

## **Q1. Install Virtual box and making Ubuntu and Window Virtual Machine.**

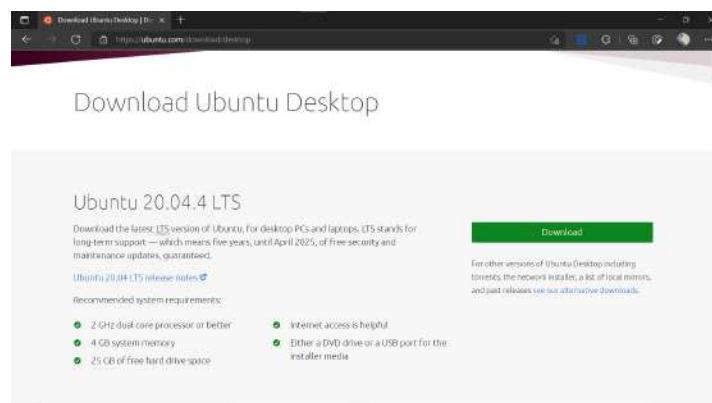
### **Ubuntu:**

**Step-1:** Download VirtualBox for Windows and install it on your computer



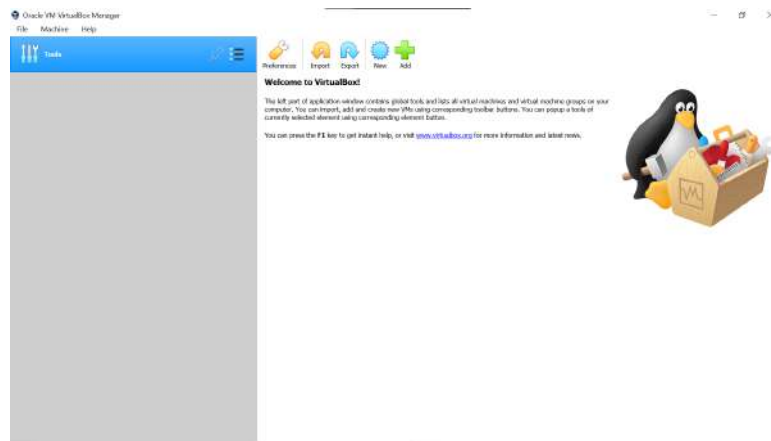
<https://www.virtualbox.org/wiki/Downloads>

**Step-2:** Download the Ubuntu ISO file you want to install from the Ubuntu download page.

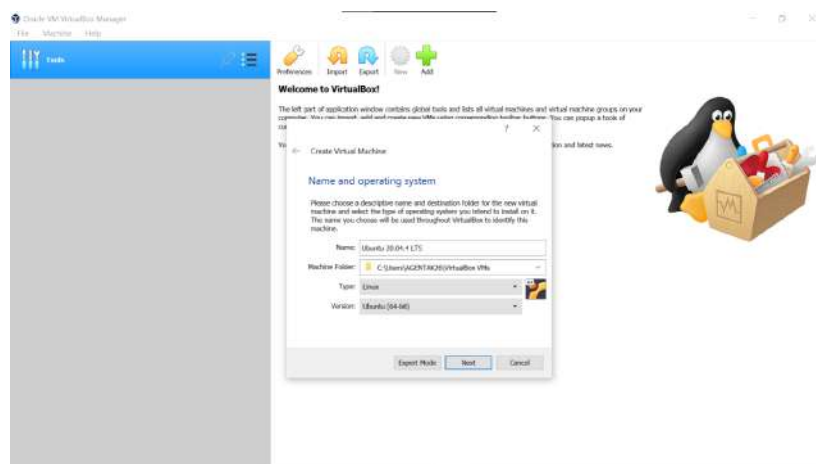


Note: The current version of Ubuntu only works on 64-bit machines.

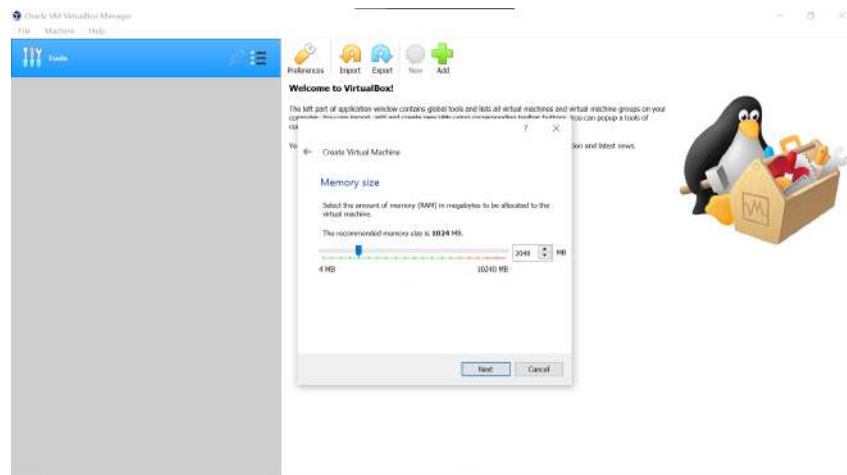
**Step-3:** Open VirtualBox and select New in the top taskbar.



**Step-4:** Give your VM a name, choose Linux as the Type, then choose Ubuntu as the Version and select Next.

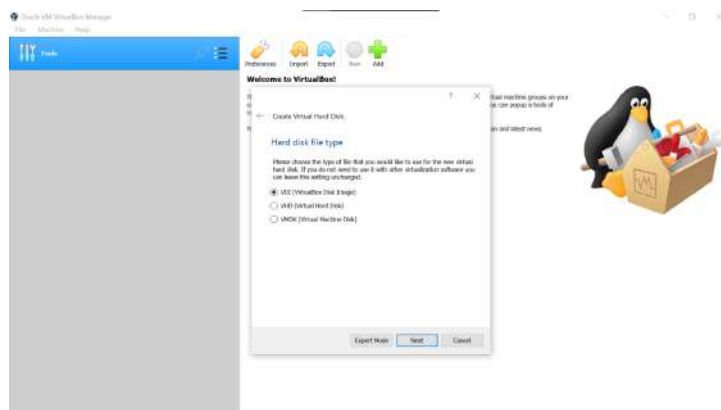


**Step-5:** Choose how much RAM you want to assign to the virtual machine and select Next. The recommended minimum is 1024 MB.



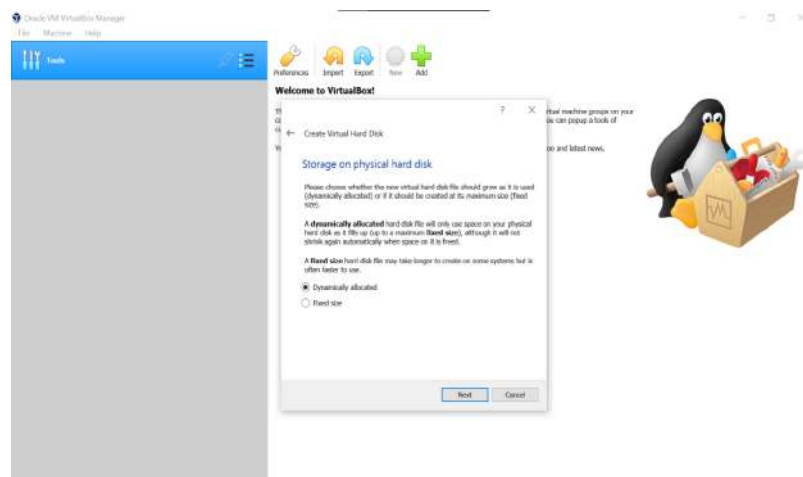
**Step-6:** Choose Create a virtual hard disk now and select Create.

**Step-7:** Choose VDI (VirtualBox Disk Image) and select Next.



**Note on (VDI):** Normally, Oracle VM VirtualBox uses its own container format for guest hard disks. This is called a Virtual Disk Image (VDI) file. This format is used when you create a new virtual machine with a new disk.

**Step-8:** Choose Dynamically allocated or Fixed size for the storage type and select Next.

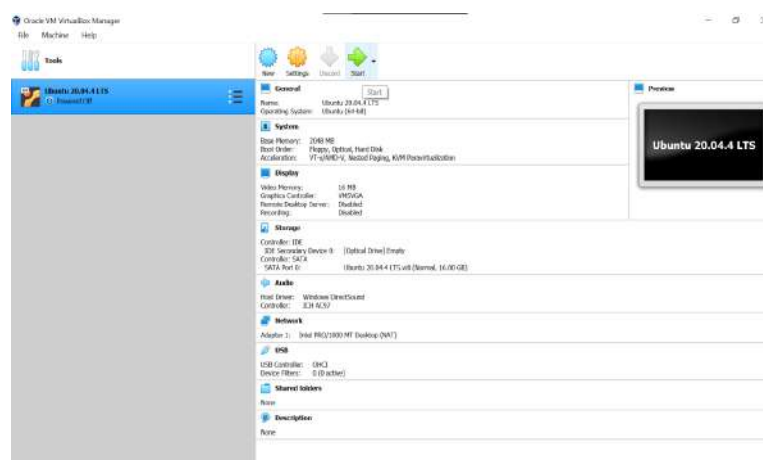


**Tip:** A fixed size disk performs better because the virtual machine doesn't have to increase the file size as you install software.

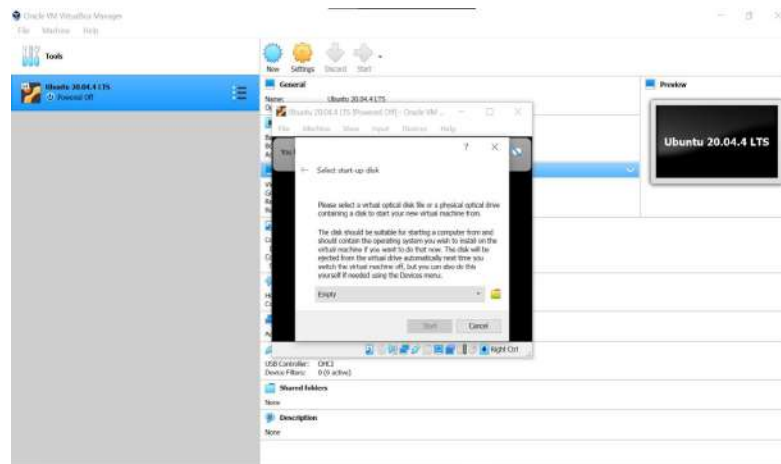
**Step-9:** Choose how much space you wish to set aside for Ubuntu and select Create.

**Note:** The amount of space you allocate for your virtual machine determines how much room you must install applications, so set aside a sample amount.

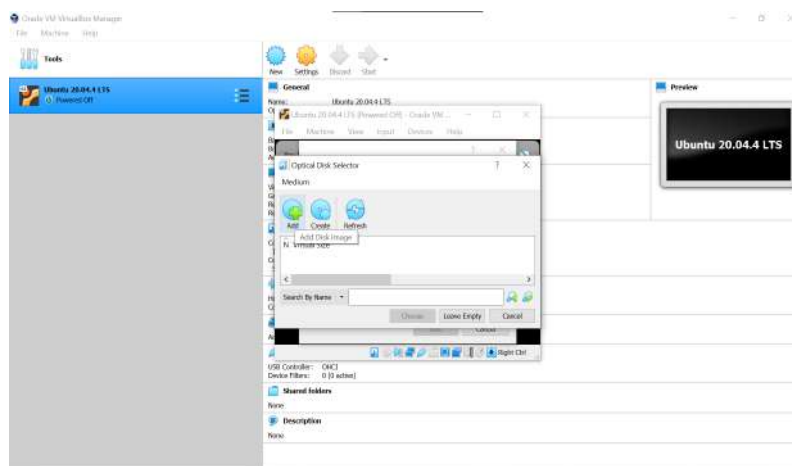
**Step-10:** The name of your virtual machine will now appear on the left side of the VirtualBox manager. Select Start in the toolbar to launch your VM.



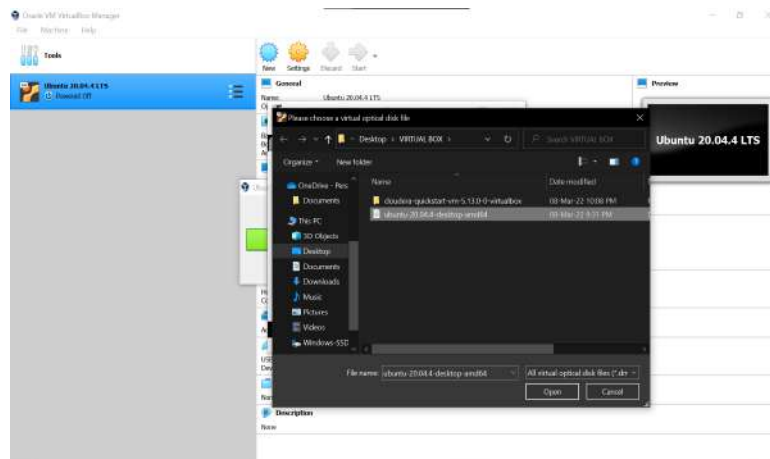
**Step-11:** This is the point where you need to choose the Ubuntu ISO file you downloaded earlier. If the VM doesn't automatically detect it, select the folder next to the Empty field.



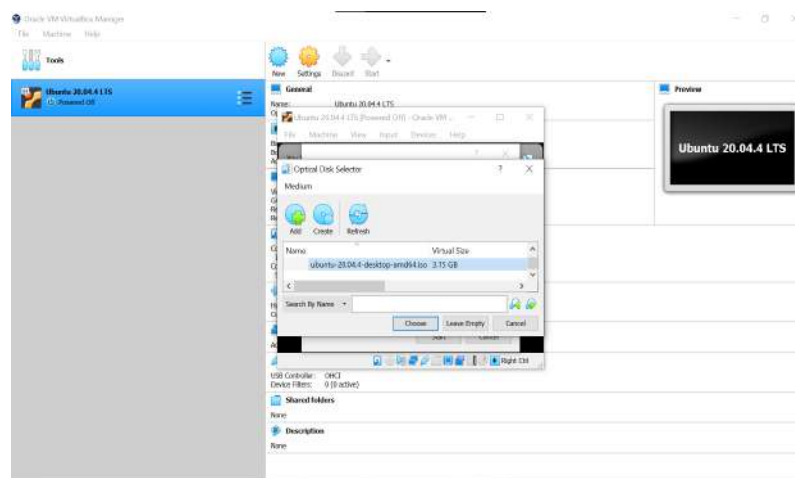
**Step-12:** Select Add in the window that pops up.



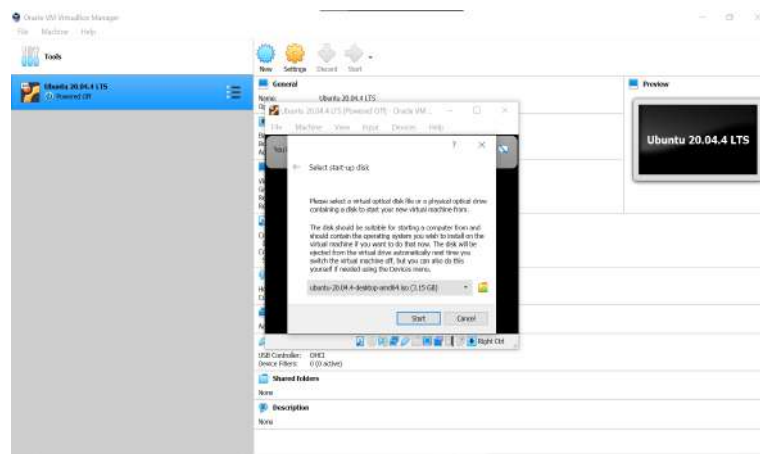
**Step-13:** Choose your Ubuntu disk image and select Open.



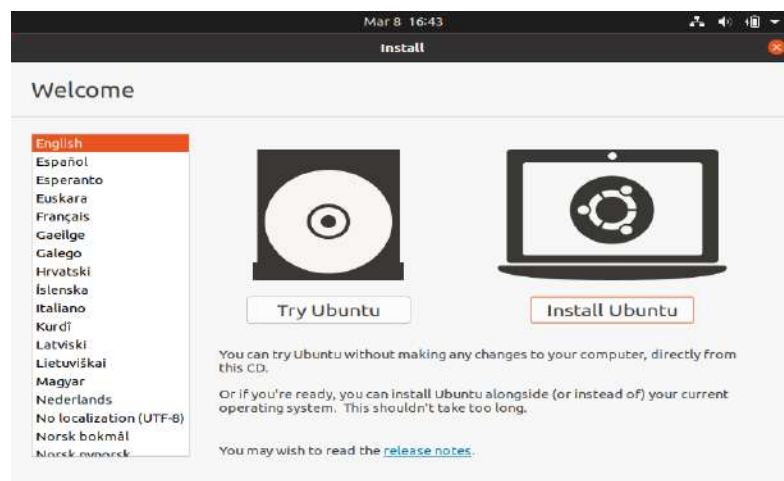
**Step-14:** - Select Choose



**Step-15:** Select Start.

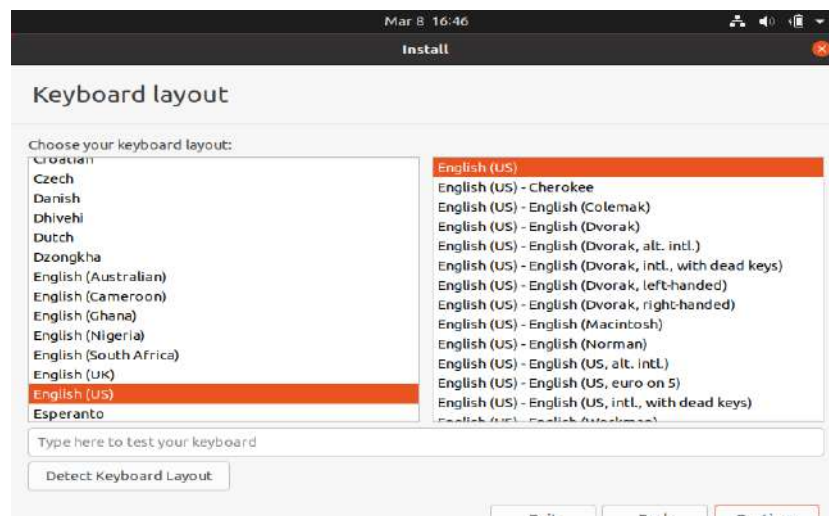


**Step-16:** Your VM will now boot into a live version of Ubuntu. Choose your language and select Install Ubuntu



u.

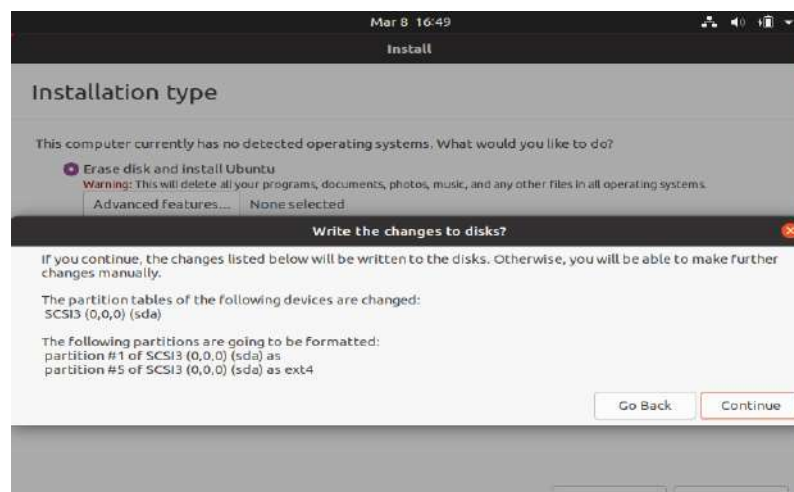
**Step-17:** Choose your keyboard layout and select Continue.



**Step-18:** Choose Normal installation or Minimal installation, then select Continue.

**Step-19:** Choose Erase disk and install Ubuntu and select Install Now, then select Continue to ignore the warning.

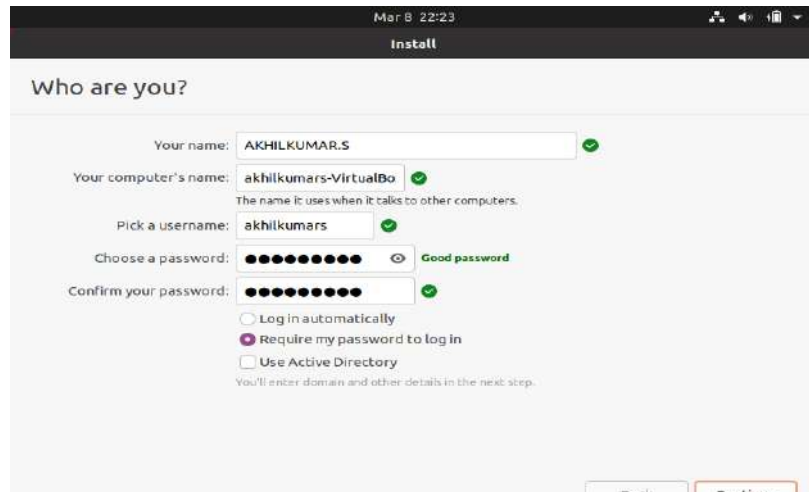
Note: This step will not erase your computer's physical hard drive; it only applies to the virtual machine.



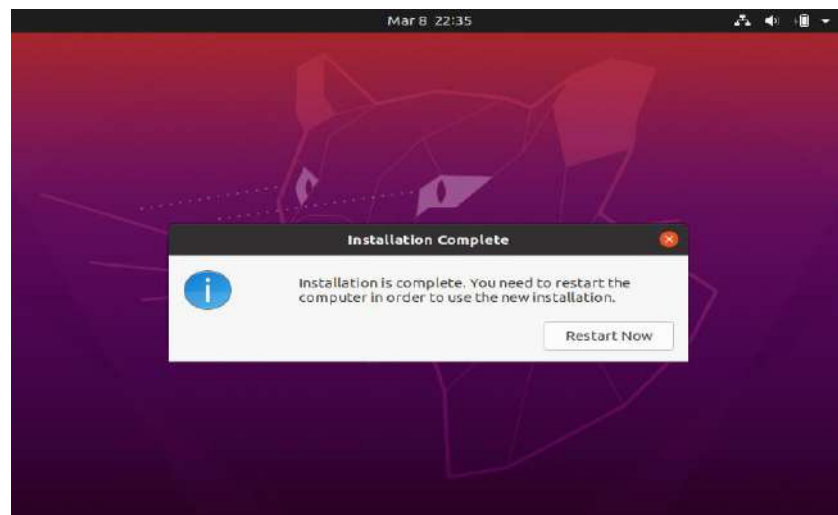
**Step-20:** - Choose your time zone on the map, then select Continue.



**Step-21:** - Set up your user account and select Continue.

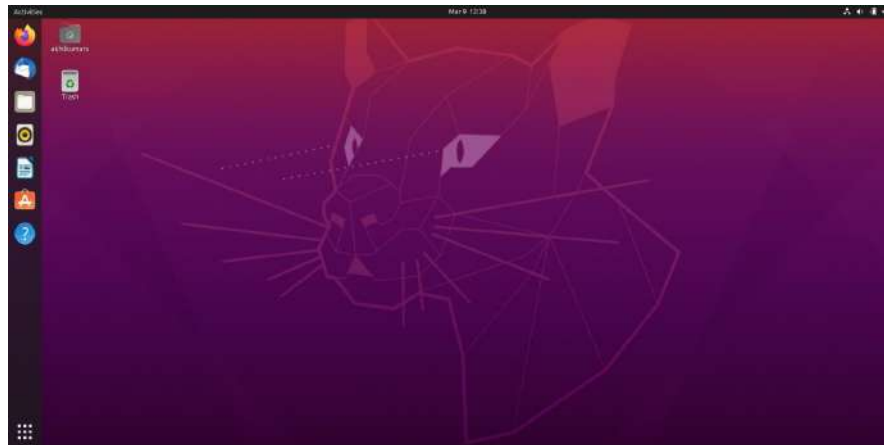


**Step-22:** - Select Restart Now.



**Step-23:** - After restarting your VM and booting into Ubuntu, you may notice that the desktop doesn't scale correctly if you choose to view it in full-screen mode. You can fix this problem by selecting the VBox\_Gas icon to install VirtualBox Guest Additions.

**Output:**

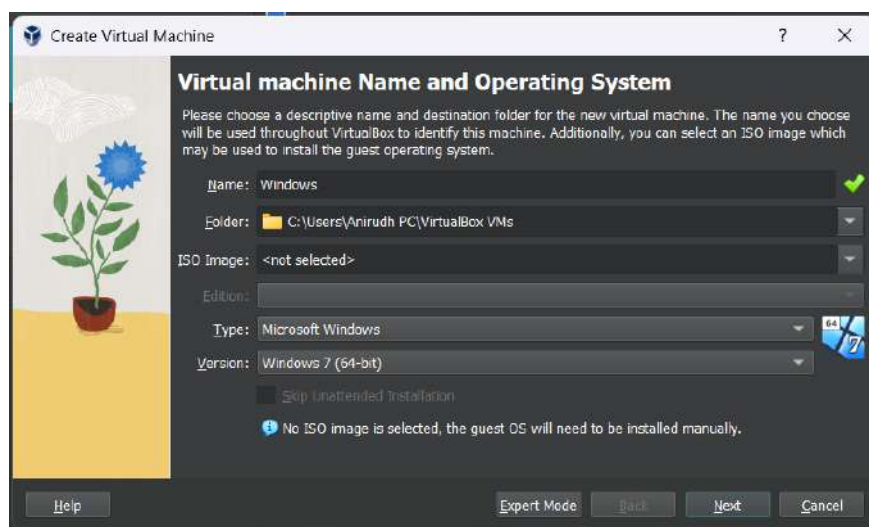


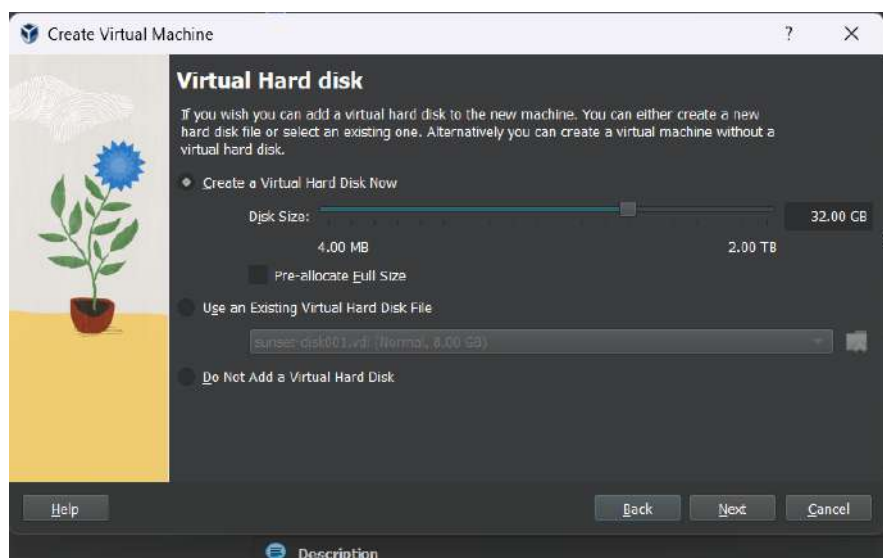
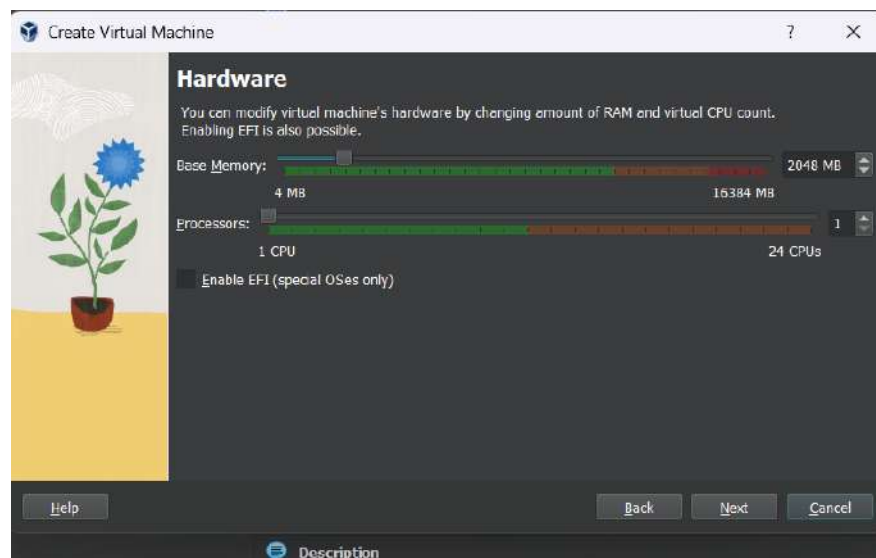
**RESULT :**

**Above experiment is successful executed And verified.**

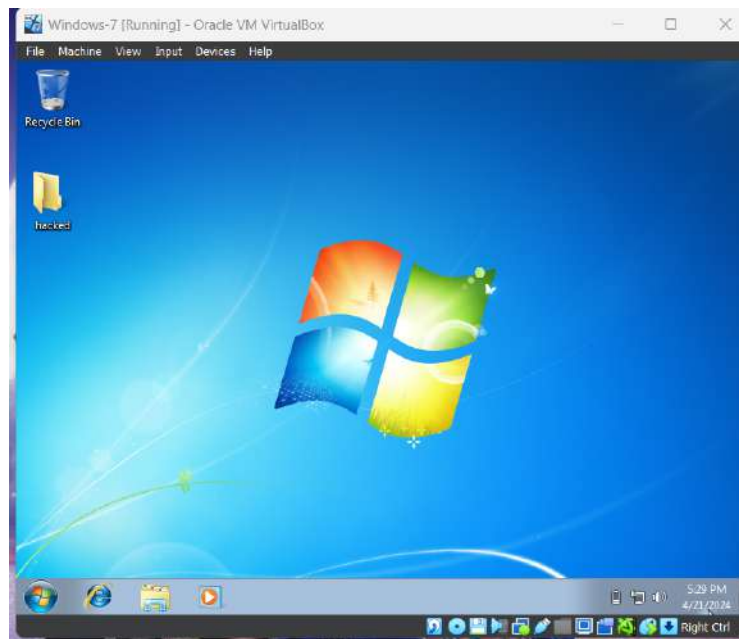
**Windows:**

Similarly, Follow the same steps above to Build Windows Virtual Machine.





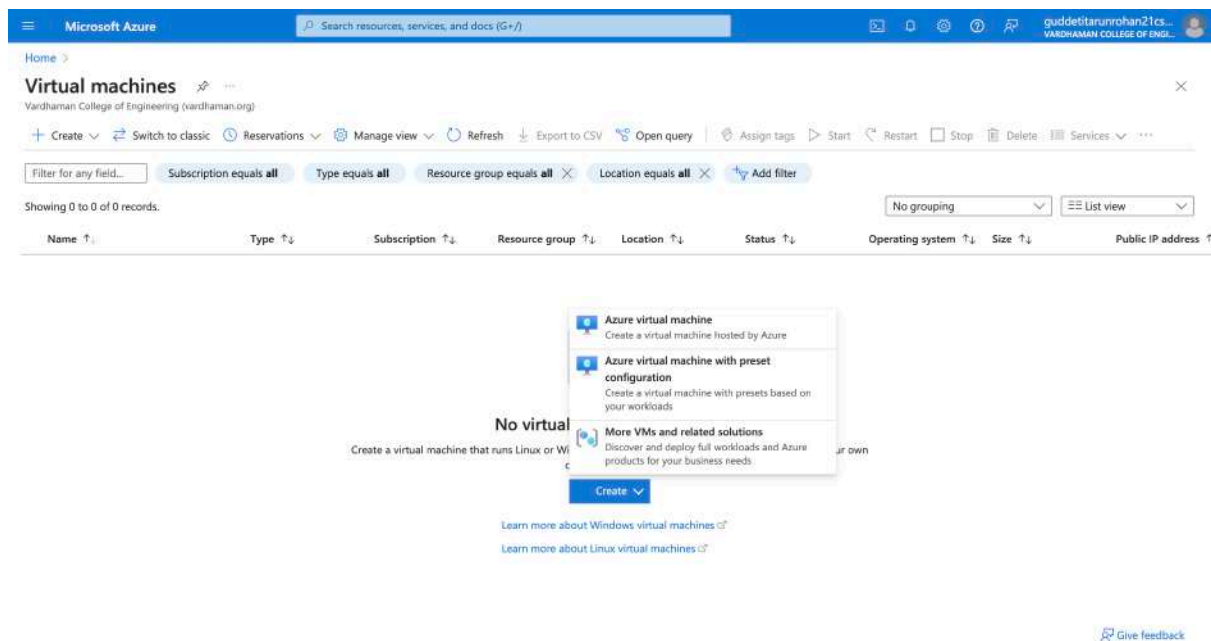
**Output:**



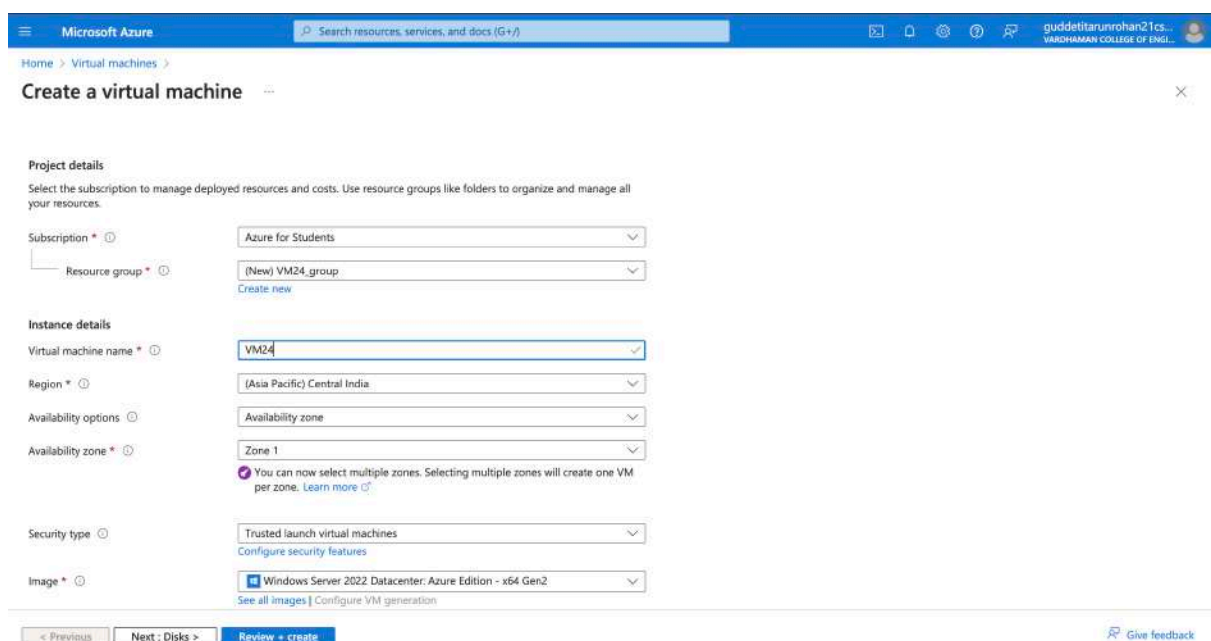
## **Q2) Create a Windows Virtual Machine in Microsoft Azure**

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that window by creating a “Resource Group”, Zone: Asia, Image: window, Select the disk storage and so on. After that click on “Create + Review”. And Finally click on “Create”



Microsoft Azure

Search resources, services, and docs (G+I)

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Home > Virtual machines >

### Create a virtual machine

Enable Hibernation

☐

Hibernation is not supported by the size that you have selected. Choose a size that is compatible with Hibernation to enable this feature. [Learn more](#)

**Administrator account**

Username \*

AzureUser

Password \*

\*\*\*\*\*

Confirm password \*

\*\*\*\*\*

**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 \*

RDP (3389)

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous   Next : Disks >   **Review + create**

Give feedback

**Step-4:** After Deployment is over, Go to the remote desktop connection.

Microsoft Azure

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### Create a virtual machine

Validation passed

Basics   Disks   Networking   Management   Monitoring   Advanced   Tags   **Review + create**

Cost given below is an estimate and not the final price. For all your pricing needs, please use the pricing calculator.

