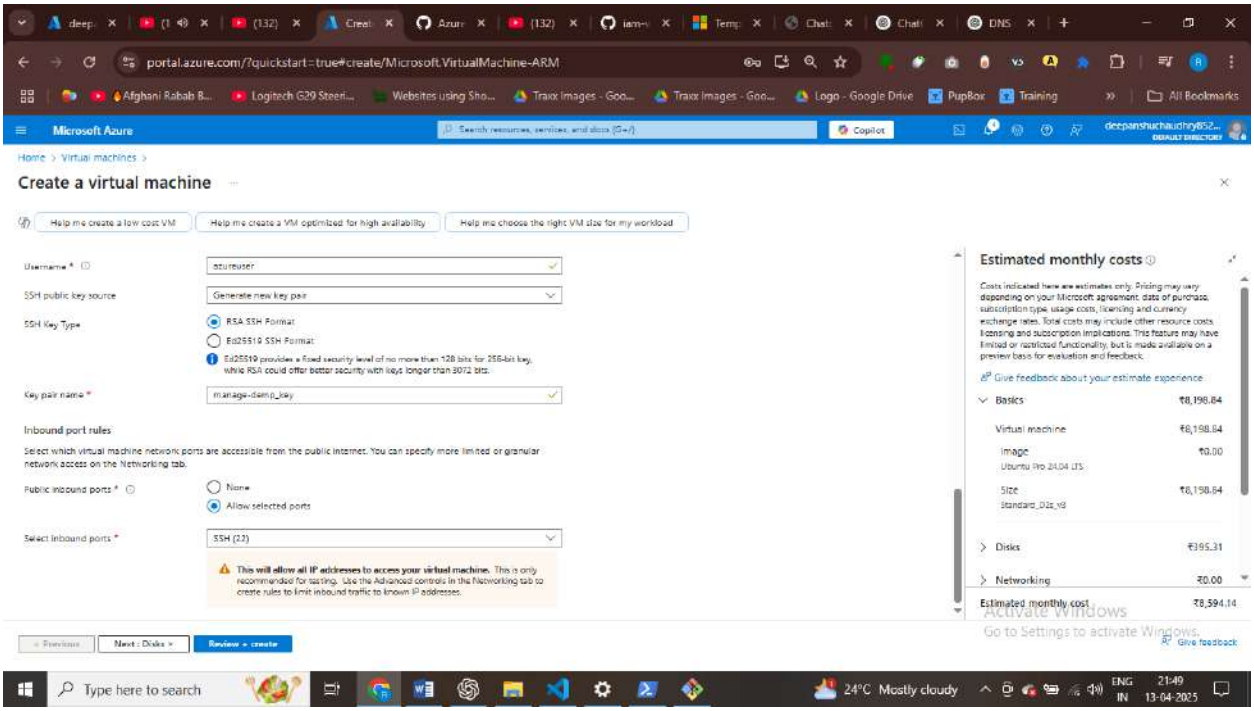


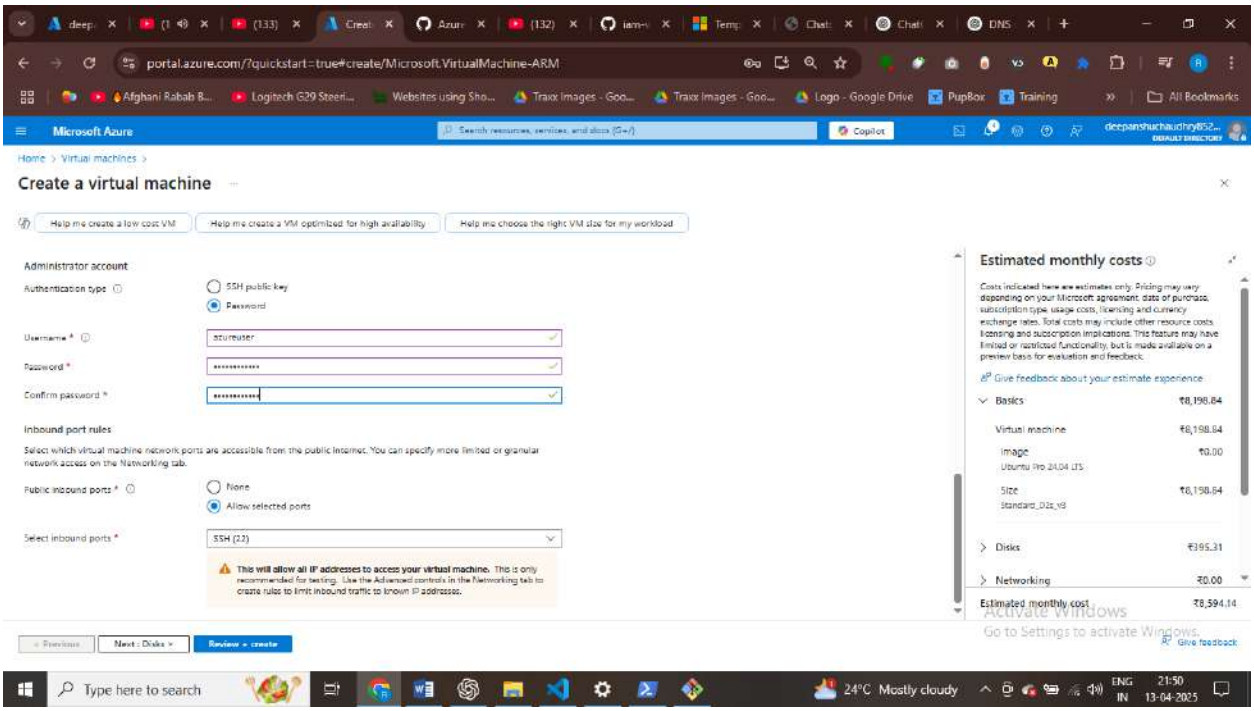


index.html uploaded on test container , creating a Vm

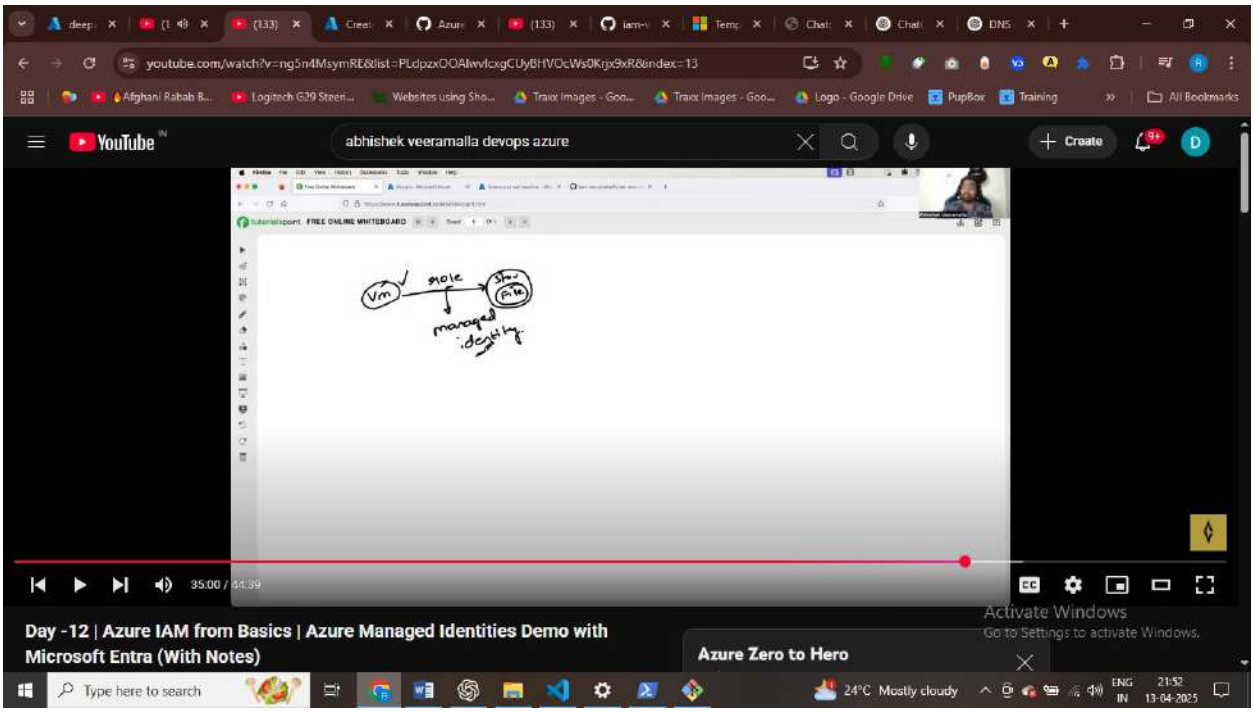


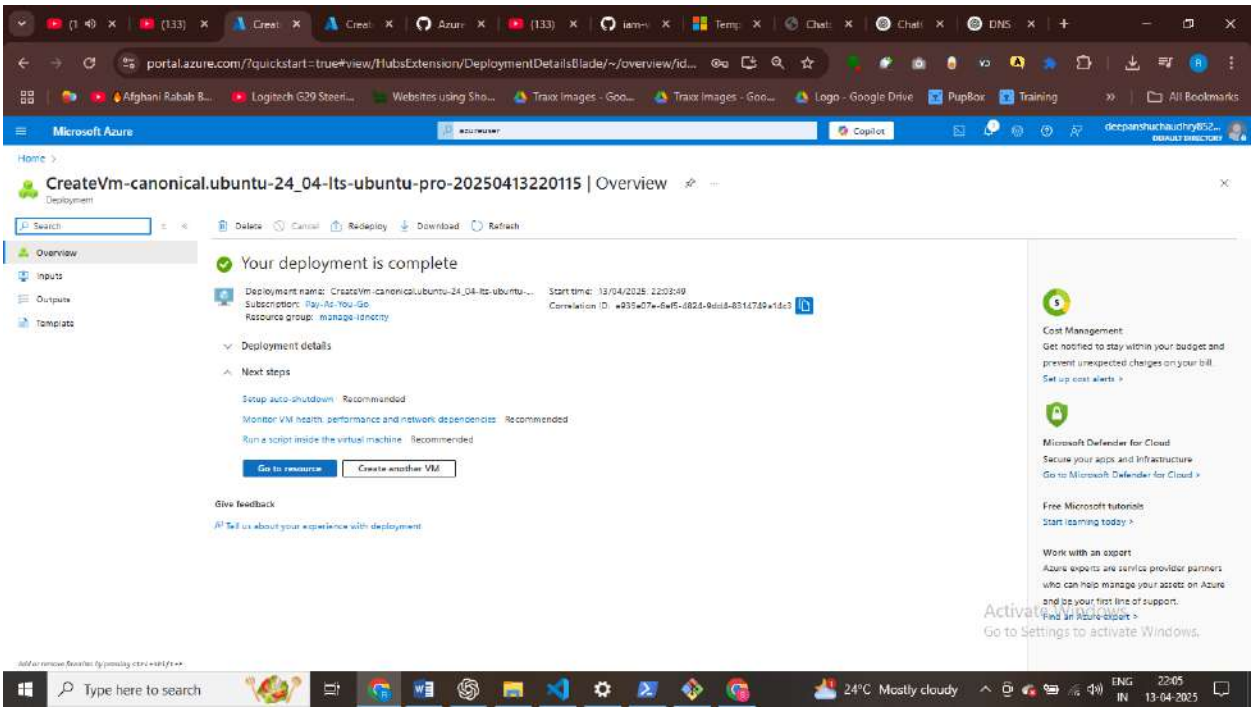

portal.azure.com/?quickstart=true#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Security type
Trusted launch virtual machines
Configure security features
Trusted launch virtual machine is required when using 1P Gallery images.
Image *
Ubuntu Pro 24.04 LTS - x64 Gen2
See all images | Configure VM generation
VM architecture
Arm64
x64
Run with Azure Spot discount
Size *
Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹8,198.84/month)
See all sizes
Enable Hibernation
Hibernate does not currently support Trusted launch and Confidential virtual machines for Linux images. Learn more
Administrator account
Authentication type
SSH public key
Password
Azure now automatically generates an SSH key pair for you and allows you to
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics ₹8,198.84
Virtual machine ₹8,198.84
Image ₹0.00
Ubuntu Pro 24.04 LTS
Size ₹8,198.84
Standard_D2s_v3
Disks ₹395.31
Networking ₹0.00
Estimated monthly cost ₹8,594.14
Previous
Next : Disks >
Review + create
Type here to search


portal.azure.com/?quickstart=true#create/Microsoft.VirtualMachine-ARM
Microsoft Azure
Home > Virtual machines >
Create a virtual machine
Help me create a low cost VM
Help me create a VM optimized for high availability
Help me choose the right VM size for my workload
Username *
azureuser
SSH public key source
Generate new key pair
