Lab Manual for Cloud Computing

Lab No. 2

Creating Virtual Machine Using Microsoft Azure

LAB 02: CREATING VIRTUAL MACHINE USING MICROSOFT AZURE

1. INTRODUCTION:

Understanding Azure Virtual Machines

Azure offers several highly scalable computing resources on-demand, and Azure Virtual Machine is one of them. If you require more control over the computing environment than the other computing resources offer, then you should opt for an Azure Virtual Machine.

With Azure Virtual Machine, you get the flexibility of accessing a virtual platform without buying and maintaining the physical hardware that can run the operation. But you will also need a proper maintenance plan for your Azure Virtual Machine while performing tasks like configuring, patching, parsing, and installing the softwares to run on the virtual machines.

Cloud Applications

Your requirement of running applications will constantly change based on your business. Using Azure Virtual Machine is a cost-effective solution that can allow you to pay for extra virtual machines whenever you need them. When out of use, you can shut down these virtual machines.

There are wide use cases of **Azure Virtual Machine**, but some examples in:

- **Extended Data Center:** You can easily connect your organization's network to an Azure Virtual Machine available in the network.

- **Development:** If you need a computer with a definite configuration to write a code or test any application, then Azure Virtual Machine can be a feasible way to go about the process. Whatever be the extent of your requirement, you can scale up using Azure Virtual Machine and streamline your workflows.

Considerations before creating an Azure Virtual Machine

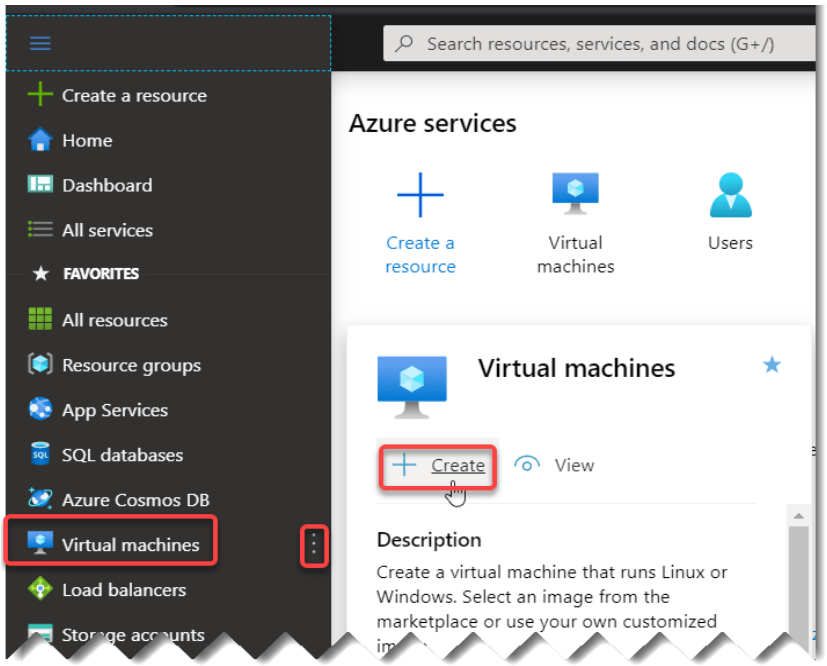
Whenever you set out to build an application infrastructure using Azure, there are several design considerations to note. Before deciding upon creating an **Azure Virtual Machine,** there are a few things that you must think about, like:

- The names of the application resources that you use on Azure Virtual Machine
- The storage location of the resources
- Size required for the Azure Virtual Machine
- Maximum number of virtual machines that you may require to create
- The operating system of the Azure Virtual Machine
- The configuration of the virtual machine after starting up
- All kinds of related resources and extensions that the **Azure Virtual Machine** requires

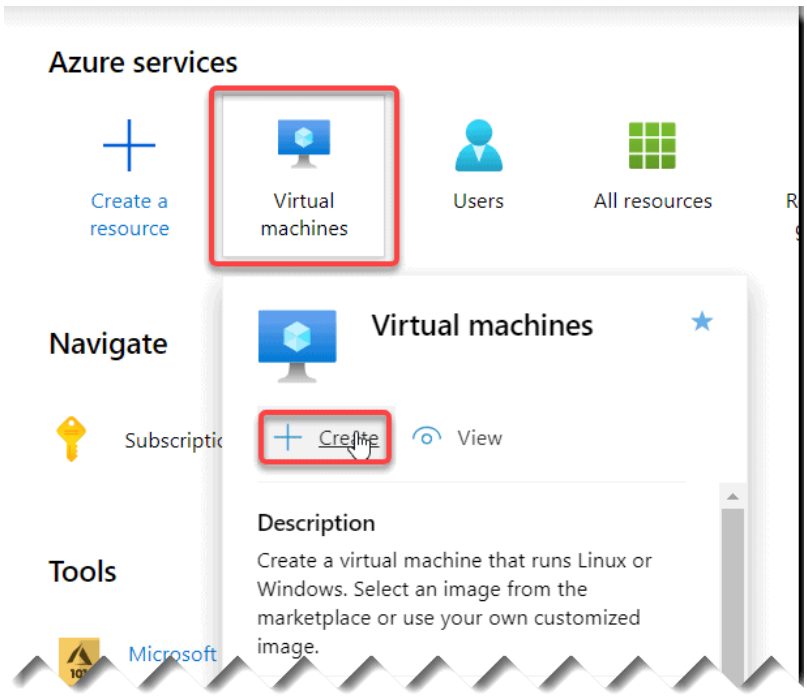
Now that you are equipped with the basic information about **Azure Virtual Machine,** it is time to get started with creating the virtual machine.