**Price**

1 X Standard D2s v3  
by Microsoft  
[Terms of use](#) | [Privacy policy](#)

Subscription credits apply

**16.3894 INR/hr**  
[Pricing for other VM sizes](#)

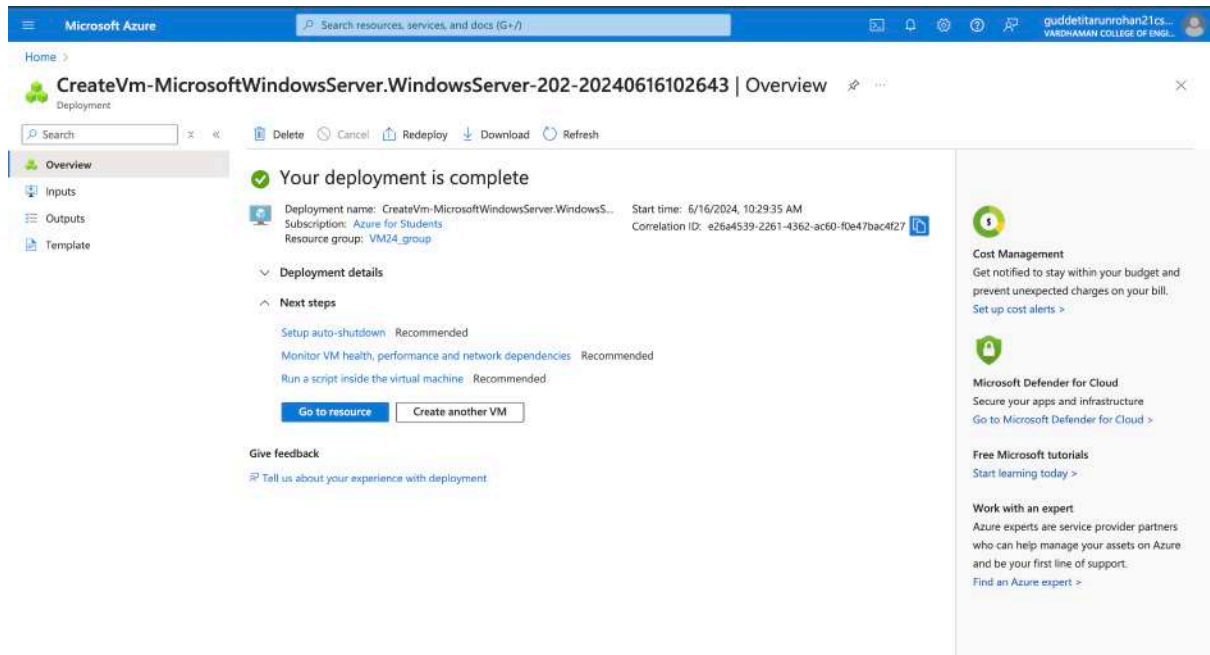
**TERMS**

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

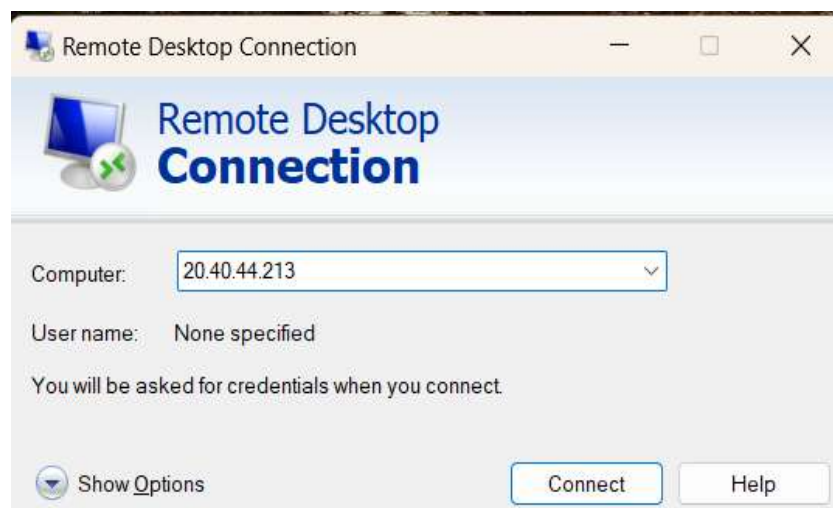
You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

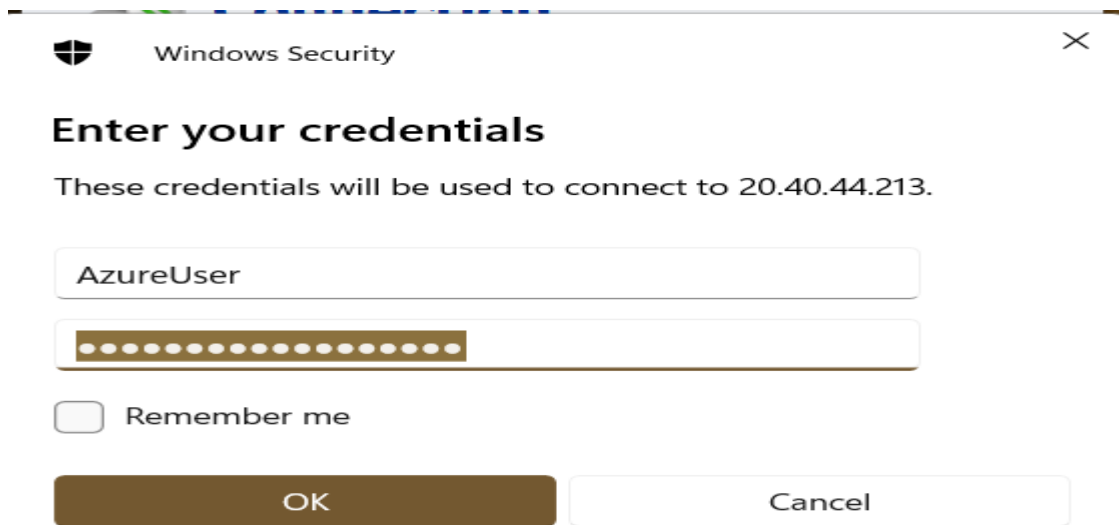
< Previous   Next >   **Create**

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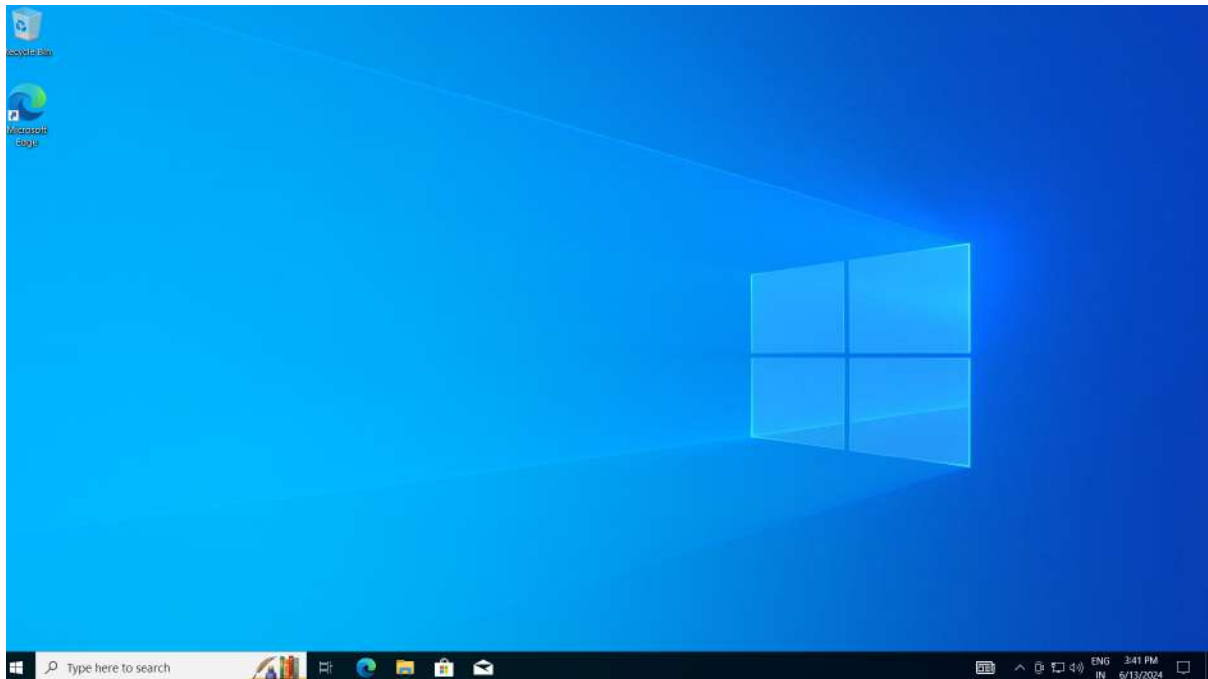
**Step-5:** Firstly, copy the public IP Address of that created virtual machine.





**Step-6:** By using that copied IP Address open the window virtual machine through remote desktop connection.

**Output:**



**RESULT :**

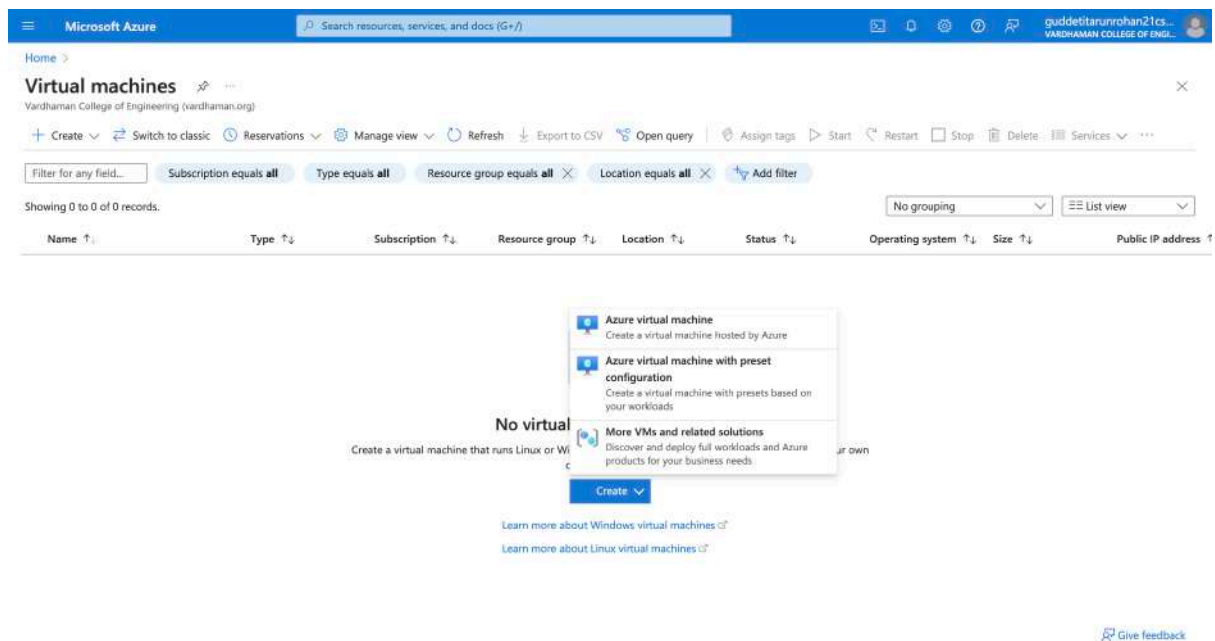
**Above experiment is successful executed And verified.**



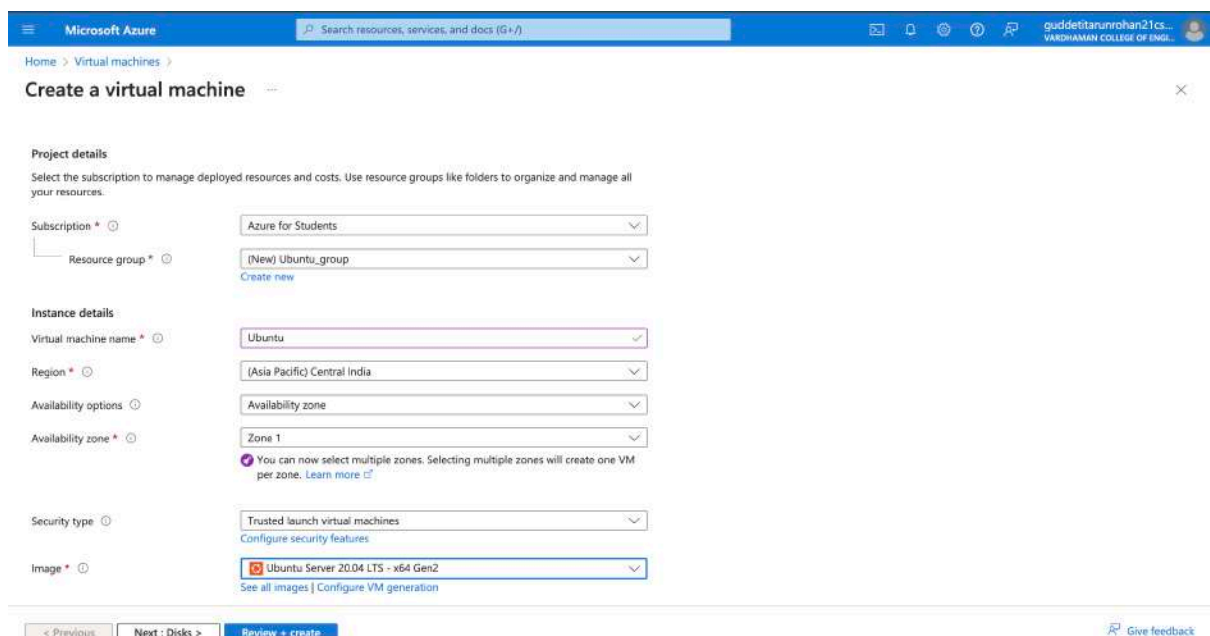
### Q3) Create an Ubuntu Virtual Machine in Microsoft Azure

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create + Review”. And finally click on “Create”.



Microsoft Azure

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Home > Virtual machines >

Create a virtual machine

✕

VM architecture ⓘ

☐ Arm64

☒ x64

Run with Azure Spot discount ⓘ

☐

Size \* ⓘ

Standard\_D2s\_v3 - 2 vcpus, 8 GiB memory (₹6,376.87/month)

[See all sizes](#)

Enable Hibernation ⓘ

☐

ℹ️ Hibernation does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#) ⓘ

Administrator account

Authentication type ⓘ

☒ SSH public key

☐ Password

ℹ️ 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.

Username \* ⓘ

azureuser ✓

SSH public key source

Generate new key pair

SSH Key Type

☒ RSA SSH Format

< Previous

Next : Disks >

Review + create

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Home > Virtual machines >

Create a virtual machine

✕

virtual machine.

Username \* ⓘ

azureuser ✓

SSH public key source

Generate new key pair

SSH Key Type

☒ RSA SSH Format

☐ Ed25519 SSH Format

ℹ️ Ed25519 offers better performance and security with a smaller key size, while RSA is still widely used particularly for legacy systems and applications.

Key pair name \*

ubuntu\_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)

ℹ️ All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

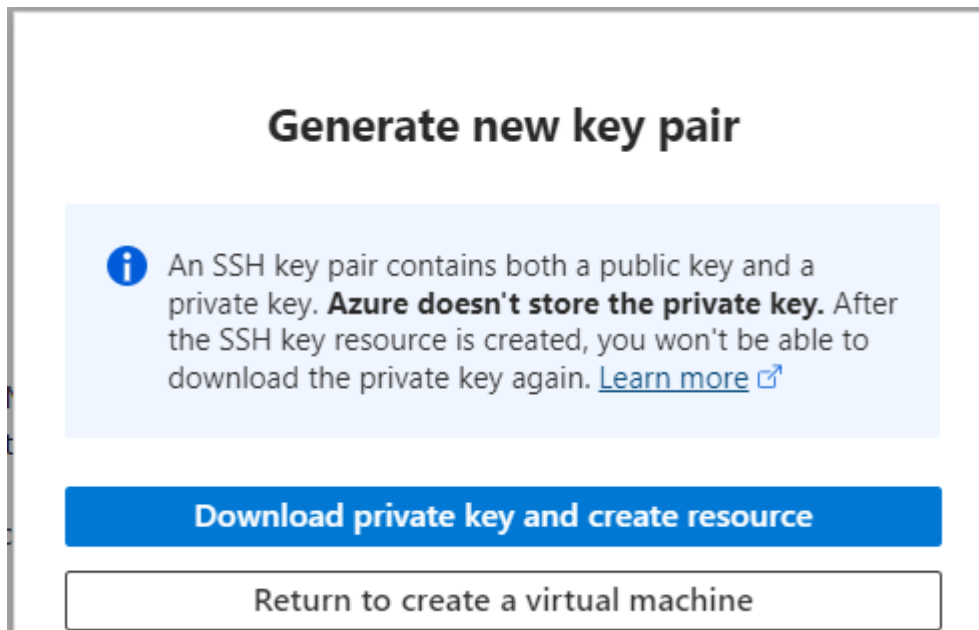
< Previous

Next : Disks >

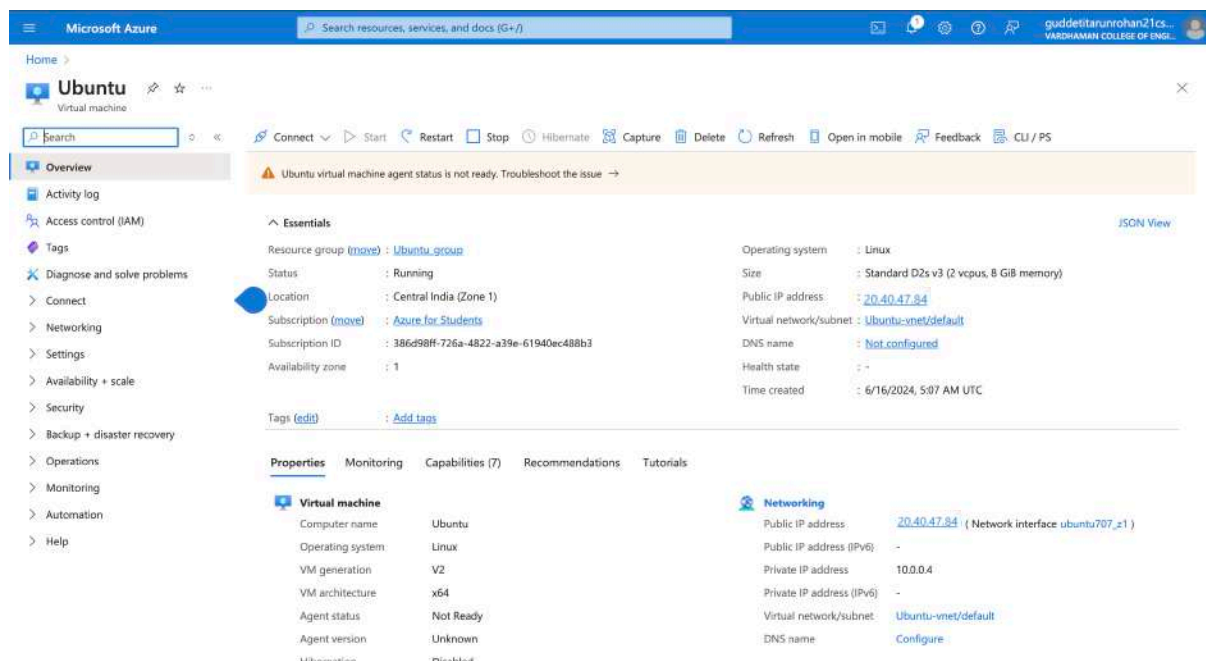
Review + create

[Give feedback](#)

**Step-4:** After Deployment is over, Go to the remote desktop connection.



**Step-5:** Firstly, copy the public IP Address of that created virtual machine.



**Step-6:** Go to putty gen and click on load the key generator that you have downloaded.

**PuTTY Key Generator**

File Key Conversions Help

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQC93M45VQ0rKXc0eCGASew0xk/clxzmiCDDzTQN1XPxCwpZiWkm+KggXAwqtMOecVfJmrJWras8YaxqMA1tTcvz8HmEBtkmYqDkQm2F4TM900TsHw+IGF/ThQzdXyym4oGj91JatGEOC375EKOkHfk6x1xnYD3xMNNml7JGave1XT7lj+O+KqGJoM4eSAx3w2JlRRoeUfkFPfiuTdDI27Q9HW2scDuvKw0qCq0zoCvPI/91lio5OrR7t/hUGb1hrpc7S+q4bqC2NTTjCGNoYutVehO81y+hPYbg9QChgy2J5HKD
```

Key fingerprint: ssh-rsa 3072 SHA256:KakGDPCnAoZi7mwAo0+I/FA/YqYytkwHOqdgww5iRHw

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

**Actions**

Generate a public/private key pair

Load an existing private key file

Save the generated key

**Parameters**

Type of key to generate: ☒ RSA ☐ DSA ☐ ECDSA ☐ EdDSA ☐ SSH-1 (RSA)

Number of bits in a generated key:

**Step-7:** In putty, put the Copied IP Adress into it, and then go to ssh->auth->credentials and the put the generated private key.

**PuTTY Configuration**

Category:

- Session
- Logging
- Terminal
- Keyboard
- Bell
- Features
- Window
- Appearance
- Behaviour
- Translation
- Selection
- Colours
- Connection
- Data
- Proxy
- SSH
- Serial
- Telnet
- Rlogin
- SUPDUP

**Basic options for your PuTTY session**

Specify the destination you want to connect to

Host Name (or IP address)  Port

Connection type: ☒ SSH ☐ Serial ☐ Other:

Load, save or delete a stored session

Saved Sessions

Close window on exit: ☐ Always ☐ Never ☒ Only on clean exit

**Step-8:** A login page will be opened in that type your username and you will be into the ubuntu.

### Output:

```
azureuser@Ubuntu: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Thu Jun 13 16:27:08 UTC 2024  
  