SSH Key Type
RSA SSH Format
Ed25519 SSH Format
Ed25519 provides a fixed security level of no more than 128 bits for 256-bit key, while RSA could offer better security with keys longer than 3072 bits.
Key pair name *
manage-demo_key
Inbound port rules
Select which virtual machine network ports are accessible from the public internet. You can specify more limited or granular network access on the Networking tab.
Public inbound ports *
None
Allow selected ports
Select inbound ports *
SSH (22)
This will allow all IP addresses to access your virtual machine. This is only recommended for testing. Use the Advanced controls in the Networking tab to create rules to limit inbound traffic to known IP addresses.
Estimated monthly costs
Costs indicated here are estimates only. Pricing may vary depending on your Microsoft agreement, date of purchase, subscription type, usage costs, licensing and currency exchange rates. Total costs may include other resource costs, licensing and subscription implications. This feature may have limited or restricted functionality, but is made available on a preview basis for evaluation and feedback.
Give feedback about your estimate experience
Basics ₹8,198.84
Virtual machine ₹8,198.84
Image ₹0.00
Ubuntu Pro 24.04 LTS
Size ₹8,198.84
Standard_D2s_v3
Disks ₹395.31
Networking ₹0.00
Estimated monthly cost ₹8,594.14
Previous
Next : Disks >
Review + create
Type here to search
24°C Mostly cloudy

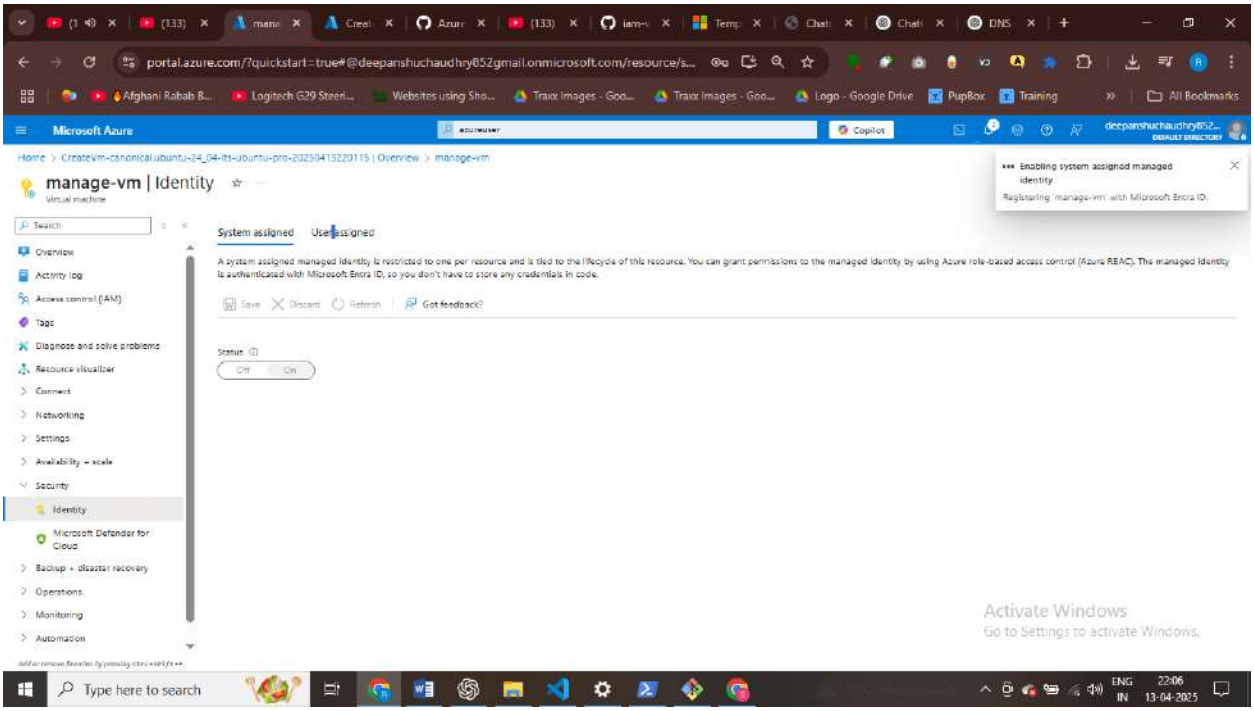


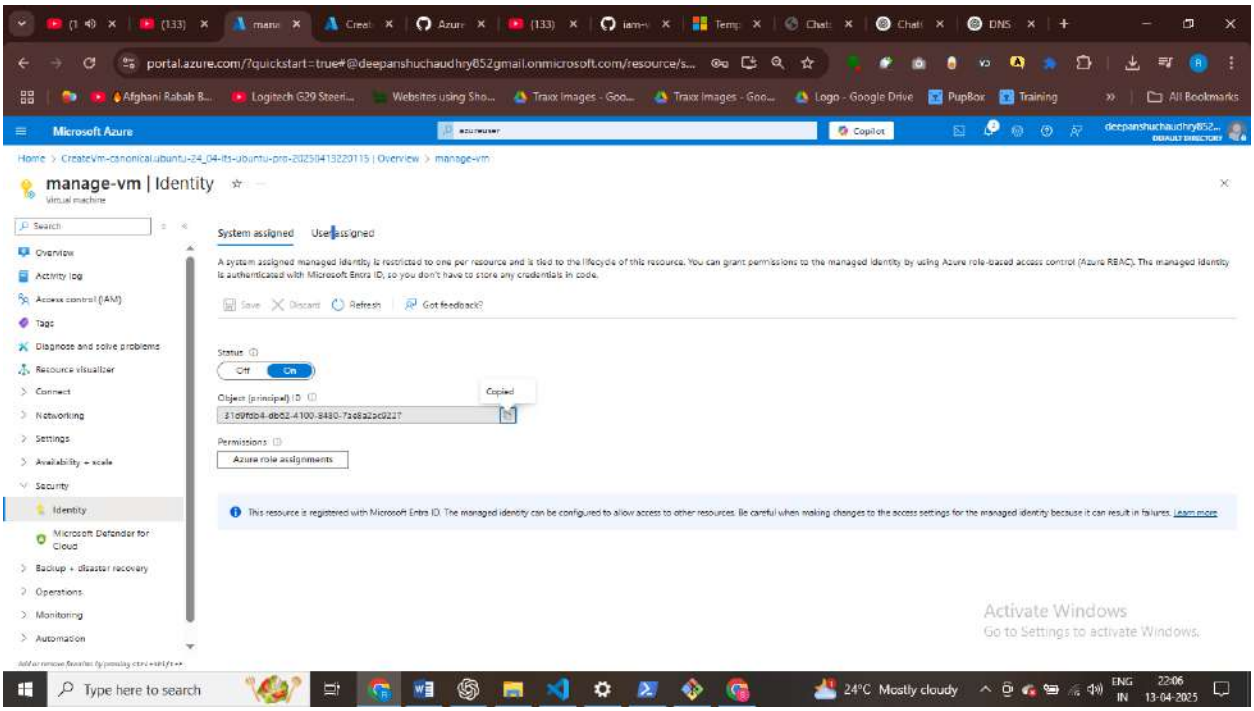
Assign a role to Vm , IN THIs case we call It manage identitites



