



# **IT4090**

## **Cloud Computing**

### **4<sup>th</sup> Year, 1<sup>st</sup> Semester**

*Azure Lab 3*

## **Practical Session**

Submitted to

Sri Lanka Institute of Information Technology

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In partial fulfillment of the requirements for the  
Bachelor of Science Special Honors Degree in Information Technology

08/25/2024

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# 1. Create a virtual network and an Azure Bastion host

The screenshot shows the 'Create virtual network' page in the Azure portal. The 'Project details' tab is active. It includes a 'Subscription' dropdown set to 'Azure for Students' and a 'Resource group' dropdown set to '(New) test-rg'. Below these is the 'Instance details' section with a 'Virtual network name' field containing 'vnet-1' and a 'Region' dropdown set to '(US) East US 2'. At the bottom are 'Previous', 'Next', and 'Review + create' buttons.

Microsoft Azure

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All services > Virtual networks >

## Create virtual network

Basics Security IP addresses Tags Review + create

### 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) test-rg

Create new

### Instance details

Virtual network name \* vnet-1

Region \* (US) East US 2

Previous Next Review + create

Give feedback

Figure 1. 1: Enter Project details and Instance details

The screenshot shows the 'Create virtual network' page in the Azure portal, with the 'Security' tab active. It features the 'Azure Bastion' section, which includes a description and a checkbox for 'Enable Azure Bastion' that is checked. Below this are fields for 'Azure Bastion host name' (containing 'bastion') and 'Azure Bastion public IP address' (containing '(New) public-ip-bastion'). The 'Azure Firewall' section is also visible. At the bottom are 'Previous', 'Next', and 'Review + create' buttons.

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## Create virtual network

Basics Security IP addresses Tags Review + create

### Azure Bastion

Azure Bastion is a paid service that provides secure RDP/SSH connectivity to your virtual machines over TLS. When you connect via Azure Bastion, your virtual machines do not need a public IP address. [Learn more.](#)