System load:  0.08           Processes:            116  
Usage of /:   5.1% of 26.89GB Users logged in:       0  
Memory usage: 8%           IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
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@Ubuntu:~$ █
```

### RESULT :

**Above experiment is successful executed And verified.**

#### Q4) Create a Virtual machine and do scale up in Azure.

##### Step-1: Create a virtual machine (ubuntu or windows).

Microsoft Azure

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Home >

Ubuntu  
Virtual machine

Search

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Ubuntu virtual machine agent status is not ready. Troubleshoot the issue. →

Essentials

Resource group (move) : Ubuntu\_group

Status : Running

Location : Central India (Zone 1)

Subscription (move) : Azure for Students

Subscription ID : 386d98ff-726a-4822-a39e-61940ec488b3

Availability zone : 1

Tags (edit) : Add tags

Operating system : Linux

Size : Standard D2s v3 (2 vcpus, 8 GiB memory)

Public IP address : 20.40.47.84

Virtual network/subnet : Ubuntu-vnet/default

DNS name : Not configured

Health state : -

Time created : 6/16/2024, 5:07 AM UTC

JSON View

Properties Monitoring Capabilities (7) Recommendations Tutorials

Virtual machine

Computer name : Ubuntu

Operating system : Linux

VM generation : V2

VM architecture : x64

Agent status : Not Ready

Agent version : Unknown

Networking

Public IP address : 20.40.47.84 ( Network interface ubuntu707\_x1 )

Public IP address (IPv6) : -

Private IP address : 10.0.0.4

Private IP address (IPv6) : -

Virtual network/subnet : Ubuntu-vnet/default

DNS name : Configure

##### Step-2: After deployment of VM stop VM for scaling.

Microsoft Azure

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Home >

Ubuntu  
Virtual machine

Search

Connect Start Restart Stop Hibernate Capture Delete Refresh Open in mobile Feedback CLI / PS

Overview

Activity log

Access control (IAM)

Tags

Diagnose and solve problems

Connect

Networking

Settings

Availability + scale

Security

Backup + disaster recovery

Operations

Monitoring

Automation

Help

Stop this virtual machine

Do you want to stop Ubuntu?

Deallocation operations usually complete within 1-2 minutes but may take up to 90 minutes in some cases. You can leave the page and track the progress via notifications.

Yes No

Subscription ID : 386d98ff-726a-4822-a39e-61940ec488b3

Availability zone : 1

DNS name : Not configured

Health state : -

Time created : 6/16/2024, 5:07 AM UTC

Tags (edit) : Add tags

JSON View

Virtual machine

Computer name : Ubuntu

Operating system : Linux

VM generation : V2

VM architecture : x64

Agent status : Not Ready

Agent version : Unknown

Networking

Public IP address : 74.225.250.19 ( Network interface ubuntu707\_x1 )

Public IP address (IPv6) : -

Private IP address : 10.0.0.4

Private IP address (IPv6) : -

Virtual network/subnet : Ubuntu-vnet/default

DNS name : Configure

**Step-3: On the left side there will be settings and click on disks.**

Microsoft Azure | Search resources, services, and docs (G+ /)

Home > Ubuntu

Ubuntu | Disks

Virtual machine

disk

Refresh Additional settings Feedback Troubleshoot

Settings

Disks

Backup + disaster recovery

Disaster recovery

OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption	Host caching
Ubuntu_OsDisk_1_61cfefe18f53	Premium SSD LRS	30	120	25	SSE with PMK	Read/write

Data disks

Filter by name

Showing 0 of 0 attached data disks

Create and attach a new disk Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption
No data disks attached						

Apply Discard changes

**Step-4: click on disk name and select your preferred size, save it.**

Microsoft Azure | Search resources, services, and docs (G+ /)

Home > Ubuntu

Ubuntu | Disks

Virtual machine

disk

Refresh Additional settings Feedback Troubleshoot

Settings

Disks

Backup + disaster recovery

Disaster recovery

OS disk

Swap OS disk

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption	Host caching
Ubuntu_OsDisk_1_61cfefe18f53	Premium SSD LRS	30	120	25	SSE with PMK	Read/write

Data disks

Filter by name

Showing 0 of 0 attached data disks

Create and attach a new disk Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (...)	Encryption
No data disks attached						

Apply Discard changes



**Step-6: click on disk name and select your preferred ram size, save it.**

The screenshot shows the 'Disks' page for an Ubuntu virtual machine in the Microsoft Azure portal. The left sidebar contains navigation options like 'Settings', 'Disks', 'Backup + disaster recovery', and 'Disaster recovery'. The main content area shows the 'OS disk' section with a table of disk details. Below this, the 'Data disks' section shows 'Showing 0 of 0 attached data disks' and options to 'Create and attach a new disk' or 'Attach existing disks'. At the bottom, there are 'Apply' and 'Discard changes' buttons.

Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)	Encryption	Host caching
Ubuntu_OsDisk_1_61cfe18f53	Premium SSD LRS	30	120	25	SSE with PMK	Read/write

Filter by name:   
Showing 0 of 0 attached data disks  
+ Create and attach a new disk    Attach existing disks

LUN	Disk name	Storage type	Size (GiB)	Max IOPS	Max throughput (MB/s)	Encryption
No data disks attached						

Apply    Discard changes

The screenshot shows the 'Size' page for an Ubuntu virtual machine in the Microsoft Azure portal. The left sidebar contains navigation options like 'Overview', 'Activity log', 'Access control (IAM)', 'Tags', 'Diagnose and solve problems', 'Connect', 'Networking', 'Settings', 'Disks', 'Extensions + applications', 'Operating system', 'Configuration', 'Advisor recommendations', 'Properties', 'Locks', 'Availability + scale', 'Size', 'Availability + scaling', and 'Security'. The main content area shows a list of VM sizes with columns for VM Size, Type, vCPUs, RAM (GiB), Data disks, Max IOPS, and Local storage. The 'Most used by Azure users' section is expanded, showing various VM sizes like D51\_v2, D2s\_v3, D2as\_v4, D52\_v2, D4s\_v3, and D53\_v2. The 'D4s\_v3' size is highlighted.

VM Size	Type	vCPUs	RAM (GiB)	Data disks	Max IOPS	Local storage
The most used sizes by users in Azure						
D51_v2	General purpose	1	3.5	4	3200	7 (SCSI)
D2s_v3	General purpose	2	8	4	3200	16 (SCSI)
D2as_v4	General purpose	2	8	4	3200	16 (SCSI)
D52_v2	General purpose	2	7	8	6400	14 (SCSI)
D4s_v3	General purpose	4	16	8	6400	32 (SCSI)
D53_v2	General purpose	4	14	16	12800	28 (SCSI)
D-Series v4: The 4th generation D family sizes for your general purpose needs						
E-Series v4: The 4th generation E family sizes for your high memory needs						
F-Series v2: Up to 2X performance boost for vector processing workloads						
D-Series v3: The 3rd generation D family sizes for your general purpose needs						
D2s_v3	General purpose	2	8	4	3200	16 (SCSI)

Prices presented are estimates in INR that include only Azure infrastructure costs and any discounts for the subscription and location. The prices don't include any applicable software costs. Final charges will appear in your local currency in cost analysis and billing views. [View Azure pricing calculator.](#) [Give feedback](#)

**RESULT :**

**Above experiment is successful executed And verified.**



## Q5) Create a Virtual machine and do lock for VM in AZURE.

### Step-1: Create a virtual machine (ubuntu or windows).

The screenshot displays the Microsoft Azure portal interface for an Ubuntu virtual machine. The left sidebar shows the navigation menu with options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area shows the VM's status as 'Running' and provides various configuration details. A warning banner at the top indicates that the Ubuntu virtual machine agent status is not ready. The 'Essentials' section lists the resource group, location, subscription, and availability zone. The 'Properties' section provides detailed information about the VM, including its computer name, operating system, VM generation, architecture, agent status, and version. The 'Networking' section shows the public and private IP addresses, virtual network, and DNS name.

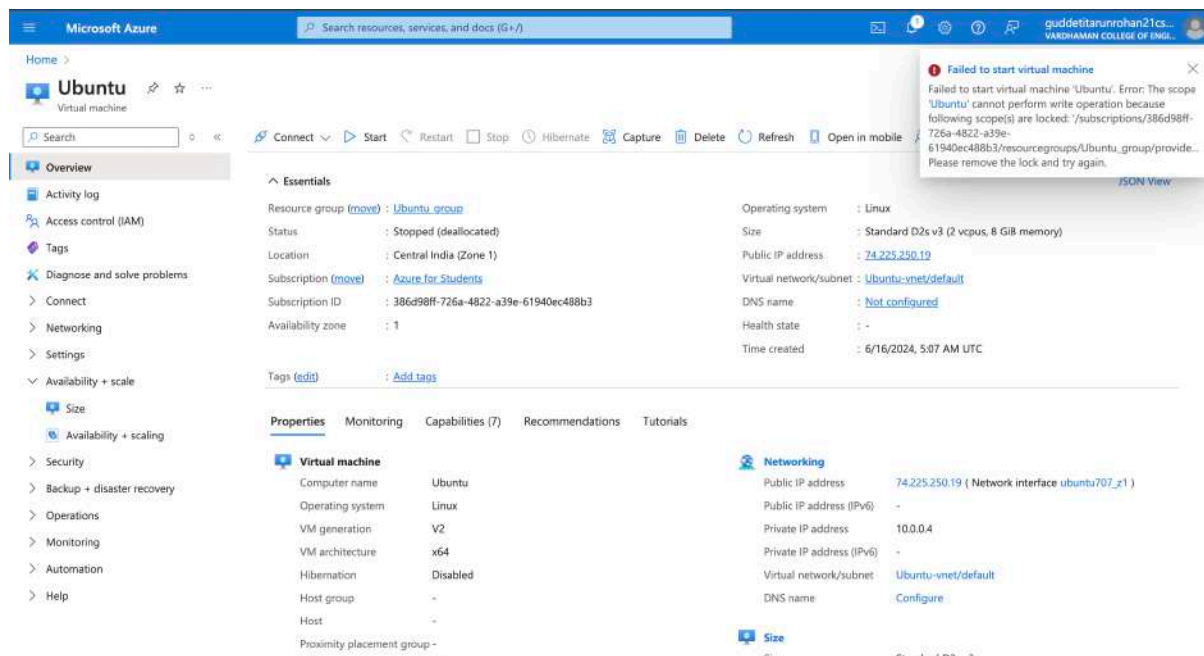
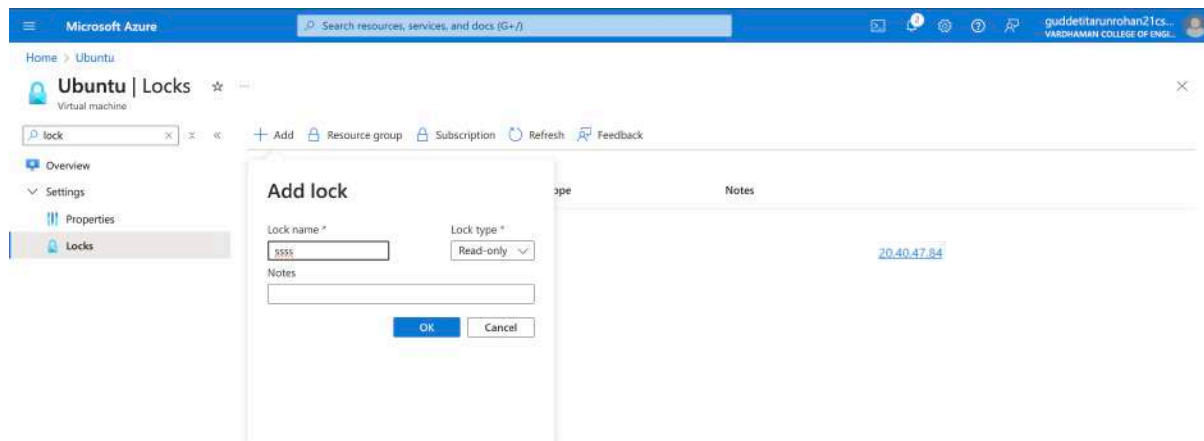
Section	Property	Value
Essentials	Resource group	Ubuntu_group
	Status	Running
	Location	Central India (Zone 1)
	Subscription	Azure for Students
	Subscription ID	386d98ff-726a-4822-a39e-61940ec488b3
Availability zone	Availability zone	1
	Tags	Add tags
Properties	Computer name	Ubuntu
	Operating system	Linux
VM generation	VM generation	V2
	VM architecture	x64
Agent status	Agent status	Not Ready
	Agent version	Unknown
Networking	Public IP address	20.40.47.84
	Private IP address	10.0.0.4

### Step-2: On the left side there will be settings and click on locks, give lock name and select lock type.

The screenshot shows the 'Add lock' dialog box in the Microsoft Azure portal. The dialog box has a title 'Add lock' and contains fields for 'Lock name', 'Lock type', and 'Notes'. The 'Lock name' field is filled with 'sssss'. The 'Lock type' dropdown menu is set to 'Read-only'. The 'Notes' field is empty. There are 'OK' and 'Cancel' buttons at the bottom of the dialog box. The background shows the 'Locks' section of the virtual machine's settings.

Field	Value
Lock name *	sssss
Lock type *	Read-only
Notes	

### Step-3: click on ok.

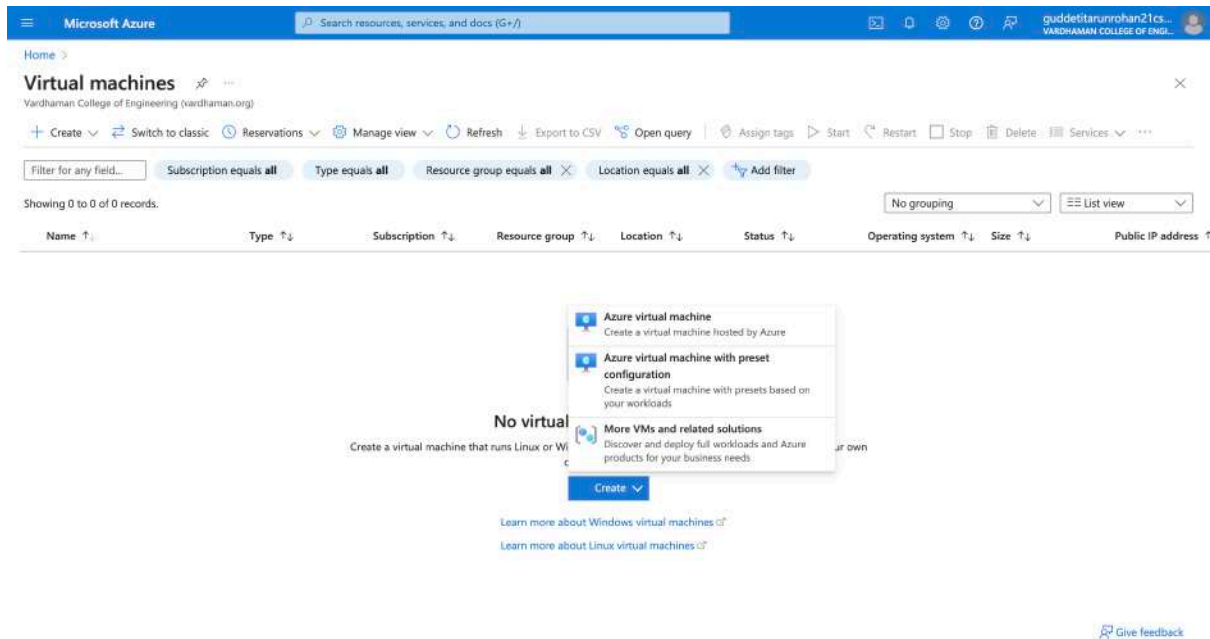


Similarly, you can do for Resource group and subscriptions.

**Note:** After creating the lock, you need to delete it for deleting VM.

**RESULT :**

**Above experiment is successful executed And verified.**



## **Q6) Create Ubuntu VM and run a python program in it.**

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.

**Step-3:** Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create +Review”. And finally click on “Create”.

**Step-4:** After Deployment is over, Go to the remote desktop connection.

Microsoft Azure

Home > Virtual machines >

### Create a virtual machine

VM architecture ☐ Arm64 ☒ x64

Run with Azure Spot discount ☐

Size \*  [See all sizes](#)

Enable Hibernation ☐

**Administrator account**

Authentication type ☒ SSH public key ☐ Password

**Username \***

SSH public key source

SSH Key Format ☒ RSA SSH Format

[Give feedback](#)

[View resources](#)

< Previous Next : Disks > Review + create

< Previous Next : Disks > Review + create

## Generate new key pair

**i** An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

**Download private key and create resource**

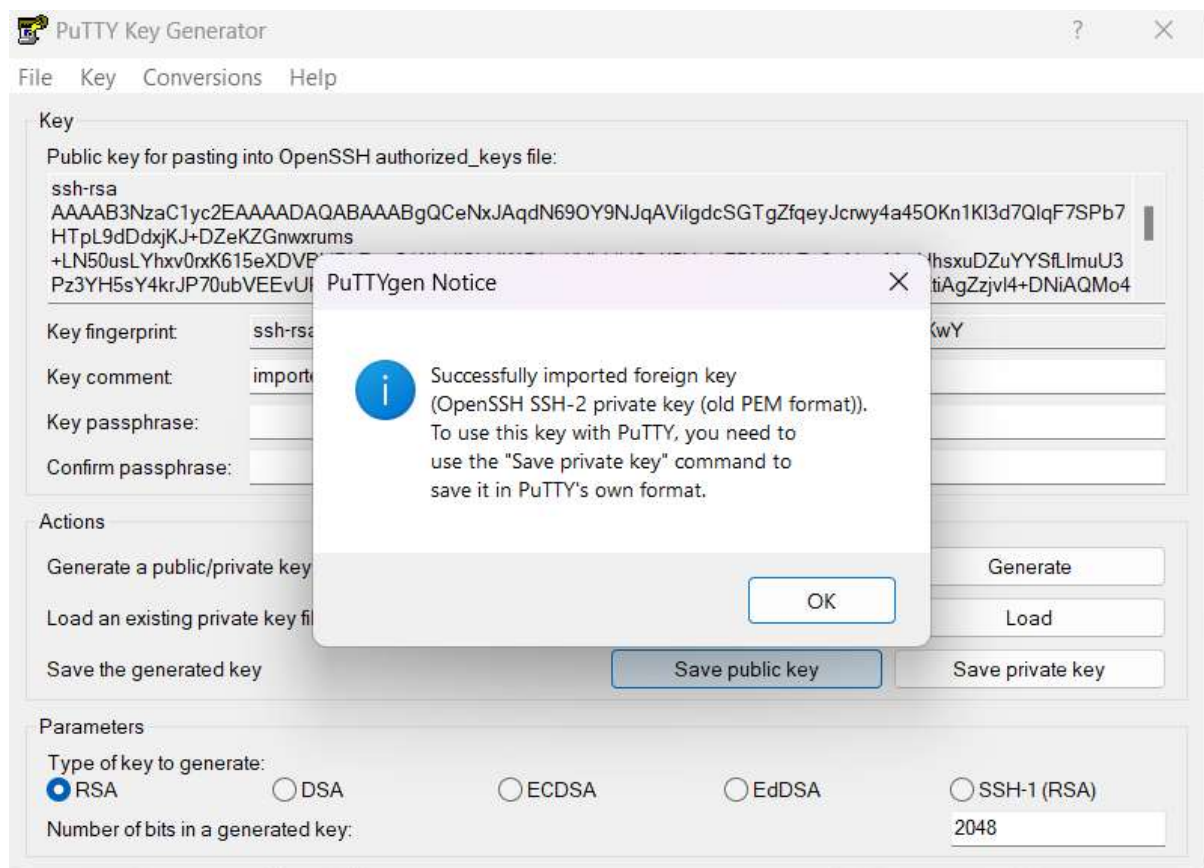
Return to create a virtual machine

**Step-5:** Firstly, copy the public IP Address of that created virtual machine.

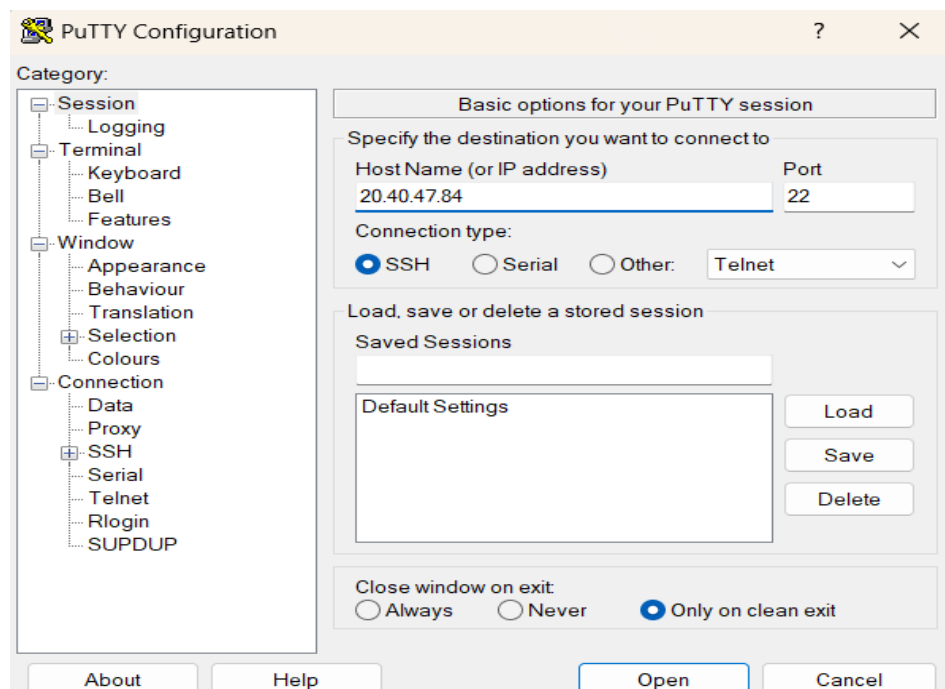
The screenshot shows the Microsoft Azure portal interface for an Ubuntu virtual machine. The top navigation bar includes the Microsoft Azure logo and a search bar. The left sidebar contains various navigation options like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area displays the 'Overview' tab for the 'Ubuntu' virtual machine. A warning banner at the top states 'Ubuntu virtual machine agent status is not ready. Troubleshoot the issue ->'. Below this, the 'Essentials' section provides key details: Resource group (Ubuntu\_group), Status (Running), Location (Central India (Zone 1)), Subscription (Azure for Students), Subscription ID (386d98ff-726a-4822-a39e-61940ec488b3), and Availability zone (1). The 'Properties' section lists details such as Computer name (Ubuntu), Operating system (Linux), VM generation (V2), VM architecture (x64), Agent status (Not Ready), and Agent version (Unknown). The 'Networking' section shows the Public IP address (74.225.250.19) and Private IP address (10.0.0.4).

**Step-6:** Go to putty gen and click on load the key generator that you have downloaded.

The screenshot shows the PuTTY Key Generator application window. The 'Key' tab is selected, displaying a generated public key for pasting into an OpenSSH authorized\_keys file. The key is: ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC93M45VQ0rKXc0eCGASew0xk/clxzmCDDzTQN1XPxCwpZiWkm+KggXAwqtMOecVfJmrJWras8YaxqMA1tTcvz8HmEBtkmYqDkQm2F4TM900TsHw+IGF/ThQzdXyym4oGj91JatGEOC375EKOkHfk6x1xnYD3xMnml7JGave1XT7lj+O+KqGJoM4eSAx3w2JIRRoEufkFPfuiTdDI27Q9HW2scDuvKw0qCq0zoCvPI/91ioi5Or7t/hUGb1hrpc7S+q4bqC2NTTjCGNoYutVehO81y+hPYbg9QChgy2J5HKD. Below the key, the 'Key fingerprint' is shown as ssh-rsa 3072 SHA256:KakGDPCnAoZi7mwAo0+I/FA/YqYytkwHOqdgww5iRHw. The 'Key comment' is 'imported-openssh-key'. The 'Key passphrase' and 'Confirm passphrase' fields are empty. The 'Actions' section includes buttons for 'Generate', 'Load', 'Save public key', and 'Save private key'. The 'Parameters' section shows the 'Type of key to generate' as RSA (selected) and the 'Number of bits in a generated key' as 2048.



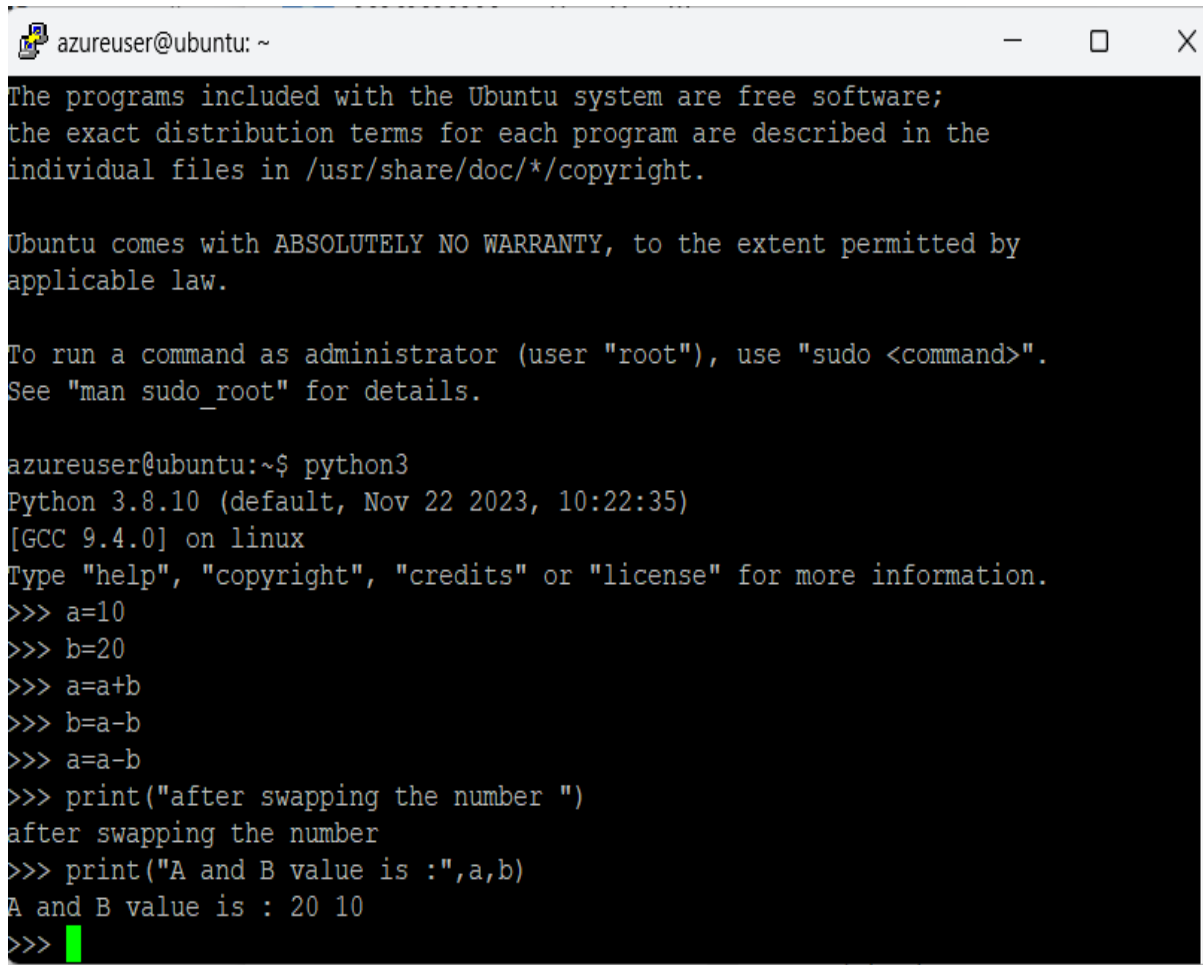
**Step-7:** In putty, put the Copied IP Adress into it, and then go to ssh->auth->credentials and the put the generated private key.



**Step-8:** A login page will be opened in that type your username and you will be into the ubuntu.

**Step-9:** Login with your username and type python3, write your python program and execute it.

```
azureuser@Ubuntu: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Thu Jun 13 16:27:08 UTC 2024  
  
System load:  0.08      Processes:    116  
Usage of /:   5.1% of 26.09GB   Users logged in:  0  
Memory usage: 8%      IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
0 updates can be applied immediately.  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
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@Ubuntu:~$
```

A terminal window titled 'azureuser@ubuntu: ~' with standard window controls. The terminal displays Ubuntu system information, including a disclaimer about free software and warranty, and instructions on using 'sudo'. It then shows the execution of 'python3', which outputs the Python version (3.8.10), GCC version (9.4.0), and system (linux). A Python script is then executed, defining variables a and b, performing arithmetic operations, and printing the results. The script prints 'after swapping the number' and 'A and B value is : 20 10'.

```
azureuser@ubuntu: ~
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@ubuntu:~$ python3
Python 3.8.10 (default, Nov 22 2023, 10:22:35)
[GCC 9.4.0] on linux
Type "help", "copyright", "credits" or "license" for more information.
>>> a=10
>>> b=20
>>> a=a+b
>>> b=a-b
>>> a=a-b
>>> print("after swapping the number ")
after swapping the number
>>> print("A and B value is :",a,b)
A and B value is : 20 10
>>>
```

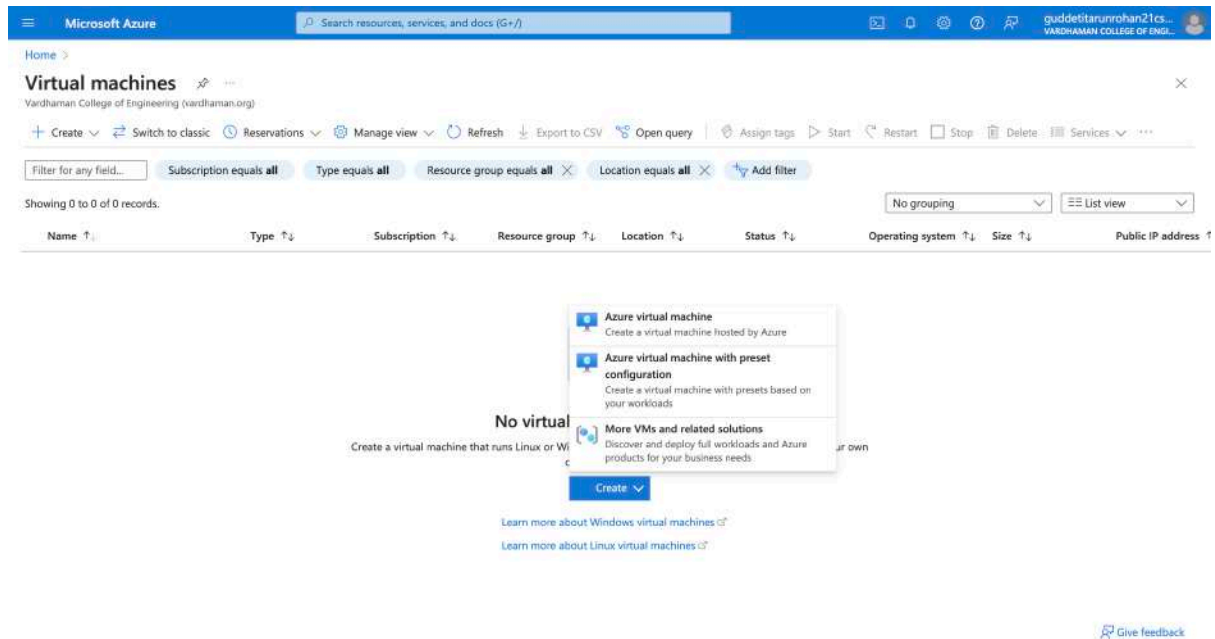
## **RESULT :**

**Above experiment is successful executed And verified.**



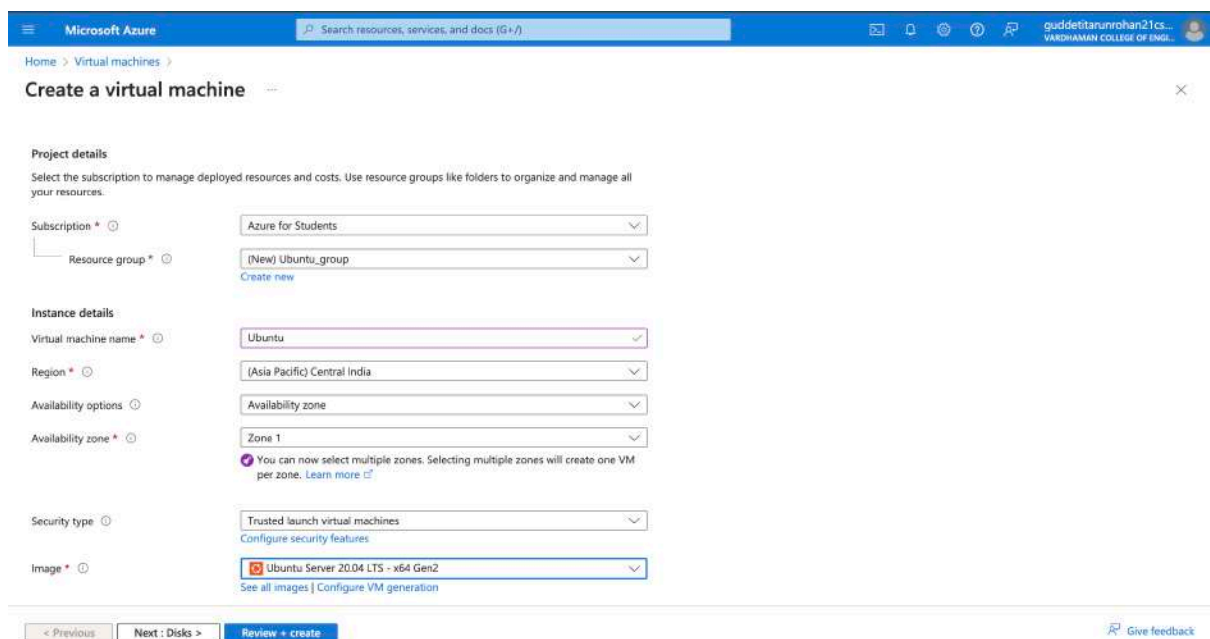
## Q7) Create a Ubuntu VM and transfer files using WinScp.

**Step-1:** Sign in to your Microsoft Azure account.

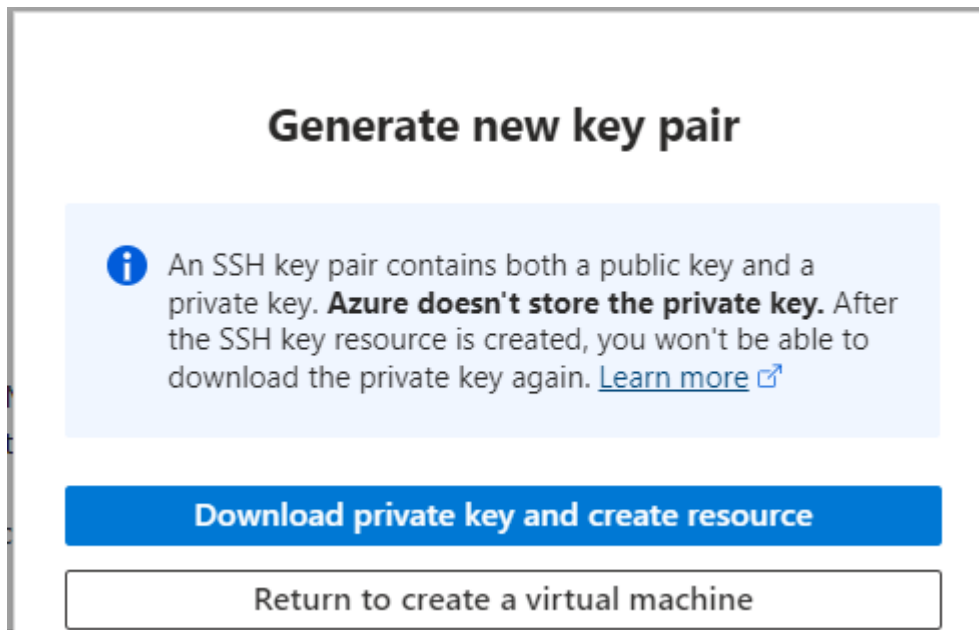


**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.

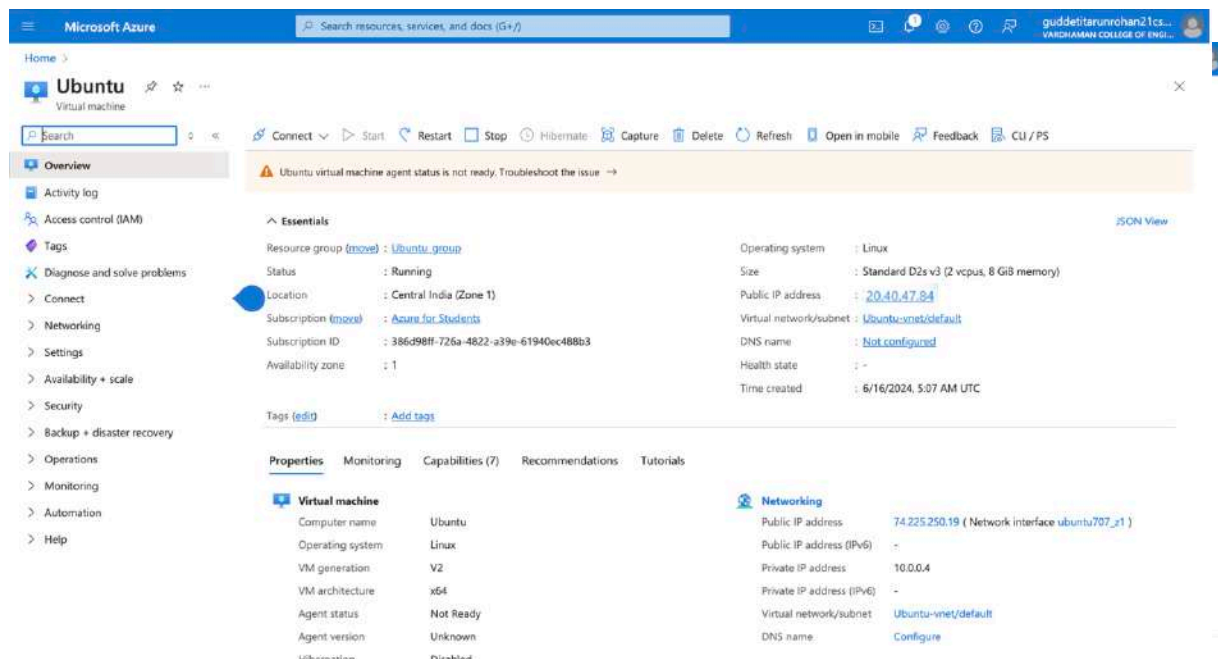
**Step-3:** Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create + Review”. And finally click on “Create”.



**Step-4:** After Deployment is over, Go to the remote desktop connection.



**Step-5:** Firstly, copy the public IP Address of that created virtual machine.



**Step-6:** Go to putty gen and click on load the key generator that you have downloaded.

**PutTY Key Generator** ? X

File Key Conversions Help

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQgQC93M45VQ0rKXc0eCGASew0xk/clxmiCDDzTQN1XPxCwpZiWkm  
+KggXAwqtMOecVfJmrJWRAS8YaxqMA1tTcvz8HmEBtkmYqDkQm2F4TM900TsHw  
+IGF/ThQzdXyym4oGj91JatGEOC375EKOkHfk6x1xnYD3xMNnml7JGave1XT7lj+O  
+KqGJoM4eSAx3w2JIIRoeUfkFPfiuTdDI27Q9HW2scDuvKw0qCq0zoCvPI/91lio5OrR7t/hUGb1hrpc7S  
+q4bqC2NTTjCGNoYutVehO81y+hPYbg9QChgy2J5HKD
```

Key fingerprint: ssh-rsa 3072 SHA256:KakGDPCnAoZi7mwAo0+I/FA/YqYtkwHOqdgww5iRHw

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

**Actions**

Generate a public/private key pair

Load an existing private key file

Save the generated key

**Parameters**

Type of key to generate:  
☒ RSA ☐ DSA ☐ ECDSA ☐ EdDSA ☐ SSH-1 (RSA)

Number of bits in a generated key:

**PutTY Key Generator** ? X

File Key Conversions Help

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa  
AAAAB3NzaC1yc2EAAAADAQABAAQgQCeNxJAqdN69OY9NJqAVilgdcSGTgZfqeyJcrwy4a450Kn1KI3d7QlqF7SPb7  
HTpL9dDdxKJ+DZeKZGnwrxrums  
+LN50usLYhvx0rxK615eXDVP  
Pz3YH5sY4krJP70ubVEEvU
```

Key fingerprint: ssh-rsa

Key comment: imported

Key passphrase:

Confirm passphrase:

**Actions**

Generate a public/private key pair

Load an existing private key file

Save the generated key

**Parameters**

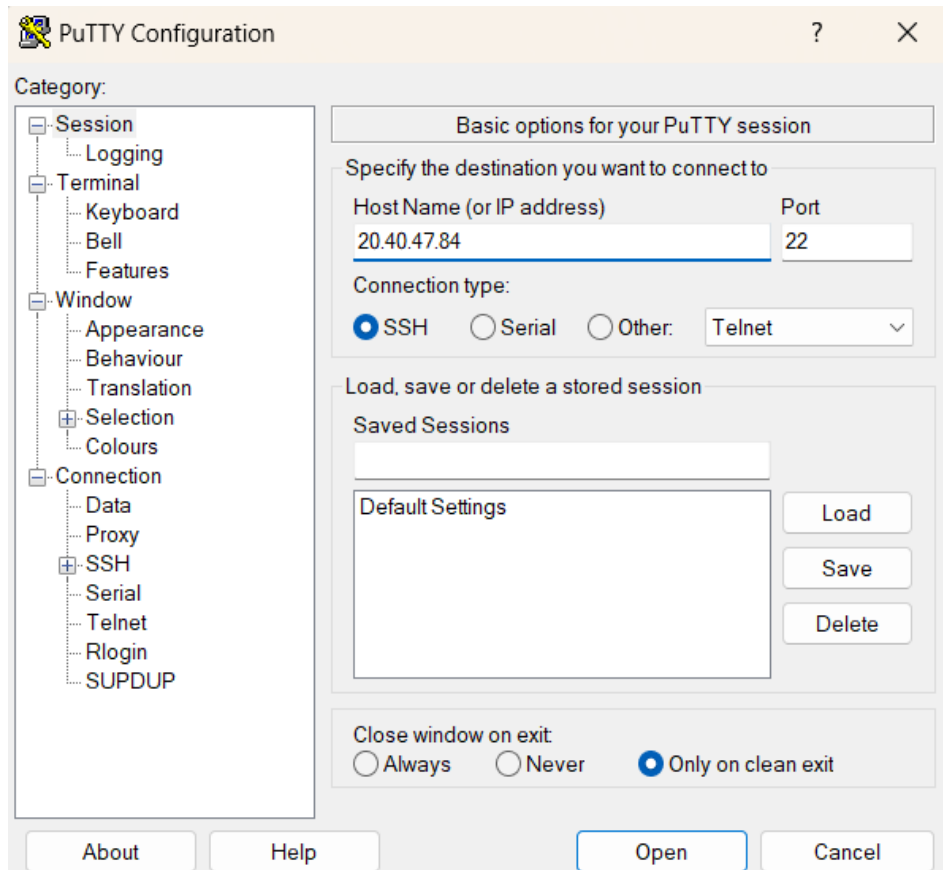
Type of key to generate:  
☒ RSA ☐ DSA ☐ ECDSA ☐ EdDSA ☐ SSH-1 (RSA)

Number of bits in a generated key:

**PutTYgen Notice** X

Successfully imported foreign key  
(OpenSSH SSH-2 private key (old PEM format)).  
To use this key with PuTTY, you need to  
use the "Save private key" command to  
save it in PuTTY's own format.

**Step-7:** In putty, put the Copied IP Address into it, and then go to ssh->auth->credentials and the put the generated private key.



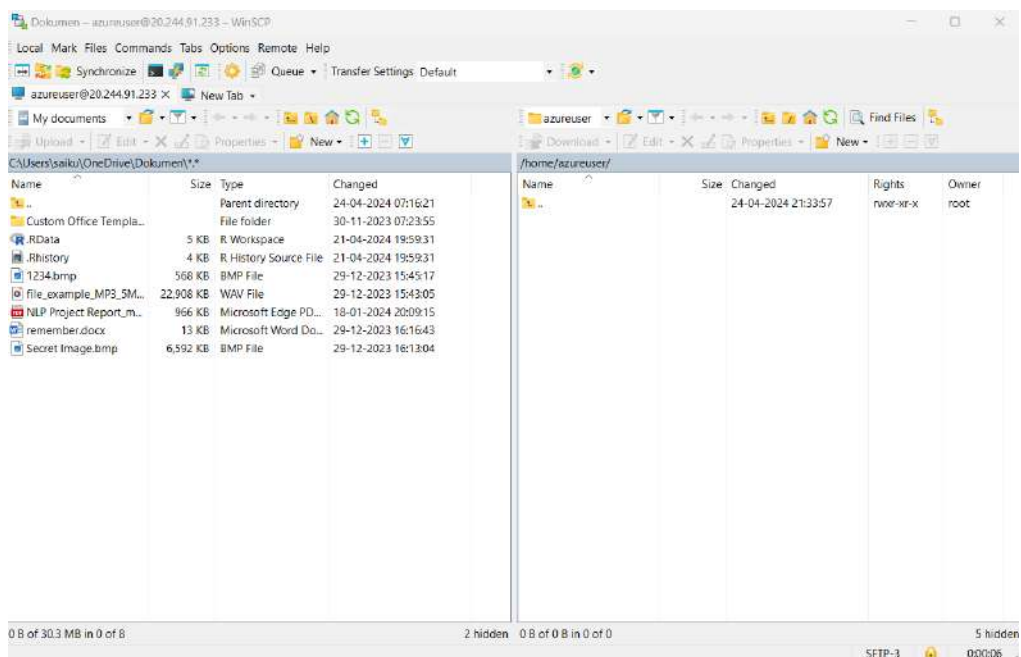
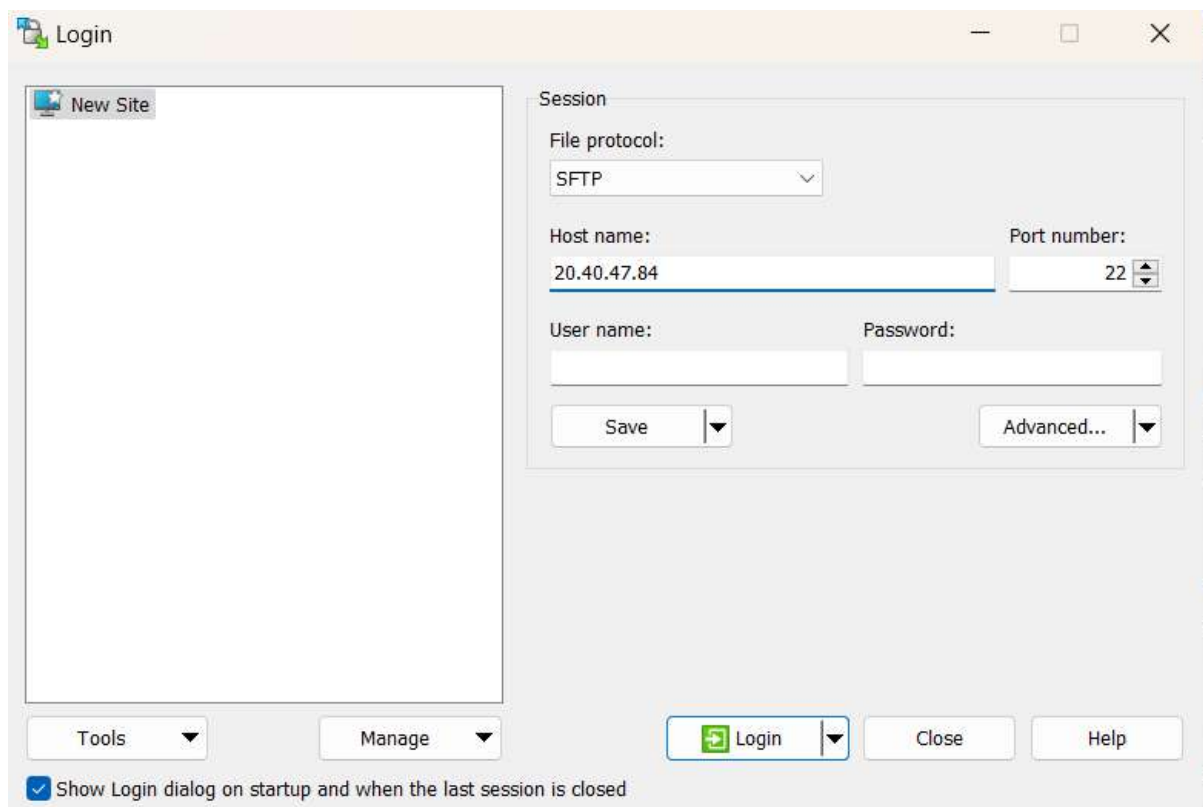
**Step-8:** A login page will be opened in that type your username and you will be into the ubuntu.

**Step-9:** Login into your ubuntu VM using PUTTY and type ls command as you can see nothing.

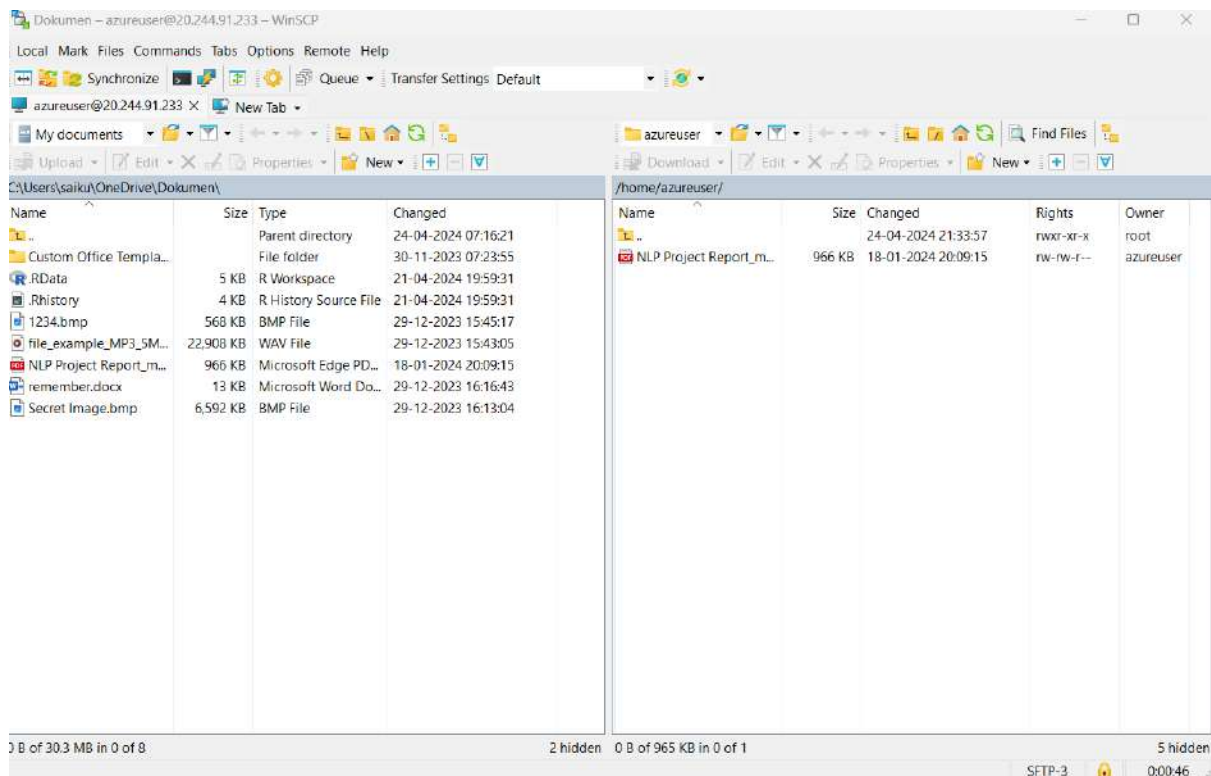
```
azureuser@Ubuntu: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Thu Jun 13 16:27:08 UTC 2024  
  