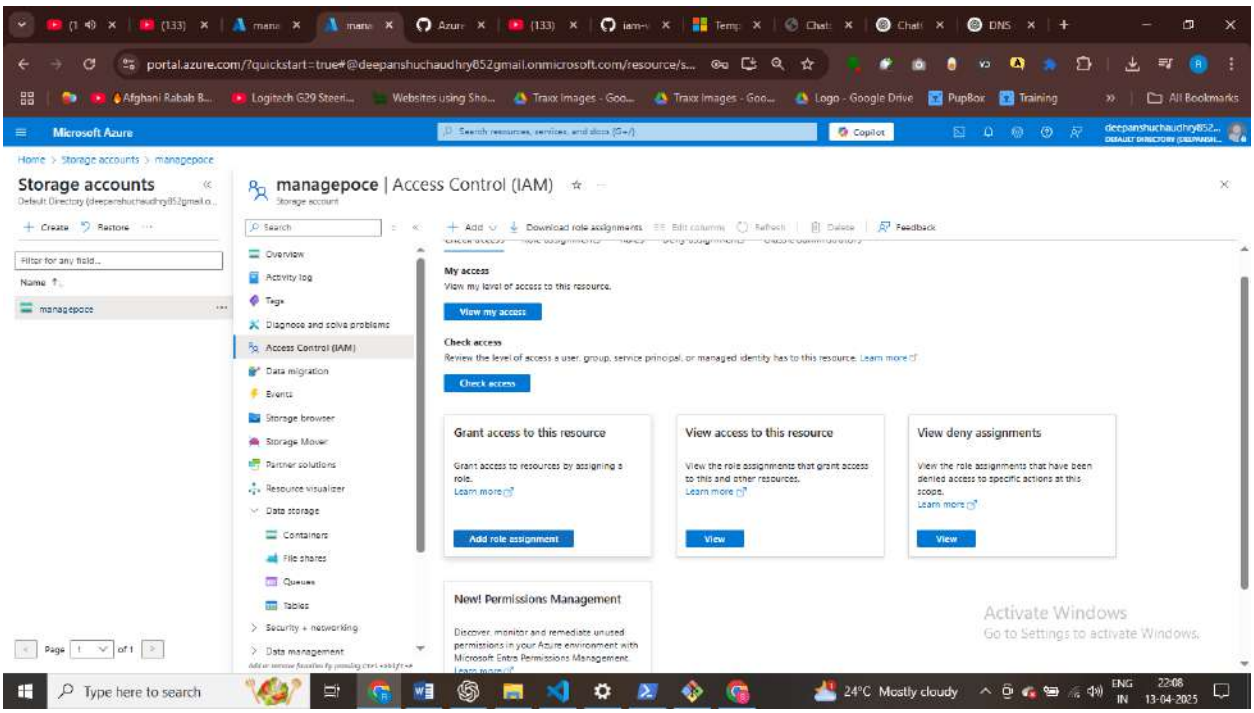


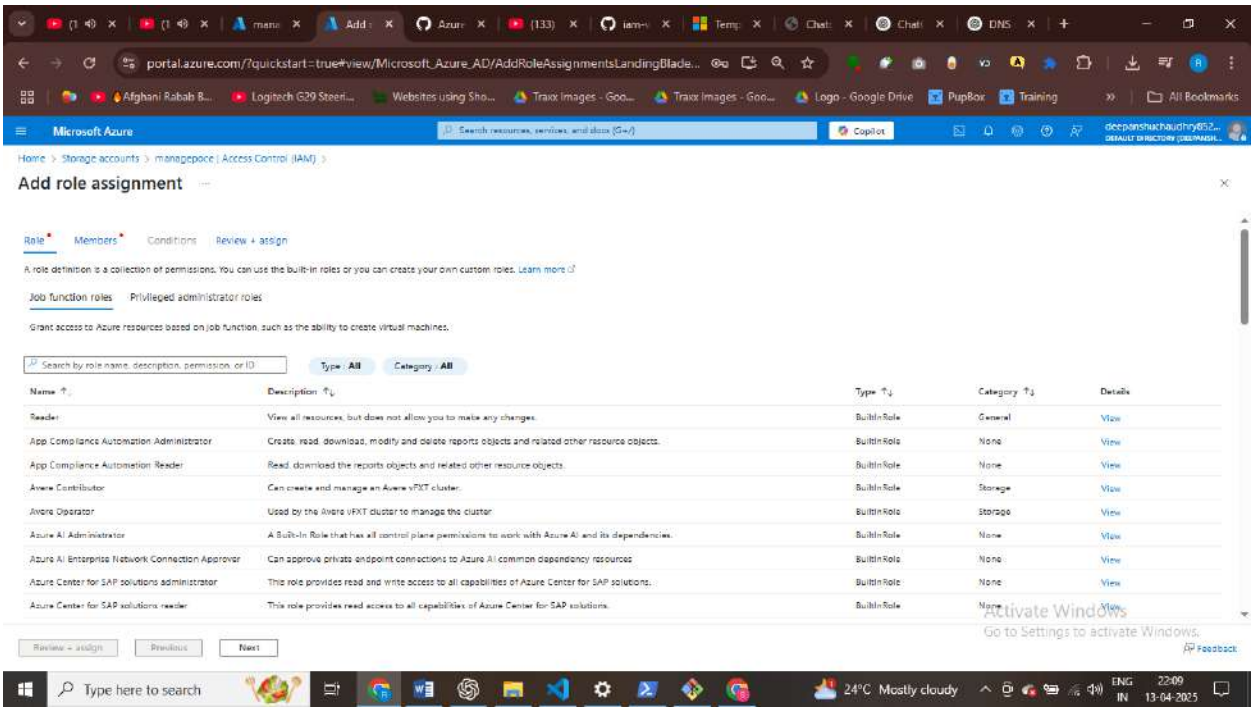
Enable system assigned manage identity



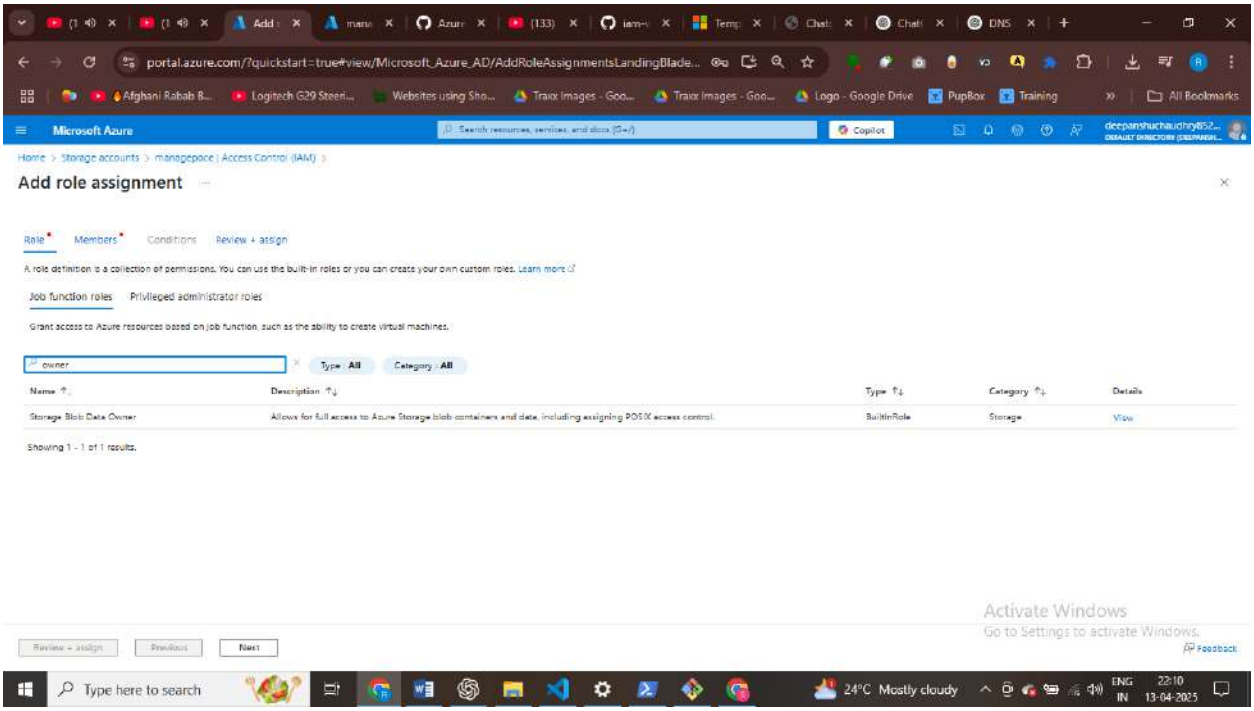