Enable Azure Bastion ☒

Azure Bastion host name bastion

Azure Bastion public IP address \* (New) public-ip-bastion

Create a public IP address

### Azure Firewall

Previous Next Review + create

Give feedback

Figure 1. 2: Enable Azure Bastion with host name and public IP address

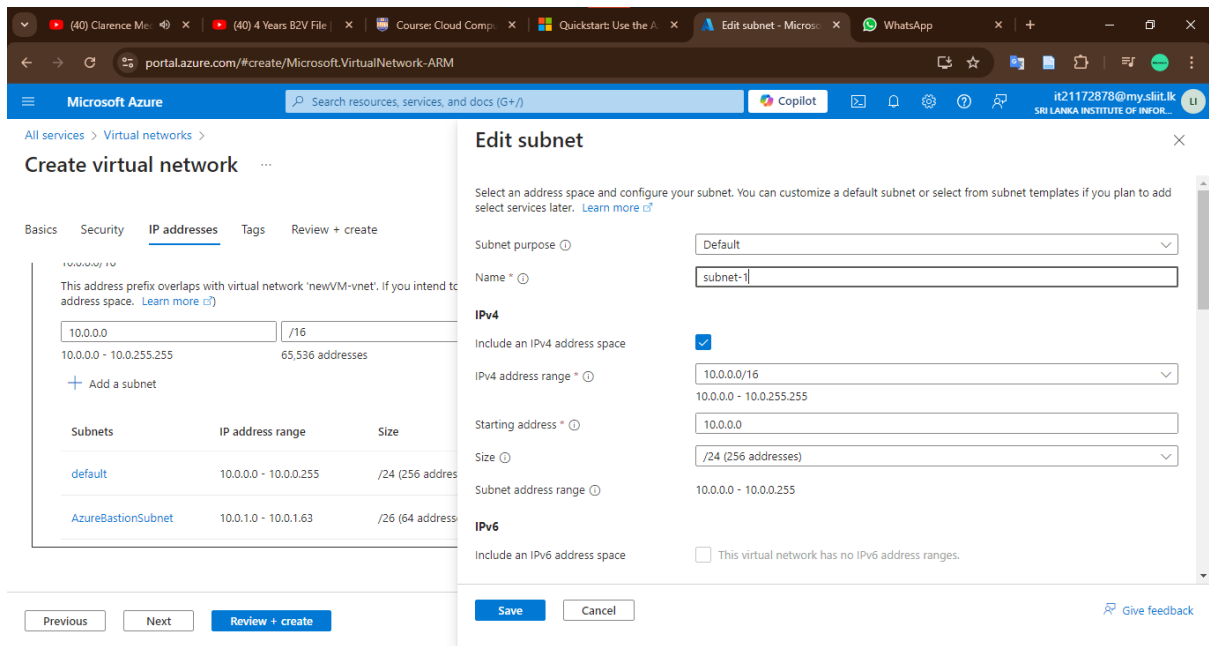


Figure 1. 3: Edit subnet, enter or select the above information

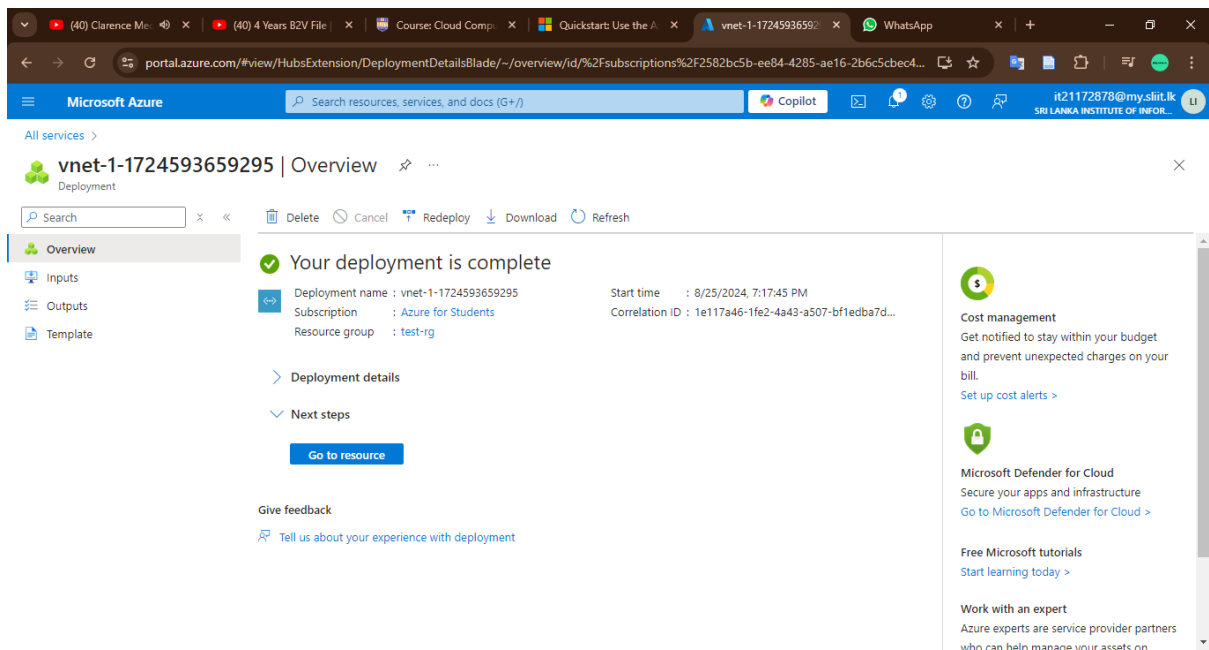


Figure 1. 4: Created Virtual Network

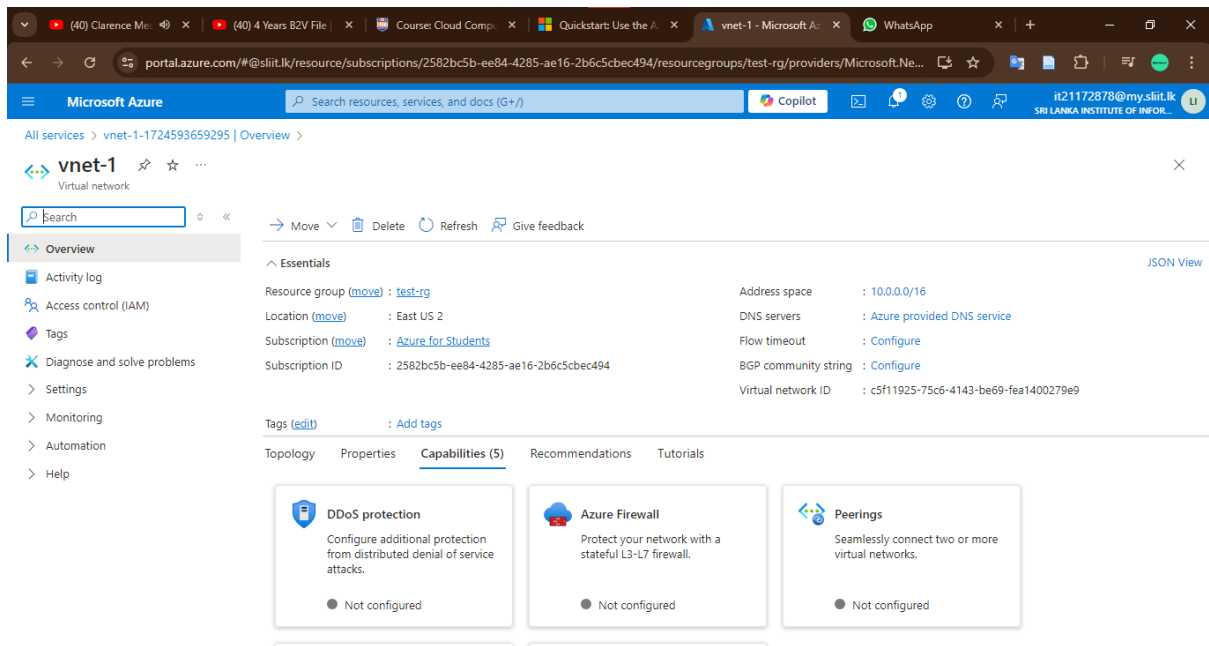


Figure 1. 5: Virtual Network's overview

## 2. Create virtual machines

### 2.1. Create first virtual machine

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 'All services > Virtual machines >'. Below the title, there are three tabs: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. The 'Project details' section is active, showing the following fields:

- Subscription \***: Azure for Students
- Resource group \***: test-rg (with a 'Create new' link below it)
- Virtual machine name \***: vm-1
- Region \***: (US) East US 2
- Availability options**: No infrastructure redundancy required
- Security type**: Standard
- Image \***: Ubuntu Server 24.04 LTS - x64 Gen2

At the bottom of the form, there are three buttons: '< Previous', 'Next: Disks >', and 'Review + create'. A 'Give feedback' link is also present in the bottom right corner.

Figure 2.1. 1: Select Subscription and Virtual machine name