System load:  0.08      Processes:            116  
Usage of /:   5.1% of 28.89GB   Users logged in:     0  
Memory usage: 8%      IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
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@Ubuntu:~$
```

**Step-10:** Open WinScp at right bottom you can see Advanced option->SSH->Authentication->In that drag private key file and click on ok.

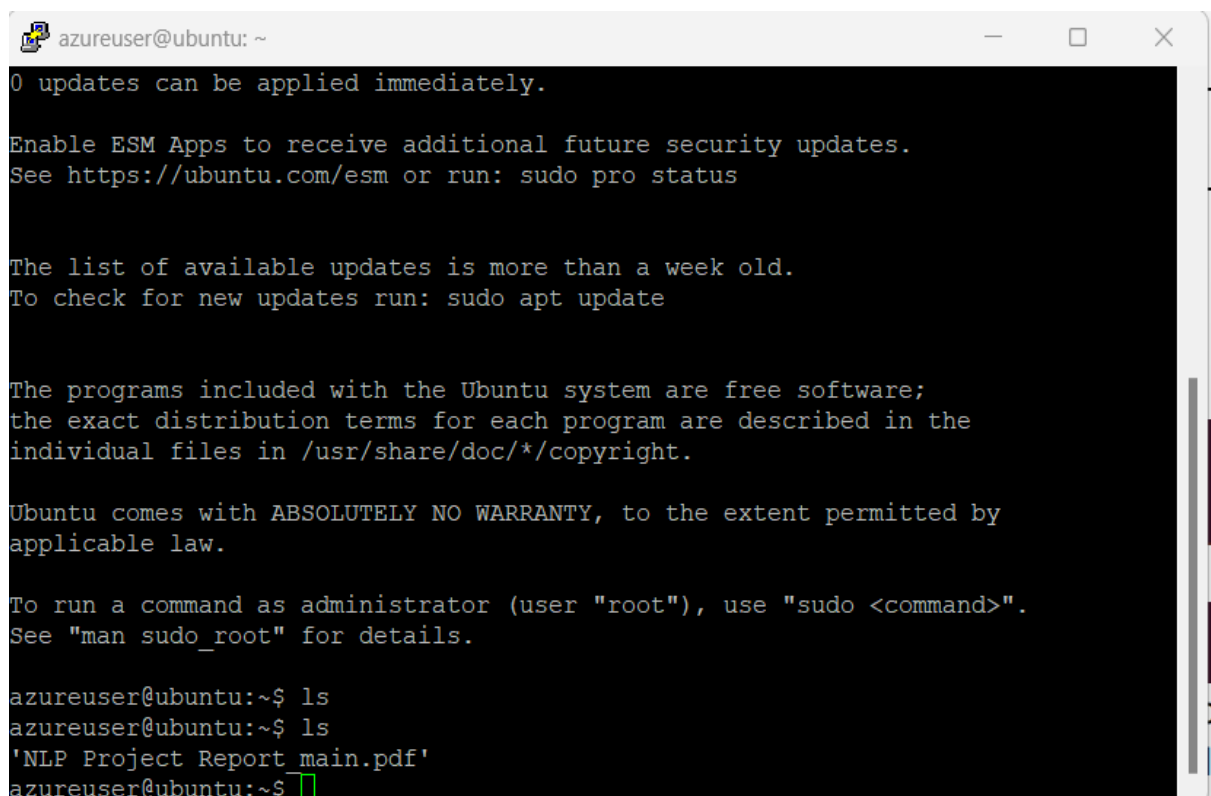
At last Login into your account using public IP address and username in WinScp.



Now, you can drag your files from your desktop to ubuntu VM in WinScp.



**Step-11:** Now again type `ls` command as you can see file inside ubuntu VM.



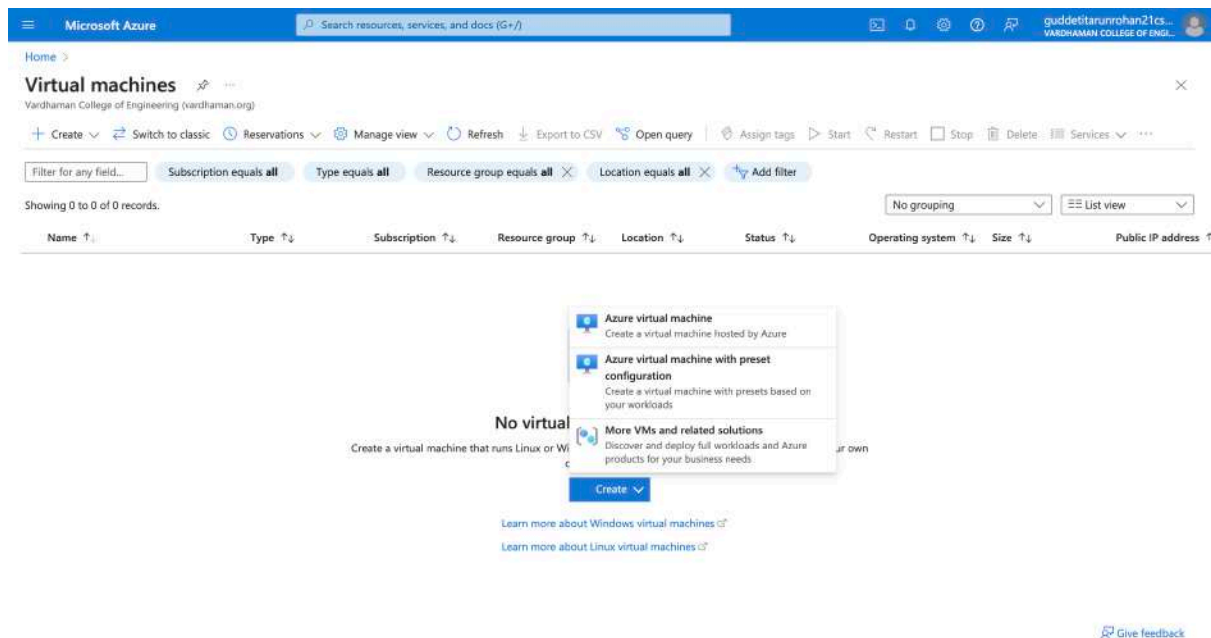
**Above experiment is successful executed And verified.**



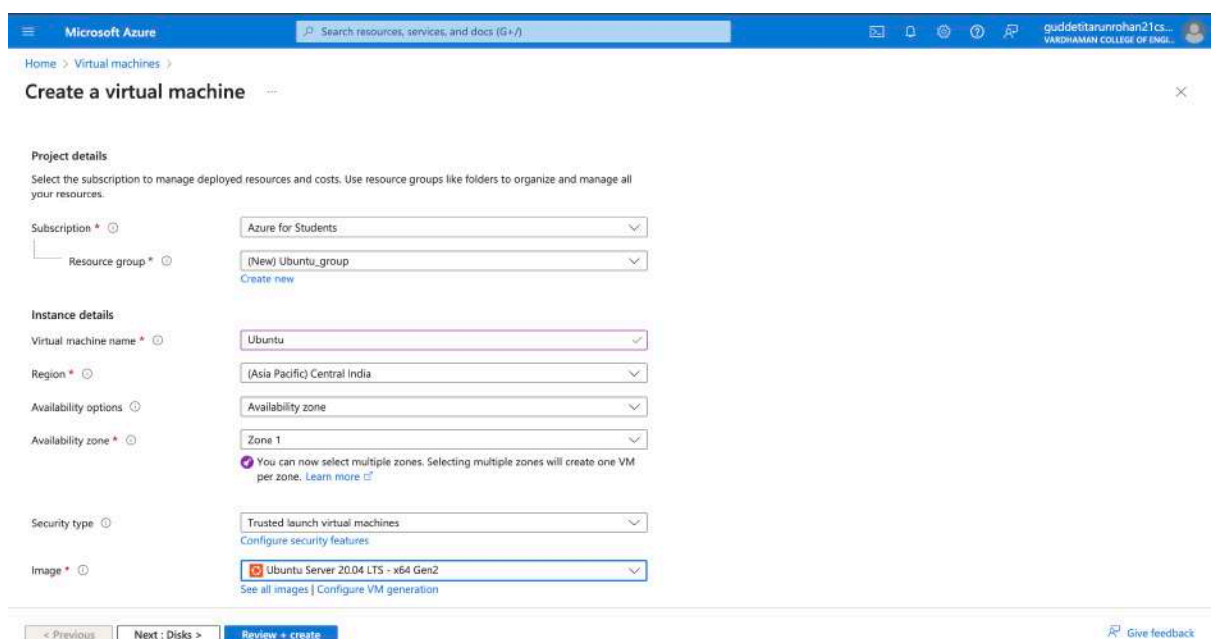
## Q8) How to make Linux server as web server in AZURE.

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create + Review”. And finally click on “Create”.





The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal. The page is titled 'virtual machine.' and has a search bar at the top. The user is logged in as 'guddetitarunrohan21cs...' from 'VARDHAMAN COLLEGE OF ENGL...'. The page is divided into sections for configuration. The 'Username' is 'azureuser'. The 'SSH public key source' is 'Generate new key pair'. The 'SSH Key Type' is 'Ed25519 SSH Format', with a note that it offers better performance and security than RSA. The 'Key pair name' is 'ubuntu\_key'. The 'Inbound port rules' section is expanded, showing 'Public inbound ports' set to 'Allow selected ports' and 'Select inbound ports' set to 'SSH (22)'. A note states that all traffic from the internet will be blocked by default. At the bottom, there are navigation buttons: '< Previous', 'Next : Disks >', and 'Review + create'. A 'Give feedback' link is also present.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines

### Create a virtual machine

virtual machine.

Username \*

SSH public key source

SSH Key Type ☒ RSA SSH Format  
☐ Ed25519 SSH Format  
Ed25519 offers better performance and security with a smaller key size, while RSA is still widely used particularly for legacy systems and applications.

Key pair name \*

**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 \*

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous Next : Disks > Review + create

Give feedback

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, Step 2: Configure. The page is titled 'virtual machine.' and has a search bar at the top. The user is logged in as 'guddetitarunrohan21cs...' from 'VARDHAMAN COLLEGE OF ENGL...'. The 'VM architecture' is 'x64'. The 'Run with Azure Spot discount' checkbox is unchecked. The 'Size' is 'Standard\_D2s\_v3 - 2 vcpus, 8 GiB memory (₹6,376.87/month)'. The 'Enable Hibernation' checkbox is unchecked. The 'Administrator account' section is expanded, showing 'Authentication type' set to 'SSH public key'. A note states that Azure now automatically generates an SSH key pair. The 'Username' is 'azureuser'. The 'SSH public key source' is 'Generate new key pair'. The 'SSH Key Type' is 'RSA SSH Format'. At the bottom, there are navigation buttons: '< Previous', 'Next : Disks >', and 'Review + create'. A 'Give feedback' link is also present.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines

### Create a virtual machine

VM architecture ☐ Arm64  
☒ x64

Run with Azure Spot discount ☐

Size \*   
[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.

Username \*

SSH public key source

SSH Key Type ☒ RSA SSH Format

< Previous Next : Disks > Review + create

Give feedback

**Step-4:** After Deployment is over, Go to the remote desktop connection.

## Generate new key pair

**i** An SSH key pair contains both a public key and a private key. **Azure doesn't store the private key.** After the SSH key resource is created, you won't be able to download the private key again. [Learn more](#)

**Download private key and create resource**

**Return to create a virtual machine**

**Step-5:** Firstly, copy the public IP Address of that created virtual machine.

The screenshot shows the Microsoft Azure portal interface. At the top, there's a search bar and navigation icons. The main content area displays the details of an Ubuntu virtual machine. The 'Overview' tab is active, showing a summary of the VM's configuration. A warning banner at the top indicates that the Ubuntu virtual machine agent status is not ready. Below this, the 'Essentials' section provides key details: Resource group (Ubuntu\_group), Status (Running), Location (Central India (Zone 1)), Subscription (Azure for Students), Subscription ID (386d98ff-726a-4822-a39e-61940ec488b3), and Availability zone (1). The 'Properties' section lists attributes like Computer name (Ubuntu), Operating system (Linux), VM generation (V2), VM architecture (x64), Agent status (Not Ready), and Agent version (Unknown). The 'Networking' section shows the Public IP address (74.225.250.19) and other network-related details.

Section	Property	Value
Essentials	Resource group	Ubuntu_group
	Status	Running
	Location	Central India (Zone 1)
	Subscription	Azure for Students
	Subscription ID	386d98ff-726a-4822-a39e-61940ec488b3
	Availability zone	1
	Tags	Add tags
Properties	Computer name	Ubuntu
	Operating system	Linux
	VM generation	V2
	VM architecture	x64
	Agent status	Not Ready
	Agent version	Unknown
	Labels	Private label
Networking	Public IP address	74.225.250.19 (Network interface ubuntu707_x1)
	Public IP address (IPv6)	-
	Private IP address	10.0.0.4
	Private IP address (IPv6)	-
	Virtual network/subnet	Ubuntu-vnet/default
	DNS name	Configure

**Step-6:** Go to putty gen and click on load the key generator that you have downloaded.

The PuTTY Key Generator window displays a newly generated SSH key. The public key is shown in a text area, and the key fingerprint is displayed below it. The key comment is set to 'imported-openssh-key'. The key passphrase and confirm passphrase fields are empty. The Actions section includes buttons for 'Generate', 'Load', 'Save public key', and 'Save private key'. The Parameters section shows the key type as RSA and the number of bits as 2048.

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC93M45VQ0rKXc0eCGASew0xk/clxmiCDDzTQN1XPxCwpZiWkm
+KggXAwqtM0ecVfJmrJWras8YaxqMA1tTcvz8HmEBtkmYqDkQm2F4TM900TsHw
+IGF/ThQzdXyym4oGj91JatGEOC375EKOkHfk6x1xnYD3xMnml7JGave1XT7lj+O
+KqGJoM4eSAx3w2JIrrOeUfkFPfuTddI27Q9HW2scDuvKw0qCq0zoCvPI/91lio5OrR7t/hUGb1hrpc7S
+q4bqC2NTTjCGNoYutVehO81y+hPYbg9QChgy2J5HKD
```

Key fingerprint: ssh-rsa 3072 SHA256:KakGDPCnAoZi7mwAo0+I/FA/YqYtkwHOqdggw5iRHw

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

**Actions**

Generate a public/private key pair Generate

Load an existing private key file Load

Save the generated key Save public key Save private key

**Parameters**

Type of key to generate: ☒ RSA ☐ DSA ☐ ECDSA ☐ EdDSA ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

**Step-7:** In putty, put the Copied IP Address into it, and then go to ssh->auth->credentials and the put the generated private key.

The PuTTY Configuration window shows the 'Basic options for your PuTTY session' category. The 'Host Name (or IP address)' is set to '20.40.47.84' and the 'Port' is '22'. The 'Connection type' is set to 'SSH'. The 'Load, save or delete a stored session' section shows a list of saved sessions with 'Default Settings' selected. The 'Close window on exit' section has 'Only on clean exit' selected. The 'Open' button is highlighted.

**Category:**

- Session
- Logging
- Terminal
- Keyboard
- Bell
- Features
- Window
- Appearance
- Behaviour
- Translation
- Selection
- Colours
- Connection
- Data
- Proxy
- SSH
- Serial
- Telnet
- Rlogin
- SUPDUP

**Basic options for your PuTTY session**

Specify the destination you want to connect to

Host Name (or IP address) Port

20.40.47.84 22

Connection type:

☒ SSH ☐ Serial ☐ Other: Telnet

Load, save or delete a stored session

Saved Sessions

Default Settings Load Save Delete

Close window on exit:

☐ Always ☐ Never ☒ Only on clean exit

About Help Open Cancel

**Step-8:** A login page will be opened in that type your username and you will be into the ubuntu.

```
azureuser@Ubuntu: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Thu Jun 13 16:27:06 UTC 2024  
  
System load:  0.09      Processes:      116  
Usage of /:   5.1% of 28.89GB   Users logged in:  0  
Memory usage: 8%      IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
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@Ubuntu:~$
```

**Step-9:** Login into your Ubuntu VM using your username and type the following commands.

\$sudo su

\$sudo apt-get update

After typing the two commands, now install web server using the below command

\$sudo apt-get install nginx

After installing in VM, paste the public ip address in desktop browser and you can see.

```
azureuser@Ubuntu: ~  
login as: azureuser  
Authenticating with public key "imported-openssh-key"  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
* Documentation:  https://help.ubuntu.com  
* Management:    https://landscape.canonical.com  
* Support:        https://ubuntu.com/pro  
  
System information as of Thu Jun 13 16:27:08 UTC 2024  
  
System load:  0.08      Processes:            116  
Usage of /:   5.1% of 28.89GB   Users logged in:     0  
Memory usage: 8%      IPv4 address for eth0: 10.0.0.4  
Swap usage:   0%  
  
Expanded Security Maintenance for Applications is not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
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@Ubuntu:~$
```

**Step-10:** To remove following information and keep new information in that page type the following command and refresh the browser page.

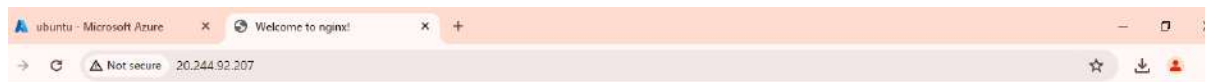
\$cd /var/www/html

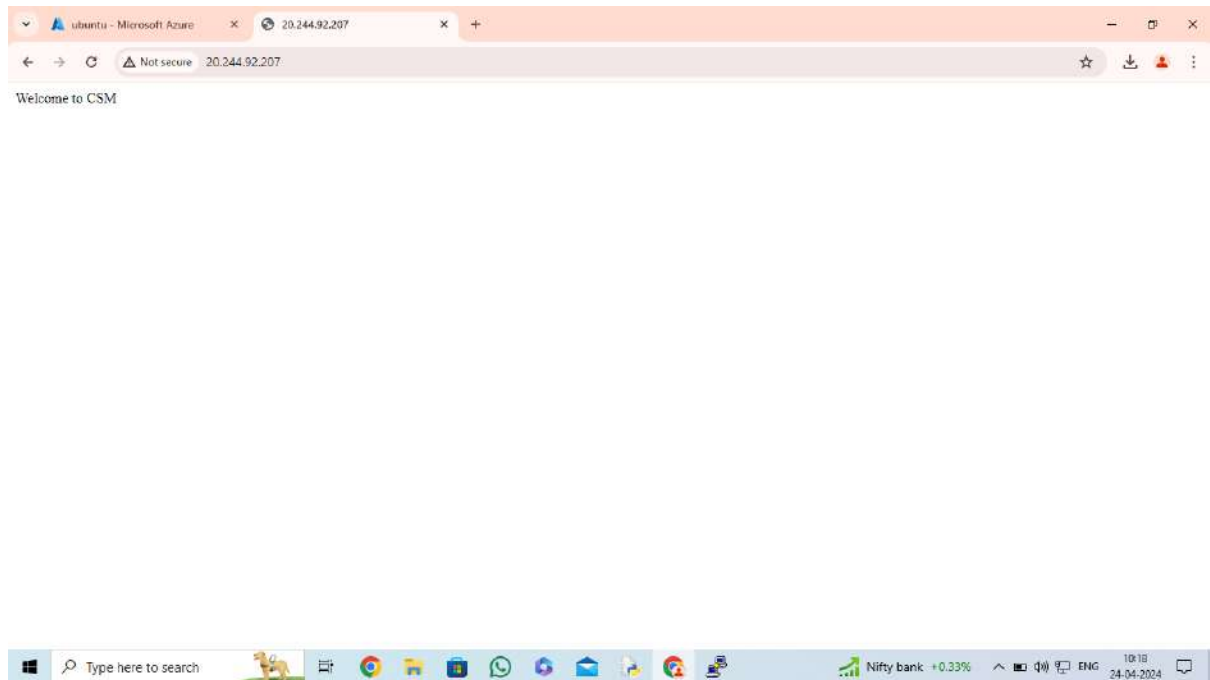
\$rm index.nginx-debian.html

\$echo "Welcome to CSM ">index.html

```
root@ubuntu: /var/www/html

Setting up libnginx-mod-mail (1.18.0-0ubuntu1.4) ...
Setting up fontconfig-config (2.13.1-2ubuntu3) ...
Setting up libnginx-mod-stream (1.18.0-0ubuntu1.4) ...
Setting up libtiff5:amd64 (4.1.0+git191117-2ubuntu0.20.04.12) ...
Setting up libfontconfig1:amd64 (2.13.1-2ubuntu3) ...
Setting up libgd3:amd64 (2.2.5-5.2ubuntu2.1) ...
Setting up libnginx-mod-http-image-filter (1.18.0-0ubuntu1.4) ...
Setting up nginx-core (1.18.0-0ubuntu1.4) ...
Setting up nginx (1.18.0-0ubuntu1.4) ...
Processing triggers for ufw (0.36-6ubuntu1.1) ...
Processing triggers for systemd (245.4-4ubuntu3.23) ...
Processing triggers for man-db (2.9.1-1) ...
Processing triggers for libc-bin (2.31-0ubuntu9.14) ...
root@ubuntu:/home/azureuser# cd /var/www/html
root@ubuntu:/var/www/html# rm index.nginx-debian.html
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>"
<h1>Welcome to CSM</h1>
root@ubuntu:/var/www/html# rm index.nginx-debian.html
rm: cannot remove 'index.nginx-debian.html': No such file or directory
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>" indx.html
<h1>Welcome to CSM</h1> indx.html
root@ubuntu:/var/www/html# echo "<h1>Welcome to CSM</h1>">indx.html
root@ubuntu:/var/www/html# echo "Welcome to CSM">index.htm
root@ubuntu:/var/www/html#
```





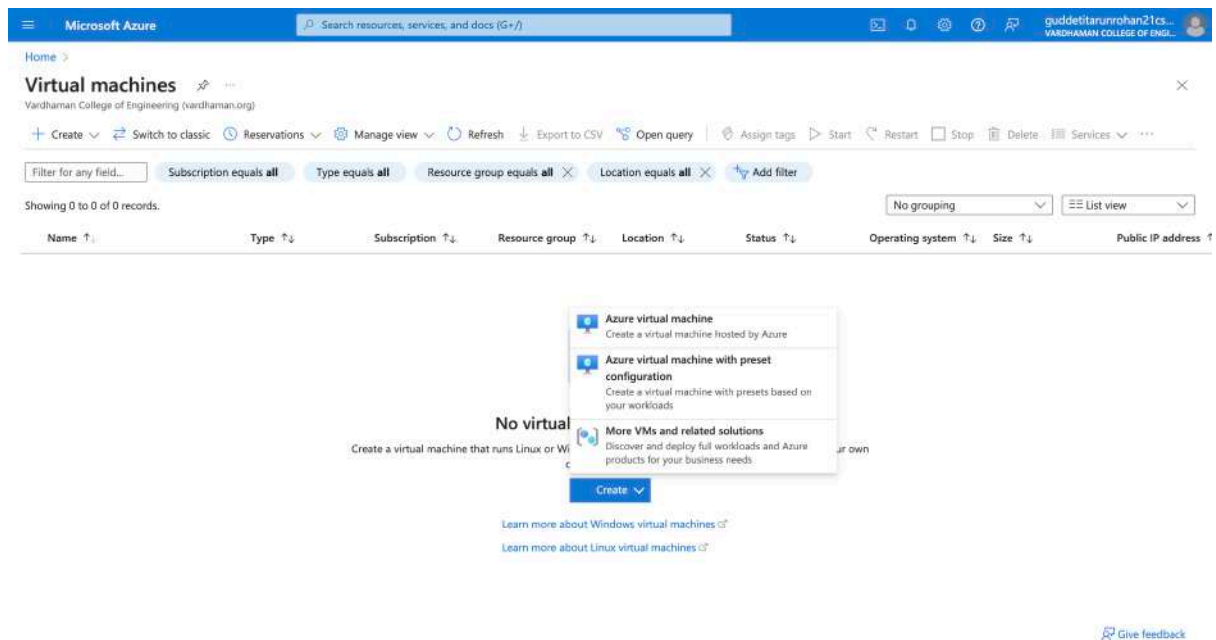
## **RESULT :**

**Above experiment is successful executed And verified.**

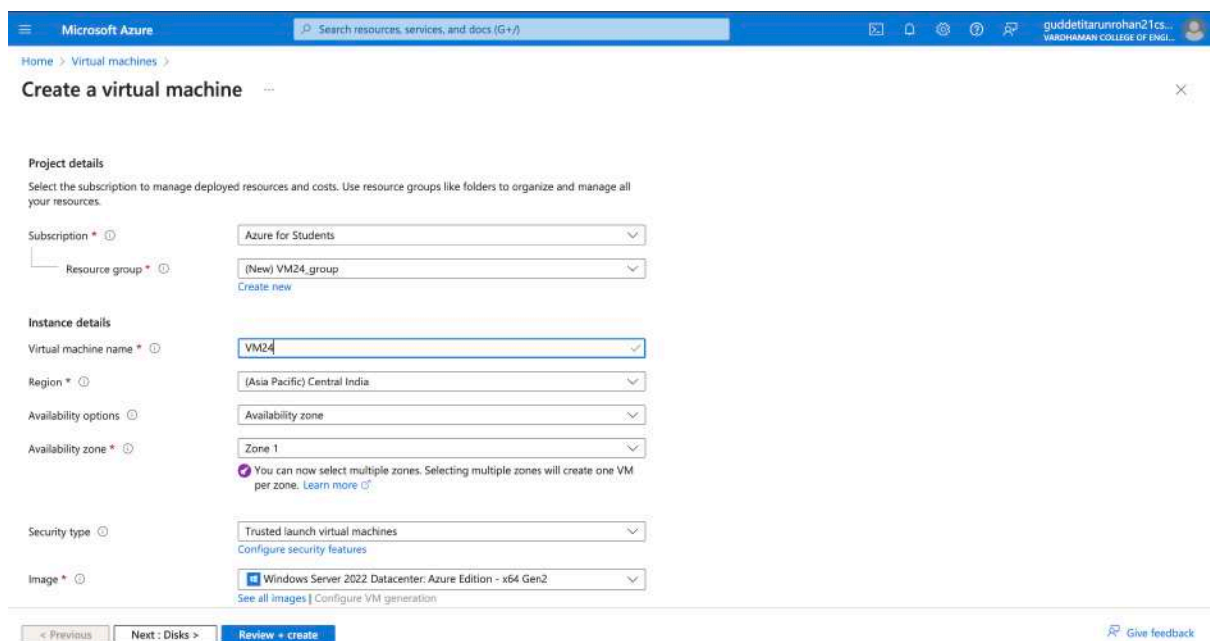
## Q9) Setup and configure AZURE web server for windows server (IIS).

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that window by creating a “Resource Group”, Zone: Asia, Image: window, Select the disk storage and so on. After that click on “Create + Review”. And Finally click on “Create”





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[Home](#) > [Virtual machines](#) >

Create a virtual machine

Enable Hibernation

Hibernate is not supported by the size that you have selected. Choose a size that is compatible with Hibernation to enable this feature. [Learn more](#)

Administrator account

Username \*

AzureUser

Password \*

\*\*\*\*\*

Confirm password \*

\*\*\*\*\*

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 \*

RDP (3389)

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous

Next : Disks >

Review + create

[Give feedback](#)

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[Home](#) > [Virtual machines](#) >

Create a virtual machine

Validation passed

Basics

Disks

Networking

Management

Monitoring

Advanced

Tags

Review + create

Cost below is an estimate and not the final price. For all your pricing needs, please use the pricing calculator.

Price

1 X Standard D2s v3

by Microsoft

[Terms of use](#) | [Privacy policy](#)

Subscription credits apply

16.3894 INR/hr

[Pricing for other VM sizes](#)

TERMS

By clicking "Create", I (a) agree to the legal terms and privacy statement(s) associated with the Marketplace offering(s) listed above; (b) authorize Microsoft to bill my current payment method for the fees associated with the offering(s), with the same billing frequency as my Azure subscription; and (c) agree that Microsoft may share my contact, usage and transactional information with the provider(s) of the offering(s) for support, billing and other transactional activities. Microsoft does not provide rights for third-party offerings. See the [Azure Marketplace Terms](#) for additional details.

You have set RDP port(s) open to the internet. This is only recommended for testing. If you want to change this setting, go back to Basics tab.

< Previous

Next >

Create

Download a template for automation

[Give feedback](#)

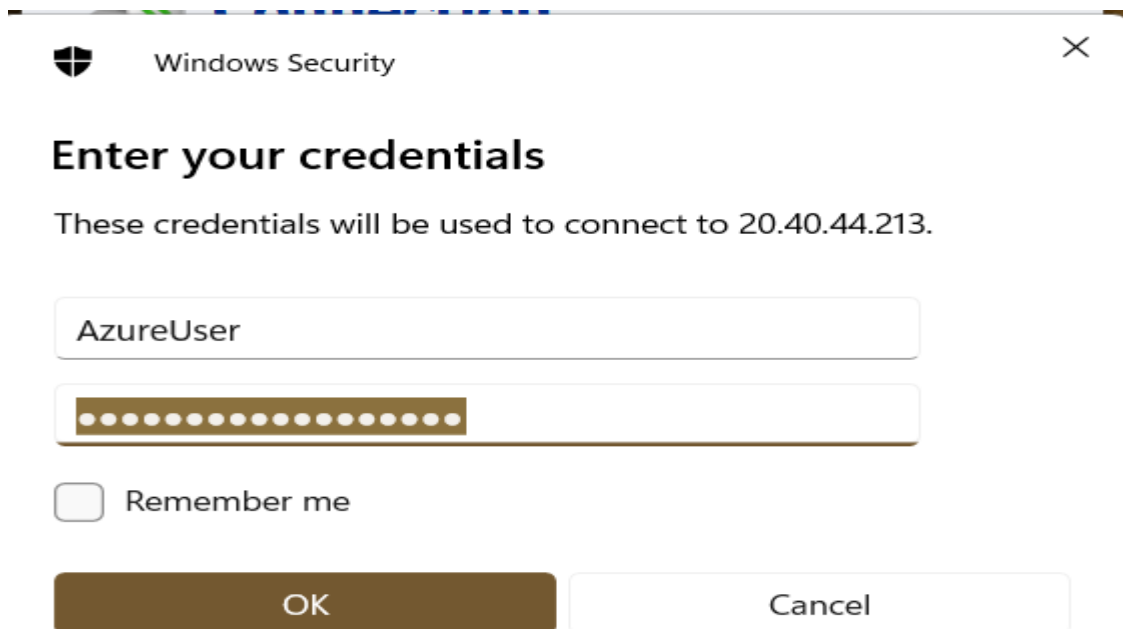
**Step-4:** After Deployment is over, Go to the remote desktop connection.