Go to storage account access control IAM

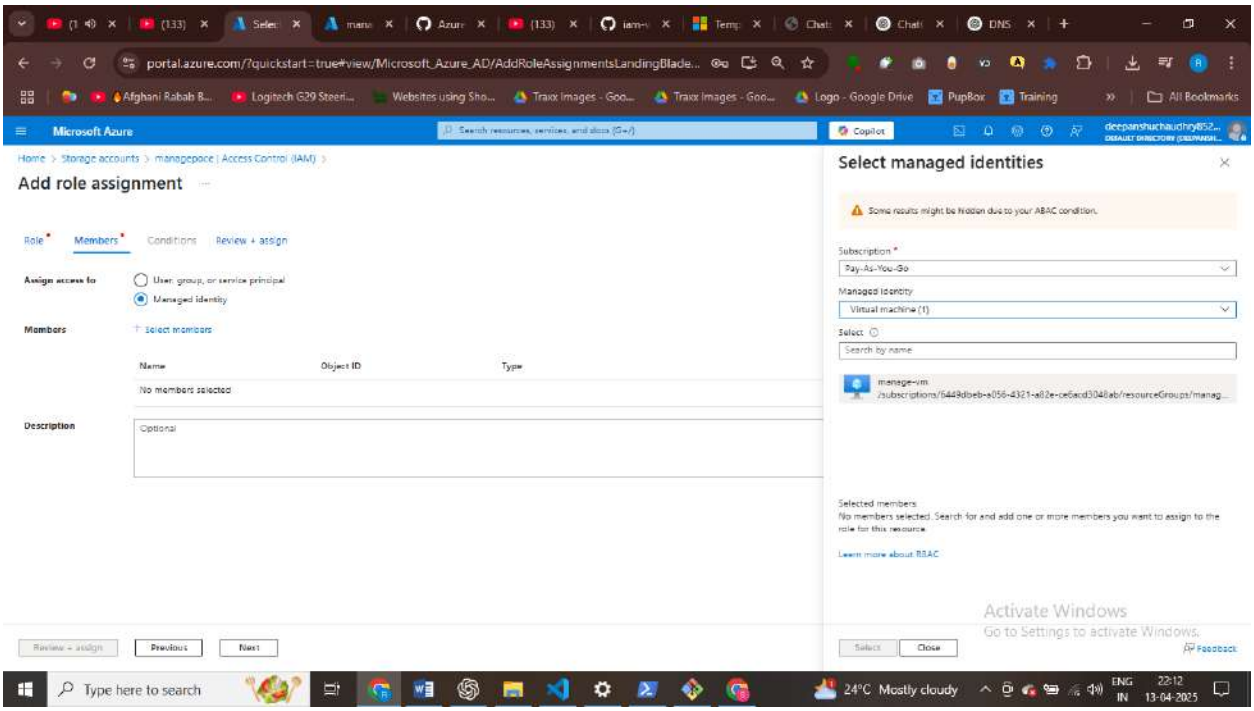




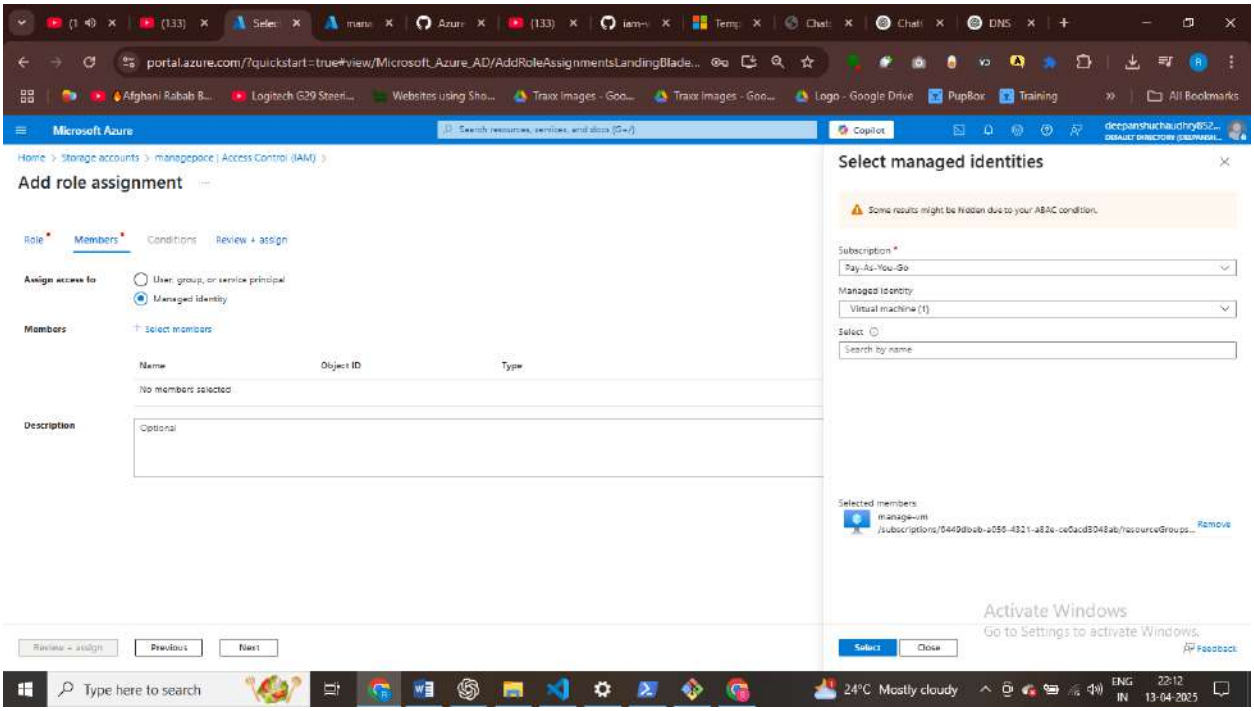
Through the mangae identiy I am assigning the role