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, specifically the 'Instance details' section. The page is titled 'Create a virtual machine' and has a breadcrumb trail 'All services > Virtual machines >'. Below the title, there are three tabs: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. The 'Instance details' section is active, showing the following fields:

- Image \***: Ubuntu Server 24.04 LTS - x64 Gen2 (with links 'See all images' and 'Configure VM generation' below it)
- VM architecture**: x64 (selected with a radio button, with 'Arm64' as an option)
- Run with Azure Spot discount**: ☐
- Size \***: Standard\_D2s\_v3 - 2 vcpus, 8 GiB memory (\$70.08/month) (with a 'See all sizes' link below it)
- Enable Hibernation**: ☐ (with a note: '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' and a 'Learn more' link)

At the bottom of the form, there are three buttons: '< Previous', 'Next: Disks >', and 'Review + create'. A 'Give feedback' link is also present in the bottom right corner.

Figure 2.1. 2: Select image and size

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 'All services > Virtual machines >'. Below the title, there are three tabs: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. The 'Authentication type' section is active, showing 'SSH public key' and 'Password' options. The 'Password' option is selected. Below this, there are three input fields: 'Username' (containing 'azureuser'), 'Password' (containing '\*\*\*\*\*'), and 'Confirm password' (containing '\*\*\*\*\*'). The 'Inbound port rules' section is also visible, with 'Public inbound ports' set to 'None'. At the bottom, there are navigation buttons: '< Previous', 'Next: Disks >', and 'Review + create'. A 'Give feedback' link is also present.