**Step-5:** Firstly, copy the public IP Address of that created virtual machine.

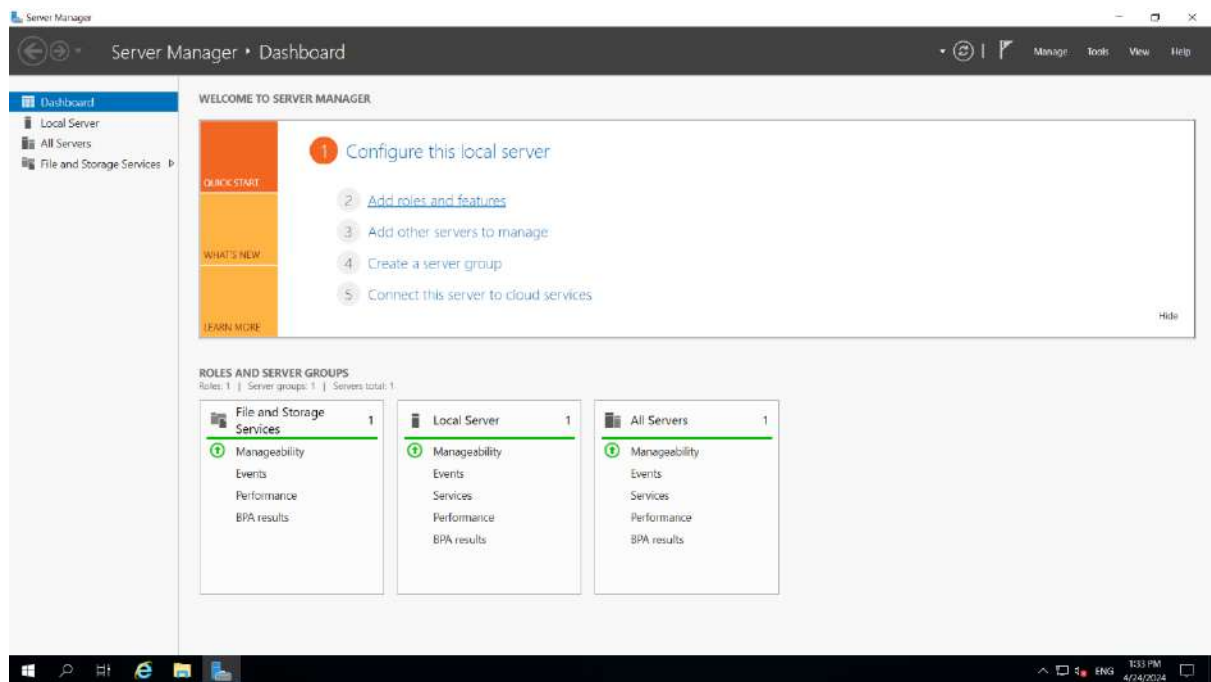
The screenshot displays the Microsoft Azure portal interface. The top navigation bar includes the Microsoft Azure logo, a search bar, and the user's profile. The left sidebar shows the navigation menu with categories like Overview, Activity log, Access control (IAM), Tags, Diagnose and solve problems, Connect, Networking, Settings, Availability + scale, Security, Backup + disaster recovery, Operations, Monitoring, Automation, and Help. The main content area shows the details for a virtual machine named 'VM24'. A warning banner at the top indicates 'VM24 virtual machine agent status is not ready. Troubleshoot the issue ->'. The 'Essentials' section provides key information: Resource group (VM24\_group\_06161120), Status (Running), Location (Central India (Zone 1)), Subscription (Azure for Students), Subscription ID (386d98ff-726a-4822-a39e-61940ec488b3), and Availability zone (1). The 'Properties' section lists details such as Computer name (VM24), Operating system (Windows), VM generation (V2), VM architecture (x64), Agent status (Not Ready), and Agent version (Unknown). The 'Networking' section shows the Public IP address (20.40.44.213) and Private IP address (10.1.0.4).

**Step-6:** By using that copied IP Address open the window virtual machine through remote desktop connection.

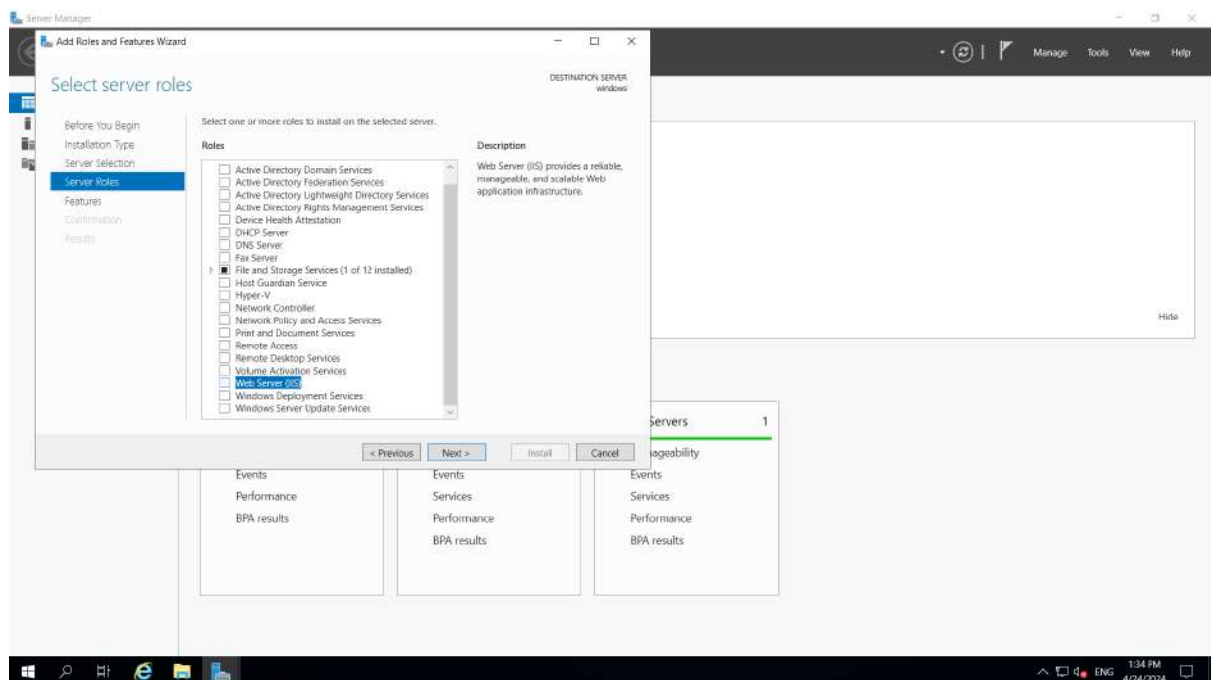
The screenshot shows the Microsoft Azure portal interface for a deployment named 'CreateVm-MicrosoftWindowsServer.WindowsServer-202-20240616102643'. The top navigation bar includes the Microsoft Azure logo, a search bar, and the user's profile. The left sidebar shows the navigation menu with categories like Overview, Inputs, Outputs, and Template. The main content area shows the deployment details. A green checkmark indicates 'Your deployment is complete'. The deployment name is 'CreateVm-MicrosoftWindowsServer.WindowsServer-202-20240616102643', the subscription is 'Azure for Students', and the resource group is 'VM24\_group'. The start time is '6/16/2024, 10:29:35 AM' and the correlation ID is 'e264539-2261-4362-ac60-f0e47bac427'. The 'Next steps' section includes 'Setup auto-shutdown', 'Monitor VM health, performance and network dependencies', and 'Run a script inside the virtual machine'. The 'Go to resource' and 'Create another VM' buttons are visible. The right sidebar contains links for 'Cost Management', 'Microsoft Defender for Cloud', 'Free Microsoft tutorials', and 'Work with an expert'.

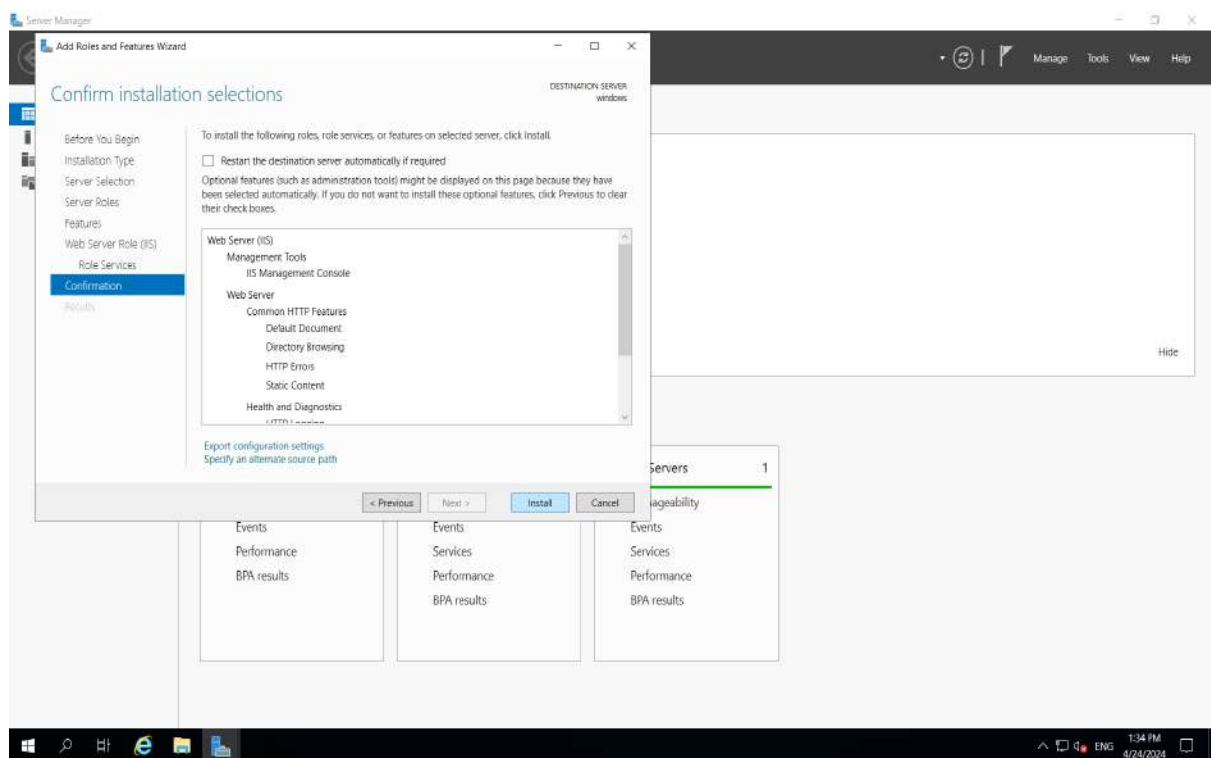
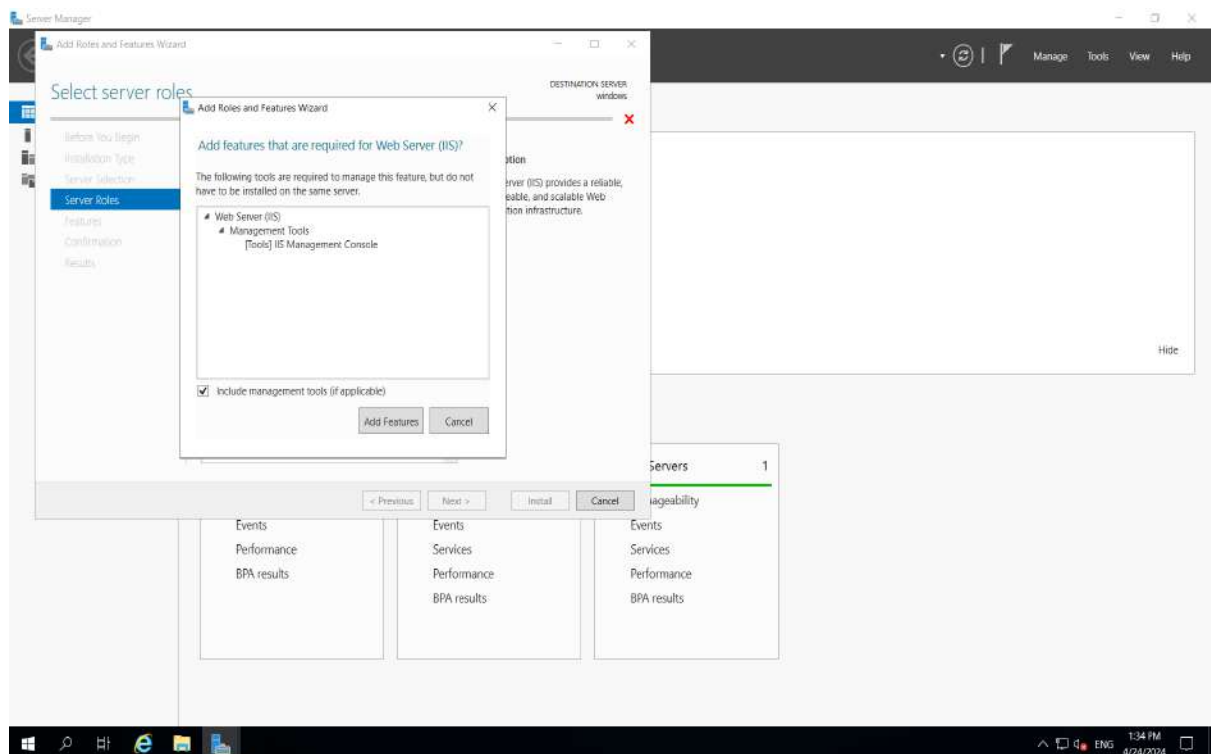


**Step-7:** When remote desktop will start (windows VM) you can see there will be Server Manager will be opened and in that you can see Configure this local server, click on “Add roles and features”.

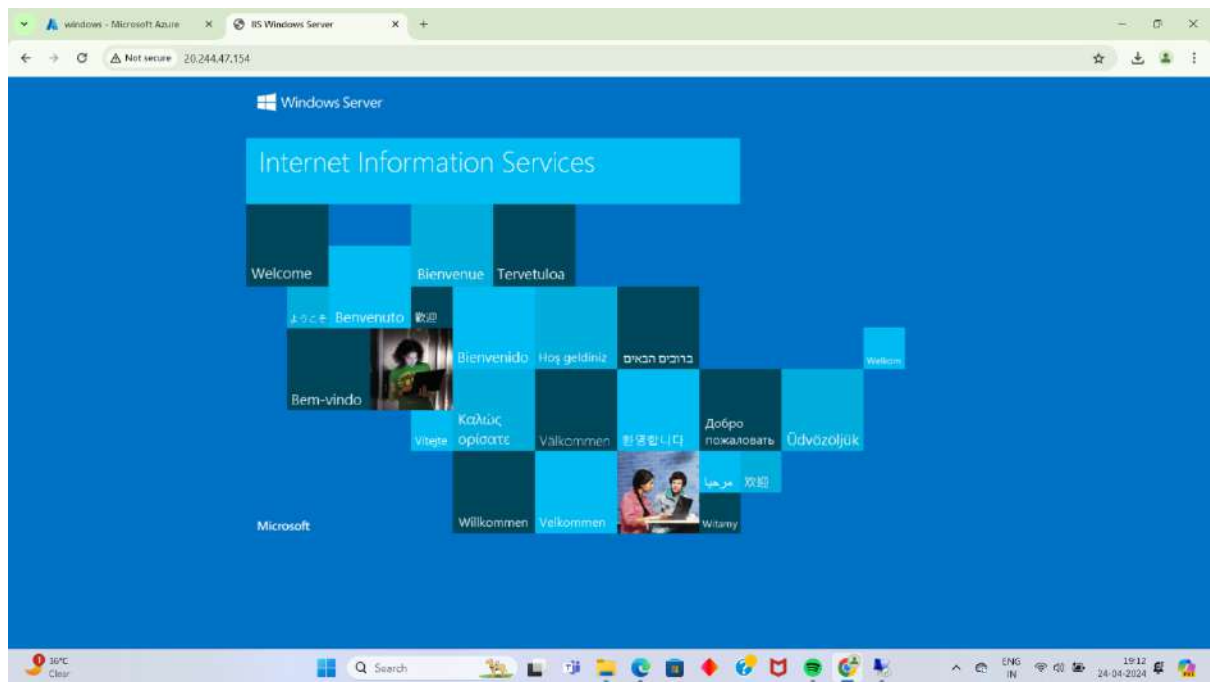


**Step-8:** Click on next, next and in Server Roles select Web Server (IIS) click on add feature, click on next, next till you can get install button and click on install.

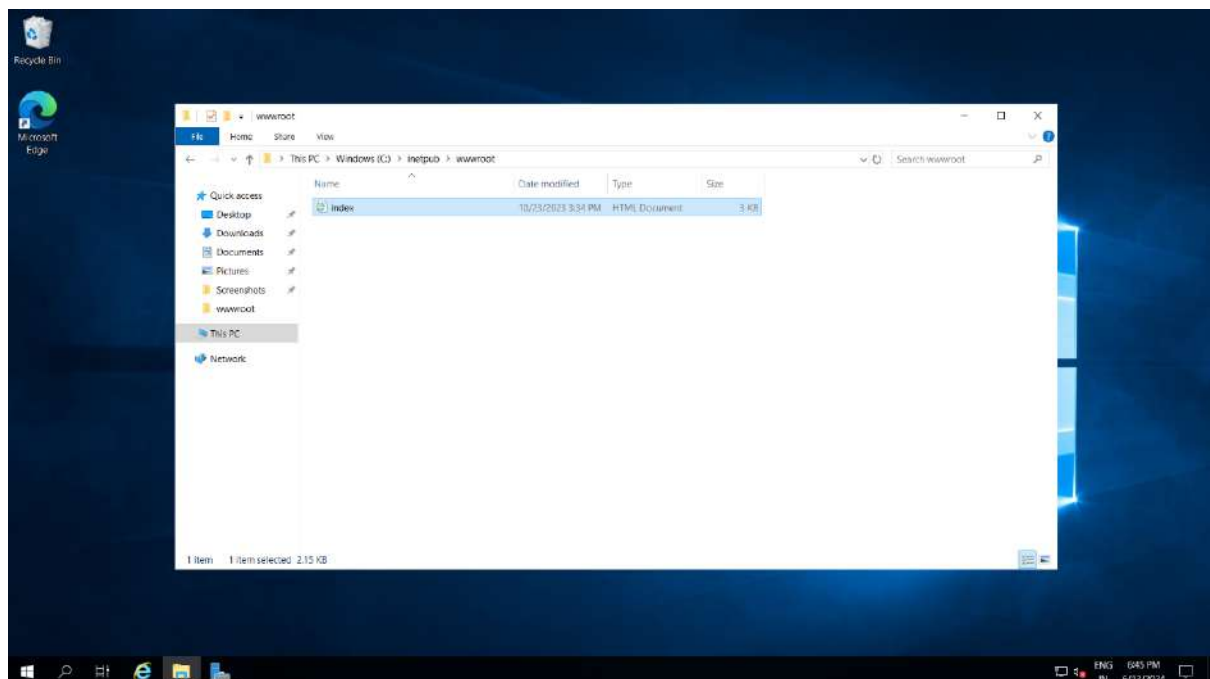




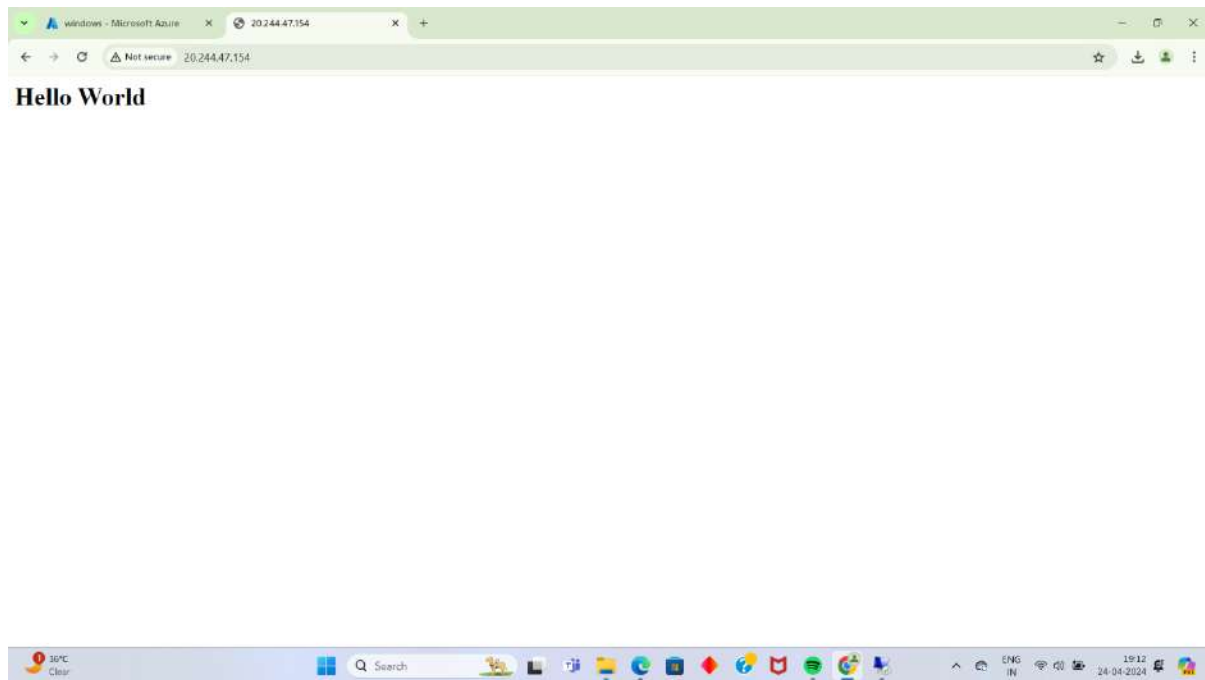
**Step- 9:** paste the public ip address in desktop browser and you can see.



Now to remove this all information first of all create index.html in desktop and that should paste in the specified location of remote desktop VM that is ThisPC->windows(c)->inetup->wwwroot and remove iistart.png.



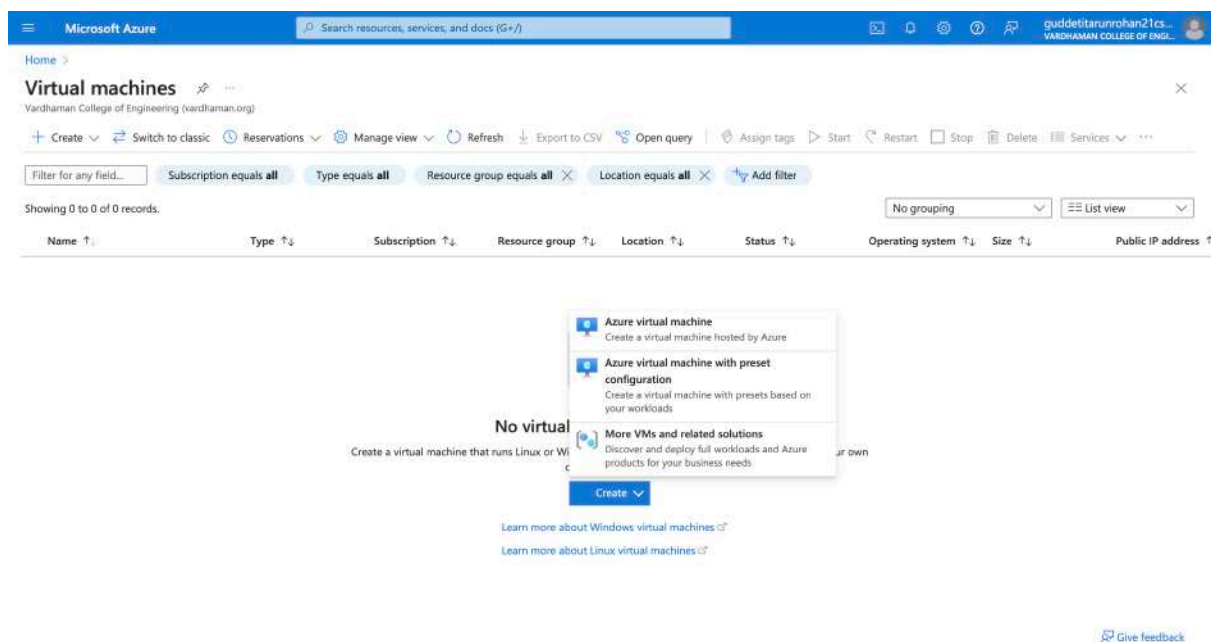
**Step-10:** Refresh the browser page.



**Q10)** How we are adding new users, login credentials, changing owner, create authorized key files.

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that ubuntu by creating a “Resource Group”, Zone: Asia, Image: ubuntu, select “SSH”, Select the disk storage and so on. After that click on “Create + Review”. And finally click on “Create”.

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal. The page is titled 'Create a virtual machine' and has a breadcrumb trail 'Home > Virtual machines >'. The page is divided into two main sections: 'Project details' and 'Instance details'. In the 'Project details' section, the 'Subscription' is set to 'Azure for Students' and the 'Resource group' is set to '(New) Ubuntu\_group'. In the 'Instance details' section, the 'Virtual machine name' is 'Ubuntu', the 'Region' is '(Asia Pacific) Central India', the 'Availability options' are 'Availability zone', and the 'Availability zone' is 'Zone 1'. The 'Security type' is 'Trusted launch virtual machines' and the 'Image' is 'Ubuntu Server 20.04 LTS - x64 Gen2'. At the bottom of the page, there are three buttons: '< Previous', 'Next : Disks >', and 'Review + create'.

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, specifically the 'Inbound port rules' section. The page is titled 'Create a virtual machine' and has a breadcrumb trail 'Home > Virtual machines >'. The page is divided into two main sections: 'Username' and 'Inbound port rules'. In the 'Username' section, the 'Username' is 'azureuser' and the 'SSH public key source' is 'Generate new key pair'. In the 'Inbound port rules' section, the 'SSH Key Type' is 'RSA SSH Format' and the 'Key pair name' is 'ubuntu\_key'. The 'Public inbound ports' are set to 'Allow selected ports' and the 'Select inbound ports' is 'SSH (22)'. At the bottom of the page, there are three buttons: '< Previous', 'Next : Disks >', and 'Review + create'.



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Home > Virtual machines >

### Create a virtual machine

VM architecture

☐ Arm64  
☒ x64

Run with Azure Spot discount

☐

Size

Standard\_D2s\_v3 - 2 vcpus, 8 GiB memory (₹6,376.87/month)

[See all sizes](#)

Enable Hibernation

☐

Hibernation 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.

Username

azureuser

SSH public key source

Generate new key pair

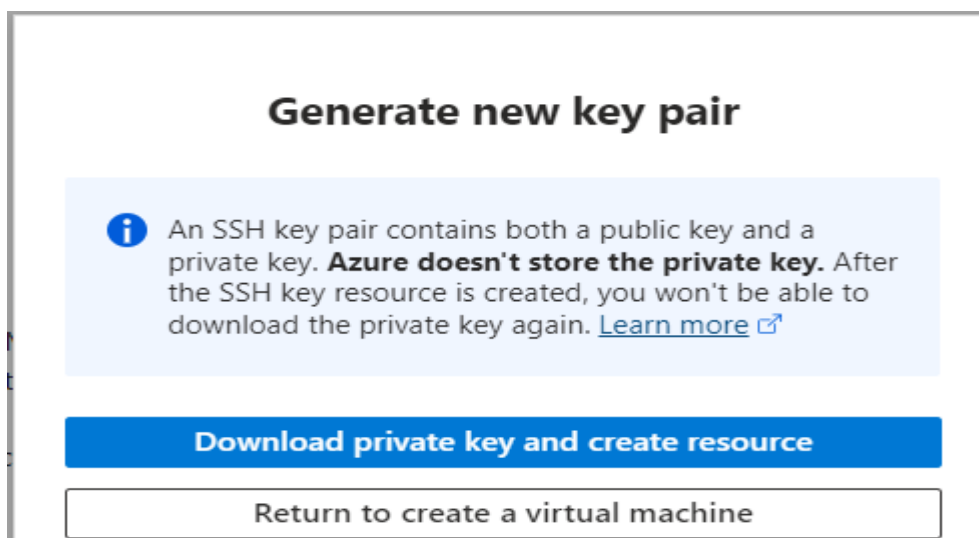
SSH key format

☒ RSA SSH Format

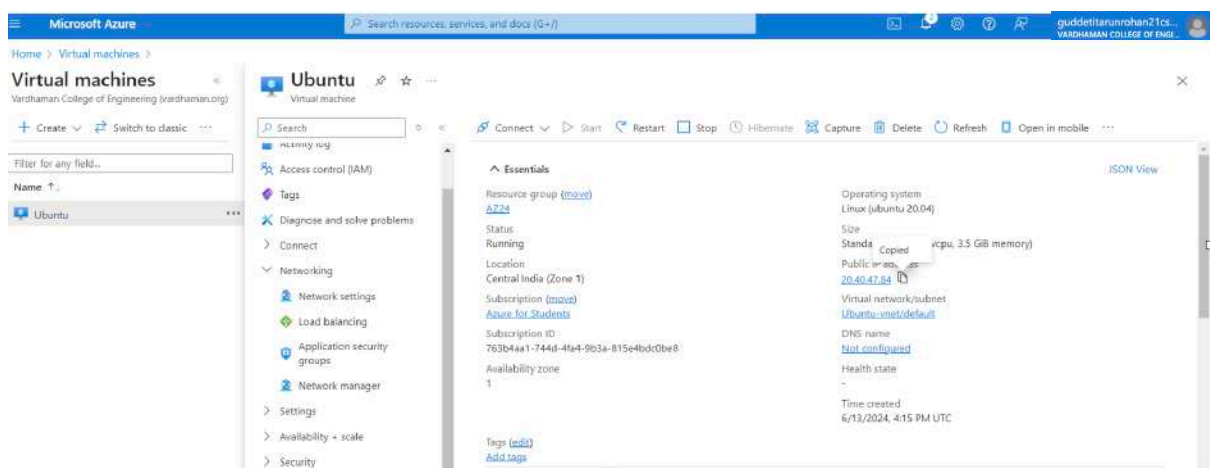
< Previous   Next: Disks >   **Review + create**

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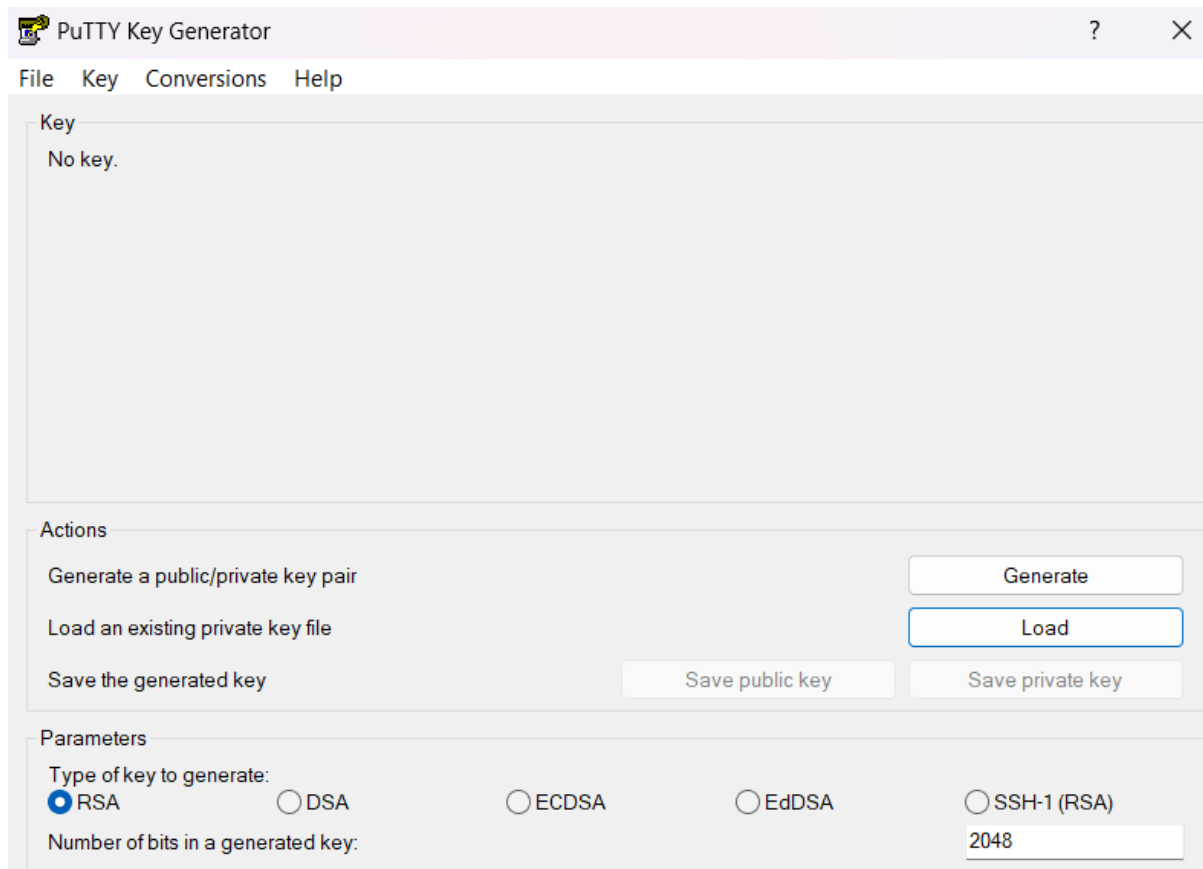
**Step-4:** After Deployment is over, Go to the remote desktop connection.

