

Pandit Deendayal Energy University (PDEU)

Cloud Computing Lab (20CP322P)

B.Tech-Computer Science & Engineering (Sem-VI)

PATEL VEDANT H.

19BCP138

DIVISION – 2 (G4)

Experiment – 4

Microsoft Azure

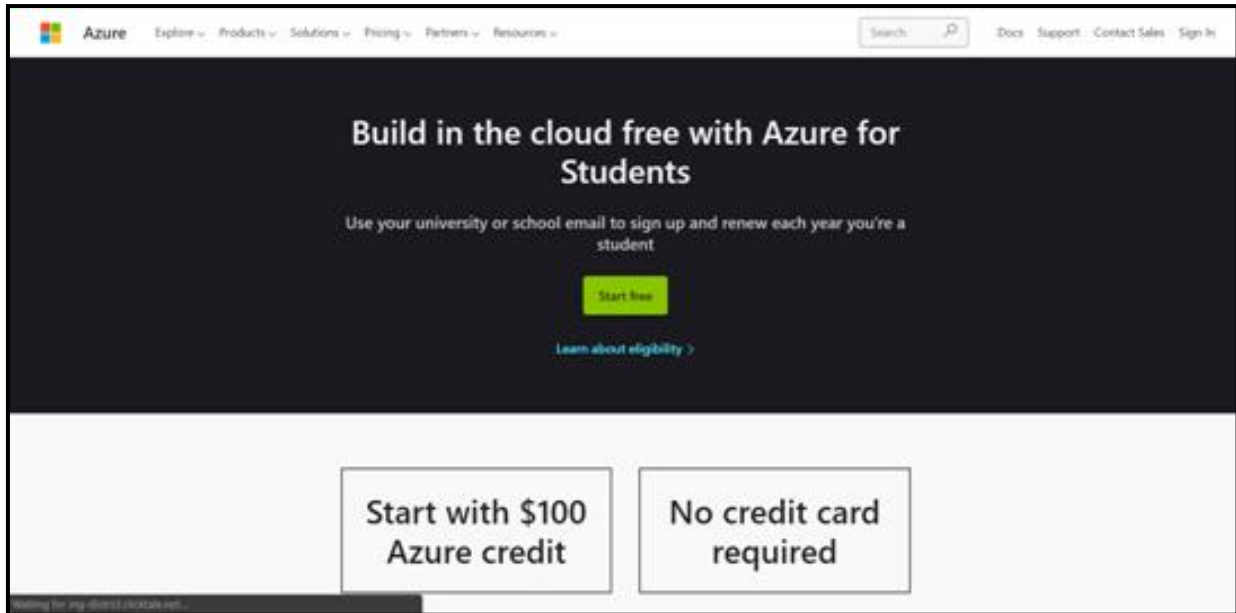
❖ **Aim:** To Explore **Microsoft Azure**.

➤ Perform the following:

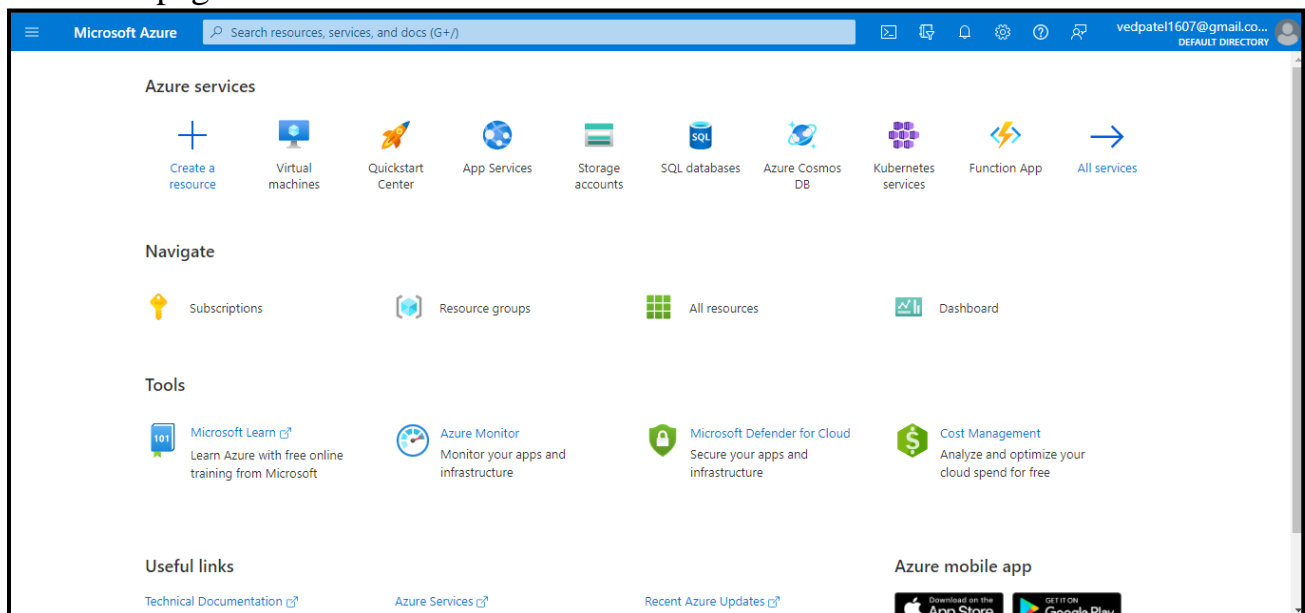
1. Create a student account in Microsoft Azure
2. Create a Virtual Machine with minimum configuration (Don't use the default suggested storage etc.)
 - a) Use Standard SSD option
 - b) Use password for authenticating the VM.
3. Create a Resource Group and assign some resource to it
4. Create a Virtual Network
5. Create 3 subnets having 256 host in each subnet
6. Create a virtual machine in each subnet and identify its public and private id address

1. Create a student account in Microsoft Azure:

- Go to <https://azure.microsoft.com/en-in/free/students/> and create a free student account.



- Sign-in to create an account, after creating account you will be redirected to home page.



2. Create a Virtual Machine:

- Search for Virtual machine in search bar or select virtual machine from azure services.
- Select create from the top left navigation bar.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines >

Virtual machines

Default Directory

+ Create Switch to classic

Filter for any field...

Name ↑ Subscription ↑

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines

Learn more about Linux virtual machines

Create a virtual machine

Basics Disks Networking Management 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 * Azure for Students

Resource group * (New) vedant138 [Create new](#)

Instance details

Virtual machine name *

Region * (US) East US

Availability options No infrastructure redundancy required

Review + create < Previous Next : Disks >

- Enter VM name and select lowest size and create username and password for VM.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines >

Virtual machines

Default Directory

+ Create Switch to classic

Filter for any field...

Name ↑ Subscription ↑

No virtual machines to display

Create a virtual machine that runs Linux or Windows. Select an image from the marketplace or use your own customized image.

Learn more about Windows virtual machines

Learn more about Linux virtual machines

Create a virtual machine

Subscription * Azure for Students

Resource group * (New) vedant138 [Create new](#)

Instance details

Virtual machine name * vedantVM1

Region * (US) East US

Availability options No infrastructure redundancy required

Security type Standard

Image * Ubuntu Server 20.04 LTS - Gen2 [See all images](#) [Configure VM generation](#)

Azure Spot instance ☐

Size * Standard_D2s_v3 - 2 vcpus, 8 GiB memory (₹5,048.93/month) [See all sizes](#)

Administrator account

Review + create < Previous Next : Disks >

- Select Standard SSD option in Disks.

The screenshot shows the 'Create a virtual machine' wizard in the Microsoft Azure portal, specifically the 'Disks' tab. The left sidebar shows the 'Virtual machines' section with a 'No virtual machines to display' message. The main content area is titled 'Create a virtual machine' and includes tabs for Basics, Disks, Networking, Management, Advanced, Tags, and Review + create. The 'Disks' tab is active, showing 'Disk options'. The 'OS disk type' is set to 'Standard SSD (locally-redundant storage)'. Below this, there is a note about performance and a link to 'Learn more'. The 'Delete with VM' checkbox is checked. The 'Encryption at host' checkbox is unchecked. A message states 'Encryption at host is not registered for the selected subscription'. The 'Encryption type' is set to '(Default) Encryption at-rest with a platform-managed key'. The 'Enable Ultra Disk compatibility' checkbox is unchecked. At the bottom, there are buttons for 'Review + create', '< Previous', and 'Next: Networking >'.