Step-1: Login to https://portal.azure.com.

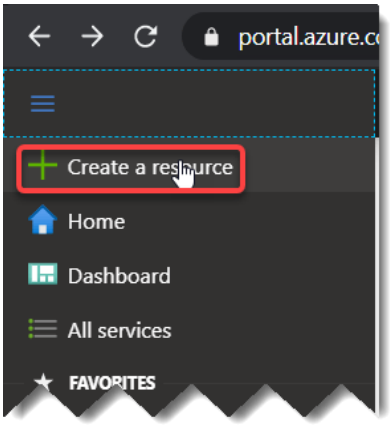
Step-2: Now click on **"Virtual machines"** option from the left side Menu and then click on **"Create"** link.

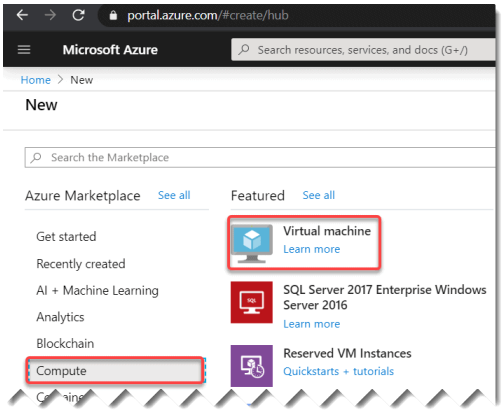


Or Go to **"Virtual machines"** option from the **"Azure services"** section.

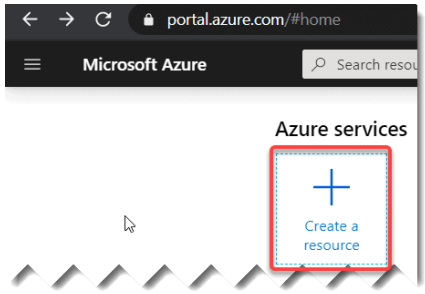


One more way is to go to the same option from the **"Create a resource"** link from the left side menu and then select the **"Compute"** and **"Virtual Machine".**

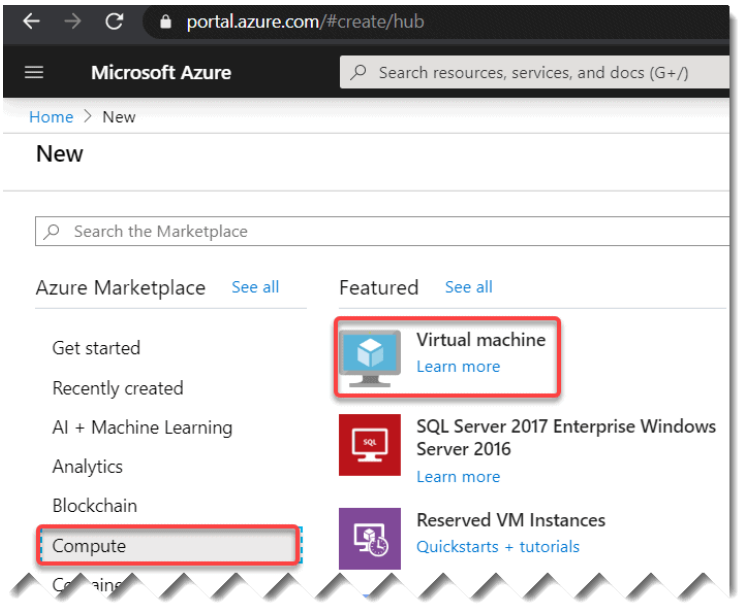




virtual machine in azure Or else for the same option you can go to the **"Create a resource"** link from the "Azure services" section and then select the "Compute" and "Virtual machine".



You can see the option "Virtual machine' like below:

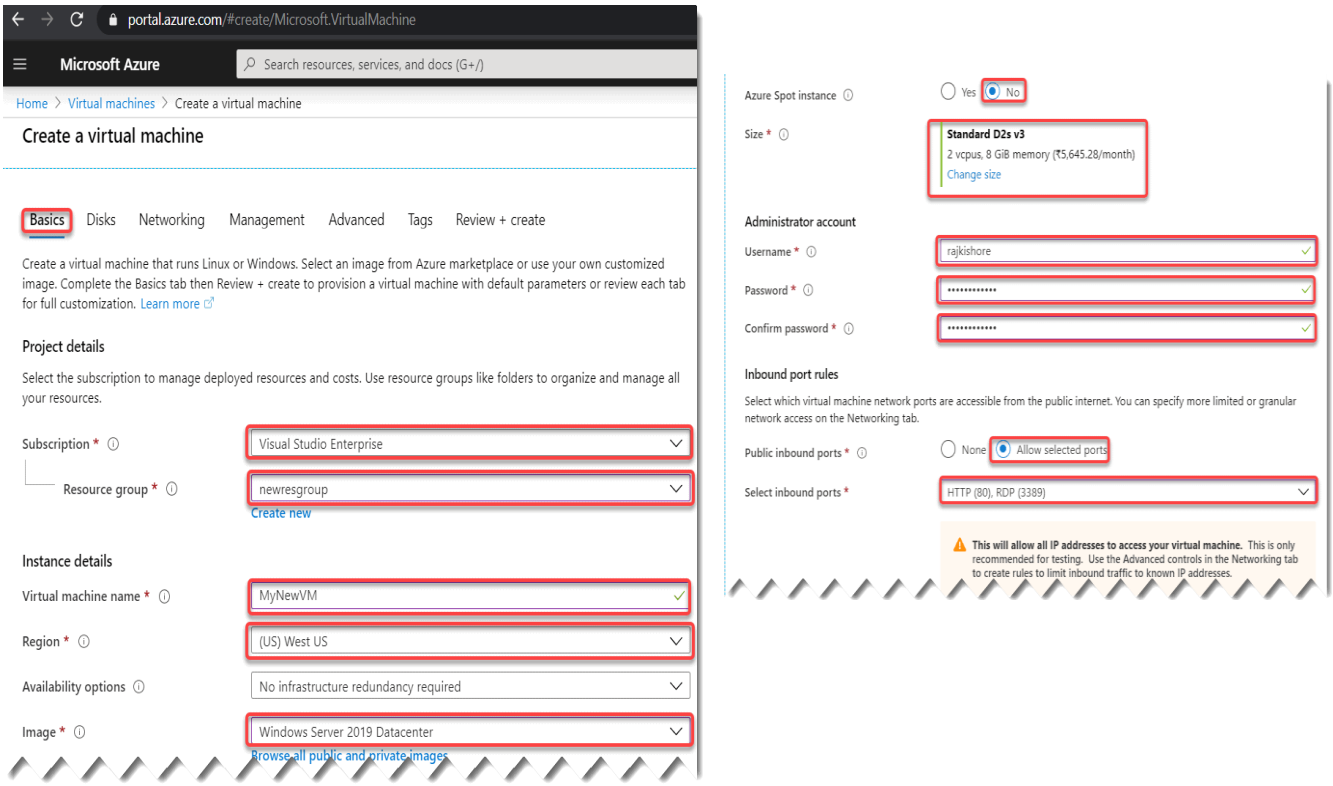


Step- 3: Fill the details required. A few of the options you can keep as it is but based on your business need you can change those.

- **Subscription**: Choose your correct subscription.
- **Resource group**: You can choose the existing resource group or you can create a new one by clicking the "**Create New**" option. It acts like a container that stores the resourcesrelated to an Azure solution.
- **Virtual machine name**: Provide a name for your virtual machine.
- **Region**: This the location where you are going to create all the resources related to thevirtual machine.
- **Image**: Choose the **Windows 10 pro, version 21H2, Gen 2**. You can change it based on your business need.
- **Size**: The size you want to assign based on your requirement. I have chosen **StandardD2s v3** as per my business requirement.

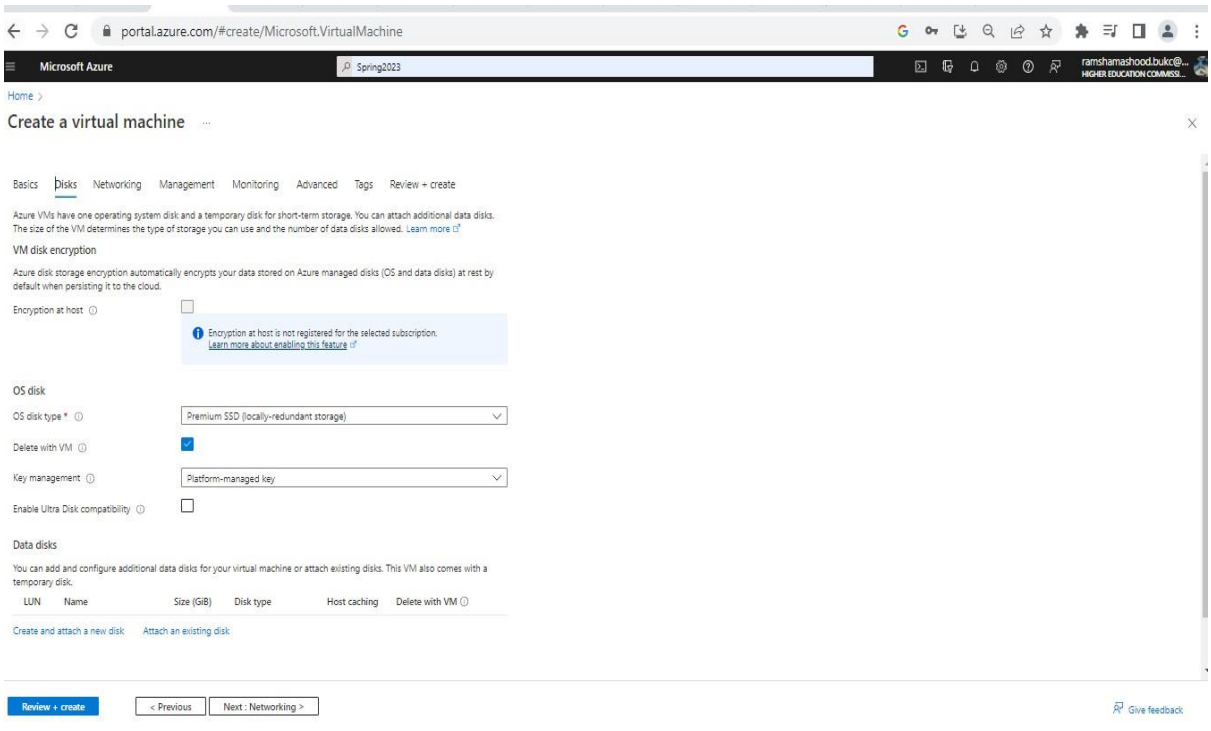
In the Administrator account section, Choose a **Username, Password** that you will use to loginto the VM once created.