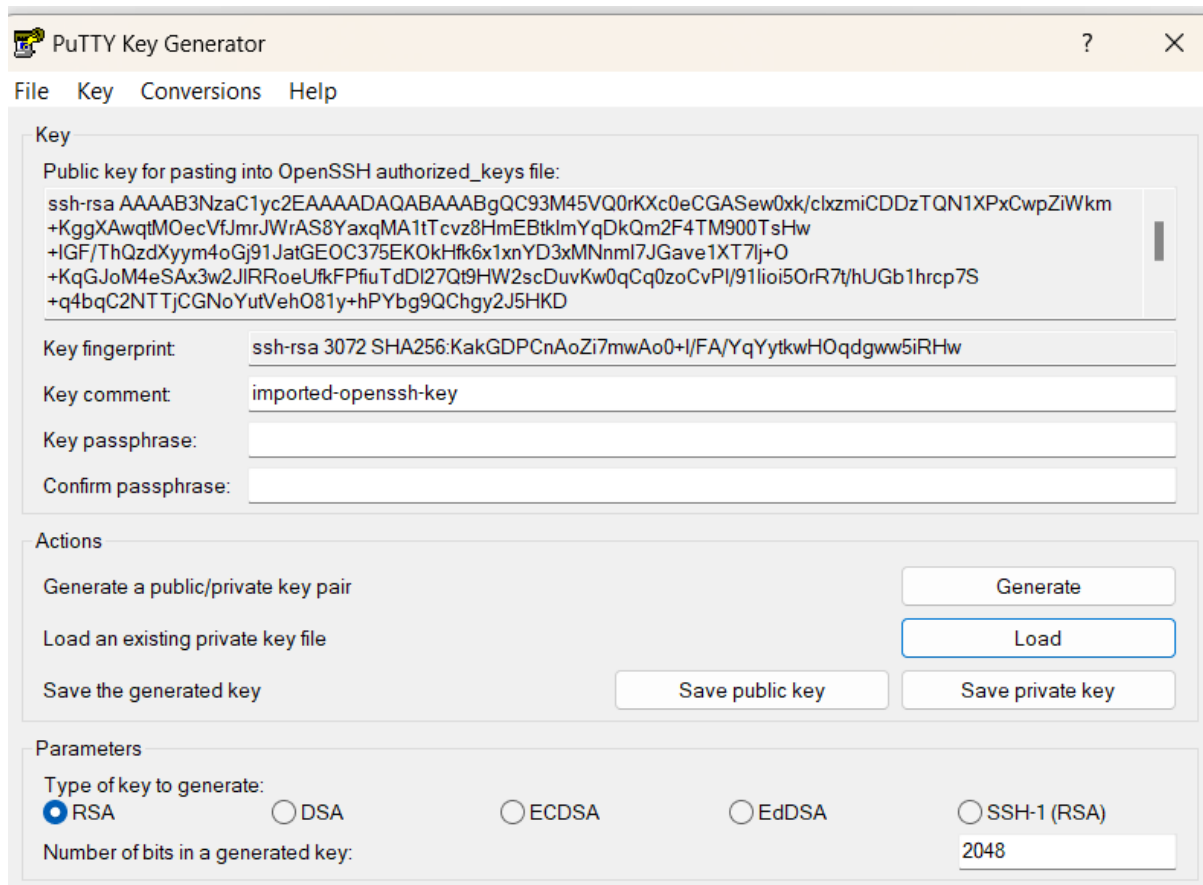


**Step-5:** Firstly, copy the public IP Address of that created virtual machine.



**Step-6:** Go to putty gen and click on load the key generator that you have downloaded.





**PuTTY Key Generator**

File Key Conversions Help

**Key**

Public key for pasting into OpenSSH authorized\_keys file:

```
ssh-rsa AAAAB3NzaC1yc2EAAAADAQABAAQGC93M45VQ0rKXc0eCGASew0xk/clxmiCDDzTQN1XPxCwpZiWkm
+KggXAwqtMOecVfJmrJWras8YaxqMA1tTcvz8HmEBtkmYqDkQm2F4TM900TsHw
+IGF/ThQzdXyym4oGj91JatGEOC375EKOkHfk6x1xnYD3xMNNml7JGave1XT7lj+O
+KqGJoM4eSAx3w2JIIRoeUfkFPfiuTdDI27Q9HW2scDuvKw0qCq0zoCvPI/91lio5OrR7t/hUGb1hrpc7S
+q4bqC2NTTjCGNoYutVehO81y+hPYbg9QChgy2J5HKD
```

Key fingerprint: ssh-rsa 3072 SHA256:KakGDPCnAoZi7mwAo0+I/FA/YqYytkwHOqdgww5iRhw

Key comment: imported-openssh-key

Key passphrase:

Confirm passphrase:

**Actions**

Generate a public/private key pair Generate

Load an existing private key file Load

Save the generated key Save public key Save private key

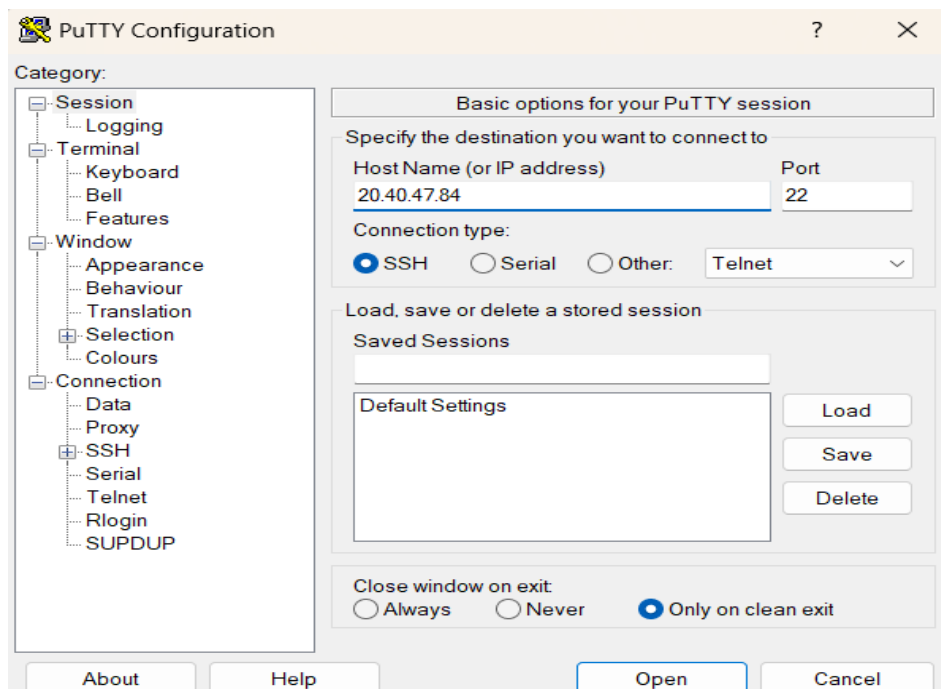
**Parameters**

Type of key to generate:

☒ RSA ☐ DSA ☐ ECDSA ☐ EdDSA ☐ SSH-1 (RSA)

Number of bits in a generated key: 2048

**Step-7:** In putty, put the Copied IP Adress into it, and then go to ssh->auth->credentials and the put the generated private key.



**PuTTY Configuration**

Category:

- Session
- Logging
- Terminal
- Keyboard
- Bell
- Features
- Window
- Appearance
- Behaviour
- Translation
- Selection
- Colours
- Connection
- Data
- Proxy
- SSH
- Serial
- Telnet
- Rlogin
- SUPDUP

**Basic options for your PuTTY session**

Specify the destination you want to connect to

Host Name (or IP address) 20.40.47.84 Port 22

Connection type:

☒ SSH ☐ Serial ☐ Other: Telnet

Load, save or delete a stored session

Saved Sessions

Default Settings

Load Save Delete

Close window on exit:

☐ Always ☐ Never ☒ Only on clean exit

About Help Open Cancel

**Step-8:** A login page will be opened in that type your username and you will be into the ubuntu.

**Step-9:** Login into your Ubuntu VM using your username and type the following commands.

To add new user in Linux server:

`$sudo useradd -m SaiTeja`

To set new password:

`$sudo password SaiTeja`

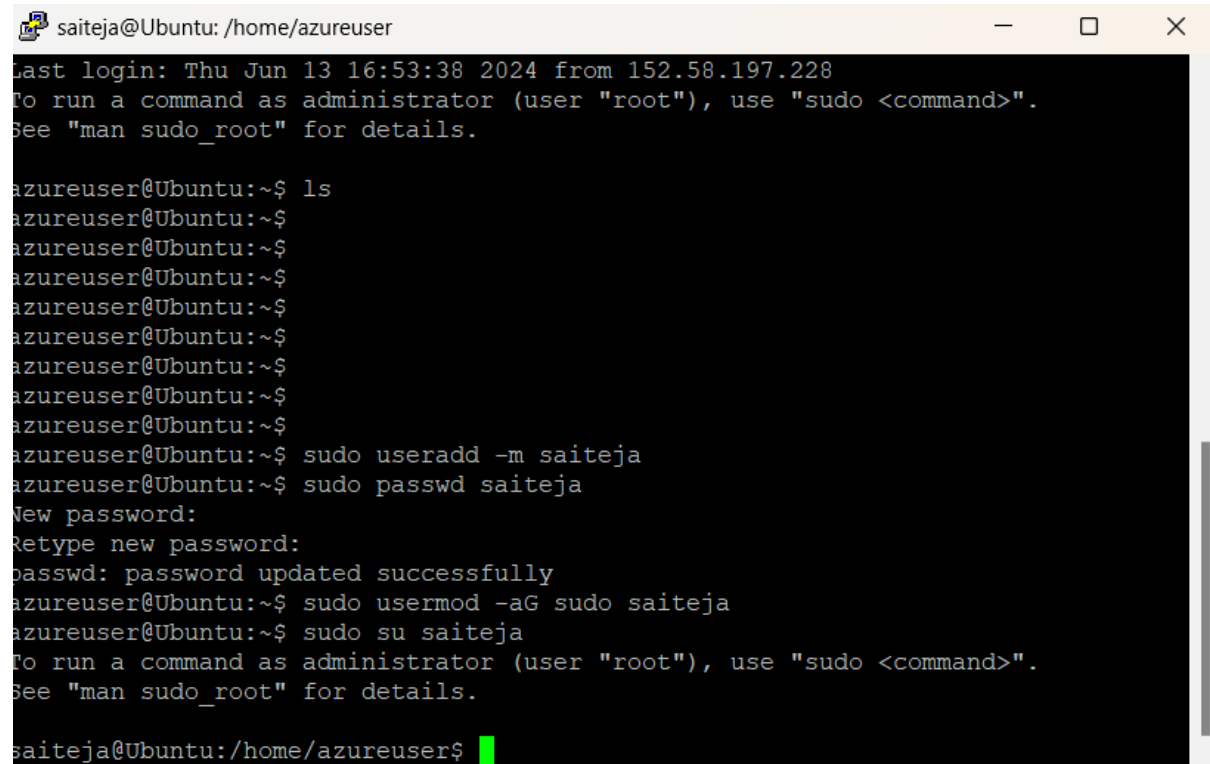
Enter new password and Retype password.

To modify login credentials:

`$sudo usermod -aG sudo SaiTeja`

To switch the user:

`$sudo su SaiTeja`

A terminal window titled 'saiteja@Ubuntu: /home/azureuser' with standard window controls. The terminal output shows the user 'azureuser' at the 'Ubuntu' prompt. After several 'ls' commands, the user runs 'sudo useradd -m saiteja', followed by 'sudo passwd saiteja'. The password prompt is shown, and the message 'passwd: password updated successfully' appears. Then, the user runs 'sudo usermod -aG sudo saiteja' and 'sudo su saiteja'. The prompt changes to 'saiteja@Ubuntu: /home/azureuser\$'.

```
saiteja@Ubuntu: /home/azureuser
Last login: Thu Jun 13 16:53:38 2024 from 152.58.197.228
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@Ubuntu:~$ ls
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ 
azureuser@Ubuntu:~$ sudo useradd -m saiteja
azureuser@Ubuntu:~$ sudo passwd saiteja
New password:
Retype new password:
passwd: password updated successfully
azureuser@Ubuntu:~$ sudo usermod -aG sudo saiteja
azureuser@Ubuntu:~$ sudo su saiteja
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

saiteja@Ubuntu: /home/azureuser$
```

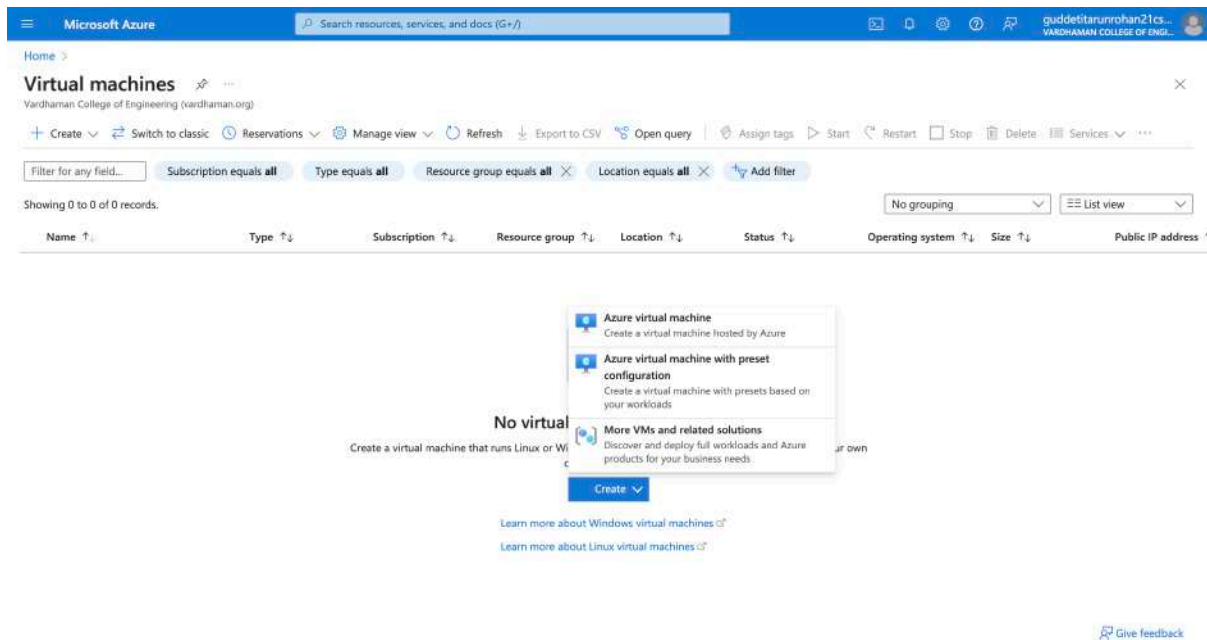
**RESULT :**

**Above experiment is successful executed And verified.**

### Q11) Create a Windows VM and transfer files from desktop to remote desktop VM.

**Step-1:** Sign in to your Microsoft Azure account.

**Step-2:** Go To Virtual machine, and click on “Create” to create a window virtual machine.



**Step-3:** Fill the details in that window by creating a “Resource Group”, Zone: Asia, Image: window, Select the disk storage and so on. After that click on “Create + Review”. And finally click on “Create”

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Home > Virtual machines >

### Create a virtual machine

Enable Hibernation ☐

**Administrator account**

Username \* AzureUser ✓

Password \* ✓

Confirm password \* ✓

**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 \* RDP (3389)

All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.

< Previous Next : Disks > Review + create

Give feedback

**Step-4:** After Deployment is over, Go to the remote desktop connection.

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Home >

### CreateVm-MicrosoftWindowsServer.WindowsServer-202-20240616102643 | Overview

Deployment

Search

Delete Cancel Redeploy Download Refresh

**Overview**

Inputs

Outputs

Template

**Your deployment is complete**

Deployment name: CreateVm-MicrosoftWindowsServer.WindowsS... Start time: 6/16/2024, 10:29:35 AM

Subscription: Azure for Students Correlation ID: e28a4539-2261-4362-ac60-f0e47bac4f27

Resource group: VM24\_group

**Deployment details**

**Next steps**

Setup auto-shutdown Recommended

Monitor VM health, performance and network dependencies Recommended

Run a script inside the virtual machine Recommended

Go to resource Create another VM

**Give feedback**

Tell us about your experience with deployment.

**Cost Management**

Get notified to stay within your budget and prevent unexpected charges on your bill. Set up cost alerts >

**Microsoft Defender for Cloud**

Secure your apps and infrastructure Go to Microsoft Defender for Cloud >

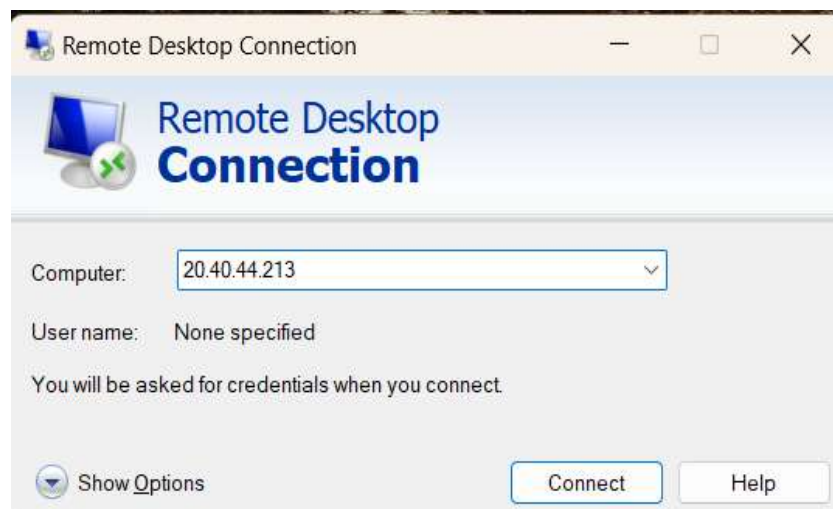
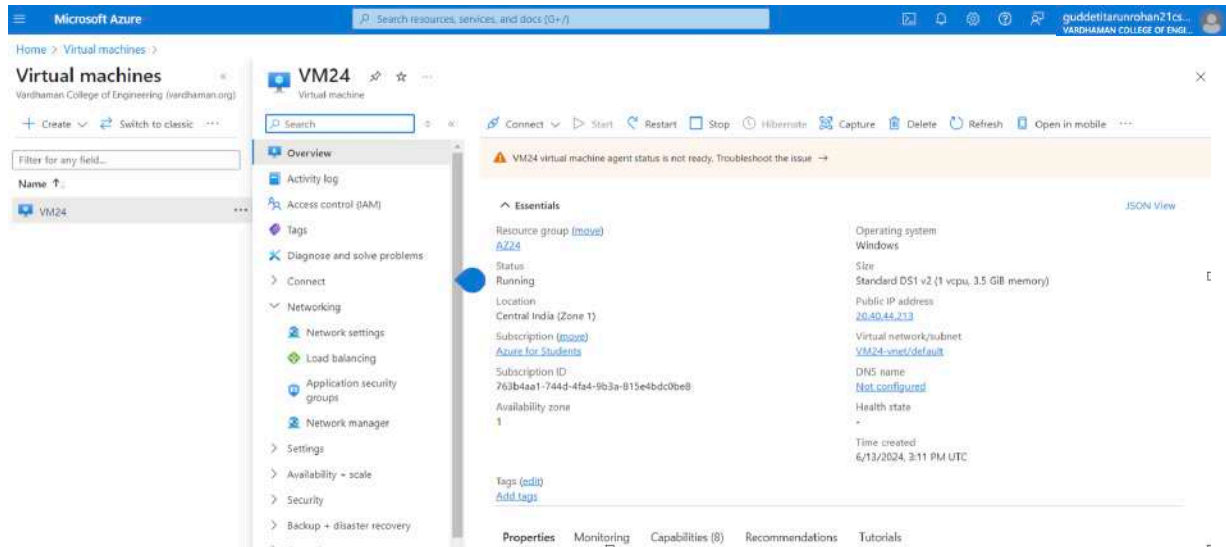
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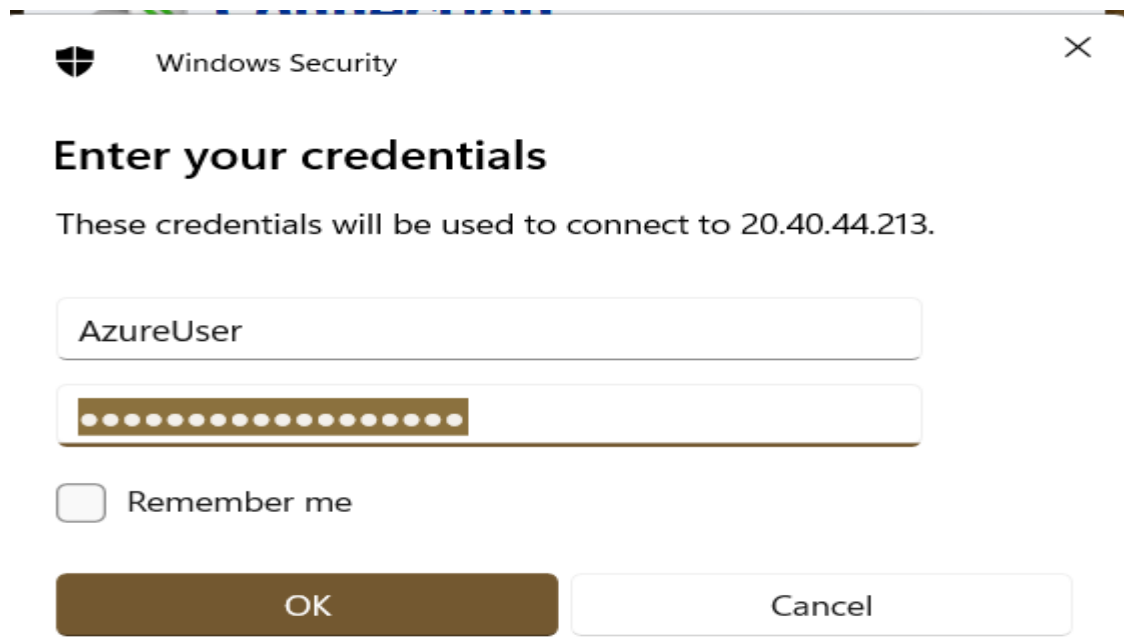
**Work with an expert**

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**Step-5:** Firstly, copy the public IP Address of that created virtual machine.

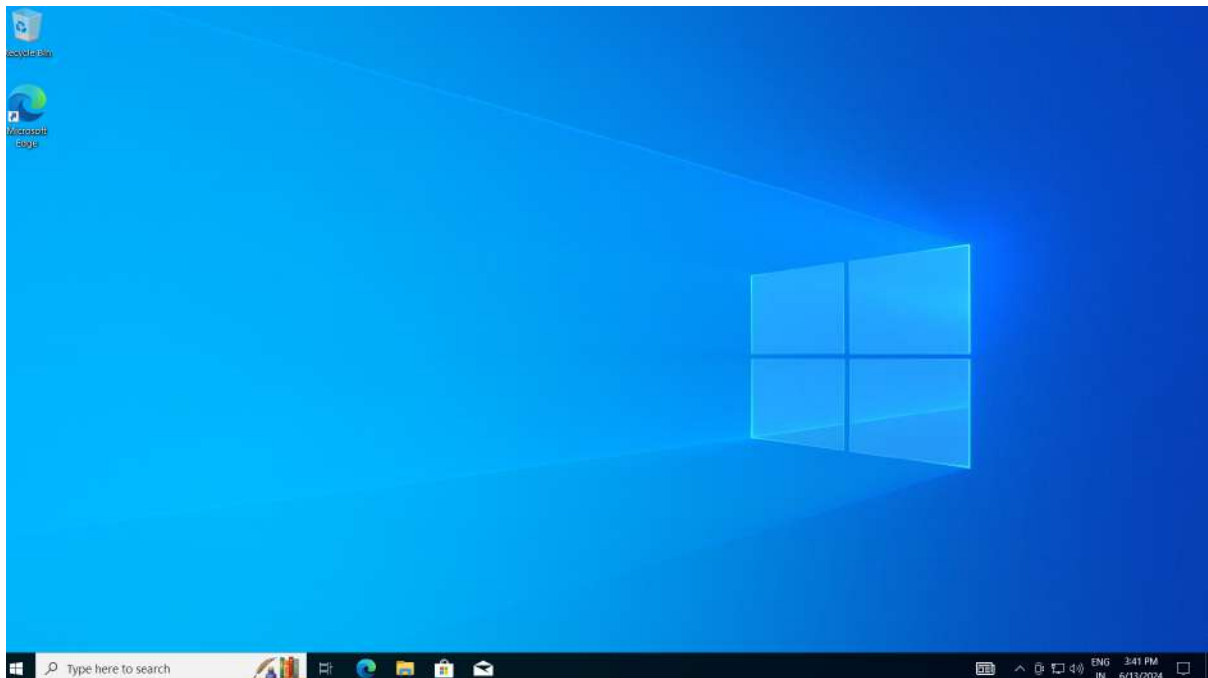


**Step-6:** By using that copied IP Address open the window virtual machine through remote desktop connection.

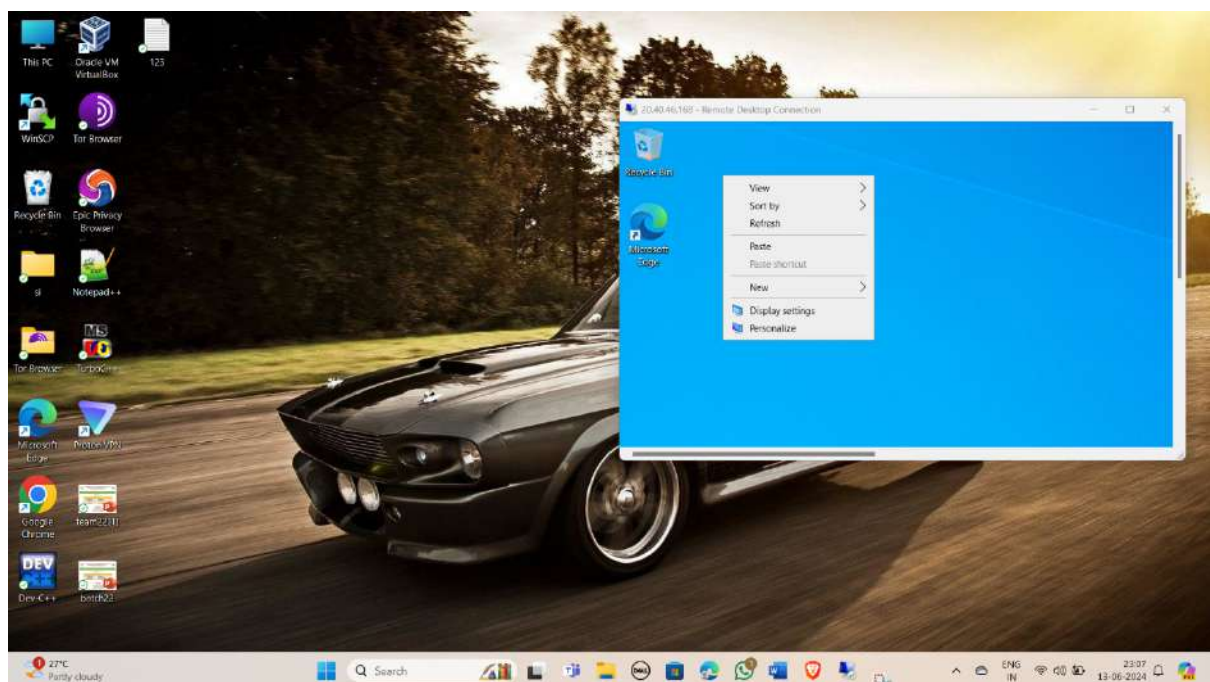
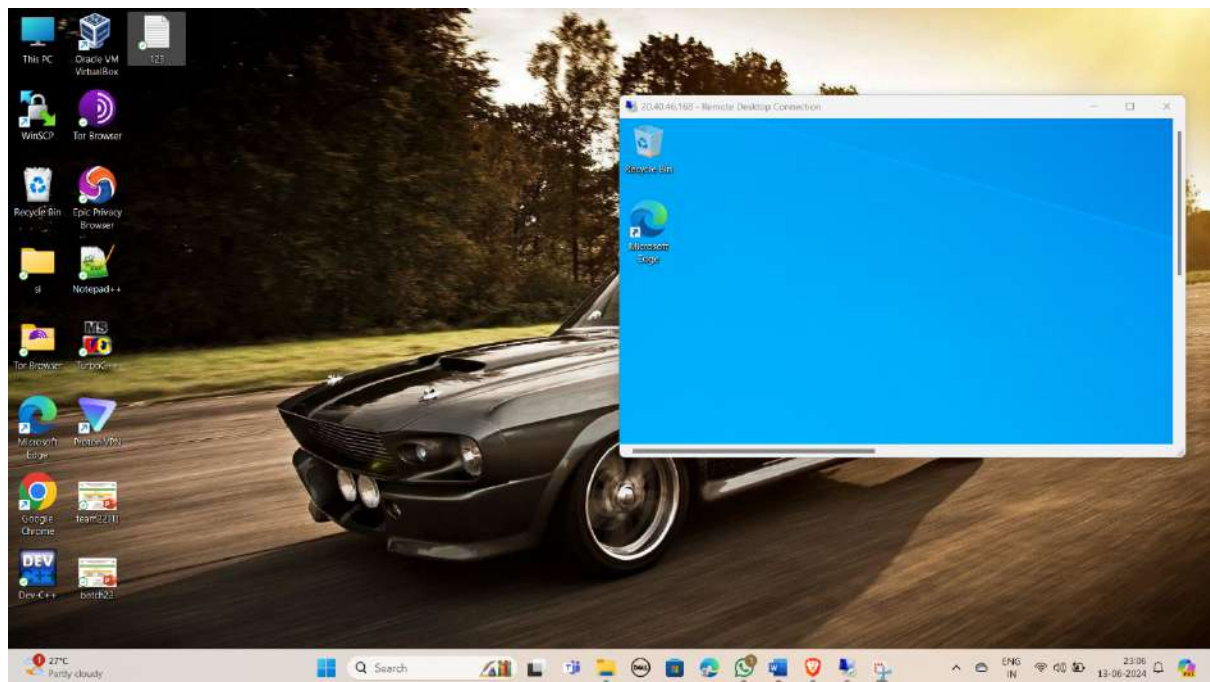


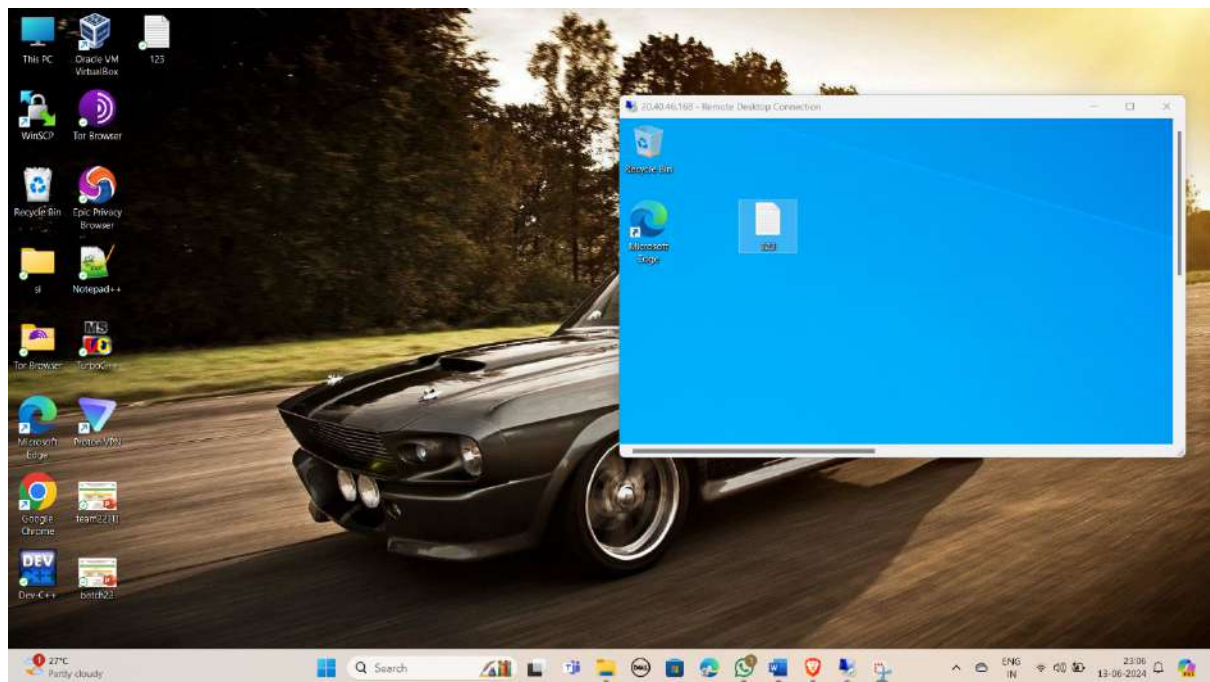
**Step-7: Minimize the Remote desktop and copy file from desktop.**

**Right click in remote desktop and click on paste.**







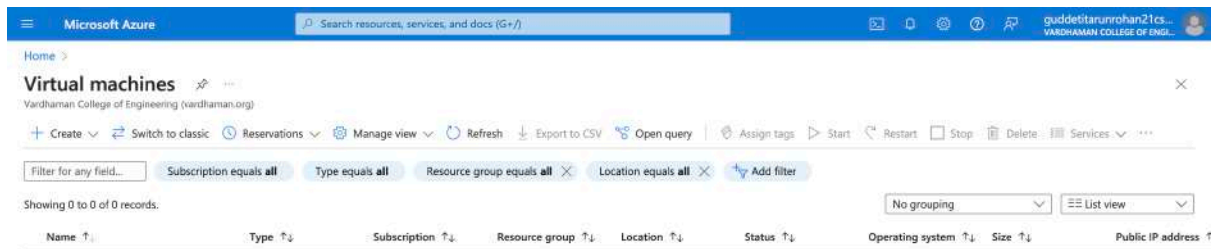


## **RESULT :**

**Above experiment is successful executed And verified.**

## 12Q) How to attach and detach data disks to Windows server in azure data center

Steps:-1) Create a Virtual name with VM name as "UbuntU" with username & password



**Create a virtual machine**

Basics | Disks | Networking | Management | Monitoring | Advanced | Tags | Review + create

Create a virtual machine that runs Linux or Windows. Select an image from Azure marketplace or use your own customized image. Complete the Basics tab then Review + create to provision a virtual machine with default parameters or review each tab for full customization. [Learn more](#)

**Project details**  
Select the subscription to manage deployed resources and costs. Use resource groups like folders to organize and manage all your resources.

Subscription \*

Resource group \*   
[Create new](#)

**Instance details**

Virtual machine name \*

Region \*

Availability options

Availability zone \*

[< Previous](#) [Next : Disks >](#) [Review + create](#)

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal. The user is at the 'Administrator account' step. The 'Authentication type' is set to 'Password'. The 'Username' is 'azureuser', and the 'Password' and 'Confirm password' fields are filled with masked characters. Under 'Inbound port rules', 'Public inbound ports' is set to 'Allow selected ports', and 'Select inbound ports' is set to 'SSH (22)'. A blue information box states: 'All traffic from the internet will be blocked by default. You will be able to change inbound port rules in the VM > Networking page.' At the bottom, there are navigation buttons: '< Previous', 'Next : Disks >', and 'Review + create'. A 'Give feedback' link is also present.

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, continuing from the previous step. The user is at the 'OS disk' configuration step. The 'Encryption at host' checkbox is unchecked, with a blue information box stating: 'Encryption at host is not registered for the selected subscription. Learn more about enabling this feature.' The 'OS disk size' is set to '128 GiB (P10)'. A blue information box states: 'Some images are, by default, smaller than the selected OS disk size. Click here to learn how to expand your disk partition size after you create your VM.' The 'OS disk type' is set to 'Premium SSD (locally-redundant storage)'. The 'Delete with VM' checkbox is checked. The 'Key management' is set to 'Platform-managed key'. The 'Enable Ultra Disk compatibility' checkbox is unchecked. At the bottom, there are navigation buttons: '< Previous', 'Next : Networking >', and 'Review + create'. A 'Give feedback' link is also present.

2) click on "Next:Disks>"

The screenshot shows the 'Create a new disk' form in the Microsoft Azure portal. The form is titled 'Create a new disk' and includes a search bar at the top. Below the title, there is a description: 'Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)'. The form contains several fields: 'Name' (vm\_DataDisk\_0), 'Source type' (None (empty disk)), 'Size' (1024 GiB, Premium SSD LRS, with a 'Change size' link), 'Key management' (Platform-managed key), 'Enable shared disk' (No), and 'Delete disk with VM' (checked). At the bottom, there is an 'OK' button and a 'Give feedback' link.

3) Click on "Create & attach a new disk"

The screenshot shows the 'Select a disk size' form in the Microsoft Azure portal. The form is titled 'Select a disk size' and includes a search bar at the top. Below the title, there is a description: 'Browse available disk sizes and their features.' The form contains a 'Storage type' dropdown menu (Premium SSD (locally-redundant storage)) and a table of disk sizes and their features. The table has columns for Size, Performance tier, Provisioned IOPS, Provisioned throughput, Max Shares, Max burst IOPS, and Max burst throughput. The table lists various disk sizes from 4 GiB to 32767 GiB, with corresponding performance tiers and metrics. At the bottom, there is an 'OK' button and a 'Give feedback' link.