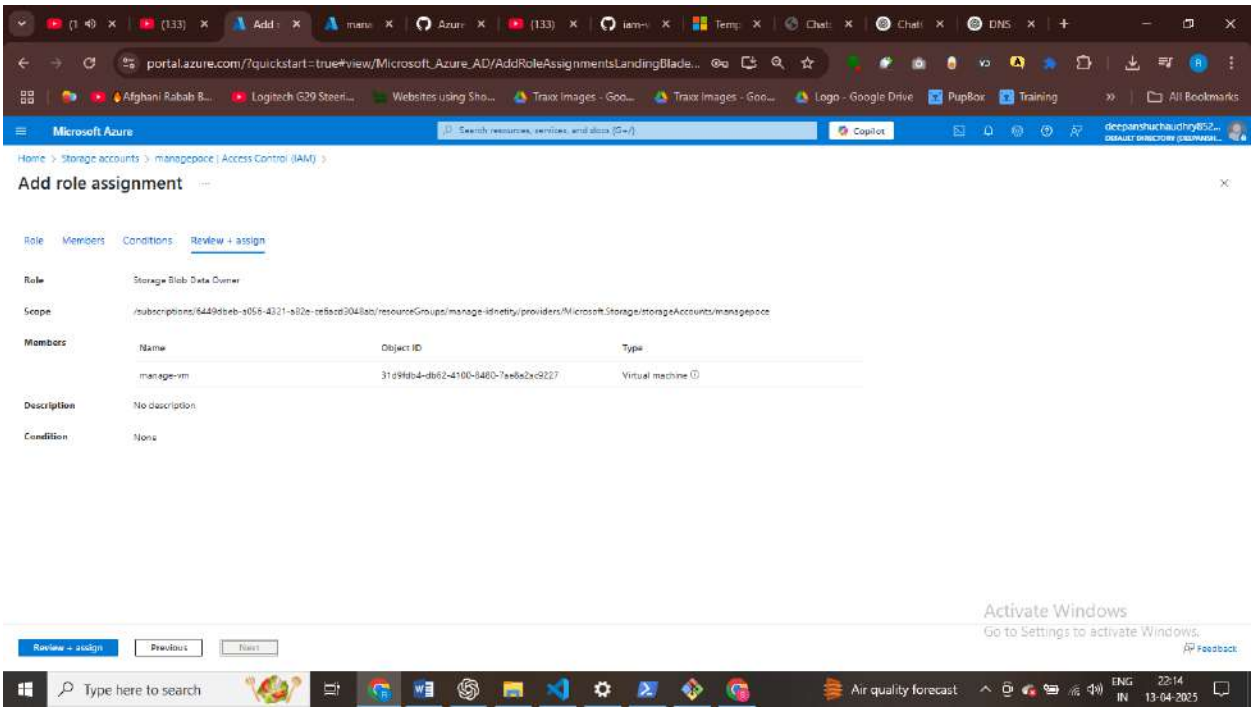


my vm own the complete storage for the storage accounts

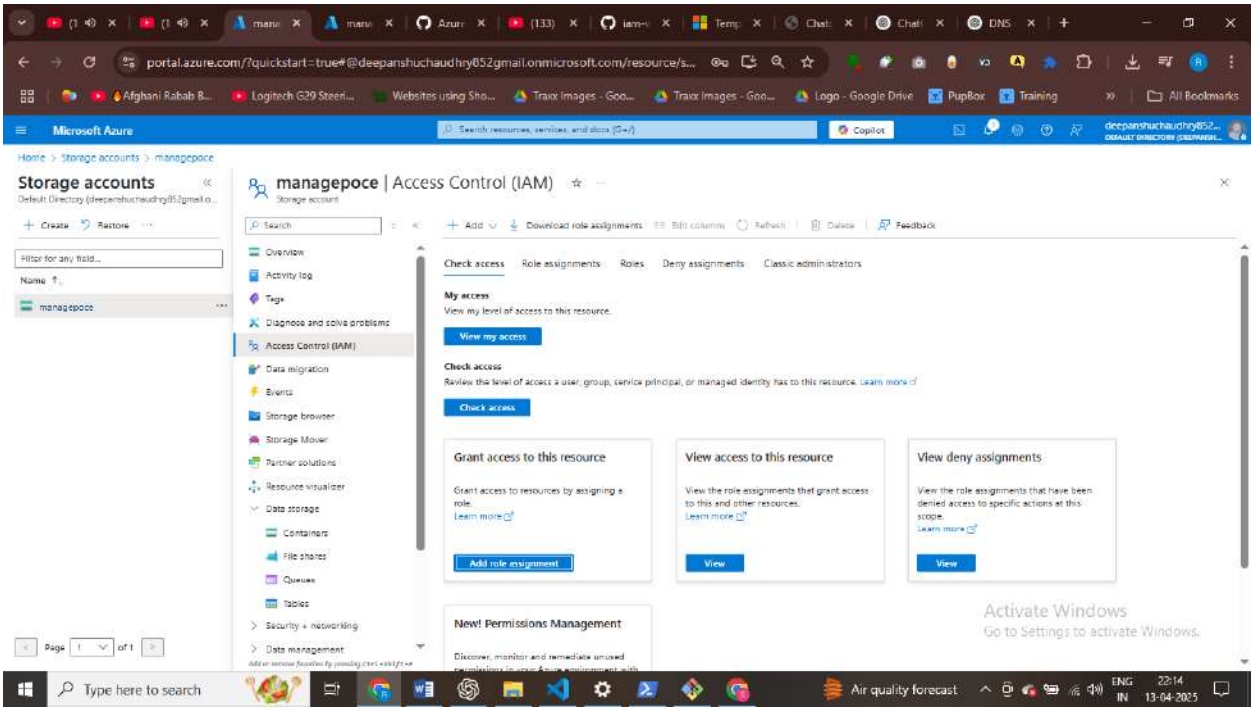


Select manage vm

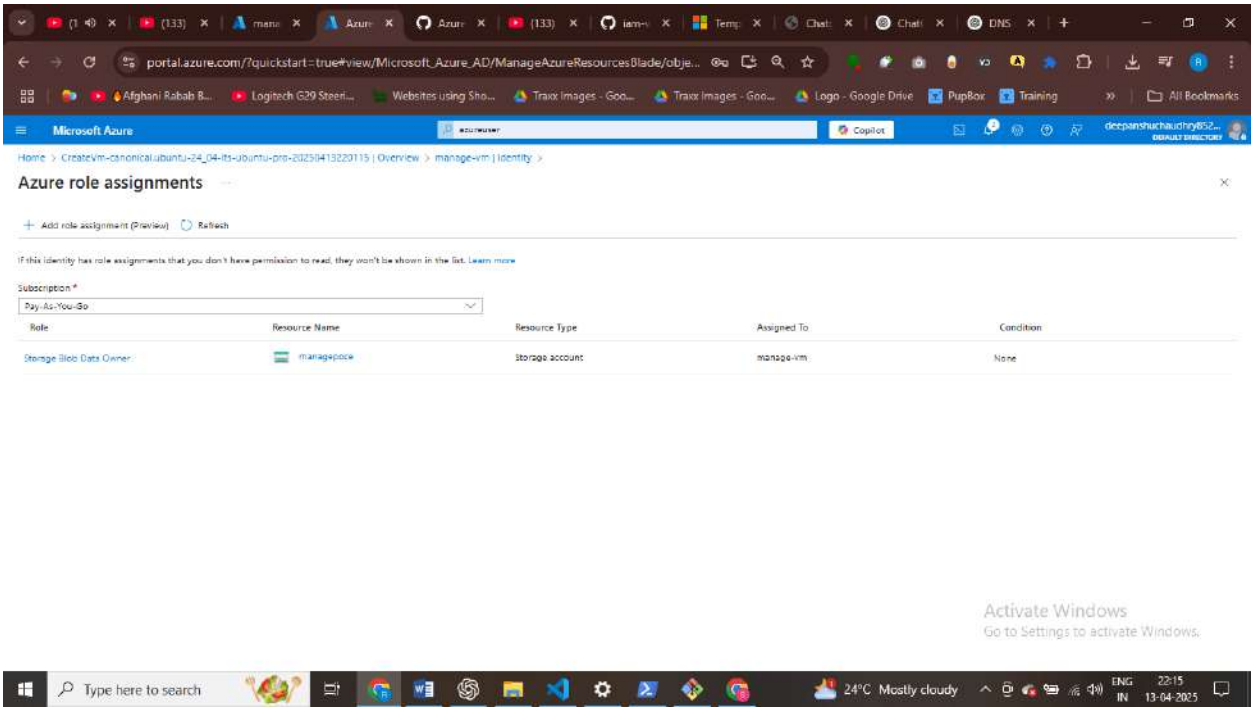




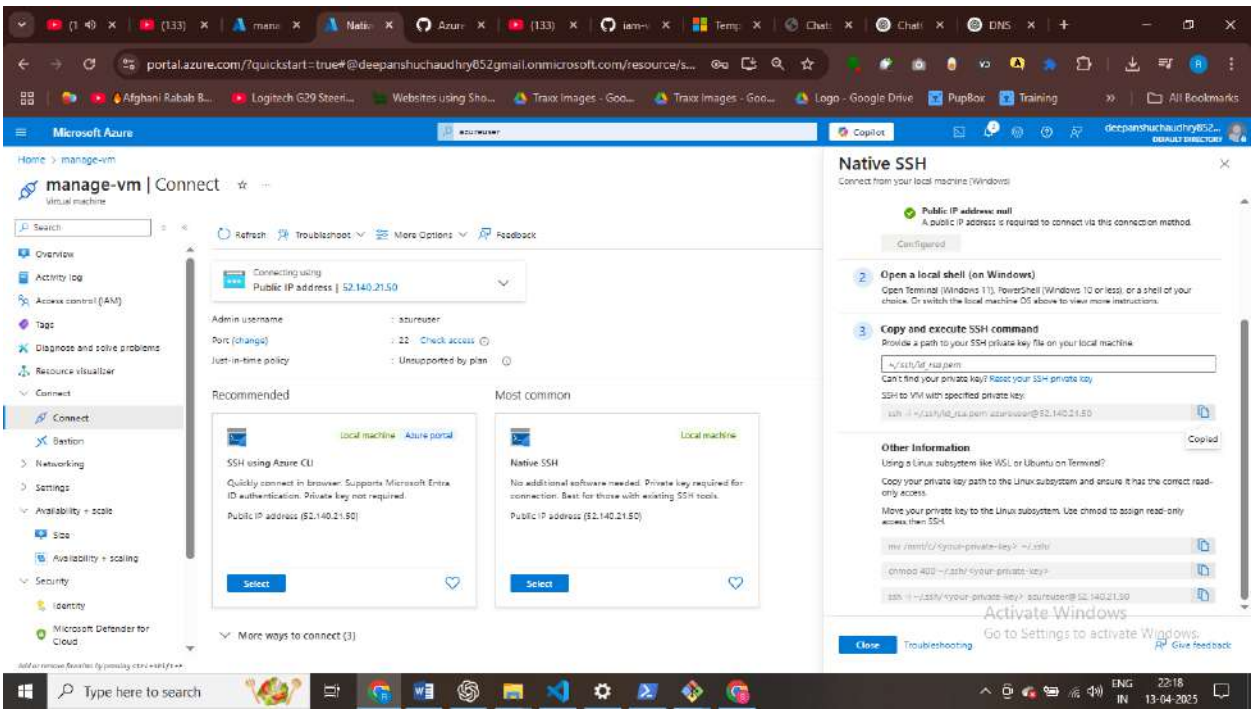
We have create the identiy and assign identity with the role