Figure 2.1. 3: Select Authentication type and create credentials

The screenshot shows the 'Create a virtual machine' page in the Microsoft Azure portal, step 4: Select Virtual network, subnet and create security group. The page is titled 'Create a virtual machine' and has a breadcrumb trail 'All services > Virtual machines >'. Below the title, there are three tabs: 'Help me create a low cost VM', 'Help me create a VM optimized for high availability', and 'Help me choose the right VM size for my workload'. The 'Network interface' section is active, showing 'Virtual network' (vnet-1), 'Subnet' (subnet-1 (10.0.0.0/24)), 'Public IP' (None), 'NIC network security group' (Advanced), 'Configure network security group' ((new) nsg-1), 'Delete NIC when VM is deleted' (unchecked), and 'Enable accelerated networking' (checked). At the bottom, there are navigation buttons: '< Previous', 'Next: Management >', and 'Review + create'. A 'Give feedback' link is also present.

Figure 2.1. 4: Select Virtual network, subnet and create security group



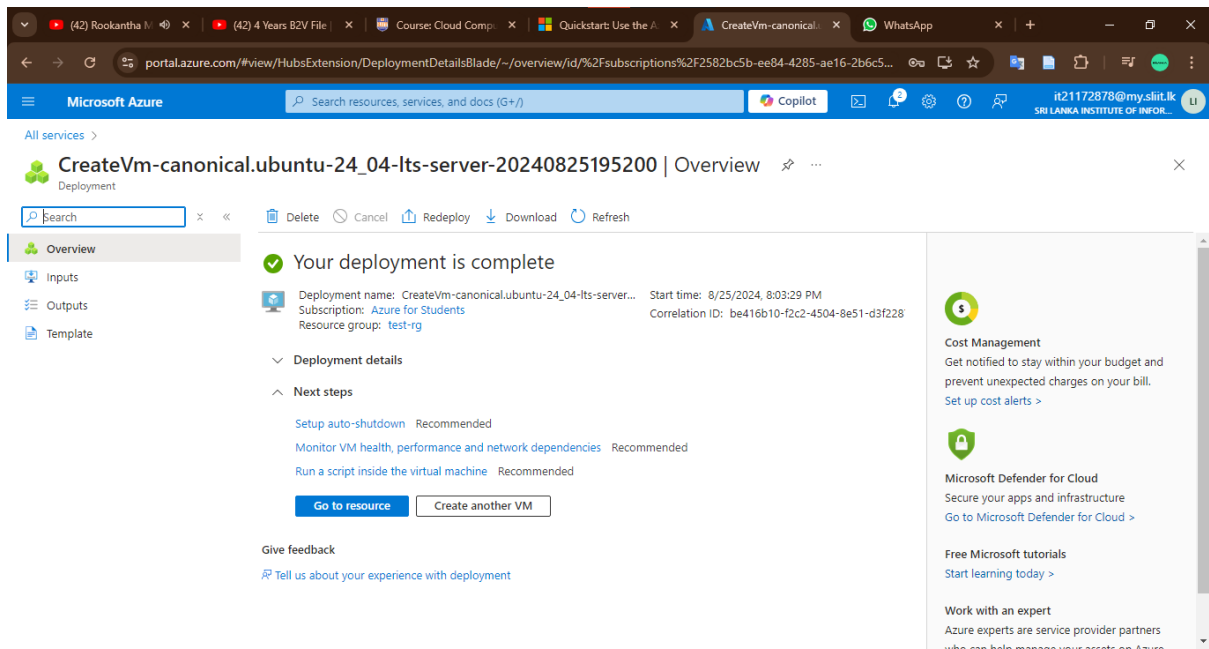


Figure 2.1. 5: Created first virtual machine

## 2.2. Create second virtual machine

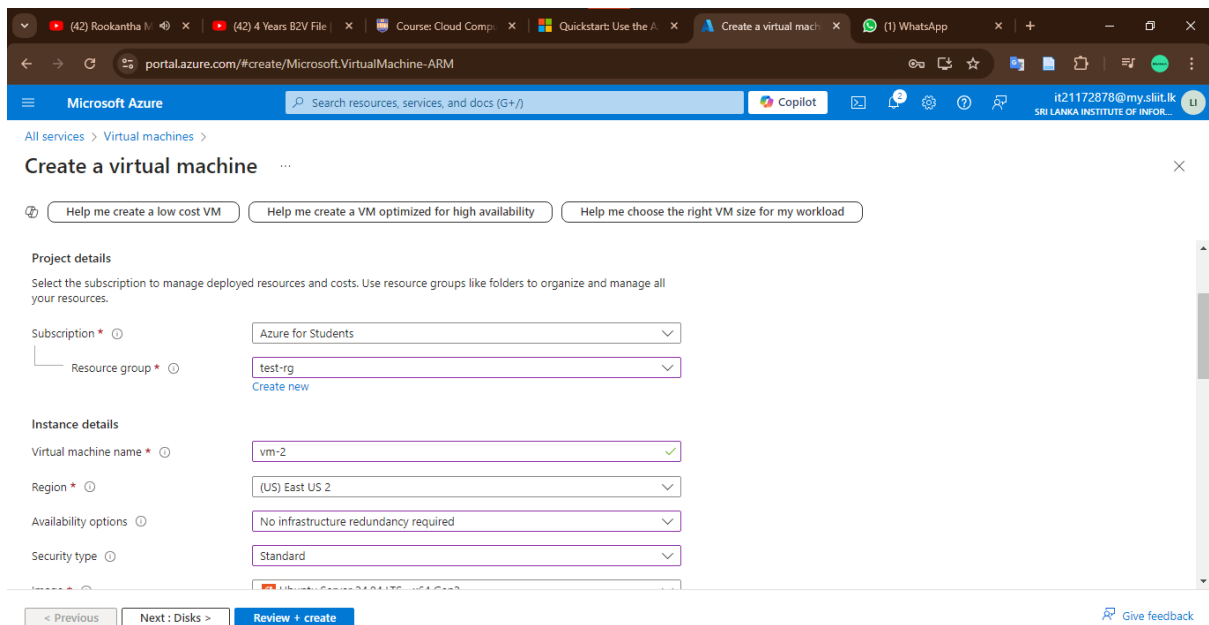


Figure 2.2. 1: Select Subscription and Virtual machine name

Microsoft Azure

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Virtual machines

## Create a virtual machine

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

Image \*

See all images | Configure VM generation

☒ This image is compatible with additional security features. [Click here to swap to the Trusted launch security type.](#)

VM architecture ☐ Arm64 ☒ x64

Run with Azure Spot discount ☐

Size \*

See all sizes

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](#)

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

[Give feedback](#)

Figure 2.2. 2: Select image and size

Microsoft Azure

Search resources, services, and docs (G+)

Virtual machines

## Create a virtual machine

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

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](#)