- Go to review and create to create a VM.

The screenshot shows the 'Overview' page for a deployment named 'CreateVm-canonical.0001-com-ubuntu-server-focal-2-20220303135908'. The left sidebar shows the 'Overview' tab selected. The main content area shows a green checkmark and the text 'Your deployment is complete'. Below this, there is a summary of the deployment: 'Deployment name: CreateVm-canonical.0001-com-ubuntu-server-f...', 'Subscription: Azure for Students', 'Resource group: vedant138', 'Start time: 3/3/2022, 2:07:55 PM', and 'Correlation ID: ffa23d0b-3bf2-4d88-abe0-bead6313580'. There are links for 'Deployment details (Download)', 'Next steps', 'Setup auto-shutdown Recommended', 'Monitor VM health, performance and network dependencies Recommended', and 'Run a script inside the virtual machine Recommended'. At the bottom, there are buttons for 'Go to resource' and 'Create another VM'. The right sidebar contains three sections: 'Cost Management' with a link to 'Set up cost alerts >', 'Microsoft Defender for Cloud' with a link to 'Go to Microsoft Defender for Cloud >', and 'Free Microsoft tutorials' with a link to 'Start learning today >'. At the bottom of the right sidebar, there is a section 'Work with an expert' with text about Azure experts.

3. Create a Resource Group and assign some resources in it:

- Select Resource Group from navigate bar or search resource group in search bar and then click on create.
- Add name for resource group.

Microsoft Azure

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

Home > Resource groups >

Resource groups

Default Directory

+ Create Manage view ...

Filter for any field...

Name ↑

- NetworkWatcherRG
- vedant138

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 *

Resource details

Region * (US) East US

Review + create < Previous Next : Tags >

- Create resource group.

Microsoft Azure

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

Home > Resource groups >

Resource groups

Default Directory

+ Create Manage view ...

Filter for any field...

Name ↑

- NetworkWatcherRG
- vedant138

Create a resource group ...

Basics Tags Review + create

Validation passed.

Basics

Subscription Azure for Students

Resource group RGPractice

Region East US

Tags

None

Create < Previous Next > Download a template for automation

- Assigned resources in resource group.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Resource groups >

Resource groups

Default Directory

+ Create Manage view ...

Filter for any field...

Name ↑

- NetworkWatcherRG
- RGPractice
- vedant138

vedant138

Resource group

Search (Ctrl+)

+ Create Edit columns Delete resource group Refresh Export to CSV Open query Assign tags ...

Overview

Activity log

Access control (IAM)

Tags

Resource visualizer

Events

Settings

Deployments

Security

Policies

Properties

Locks

Cost Management

Cost analysis

Cost alerts (preview)

Budgets

Essentials

Subscription (move) Azure for Students

Subscription ID 172d668d-61e1-42b0-b192-be424b834dc

Tags (edit) Click here to add tags

Deployments 1 Succeeded

Location East US

Resources Recommendations

Filter for any field... Type == all Location == all Add filter

Showing 1 to 7 of 7 records. Show hidden types No grouping List view

Name	Type	Location
vedant138-vnet	Virtual network	East US
vedantVM1	Virtual machine	East US
vedantVM1-ip	Public IP address	East US
vedantVM1-nsg	Network security group	East US
vedantvm1598	Network interface	East US

4. Create a Virtual Network:

- Open Virtual Network and create a virtual network.

Microsoft Azure

Search resources, services, and docs (G+)

Home >

Virtual networks

Default Directory

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

Filter for any field... Subscription == all Resource group == all Location == all Add filter

Showing 1 to 1 of 1 records. No grouping List view

Name	Resource group	Location	Subscription
vedant138-vnet	vedant138	East US	Azure for Students

< Previous Page 1 of 1 Next >

- Add name for virtual network.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual networks >

Create virtual network

Basics IP Addresses Security Tags Review + create

Azure Virtual Network (VNet) is the fundamental building block for your private network in Azure. VNet enables many types of Azure resources, such as Azure Virtual Machines (VM), to securely communicate with each other, the internet, and on-premises networks. VNet is similar to a traditional network that you'd operate in your own data center, but brings with it additional benefits of Azure's infrastructure such as scale, availability, and isolation. [Learn more about virtual network](#)

Project details

Subscription * Azure for Students

Resource group * vedant138 [Create new](#)

Instance details

Name * vedant_VM

Region * East US

[Review + create](#) [< Previous](#) [Next : IP Addresses >](#) [Download a template for automation](#)

5. Create 3 subnets having 256 hosts in each Subnet:

- Click on add subnet and add 3 subnets.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual networks >

Virtual networks

Default Directory

[+ Create](#) [Manage view](#)

Filter for any field...