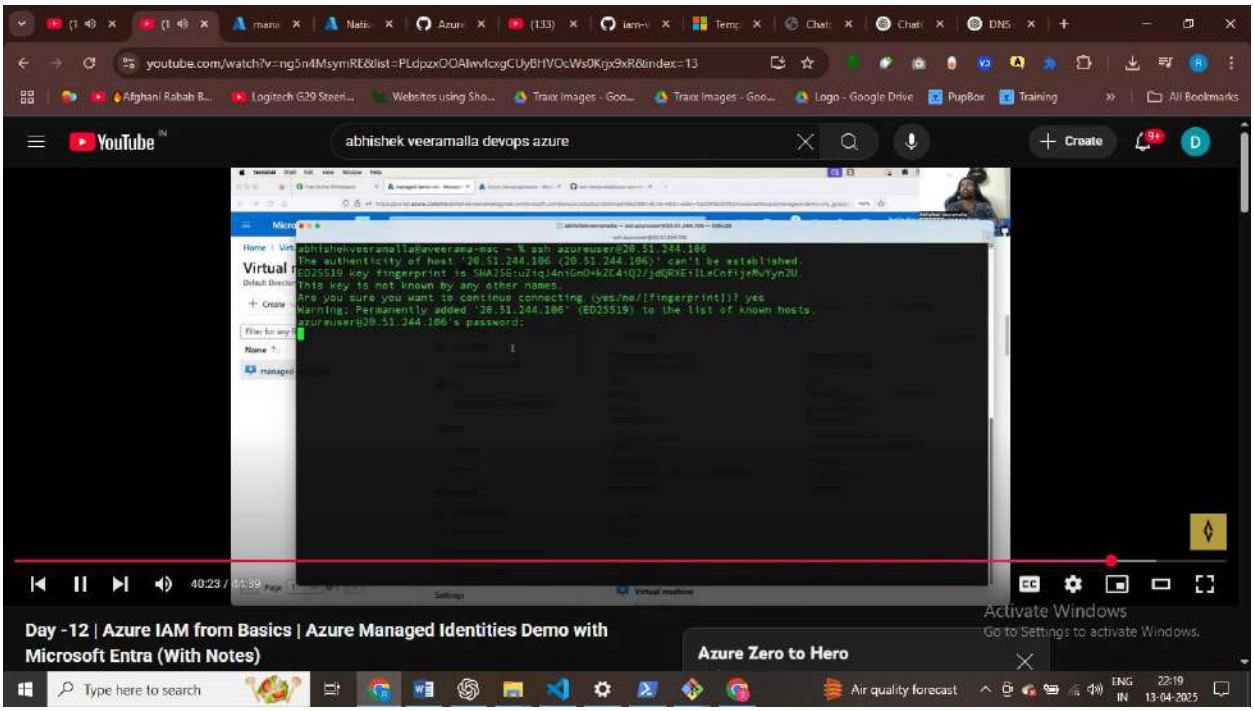


Inside vm we can see the role which is assigned to VM

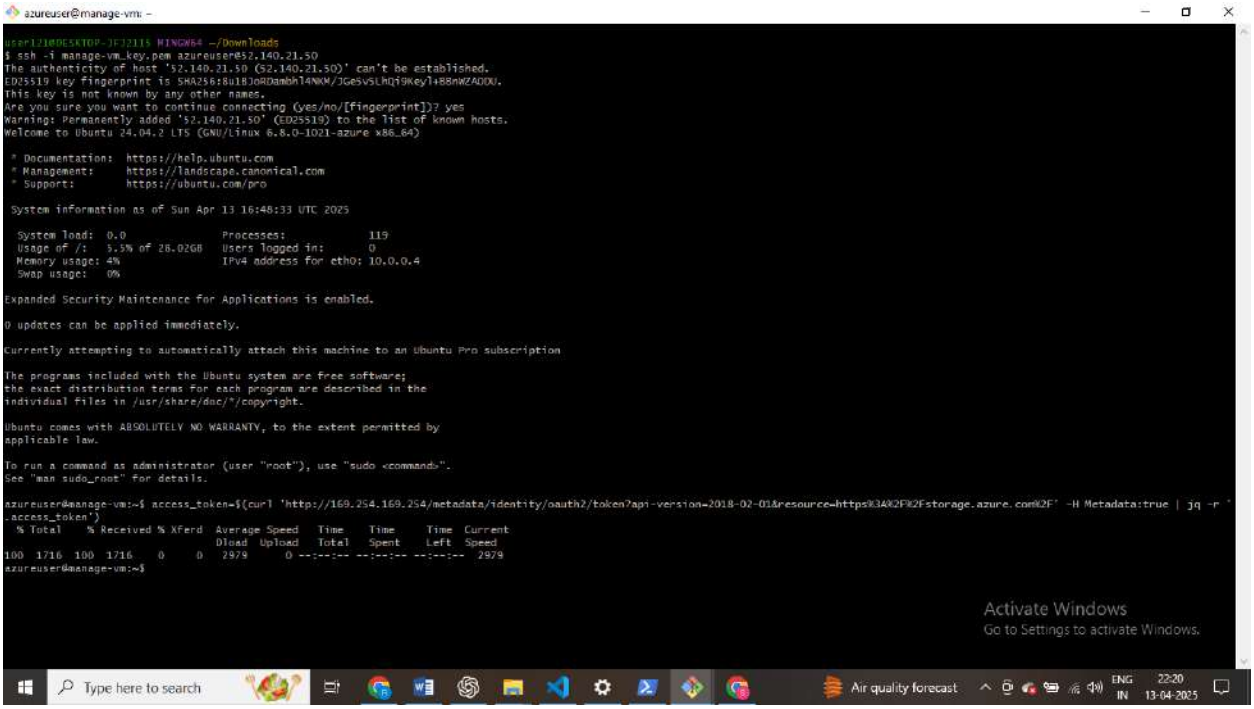


ssh into VM



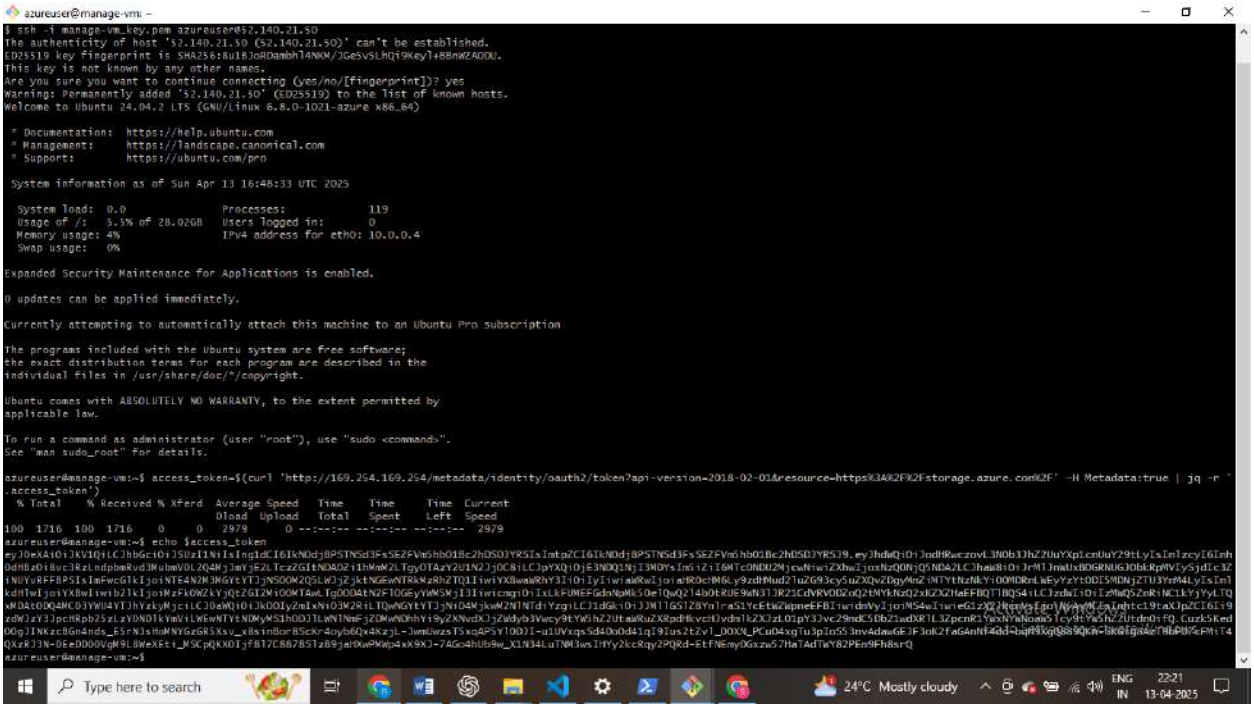


Ssh withpassowrd here



Fetchine the access keys like password

https://github.com/iam-veeramalla/Azure-zero-to-hero/blob/main/Day-12/01-commands.md



$ you can fetch the access token here

https://github.com/iam-veeramalla/Azure-zero-to-hero/blob/main/Day-12/01-commands.md

blob name is index.html

container nema is test

managepoce – storageaccont

```
azureuser@manage-vm:~$ curl "https://managepoce.blob.core.windows.net/test/index.html"
-H "x-ms-version: 2017-11-09" -H "Authorization: Bearer $access_token"
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>index ones are here we dont want from deepanshu</h1>
</body>
</html>azureuser@manage-vm:~$
```

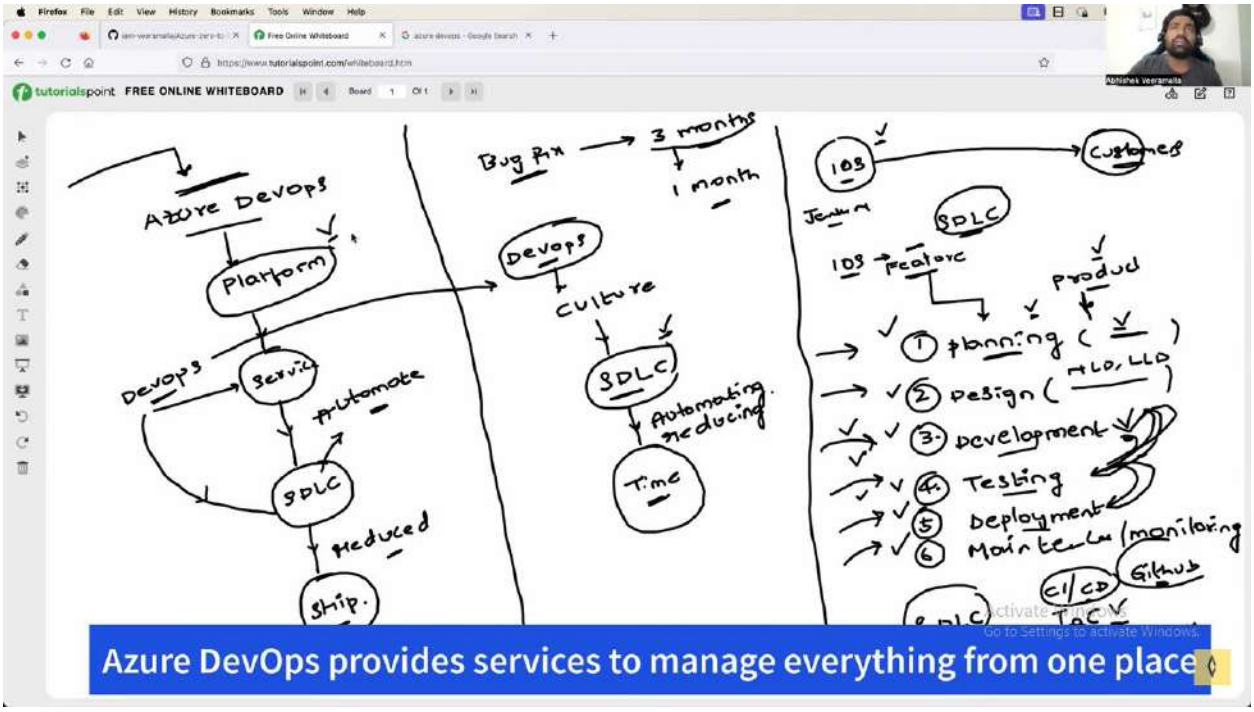
ssh into machine and from vm try to scurrsfully reading the html file that is preent inside containers