Size	Performance tier	Provisioned IOPS	Provisioned throughput	Max Shares	Max burst IOPS	Max burst throughput
4 GiB	P1	120	25	3	3500	170
8 GiB	P2	120	25	3	3500	170
16 GiB	P3	120	25	3	3500	170
32 GiB	P4	120	25	3	3500	170
64 GiB	P6	240	50	3	3500	170
128 GiB	P10	500	100	3	3500	170
256 GiB	P15	1100	125	3	3500	170
512 GiB	P20	2300	150	3	3500	170
1024 GiB	P30	5000	200	5	-	-
2048 GiB	P40	7500	250	5	-	-
4096 GiB	P50	7500	250	5	-	-
8192 GiB	P60	16000	500	10	-	-
16384 GiB	P70	18000	750	10	-	-
32767 GiB	P80	20000	900	10	-	-

4) Click on “change size”

5) Customize data size to 10 GiB and click on OK



The screenshot shows the 'Create a new disk' form in the Microsoft Azure portal. The form is titled 'Create a new disk' and includes a search bar at the top. The main content area contains several fields: 'Name' (vm\_DataDisk\_0), 'Source type' (None (empty disk)), 'Size' (4 GiB, Premium SSD LRS), 'Key management' (Platform-managed key), 'Enable shared disk' (No), and 'Delete disk with VM' (checked). An 'OK' button is at the bottom left. The top navigation bar shows the user's profile and the text 'Microsoft Azure'. The bottom status bar shows the system clock and network status.

6) Enable delete with VM and click on OK

7) Click on "Review+create" & click on create

8) Click on "Go to resource group"

The screenshot shows the 'Virtual machine' overview page in the Microsoft Azure portal. The page is titled 'Virtual machine' and includes a search bar at the top. The main content area displays the 'Overview' tab, which shows the VM's status (Running), location (Central India (Zone 1)), and other details. The 'Properties' section lists the VM's name (vm), operating system (Linux), VM generation (V2), VM architecture (x64), agent status (Not Ready), agent version (Unknown), and hibernation (Disabled). The 'Networking' section shows the public IP address (20.40.46.16) and the virtual network/subnet (vm-vnet/default). The top navigation bar shows the user's profile and the text 'Microsoft Azure'. The bottom status bar shows the system clock and network status.

9) Copy public IP Address

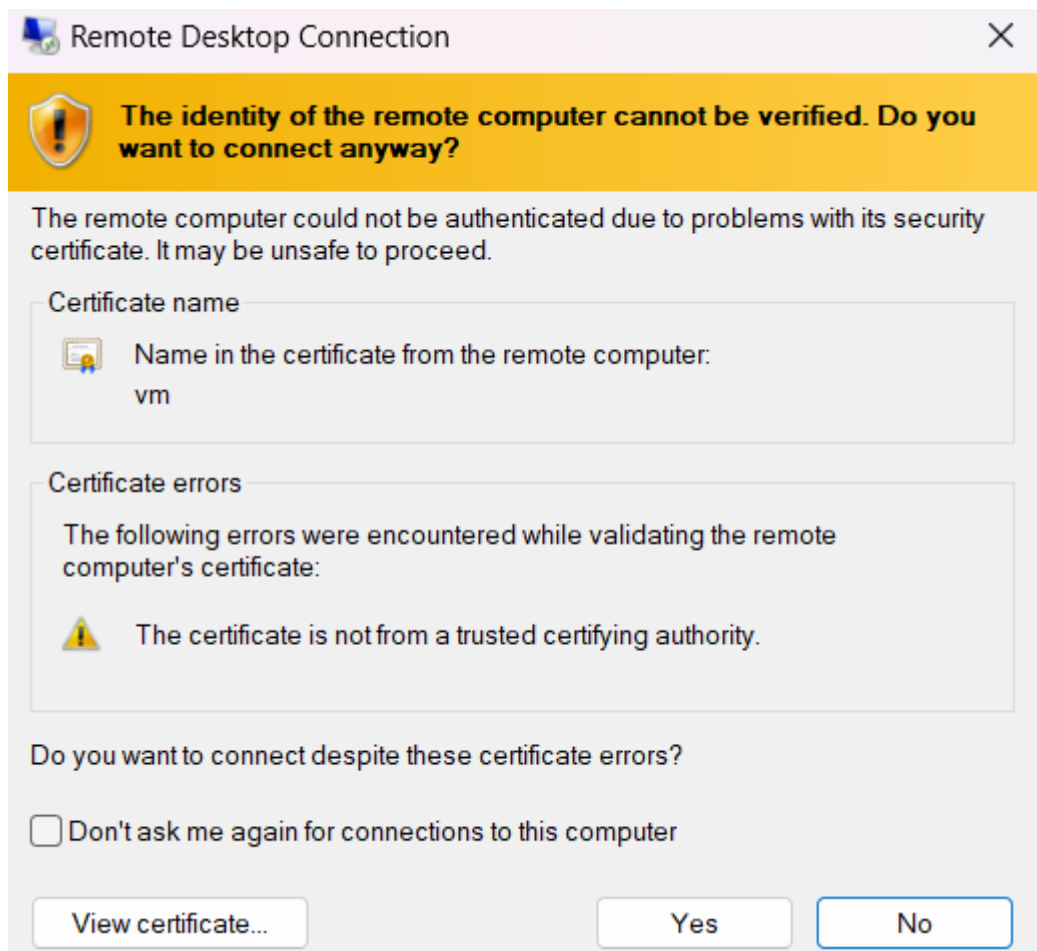
10) Open Remote Desktop Connection in your windows/system and paste the public IP Address

11) Click on “More choices”

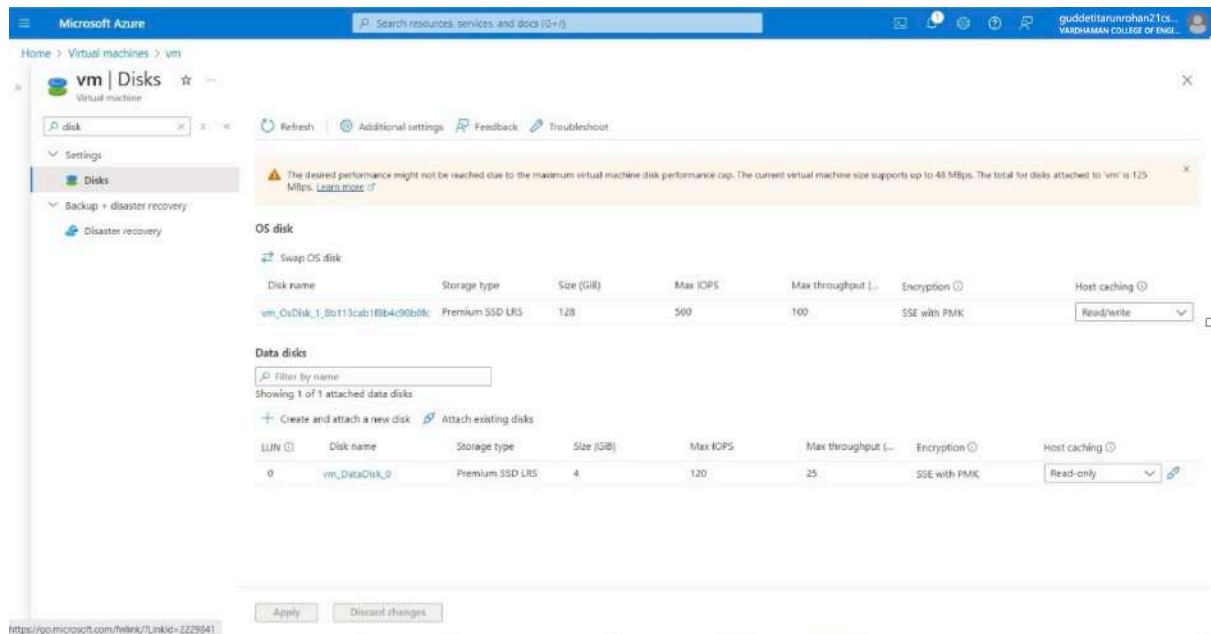
12) Click on “Use a different account”, enter the credentials and click on OK



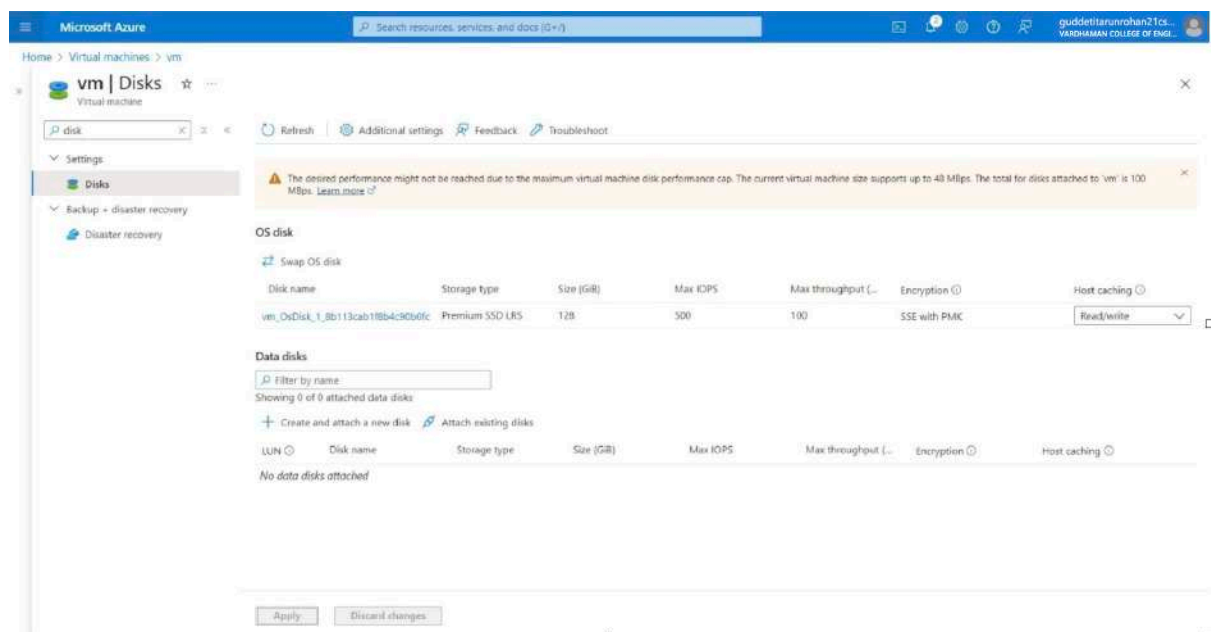
13) Click on yes and now the data disks are attached to the windows server



14) Click on “Disks” in your VM and you can see the attached data disks to the windows server

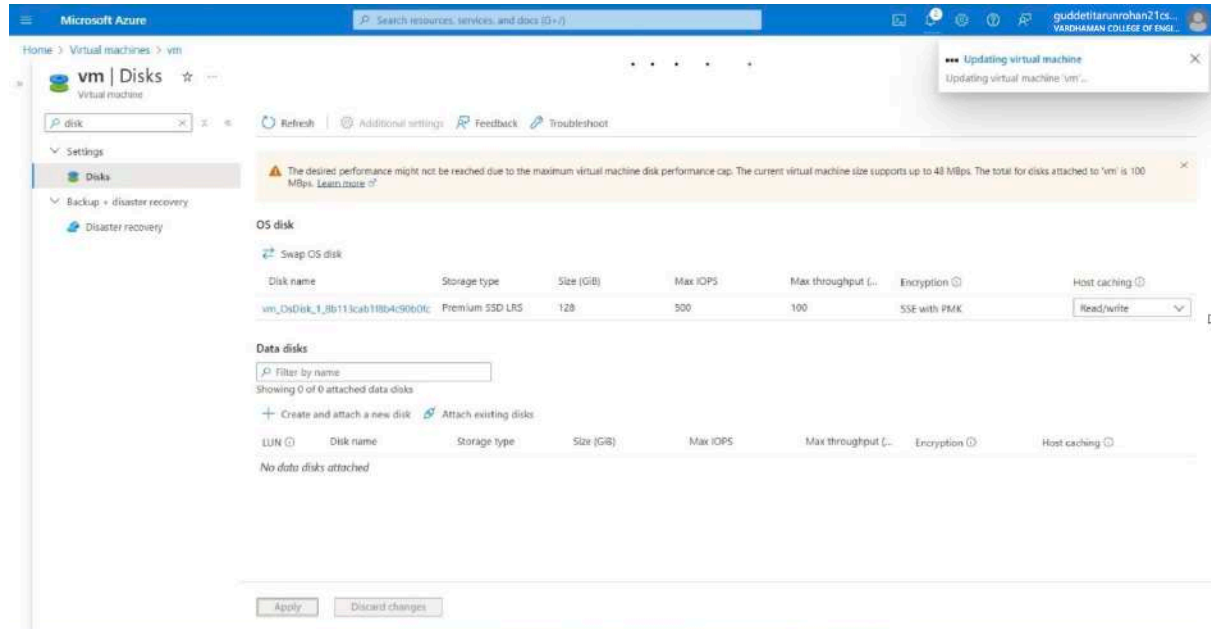


15) Detach the data disks from the windows server by clicking on the detach symbol

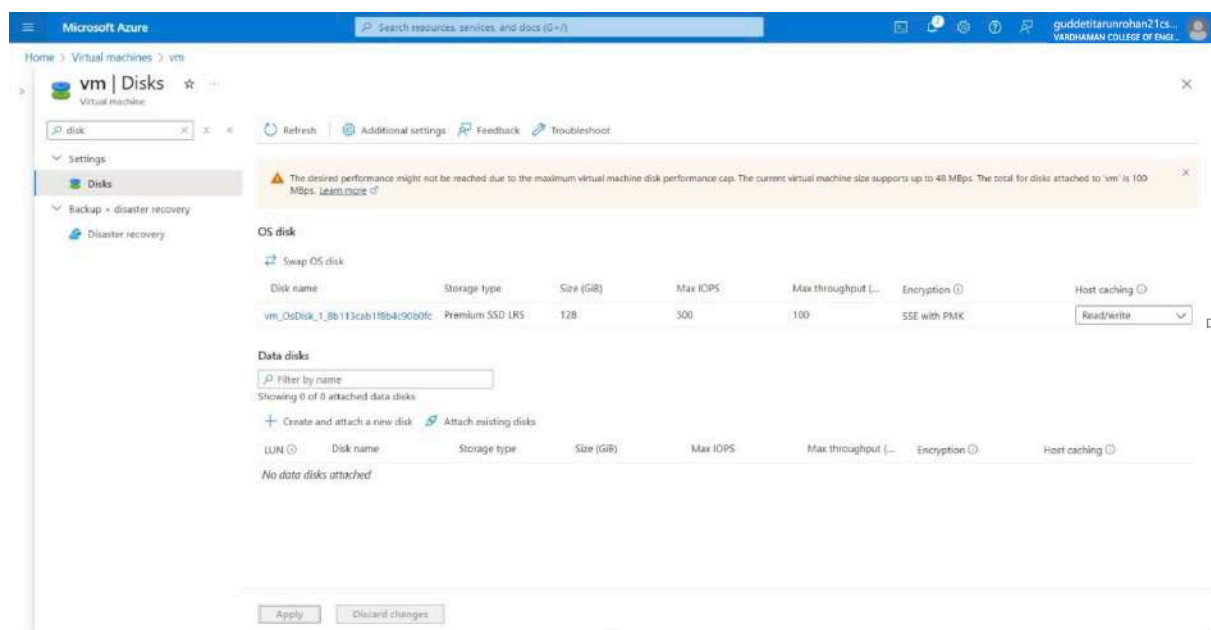




16) Click on “Apply”



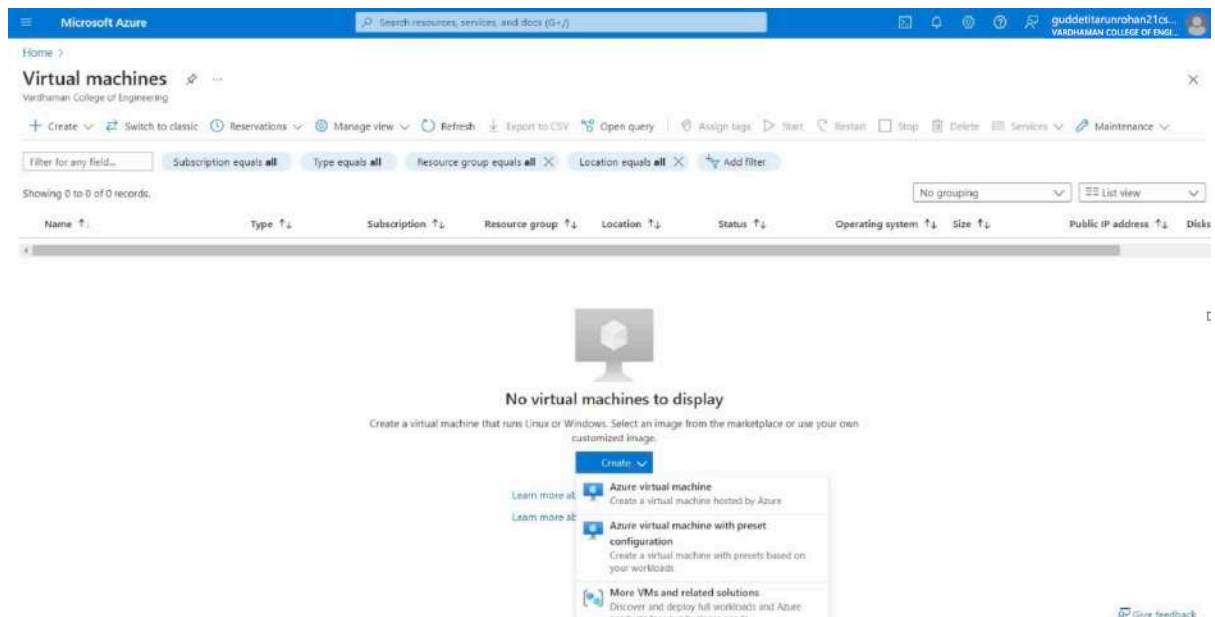
17) Now the data disks are detached from the windows server



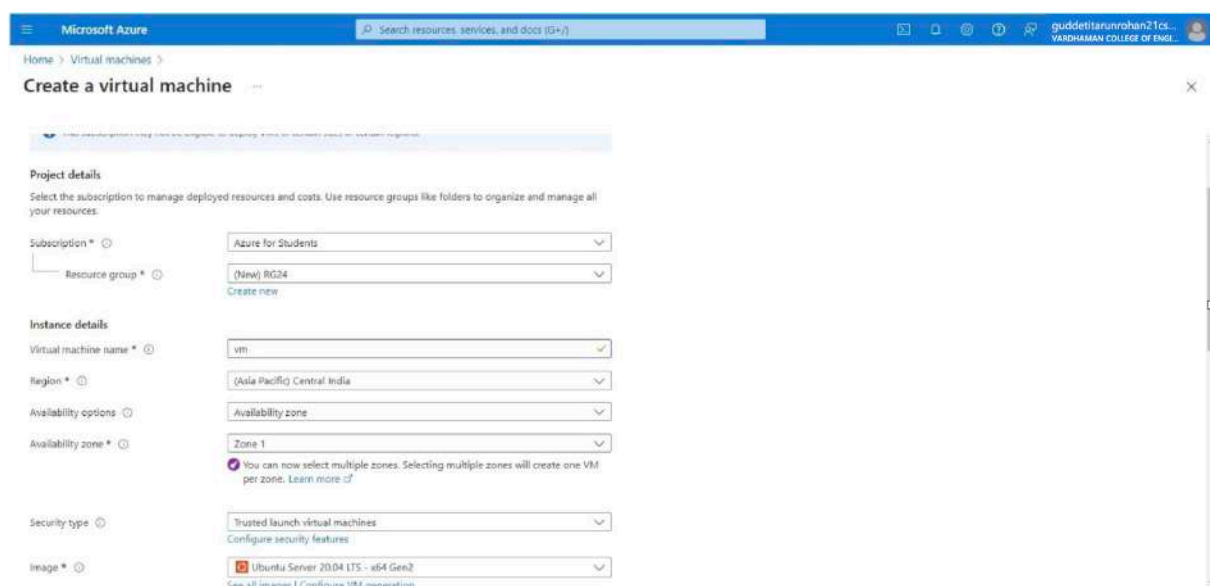
### 13Q) How to add data disks to linux server in azure data center

#### Steps:-

**Step 1 :** Create a Virtual Machine with username & password.



**Step 2 :** click on "Next:Disks>"



Microsoft Azure

Search resources, services, and docs (3+)

Home > Virtual machines >

Create a virtual machine

Size \*

See all sizes

Enable Hibernation ☐

Hibernation does not currently support Trusted launch and Confidential virtual machines for Linux images. [Learn more](#)

Administrator account

Authentication type ☐ SSH public key ☒ Password

Username \*

Password \*

Confirm password \*

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 \*

< Previous Next: Disks > Review + create

Give feedback

### Step 3 : Select

OS disk size -----30GB

OS disk type -----Premium SSD(LRS)

Microsoft Azure

Search resources, services, and docs (3+)

Home > Virtual machines >

Create a virtual machine

Basics Disks Networking Management Monitoring Advanced Tags Review + create

Azure VMs have one operating system disk and a temporary disk for short-term storage. You can attach additional data disks. The size of the VM determines the type of storage you can use and the number of data disks allowed. [Learn more](#)

VM disk encryption

Azure disk storage encryption automatically encrypts your data stored on Azure managed disks (OS and data disks) at rest by default when persisting it to the cloud.

Encryption at host ☐

Encryption at host is not registered for the selected subscription. [Learn more about enabling this feature](#)

OS disk

OS disk size

OS disk type \*

Delete with VM ☒

Key management

Enable Ultra Disk compatibility ☐

Ultra disk is not supported for the selected VM size Standard\_DS1\_v2 in Central India.

Data disks for vm

< Previous Next: Networking > Review + create

Give feedback

enable "Delete with VM"

**Step 4 :** Click on "Create & attach a new disk"

Microsoft Azure

Search resources, services, and docs (0+)

guddetitarunrohan21cs...  
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Home > Virtual machines > Create a virtual machine >

### Create a new disk

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name \*

Source type \*

Size \*   
Premium SSD LRS  
[Change size](#)

Key management

Enable shared disk ☐ Yes ☒ No

Delete disk with VM ☐

OK

[Give feedback](#)

**Step 5 :** Select

Source type -----None (empty disk), Size -----1024GB, Key manager ----- Platform managed key,

Enable shared disk -----NO and finally click on OK

Microsoft Azure

Search resources, services, and docs (0+)

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Home > Virtual machines > Create a virtual machine >

### Create a new disk

Create a new disk to store applications and data on your VM. Disk pricing varies based on factors including disk size, storage type, and number of transactions. [Learn more](#)

Name \*

Source type \*

Size \*   
Premium SSD LRS  
[Change size](#)

Key management

Enable shared disk ☐ Yes ☒ No

Delete disk with VM ☒

OK

[Give feedback](#)

**Step 6 : Select**

Storage type -----Premium SSD(LRS), Custom disk size (GB) -----5

click on OK

**Step 7 : Click on "Review + create" & click on create**

This screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'OS disk' configuration step. The interface includes a top navigation bar with the user's name 'guddetitarunrohan21cs...' and a search bar. The main content area has a blue header 'Create a virtual machine' and a sub-header 'OS disk'. A warning message states: 'Encryption at host is not registered for the selected subscription. Learn more about enabling this feature >'. The configuration options are as follows:

- OS disk size:** Image default (30 GiB)
- OS disk type:** Premium SSD (locally-redundant storage)
- Delete with VM:** ☒
- Key management:** Platform-managed key
- Enable Ultra Disk compatibility:** ☐ (Note: Ultra disk is not supported for the selected VM size Standard\_DS1\_v2 in Central India.)

Below these options is a section titled 'Data disks for vm' with a table for additional disks:

LUN	Name	Size (GiB)	Disk type	Host caching	Delete with VM
0	vm_DataDisk_0	1024	Premium SSD LRS	Read-only	<input checked="" type="checkbox"/>

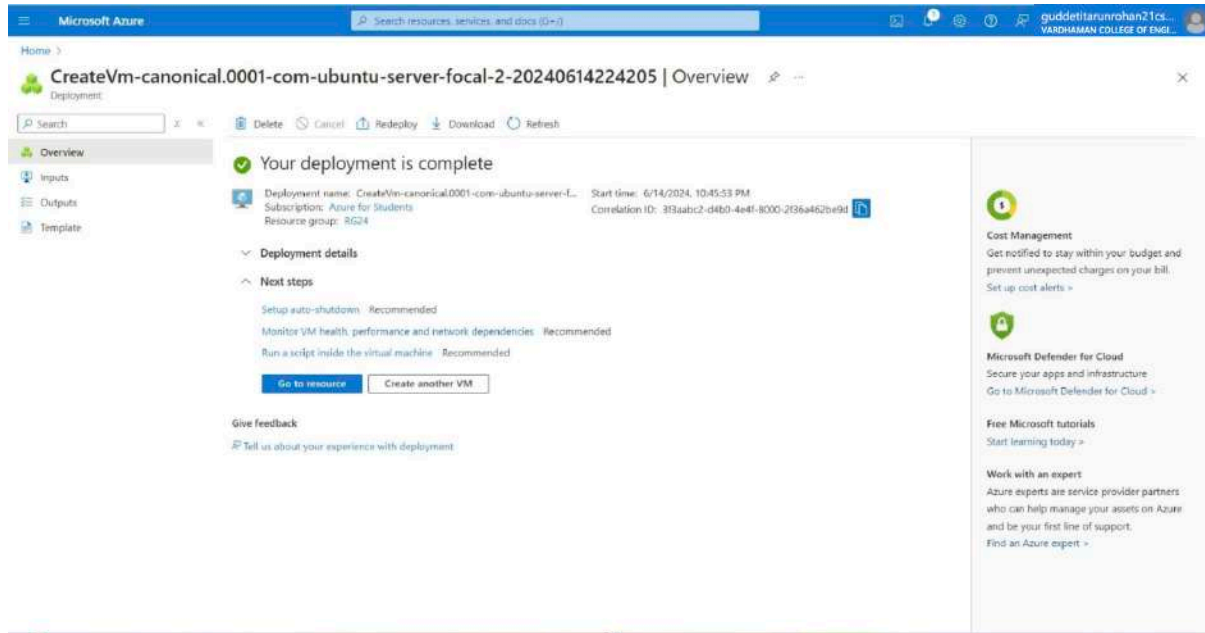
At the bottom, there are navigation buttons: '< Previous', 'Next: Networking >', and 'Review + create'.

This screenshot shows the 'Review + create' step of the 'Create a virtual machine' wizard. The interface includes a top navigation bar with the user's name 'guddetitarunrohan21cs...' and a search bar. The main content area has a blue header 'Create a virtual machine' and a sub-header 'Review + create'. A green banner at the top indicates 'Validation passed'. Below this, there are tabs for 'Basics', 'Disks', 'Networking', 'Management', 'Monitoring', 'Advanced', 'Tags', and 'Review + create'. A warning message states: 'Cost given below is an estimate and not the final price. For all your pricing needs, please use the pricing calculator. >'. The pricing section shows:

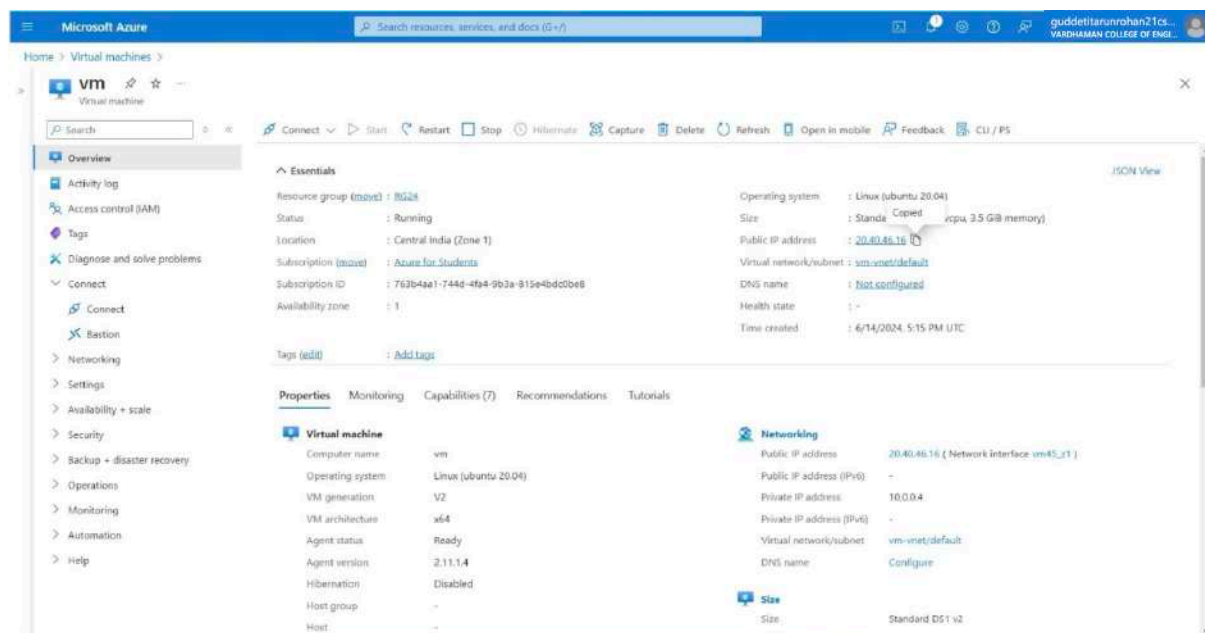
- Price:** 1 X Standard D51 v2 by Microsoft
- Subscription credits apply:** 6.9884 INR/hr
- Terms of use | Privacy policy:** Pricing for other VM sizes

Below the pricing section is a 'TERMS' section with a paragraph of legal text. At the bottom, there are input fields for 'Name' (ERUMALLA CAITEJA), 'Preferred e-mail address' (erumallacajeta21cs@stud.vardhaman.org), and 'Preferred phone number'. Navigation buttons at the bottom include '< Previous', 'Next >', and 'Create'.