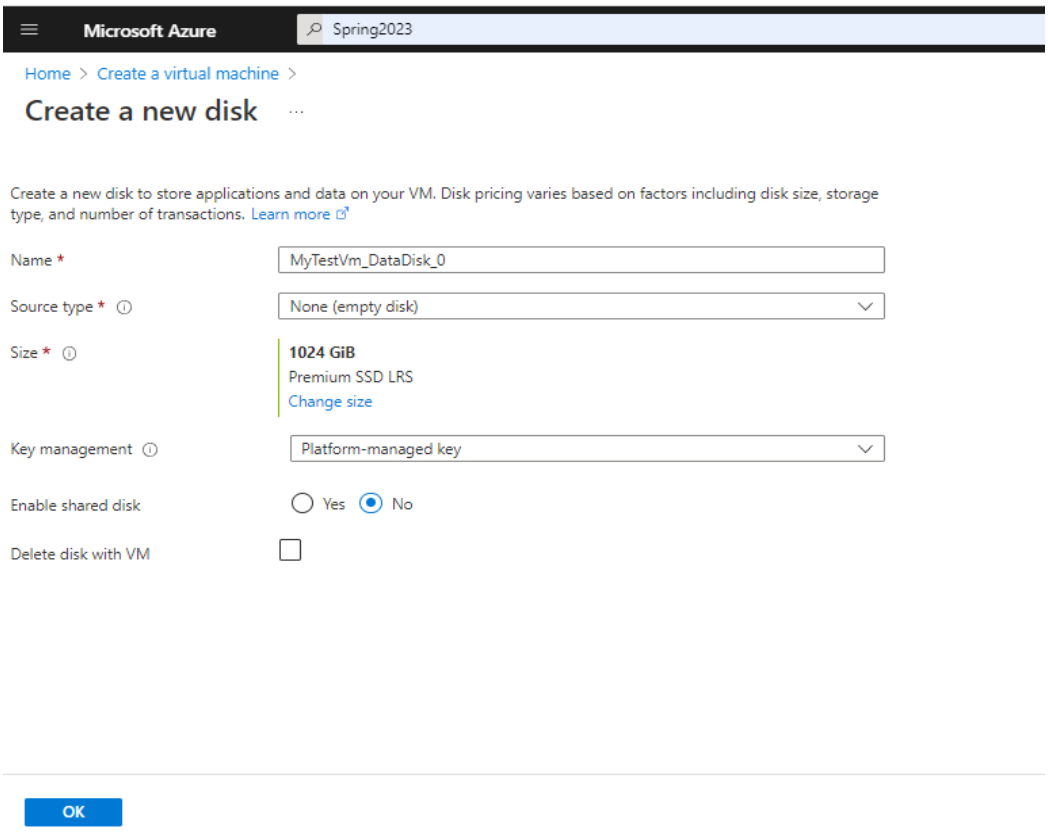
Select Inbound port: Choose **HTTP(80),RDP(3389)**. This is a very important option.All other options you can keep as it is. Now click on "**Next:Disks >**" button.



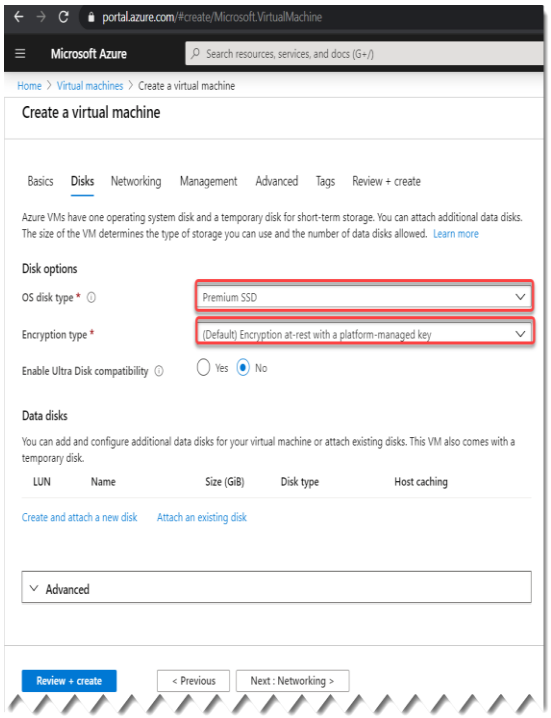
Basics

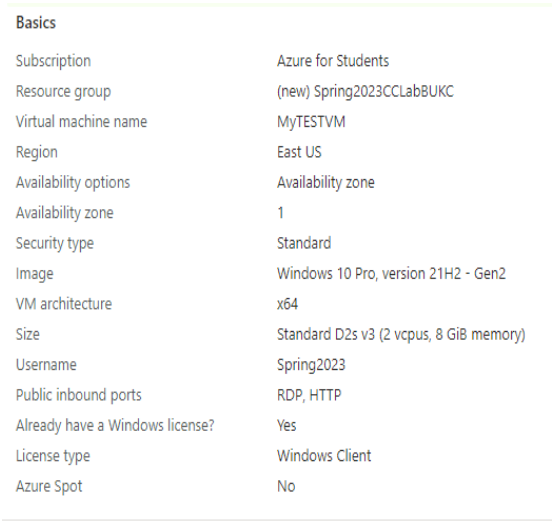
Subscription	Azure for Students
Resource group	(new) Spring2023CCLabBUKC
Virtual machine name	MyTESTVM
Region	East US
Availability options	Availability zone
Availability zone	1
Security type	Standard
Image	Windows 10 Pro, version 21H2 - Gen2
VM architecture	x64
Size	Standard D2s v3 (2 vcpus, 8 GiB memory)
Username	Spring2023
Public inbound ports	RDP, HTTP
Already have a Windows license?	Yes
License type	Windows Client
Azure Spot	No