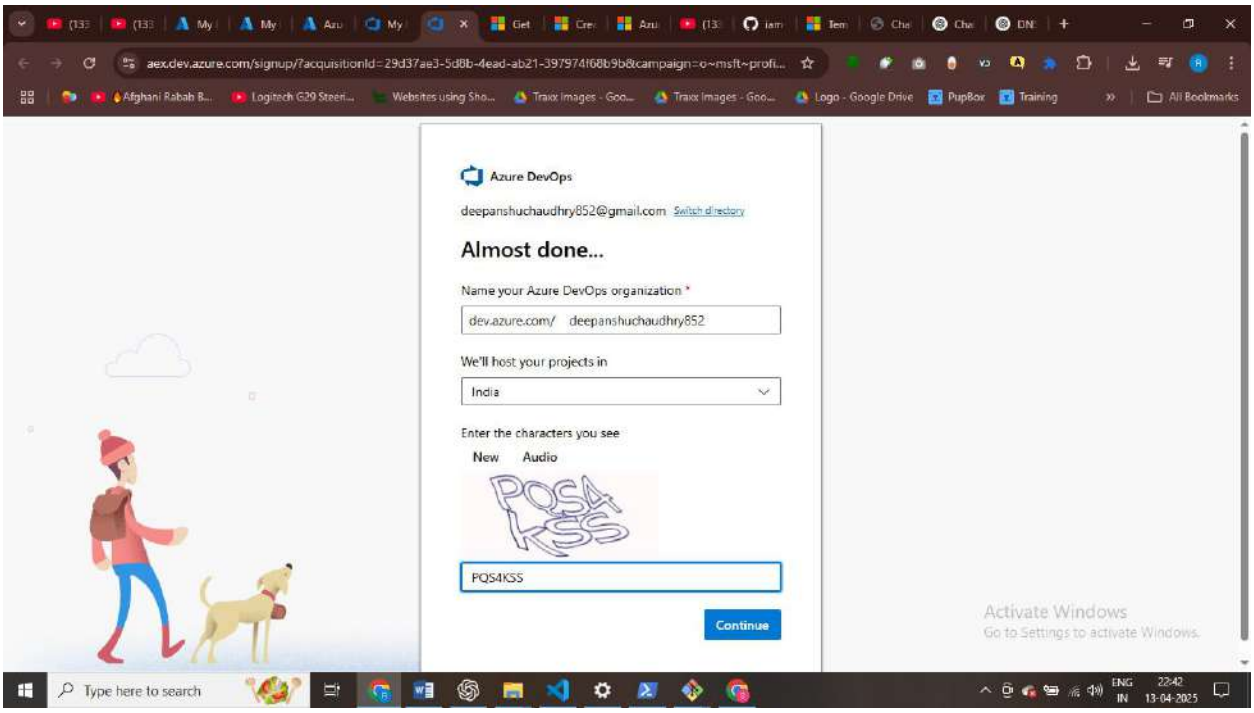
```
user121@DESKTOP-JFJ21I5 MINGW64 ~/Downloads
$ ssh -i manage-vm_key.pem azureuser@52.140.21.50
The authenticity of host '52.140.21.50 (52.140.21.50)' can't be established.
ED25519 key fingerprint is SHA256:8u1BJoRDambhl4NKM/JGe5v5LhQi9Keyl+BBnWZAODU.
This key is not known by any other names.
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added '52.140.21.50' (ED25519) to the list of known hosts.
Welcome to Ubuntu 24.04.2 LTS (GNU/Linux 6.8.0-1021-azure x86_64)
```

```
 * Documentation:  https://help.ubuntu.com
 * Management:     https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

 System information as of Sun Apr 13 16:48:33 UTC 2025

  System load:  0.0               Processes:             119
  Usage of /:   5.5% of 28.02GB   Users logged in:       0
  Memory usage: 4%                IPv4 address for eth0: 10.0.0.4
  Swap usage:   0%

Expanded Security Maintenance for Applications is enabled.

0 updates can be applied immediately.

Currently attempting to automatically attach this machine to an Ubuntu Pro
subscription

The programs included with the Ubuntu system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Ubuntu comes with ABSOLUTELY NO WARRANTY, to the extent permitted by
applicable law.

To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@manage-vm:~$ access_token=$(curl
'http://169.254.169.254/metadata/identity/oauth2/token?api-version=2018-02-
01&resource=https%3A%2F%2Fstorage.azure.com%2F' -H Metadata:true | jq -r
'.access_token')
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload   Total   Spent    Left  Speed
100  1716  100  1716    0     0   2979      0 --:--:-- --:--:-- --:--:--  2979
azureuser@manage-vm:~$ echo $access_token
eyJ0eXAiOiJKV1QiLCJhbGciOiJSUzI1NiIsIng1dCI6IkNOdjBPSTNSd3FsSEZFVm5hb01Bc2hDSDJYRSIsIm
tpZCI6IkNOdjBPSTNSd3FsSEZFVm5hb01Bc2hDSDJYRSJ9.eyJhdWQiOiJodHRwczovL3N0b3JhZ2UuYXp1cmU
uY29tLyIsImlzcyI6ImhOdHBzOi8vc3RzLndpbmRvd3MubmV0L2Q4MjJmYjE2LTczZGItNDA0Zi1hMmM2LTgyO
TAzY2U1N2JjOC8iLCJpYXQiOjE3NDQ1NjI3MDYsIm5iZiI6MTc0NDU2MjcwNiwiZXhwIjoxNzQ0NjQ5NDA2LCJ
haW8iOiJrMlJnWUxBOGRNUGJObkRpMVIySjdIc3ZiNUYvRFFBPSIsImFwcGlkIjoiNTE4N2M3MGYtYTJjNS0OM
2Q5LWJjZjktNGEwNTRkMzRhZTQ1IiwiYXBwaWRhY3IiOiIyIiwiaWRwIjoiaHR0cHM6Ly9zdHMud2luZG93cy5
uZXQvZDgyMmZiMTYtNzNkYi00MDRmLWEyYzYtODI5MDNjZTU3YmM4LyIsImlkdHlwIjoiYXBwIiwib2lkIjoiM
zFkOWZkYjQtZGI2MiOOMTAwLTg0ODAtN2FlOGEyYWM5MjI3IiwicmgiOiIxLkFUMEFGdnNpMk50elQwQ2l4b0t
RUE9WN3lJR21CdVRVODZoQ2tMYkNzQ2xKZXZHaEFBQTlBQS4iLCJzdWIiOiIzMWQ5ZmRiNC1kYjYyLTQxMDAtO
DQ4MC03YWU4YTJhYzkyMjciLCJ0aWQiOiJkODIyZmIxNi03M2RiLTQwNGYtYTJjNi04MjkwM2NlNTdiYzgiLCJ
1dGkiOiJJMllGSlZBYnlraS1YcEtWZWpneEFBIiwidmVyIjoiMS4wIiwieG1zX2lkcmVsIjoiNyAyMCIsInhtc
19taXJpZCI6Ii9zdWJzY3JpcHRpb25zLzY0NDlkYmViLWEwNTYtNDMyMS1hODJlLWNlNmFjZDMwNDhhYi9yZXN
vdXJjZWdyb3Vwcy9tYW5hZ2UtaWRuZXRpdHkvcHJvdmlkZXJzL01pY3Jvc29mdC5Db21wdXRlL3ZpcnR1YWxNY
WNoaW5lcy9tYW5hZ2UtdmOifQ.Cuzk5KedOOgJINKzcBGn4nds_E5rN3sHoMNYGzGR5Xsv_x8sinBor8ScKr4o
yb6Qx4KzjL-JwmUwzsT5xqAP5Yl0DJI-
u1UVxqsSd4DoOd41qI9Ius2tZvl_OOXN_PCu04xgTu3pIoS53nvAdawGEJF3oK2faGAnNf4dd-
bqH9Xg0889QKn-SKGtg8AzT9bFO7cFMiT4QXzRJ3N-
0EeDD0OVgM9L8WeXEti_MSCpQKXOIjf8l7C8878Slz89jaHXwPMWp4xK9XJ-
7AGo4hUb9w_X1N34LuTNM3wsIHYy2kcRqy2PQRd-EtfNEmyDGxzw57HaTAdTWY82PEm9Fh8srQ
azureuser@manage-vm:~$ curl "https://managepoce.blob.core.windows.net/test/index.html"
-H "x-ms-version: 2017-11-09" -H "Authorization: Bearer $access_token"
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Document</title>
</head>
<body>
    <h1>index ones are here we dont want from deepanshu</h1>
</body>
</html>azureuser@manage-vm:~$
```

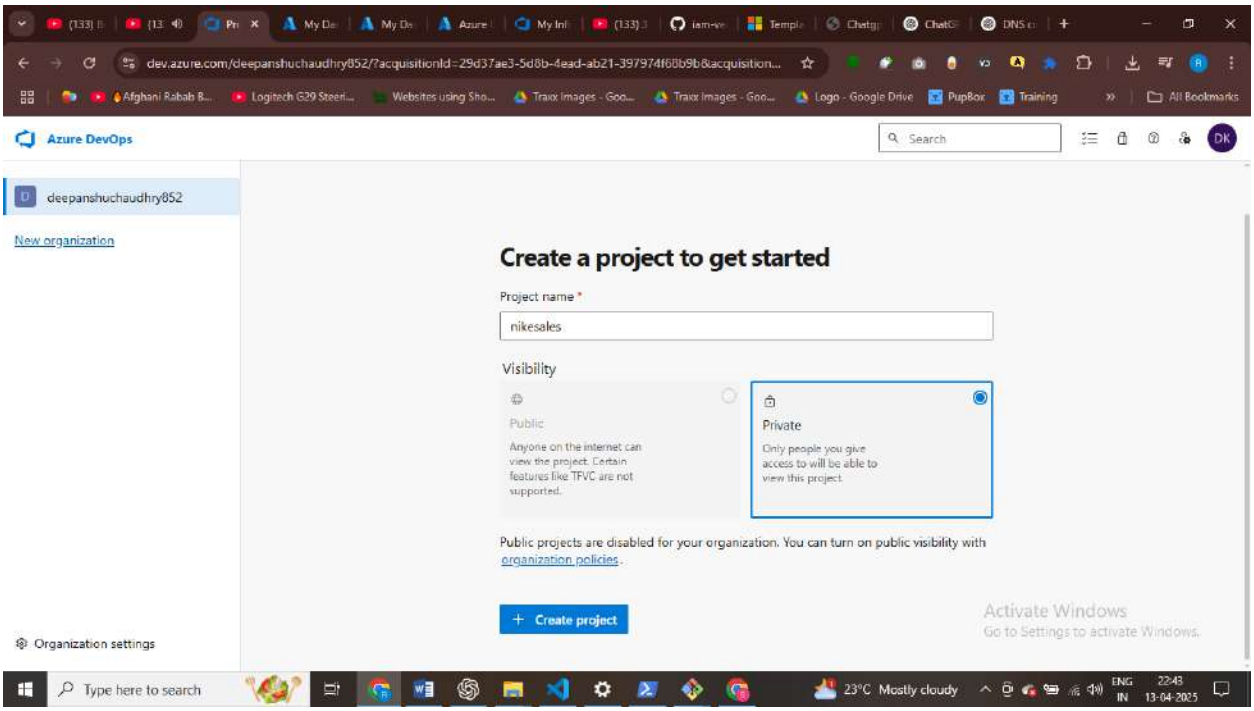
$ I HAVE used shell script bascis to get tokens and all

https://github.com/iam-veeramalla/Azure-zero-to-hero/blob/main/Day-12/01-commands.md