Name ↑

vedant138-vnet

Create virtual network

IPv4 address space

10.1.0.0/16 10.1.0.0 - 10.1.255.255 (65536 addresses)

☐ Add IPv6 address space

The subnet's address range in CIDR notation (e.g. 192.168.1.0/24). It must be contained by the address space of the virtual network.

[+ Add subnet](#) [Remove subnet](#)

<input type="checkbox"/> Subnet name	Subnet address range	NAT gateway
<input type="checkbox"/> subnet1	10.1.0.0/24	-
<input type="checkbox"/> subnet2	10.1.1.0/24	-
<input type="checkbox"/> subnet3	10.1.2.0/24	-

i Use of a NAT gateway is recommended for outbound internet access from a subnet. You can deploy a NAT gateway and assign it to a subnet after you create the virtual network. [Learn more](#)

[Review + create](#) [< Previous](#) [Next : Security >](#) [Download a template for automation](#)

- Click on create to finally create virtual network.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual networks >

Virtual networks

Default Directory

+ Create Manage view

Filter for any field...

Name ↑↓

vedant138-vnet

Create virtual network

Validation passed

Basics IP Addresses Security Tags Review + create

Basics

Subscription Azure for Students

Resource group vedant138

Name vedant_VM

Region East US

IP addresses

Address space 10.1.0.0/16

Subnet subnet1 (10.1.0.0/24), subnet2 (10.1.1.0/24), subnet3 (10.1.2.0/24)

Tags

None

Page 1 of 1

Create < Previous Next > Download a template for automation

6. VM for each subnet and its public and private id address:

- Click on add subnet and add 3 subnets.

Microsoft Azure

Search resources, services, and docs (G+)

Home > Virtual machines >

Virtual machines

Default Directory

+ Create Switch to classic

Filter for any field...

Name ↑↓ Subscription ↑↓

vedantVM1 Azure for Students

Create a virtual machine

Learn more

Network interface

When creating a virtual machine, a network interface will be created for you.

Virtual network * vedant_VM

Subnet * subnet1 (10.1.0.0/24)

Public IP subnet1 (10.1.0.0/24)

NIC network security group subnet1 (10.1.0.0/24)

Public inbound ports * None

Select inbound ports * SSH (22)

Review + create < Previous Next : Management >

- VM for Sub 1.

Virtual machine		Networking	
Computer name	vedantVMsub1	Public IP address	vedantVMsub1-ip
Health state	-	Public IP address (IPv6)	-
Operating system	Linux	Private IP address	10.1.0.4
Publisher	canonical	Private IP address (IPv6)	-
Offer	0001-com-ubuntu-server-focal	Virtual network/subnet	vedant_VM/subnet1
Plan	20_04-lts-gen2	DNS name	Configure
VM generation	V2		

- VM for Sub 2.

Virtual machine		Networking	
Computer name	vedantVMsub2	Public IP address	vedantVMsub2ip427
Health state	-	Public IP address (IPv6)	-
Operating system	Linux	Private IP address	10.1.1.5
Publisher	canonical	Private IP address (IPv6)	-
Offer	0001-com-ubuntu-server-focal	Virtual network/subnet	vedant_VM/subnet2
Plan	20_04-lts-gen2	DNS name	Configure
VM generation	V2		

- VM for Sub 3.

Virtual machine		Networking	
Computer name	vedantVMsub3	Public IP address	vedantVMsub2ip427
Health state	-	Public IP address (IPv6)	-
Operating system	Linux	Private IP address	10.1.1.5
Publisher	canonical	Private IP address (IPv6)	-
Offer	0001-com-ubuntu-server-focal	Virtual network/subnet	vedant_VM/subnet3
Plan	20_04-lts-gen2	DNS name	Configure
VM generation	V2		