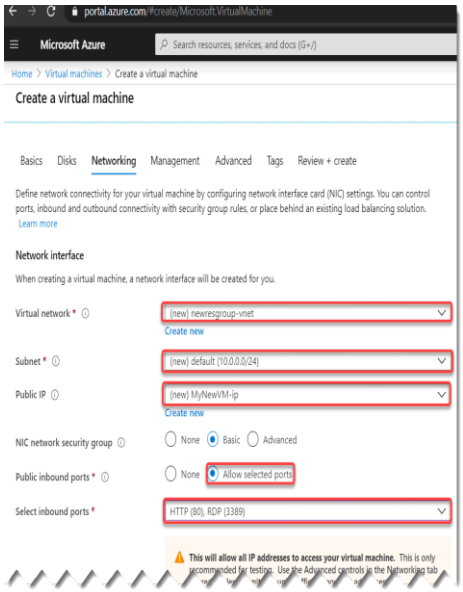
In the next screen **(Disks),** you can add the disk architecture that you want. I kept the default option as it is. You can change it based on your business need. Click on **Next: Networking** button

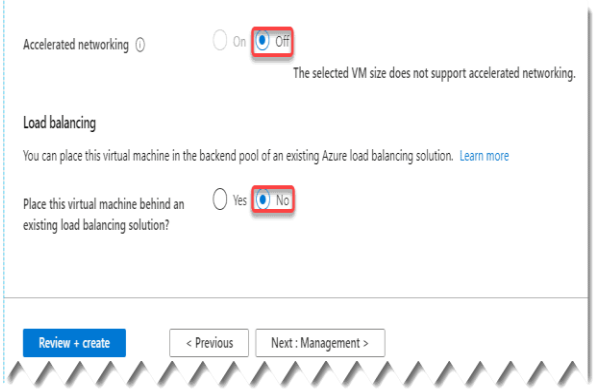




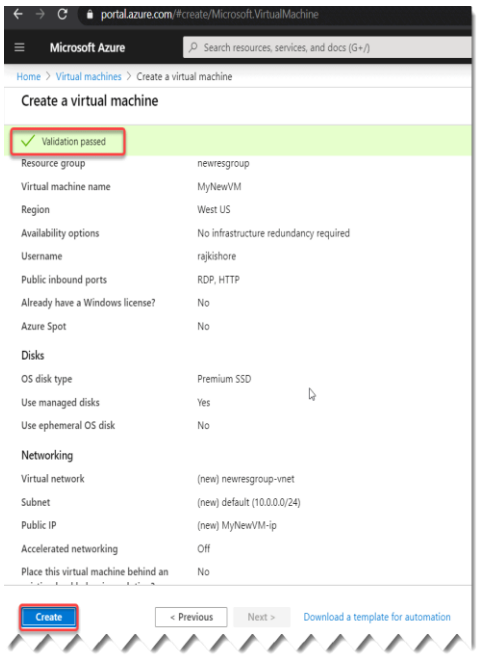
Virtual Network: Choose a **virtual network** or else you can create a new one by clicking **"Create New"** link.

- **Subnet:** You can keep the default option as it is.
- **Public inbound ports**: choose **Allow selected ports**.
- **Select inbound ports**: This is a very important option. Choose the option as **HTTP(80), RDP(3389)** here. Once you choose this option in the Basics tab it will automatically show the same option here. Keep the option as it is.