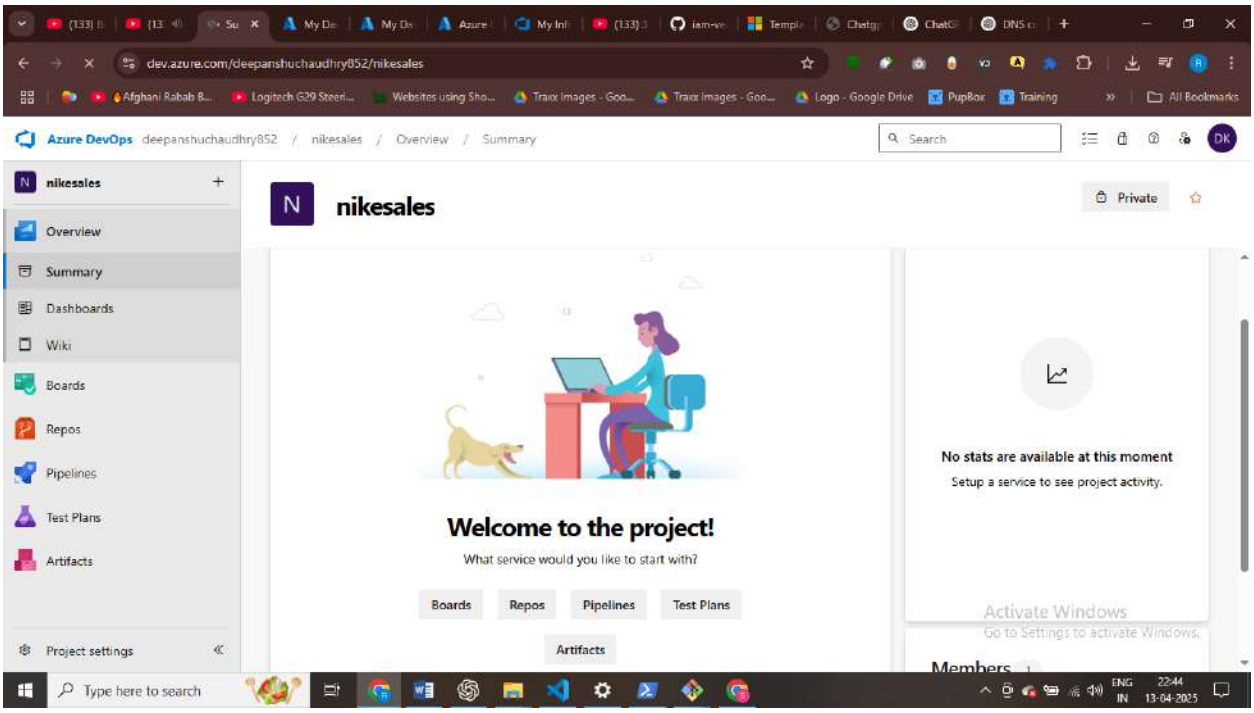


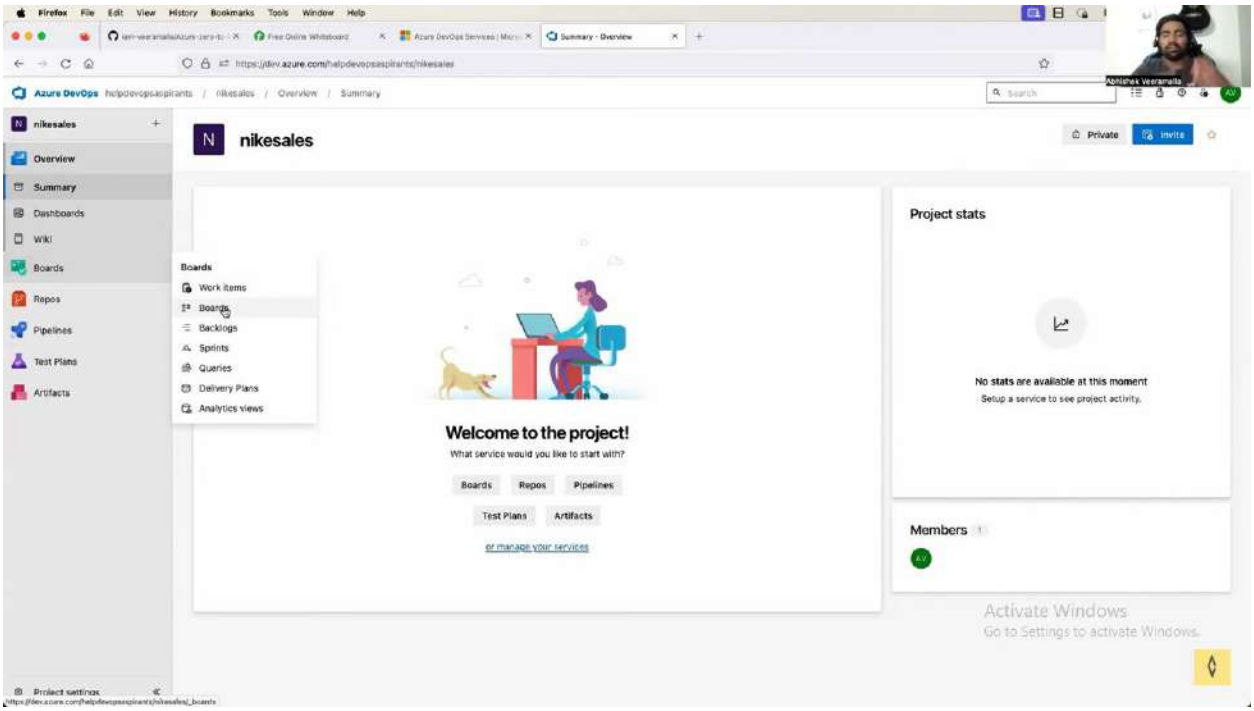
https://aex.dev.azure.com/me?mkt=en-GB

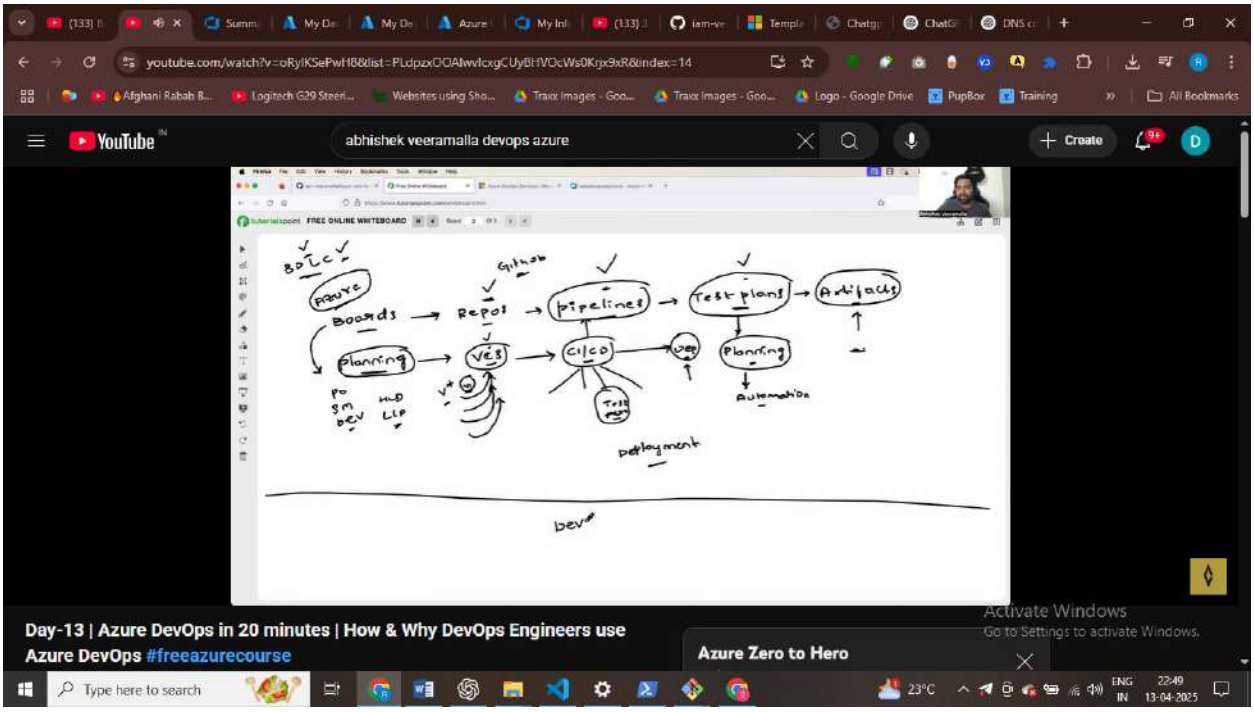


As this project is within organization , make this project private please

after crerating project we have services of azure





boards refer to like jira catergory planning and all we have

https://dev.azure.com/deepanshuchaudhry852/nikesales