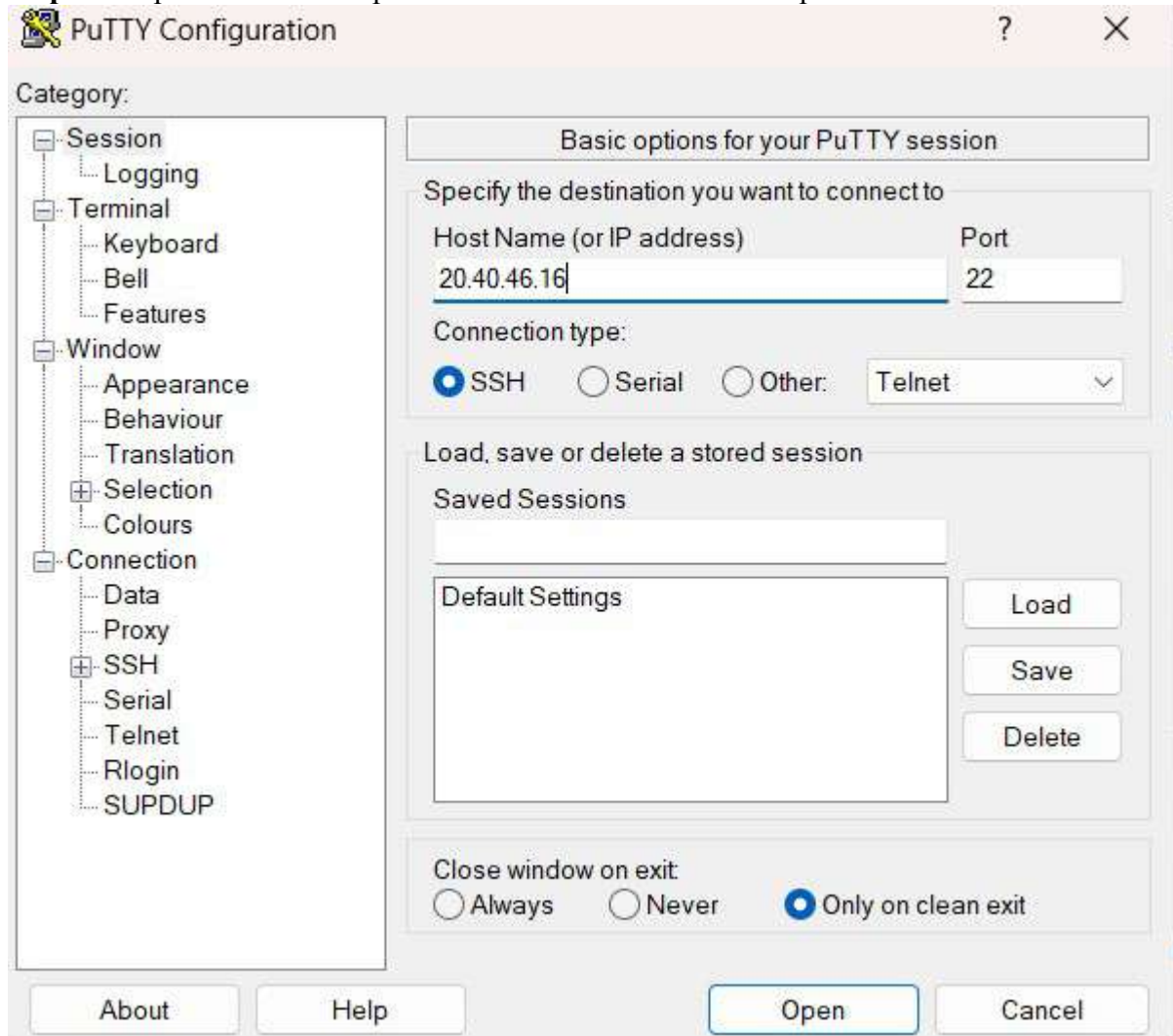
## Step 8 : Click on "Go to resource group"



## Step 9 : Copy public IP Address



**Step 10 :** Open "PUTTY" & paste the IP address and click on "open"



### Step 11 : Login into it with username and password

```
azureuser@vm: ~  
login as: azureuser  
azureuser@20.40.46.16's password:  
Welcome to Ubuntu 20.04.6 LTS (GNU/Linux 5.15.0-1064-azure x86_64)  
  
 * Documentation:  https://help.ubuntu.com  
 * Management:    https://landscape.canonical.com  
 * Support:       https://ubuntu.com/pro  
  
System information as of Fri Jun 14 17:18:57 UTC 2024  
  
System load:  0.1               Processes:            120  
Usage of /:   5.0% of 28.89GB   Users logged in:     0  
Memory usage: 9%              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 not enabled.  
  
0 updates can be applied immediately.  
  
Enable ESM Apps to receive additional future security updates.  
See https://ubuntu.com/esm or run: sudo pro status  
  
The list of available updates is more than a week old.  
To check for new updates run: sudo apt update  
  
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@vm:~$
```

### Step 12 : Type the below commands

\$ df -hT

\$ lsblk

\$ sudo fdisk -s /dev/sdc

\$ sudo mkfs -t ext4 /dev/sdc

\$ mkdir test

\$ sudo mount /dev/sdc/ test

\$ cd test



```
azureuser@vm: ~/test
Enable ESM Apps to receive additional future security updates.
See https://ubuntu.com/esm or run: sudo pro status

The list of available updates is more than a week old.
To check for new updates run: sudo apt update

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.

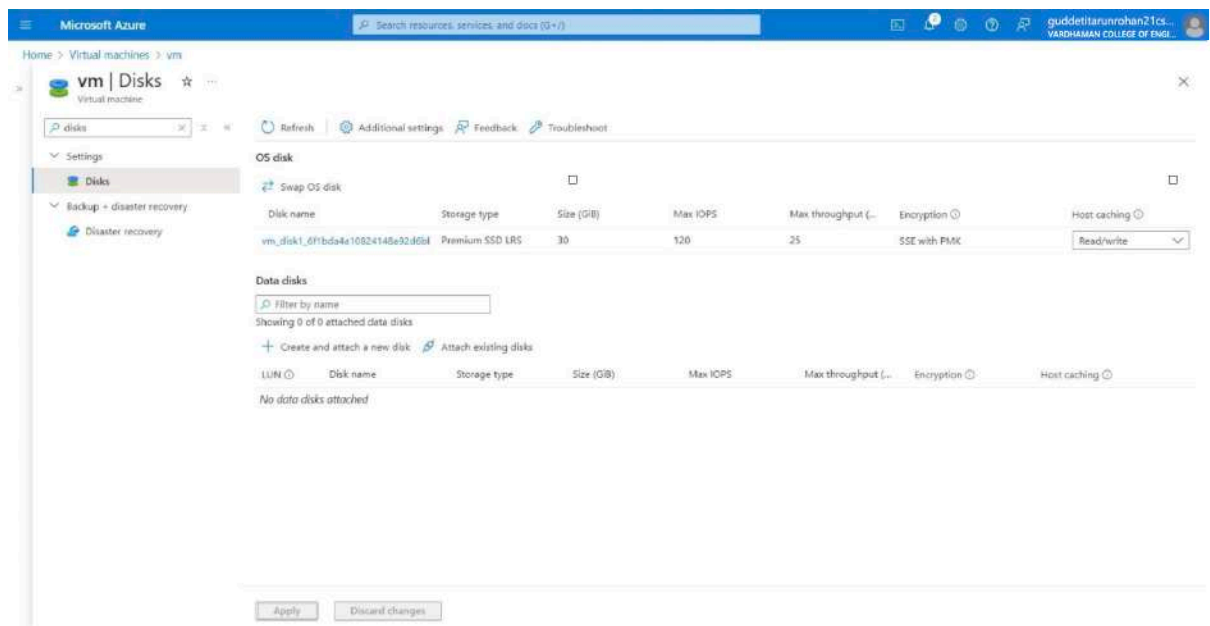
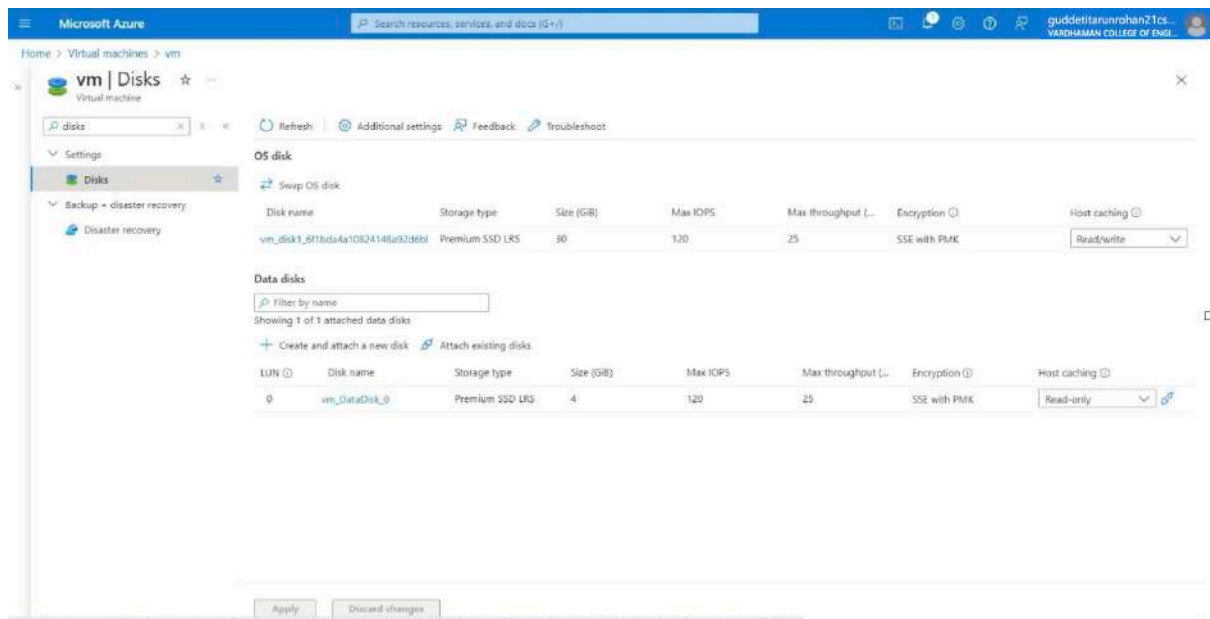
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

azureuser@vm:~$ df -hT
Filesystem      Type      Size  Used Avail Use% Mounted on
/dev/root       ext4      29G   1.5G   28G   6% /
devtmpfs        devtmpfs  1.7G    0   1.7G   0% /dev
tmpfs           tmpfs     1.7G    0   1.7G   0% /dev/shm
tmpfs           tmpfs     336M   988K  335M   1% /run
tmpfs           tmpfs     5.0M    0   5.0M   0% /run/lock
tmpfs           tmpfs     1.7G    0   1.7G   0% /sys/fs/cgroup
/dev/loop0      squashfs  64M    64M    0 100% /snap/core20/2318
/dev/loop2      squashfs  39M    39M    0 100% /snap/snapd/21759
/dev/loop1      squashfs  92M    92M    0 100% /snap/lxd/24061
/dev/sda15      vfat     105M   6.1M   99M   6% /boot/efi
/dev/sdb1       ext4     6.8G   28K   6.5G   1% /mnt
tmpfs           tmpfs     336M    0   336M   0% /run/user/1000

azureuser@vm:~$ lsblk
NAME        MAJ:MIN RM  SIZE RO TYPE MOUNTPOINT
loop0        7:0    0    64M  1 loop /snap/core20/2318
loop1        7:1    0   91.9M  1 loop /snap/lxd/24061
loop2        7:2    0   38.8M  1 loop /snap/snapd/21759
sda          8:0    0   30G   0 disk
├─sda1       8:1    0  29.9G  0 part /
├─sda14      8:14   0     4M  0 part
└─sda15      8:15   0  106M  0 part /boot/efi
sdb          8:16   0     7G   0 disk
└─sdb1       8:17   0     7G   0 part /mnt
sdc          8:32   0     1T   0 disk
sr0         11:0    1    628K  0 rom

azureuser@vm:~$ sudo filoe -s/dev/sdc
sudo: filoe: command not found
azureuser@vm:~$ sudo mkfs -t ext4/dev/sdc
mkfs: no device specified
Try 'mkfs --help' for more information.
azureuser@vm:~$ mkdir test
azureuser@vm:~$ sudo mount /dev/sdc/test
mount: /dev/sdc/test: can't find in /etc/fstab.
azureuser@vm:~$ cd test
azureuser@vm:~/test$
```

**Step 13 : Click on Apply**



**RESULT :**

**Above experiment is successful executed And verified.**

### Q14) Move Server Files from one Resource Group to another.

**Step-1:** Create ResourceGroup1, ResourceGroup2 and a Virtual machine on ResourceGroup1.

Microsoft Azure

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Home > Resource groups >

### Create a resource group

Basics Tags Review + create

Resource group - A container that holds related resources for an Azure solution. The resource group can include all the resources for the solution, or only those resources that you want to manage as a group. You decide how you want to allocate resources to resource groups based on what makes the most sense for your organization. [Learn more >](#)

**Project details**

Subscription \* Azure for Students

Resource group \* RG1

**Resource details**

Region \* (Asia Pacific) Central India

Review + create < Previous Next: Tags >

Microsoft Azure

Search resources, services, and docs (0+)

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Home >

### Resource groups

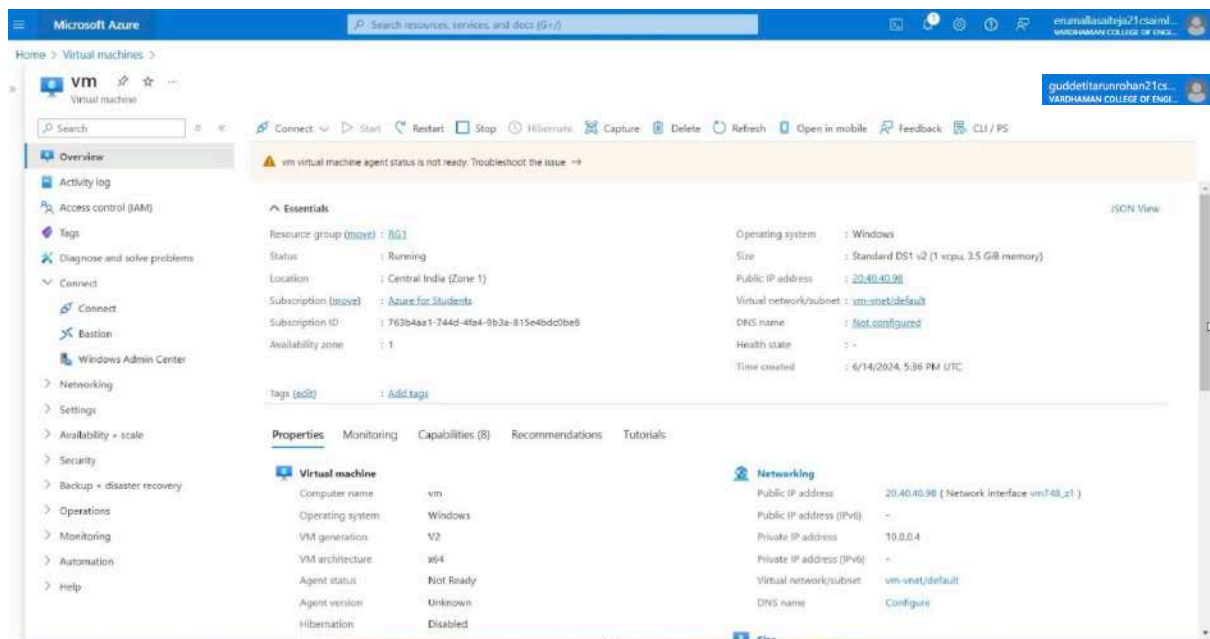
Vardhaman College of Engineering

+ Create Manage view Refresh Export to CSV Open query Assign tags

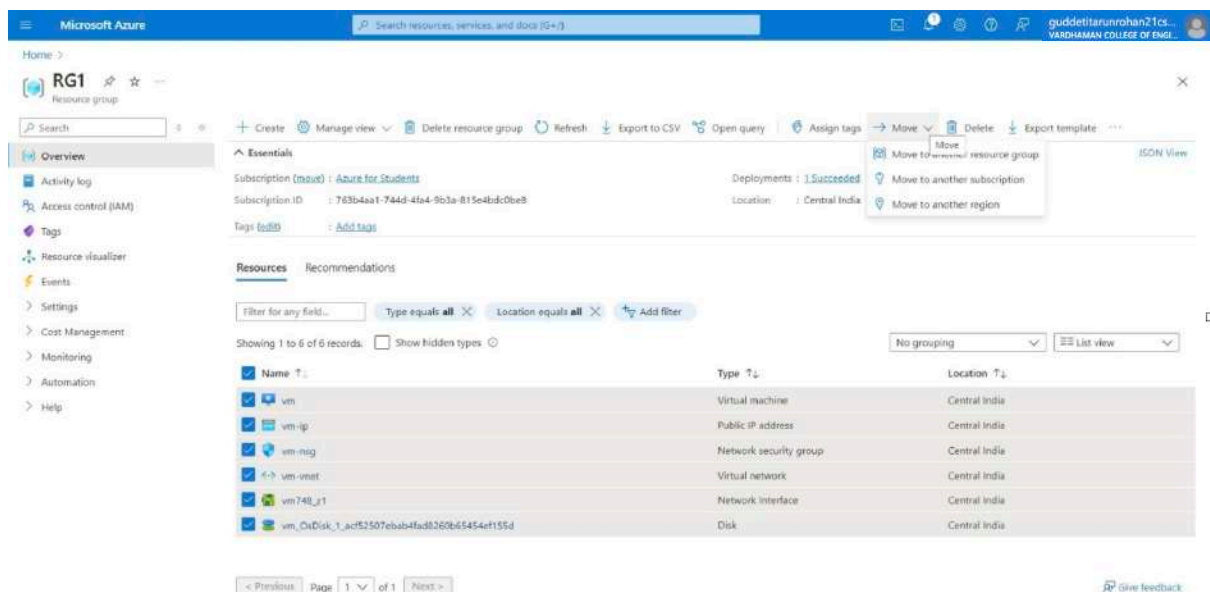
Filter for any field... Subscription equals all Location equals all Add filter

Showing 1 to 2 of 2 records.

Name ↑	Subscription ↑	Location ↑
RG1	Azure for Students	Central India
RG2	Azure for Students	Central India



**Step-2:** Select all the resources from ResourceGroup1 and then click on Move->Move to



another resource group.

Microsoft Azure

Search resources, services, and docs (5+)

Home > RG1 >

### Move resources

RG1

+ Add resources - Remove from the move list

1 Source + target 2 Resources to move 3 Review

Checking whether these resources can be moved. This might take a few minutes.

Name	Type	Resource type	Validation status	
vm_OsDisk_1_acf52507ebab4fad8260b65454ef155d	Disk	microsoft.compute/disks	Pending validation	Remove
vm748_z1	Network interface	microsoft.network/networkinterfaces	Pending validation	Remove
vm-vnet	Virtual network	microsoft.network/virtualnetworks	Pending validation	Remove
vm-nsg	Network security group	microsoft.network/networksecuritygroups	Pending validation	Remove
vm-ip	Public IP address	microsoft.network/publicipaddresses	Pending validation	Remove
vm	Virtual machine	microsoft.compute/virtualmachines	Pending validation	Remove

> Help

Name	Type	Resource type	Location
vm	Virtual machine	microsoft.compute/virtualmachines	Central India
vm-ip	Public IP address	microsoft.network/publicipaddresses	Central India
vm-nsg	Network security group	microsoft.network/networksecuritygroups	Central India
vm-vnet	Virtual network	microsoft.network/virtualnetworks	Central India
vm748_z1	Network interface	microsoft.network/networkinterfaces	Central India
vm_OsDisk_1_acf52507ebab4fad8260b65454ef155d	Disk	microsoft.compute/disks	Central India

< Previous Page 1 of 1 Next >

Give feedback

**Step-3:** Select the target Resource Group as ResourceGroup2 and click on move.

Microsoft Azure

Search resources, services, and docs (5+)

Home > RG1 >

### Move resources

RG1

1 Source + target 2 Resources to move 3 Review

To move a resource, select a source and a destination. The source and destination resource groups will both be locked during the move. [Learn more](#)

**Source**

Subscription: Azure for Students

Resource group: RG1

**Target**

Subscription: Azure for Students

Resource group: RG2

Create new

Previous Next

The screenshot shows the Microsoft Azure portal interface for Resource Group RG1. The left sidebar contains navigation links: Overview, Activity log, Access control (IAM), Tags, Resource visualizer, Events, Settings, Cost Management, Monitoring, Automation, and Help. The main content area displays the 'Essentials' section for RG1, showing the subscription 'Azure for Students' and location 'Central India'. Below this, the 'Resources' section is active, but it displays a message: 'No resources match your filters'. A filter bar above the table shows 'Type equals all' and 'Location equals all'. The table headers are 'Name', 'Type', and 'Location', but no data is present.

The screenshot shows the Microsoft Azure portal interface for Resource Group RG2. The left sidebar is the same as in the first screenshot. The main content area displays the 'Essentials' section for RG2, showing the subscription 'Azure for Students' and location 'Central India'. Below this, the 'Resources' section is active and displays a table of resources. The table has columns for Name, Type, and Location. The resources listed are:

Name	Type	Location
vm	Virtual machine	Central India
vm-ip	Public IP address	Central India
vm-nsg	Network security group	Central India
vm-vnet	Virtual network	Central India
vm748_a1	Network interface	Central India
vm_OnDisk_1_ac52507ebab4fad8260b65454ef155d	Disk	Central India

At the bottom of the table, there is a pagination bar showing 'Page 1 of 1'.

**Q15) Create Azure Storage Account, Container – Upload and Delete Objects(blob) in it.**

**Step-1:** Click On Storage Account and Create one and select redundancy as GRS/LRS.

Microsoft Azure

Search resources, services, and docs (q=)

Home > Storage accounts >

### Create a storage account

redundant. Azure Storage includes Azure Blobs (objects), Azure Data Lake Storage Gen2, Azure Files, Azure Queues, and Azure Tables. The cost of your storage account depends on the usage and the options you choose below. [Learn more about Azure storage accounts](#)

**Project details**

Select the subscription in which to create the new storage account. Choose a new or existing resource group to organize and manage your storage account together with other resources.

Subscription \*

Resource group \*  [Create new](#)

**Instance details**

Storage account name \*

Region \*  [Deploy to an Azure Extended Zone](#)

Performance \* ☒ Standard: Recommended for most scenarios (general-purpose v2 account)  
☐ Premium: Recommended for scenarios that require low latency.

Redundancy \*  ☒ Make read access to data available in the event of regional unavailability.

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**Step-2:** Go to advance and Allow enabling anonymous access on individual containers.

Microsoft Azure

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**Security**

Configure security settings that impact your storage account.

Require secure transfer for REST API operations ☒

Allow enabling anonymous access on individual containers ☒

Enable storage account key access ☒

Default to Microsoft Entra authorization in the Azure portal ☐

Minimum TLS version

Permitted scope for copy operations (preview)

**Hierarchical Namespace**

Hierarchical namespace, complemented by Data Lake Storage Gen2 endpoint, enables file and directory semantics, accelerates big data analytics workloads, and enables access control lists (ACLs). [Learn more](#)

Enable hierarchical namespace ☐

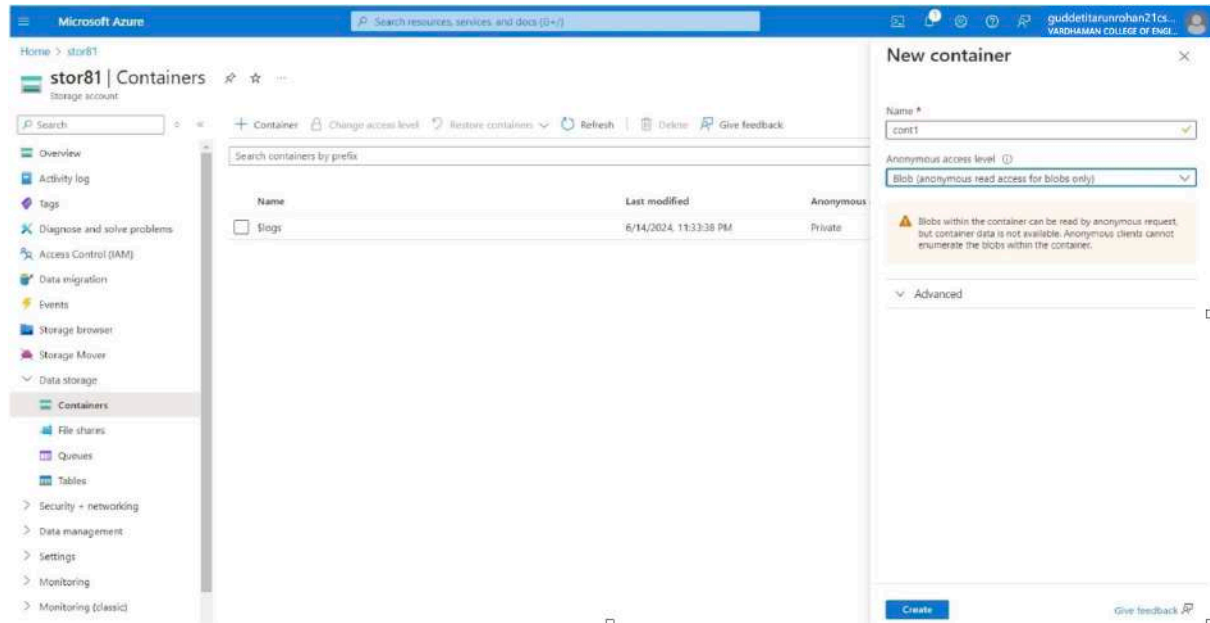
**Access protocols**

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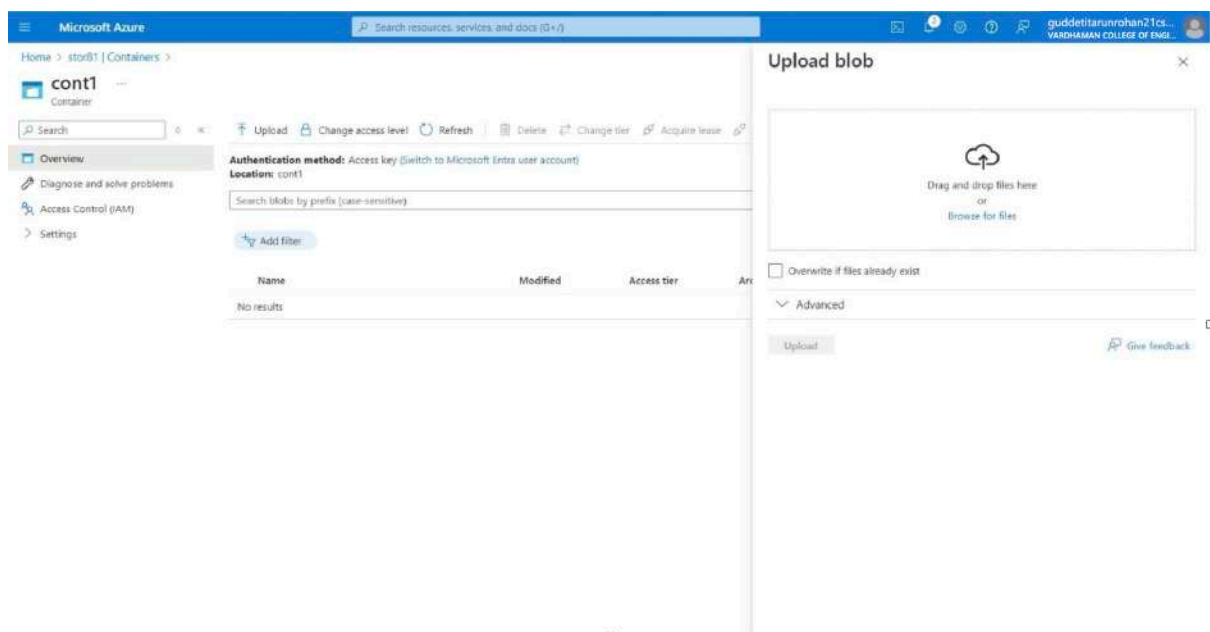
[Give feedback](#)



**Step-3:** After deployment Click on go to resource group and on Left Click on Containers and Create it with anonymous access level as blob (anonymous read access to blob only)

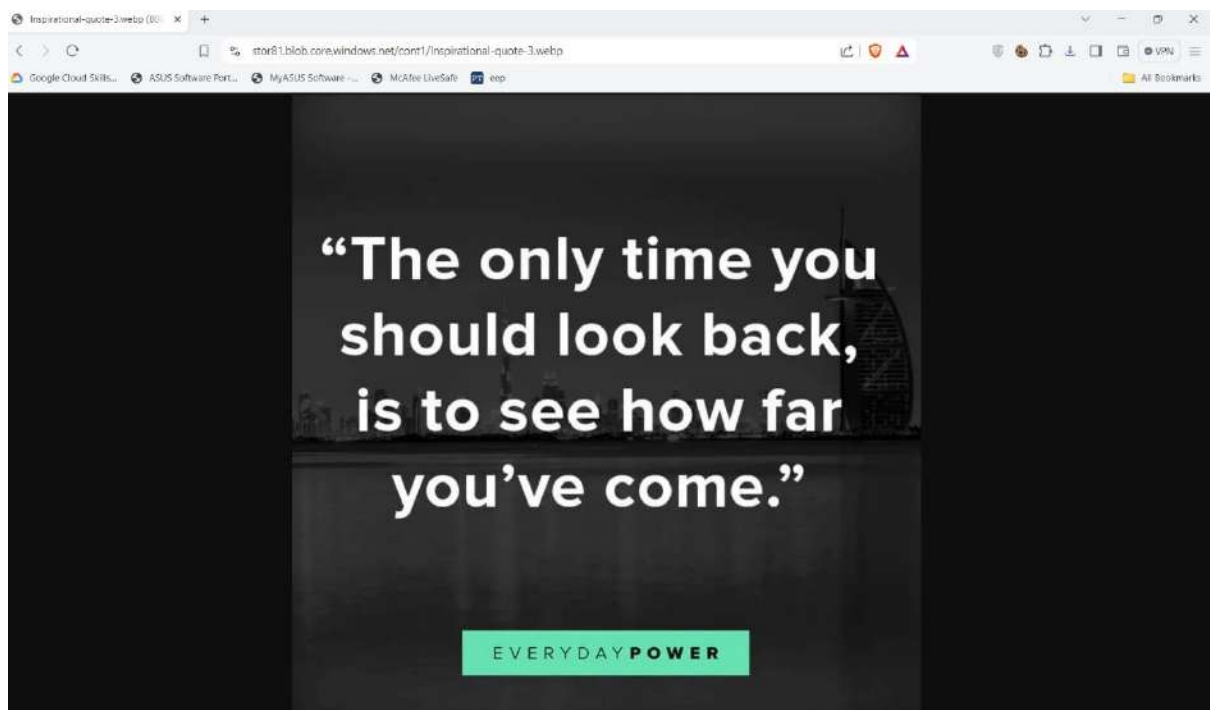
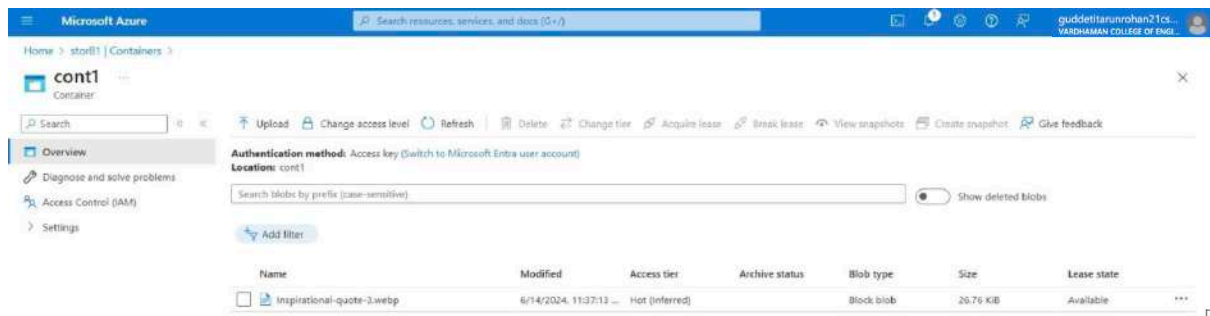


**Step-4:** Then open new container, click on upload and upload a file from desktop.

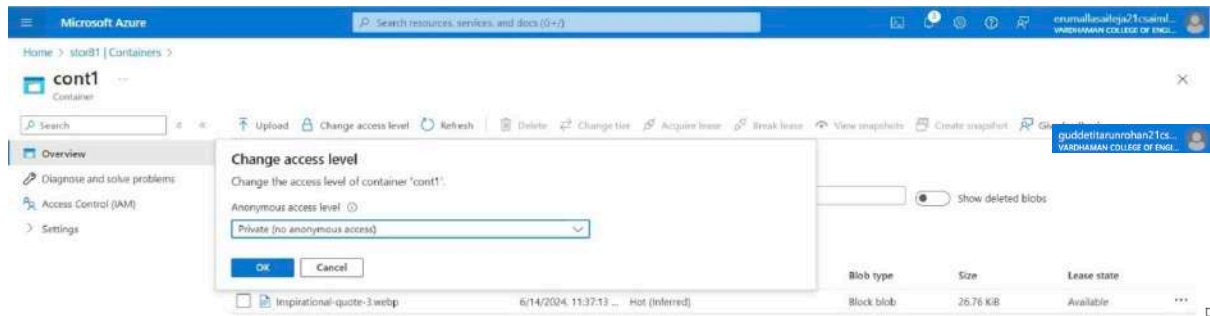




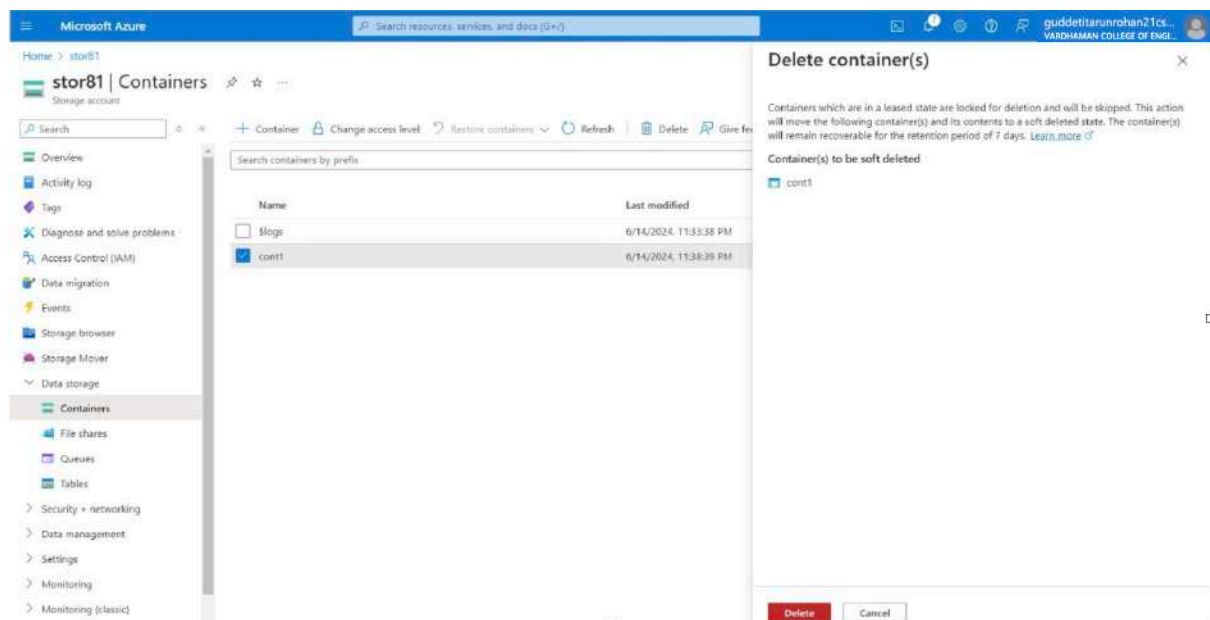
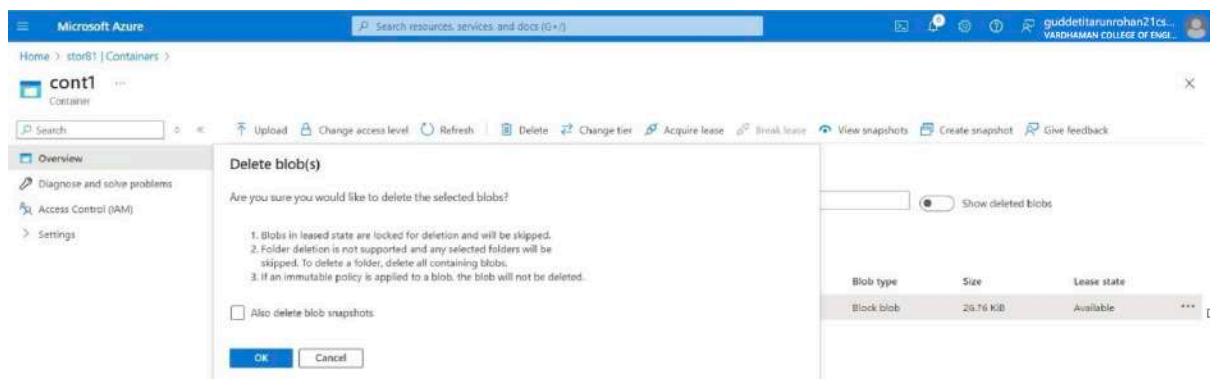
**Step-5:** Select the file and click on provided URL to open the file.

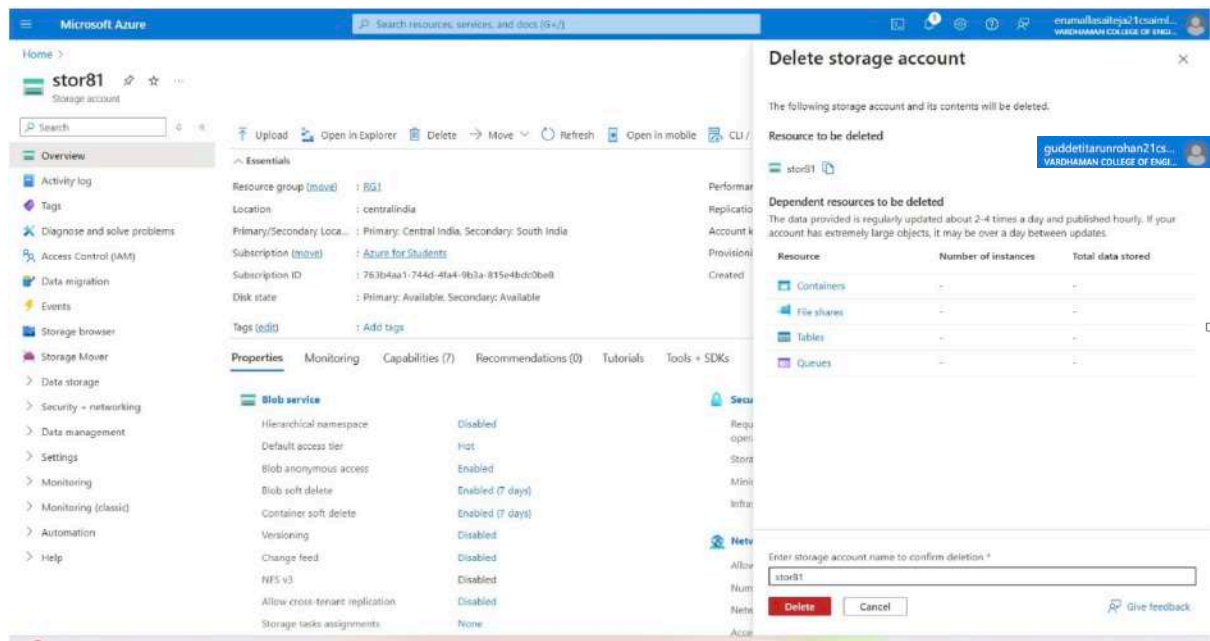


**Step-6:** On container click Change access level to Private (no anonymous access) and try to open the file in new tab it will show error.



**Step-7:** Then delete blob container and storage account.





**RESULT :**

**Above experiment is successful executed And verified.**