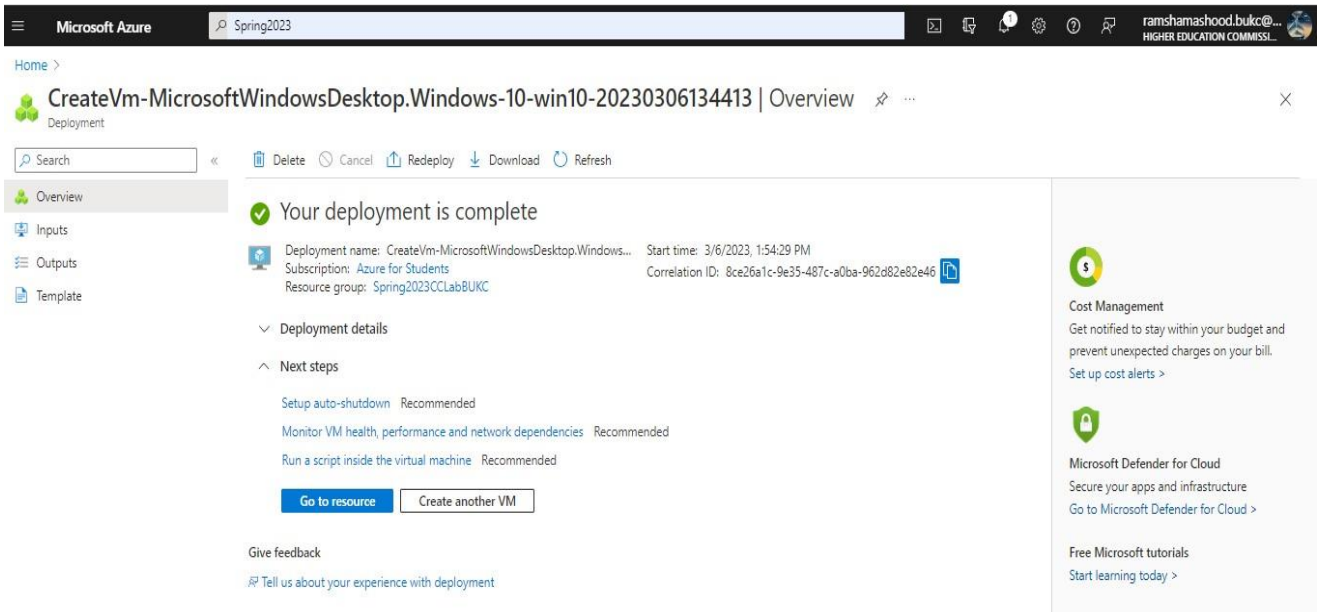


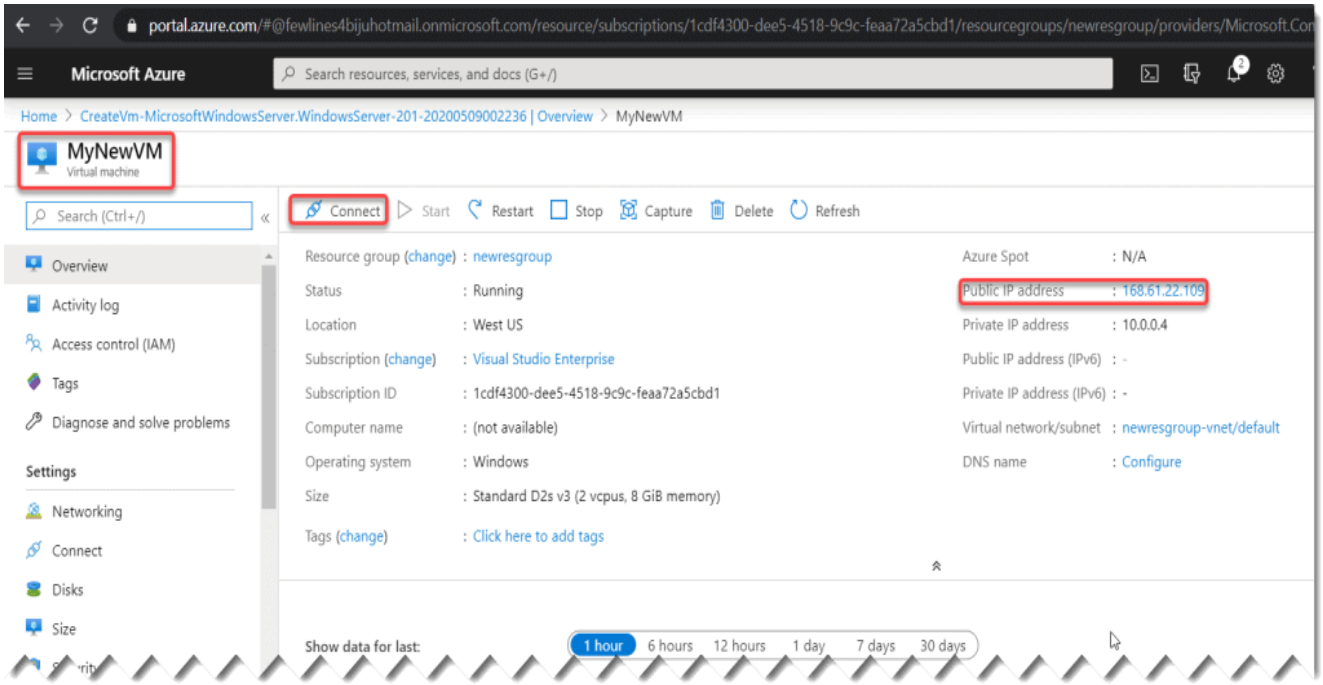
Now for other tabs all the options you can keep as it is. Once you fill all the above details click on the **"Review + Create"** button. Azure will validates the above details internally and will show a message **"Validation passed"**.



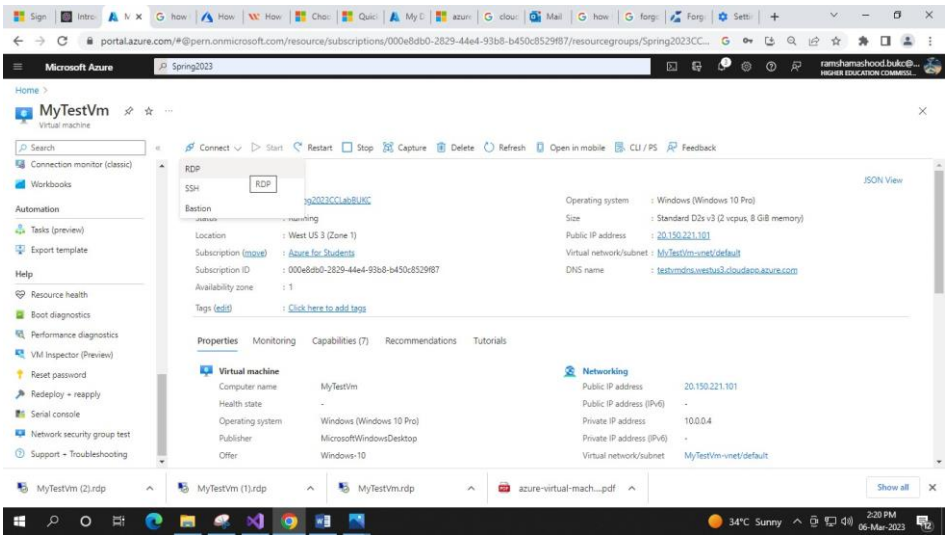
Step- 4: Now click on the **"Create"** button. It will show you **"Your deployment is complete"**.Now click on **"Go to resource"**

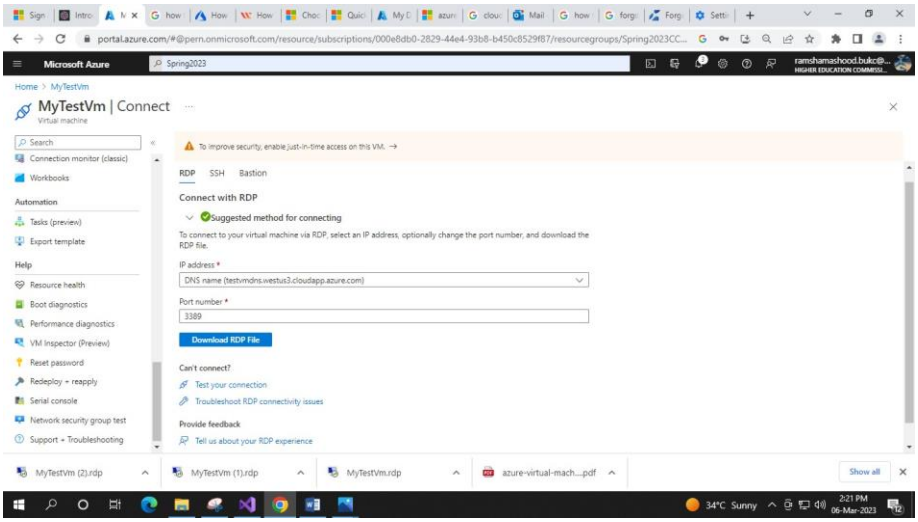
Step- 5: Congratulations, Now you have created the VM successfully.

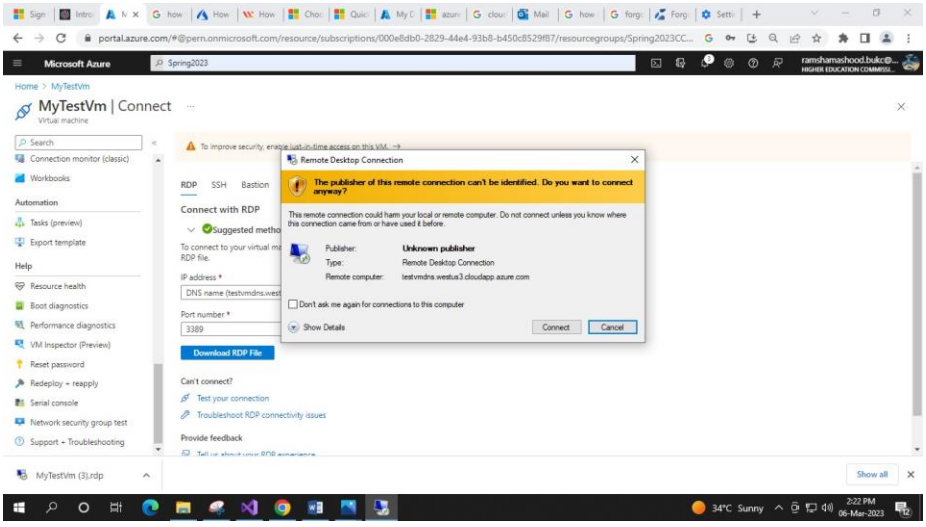


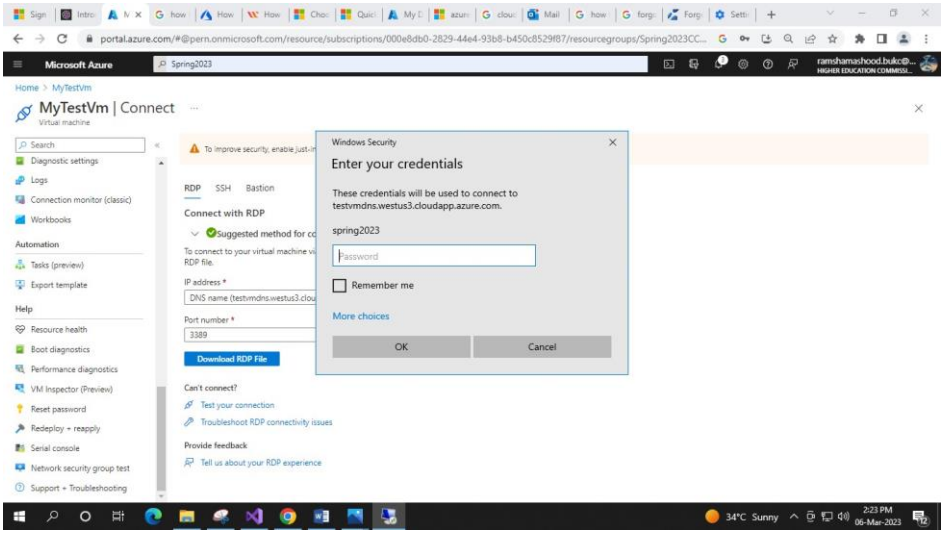


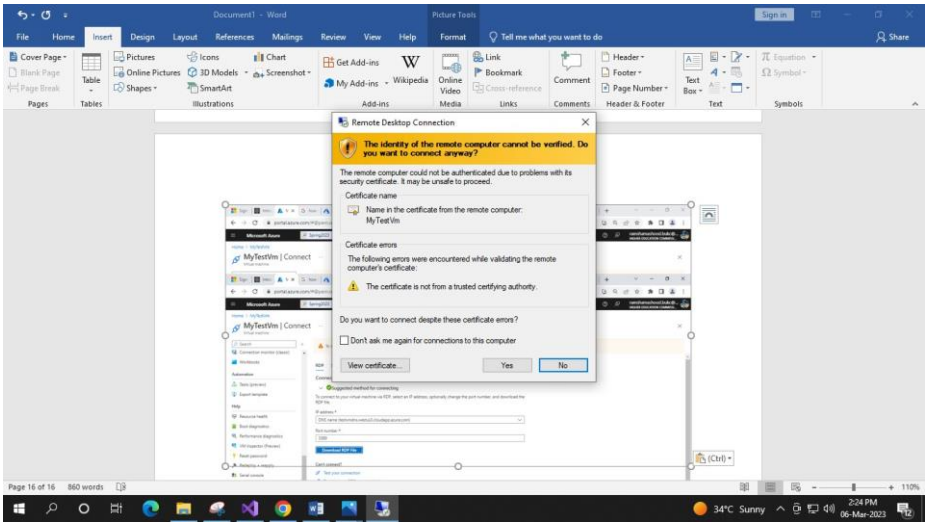
Step-6: Click on the **Connect button** to connect to the VM.

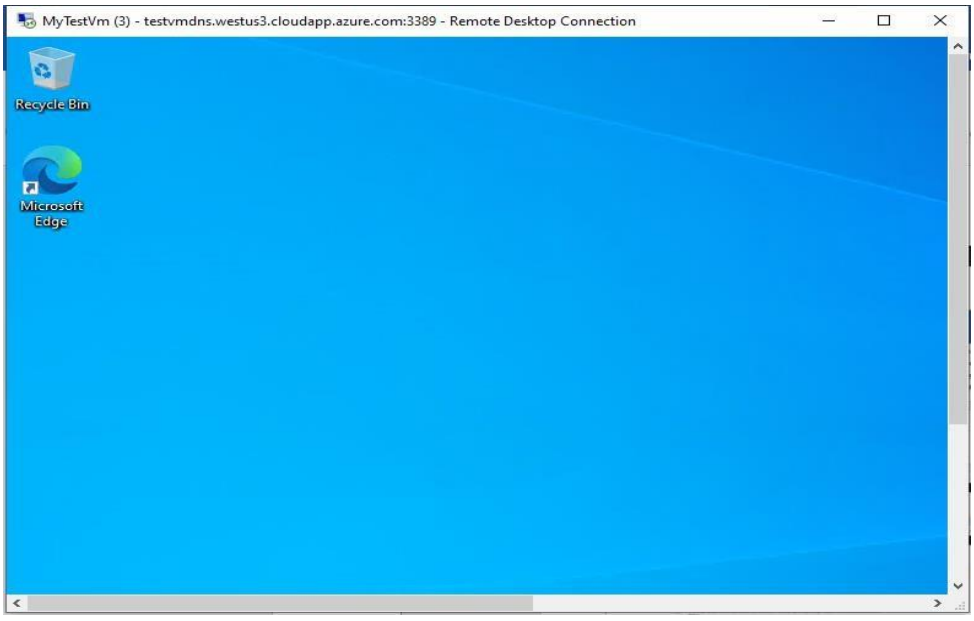







MyTestVm | Connect
Windows Security
Enter your credentials
These credentials will be used to connect to testvmdns.westus3.cloudapp.azure.com.
spring2023
Password
Remember me
More choices
OK
Cancel
RDP
SSH
Bastion
Connect with RDP
Download RDP File


Remote Desktop Connection
The identity of the remote computer cannot be verified. Do you want to connect anyway?
The remote computer could not be authenticated due to problems with its security certificate. It may be unsafe to proceed.
Certificate name
Name in the certificate from the remote computer:
MyTestVm
Certificate errors
The following errors were encountered while validating the remote computer's certificate:
The certificate is not from a trusted certifying authority.
Do you want to connect despite these certificate errors?
Don't ask me again for connections to this computer
View certificate...
Yes
No


MyTestVm (3) - testvmdns.westus3.cloudapp.azure.com:3389 - Remote Desktop Connection
Recycle Bin
Microsoft Edge

2. TIME BOXING

Activity Name	Activity Time	Total Time
Login Systems	5 mints	5 mints
Walk through Theory & Tasks	60 mints	60 mints
Implement Tasks	80 mints	80 mints
Evaluation Time	30 mints	30 mints
	Total Duration	175 mints

3. OBJECTIVES

After completing this lab the student should be able to:

a. *Clearly understand the purpose and benefits that **Cloud Computing** has to offer.*
b. *Understand the concept of Virtual Machines.*
c. *Use and learn about using Cloud based Virtual Machines.*

4. LAB TASKS/PRACTICAL WORK

1. Create Windows Virtual Machine in Azure.
2. Install different software on the created VM (including VS Code and Dev++).
3. Create simple login and sign up page on VS Code using VM.