Figure 2.2. 3: Select Authentication type and create credentials

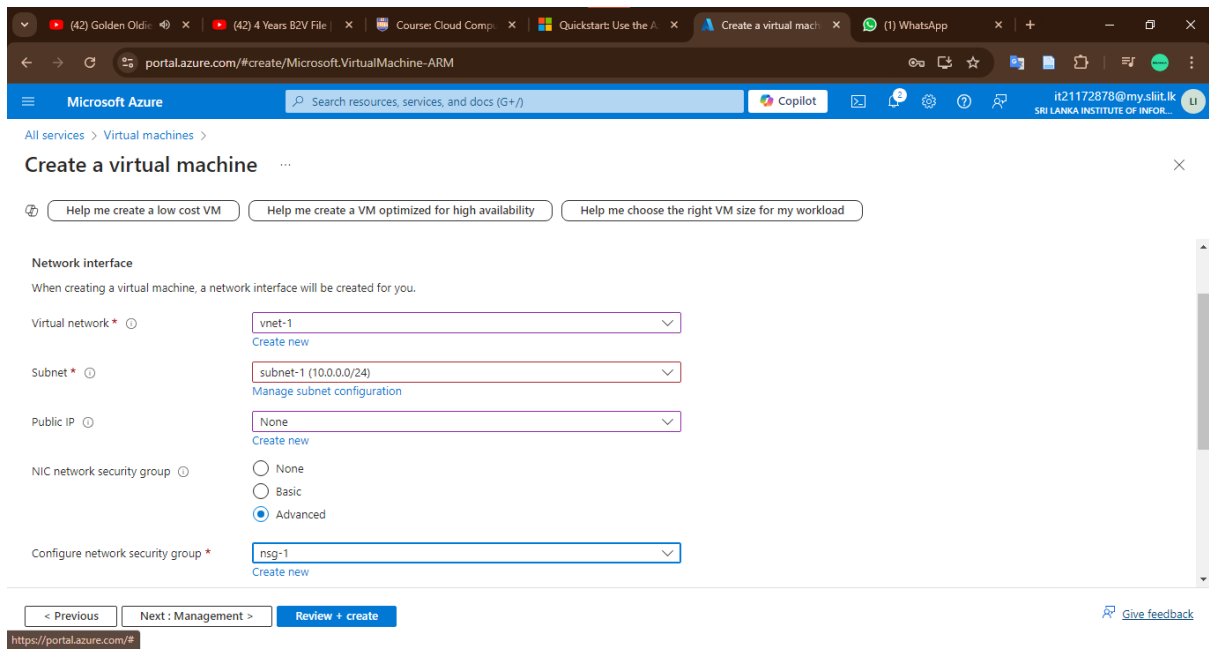


Figure 2.2. 4: Select Virtual network, subnet and create security group

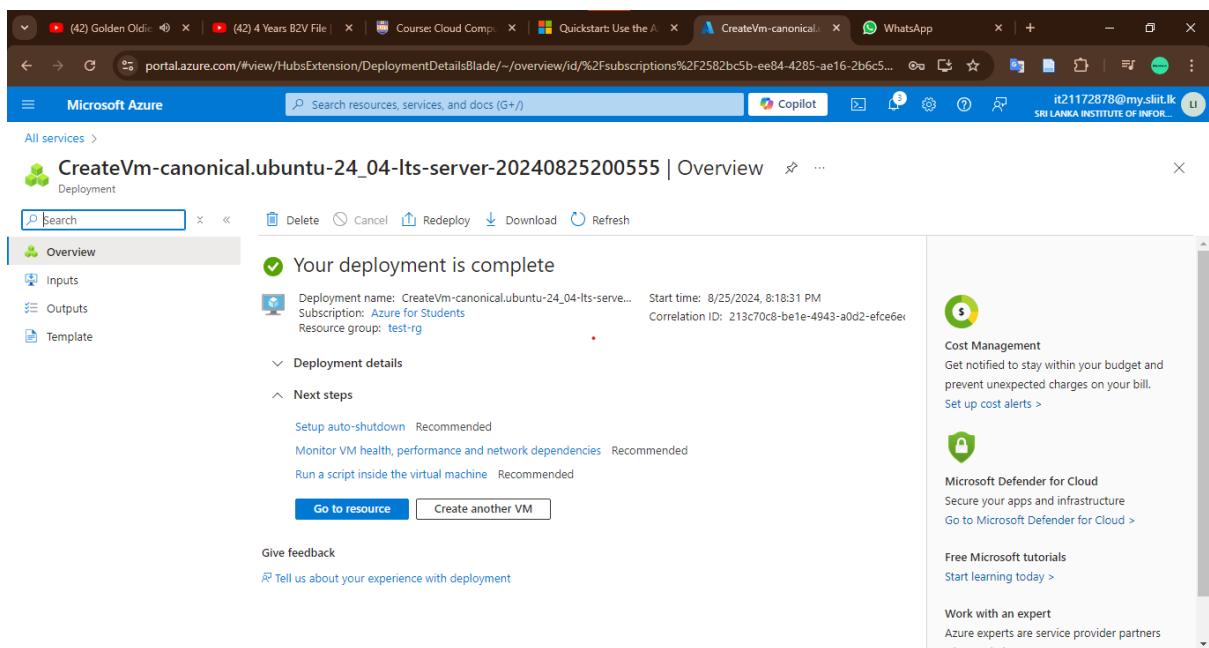


Figure 2.2. 5: Created second virtual machine

### 3. Connect to a virtual machine & communication between VMs

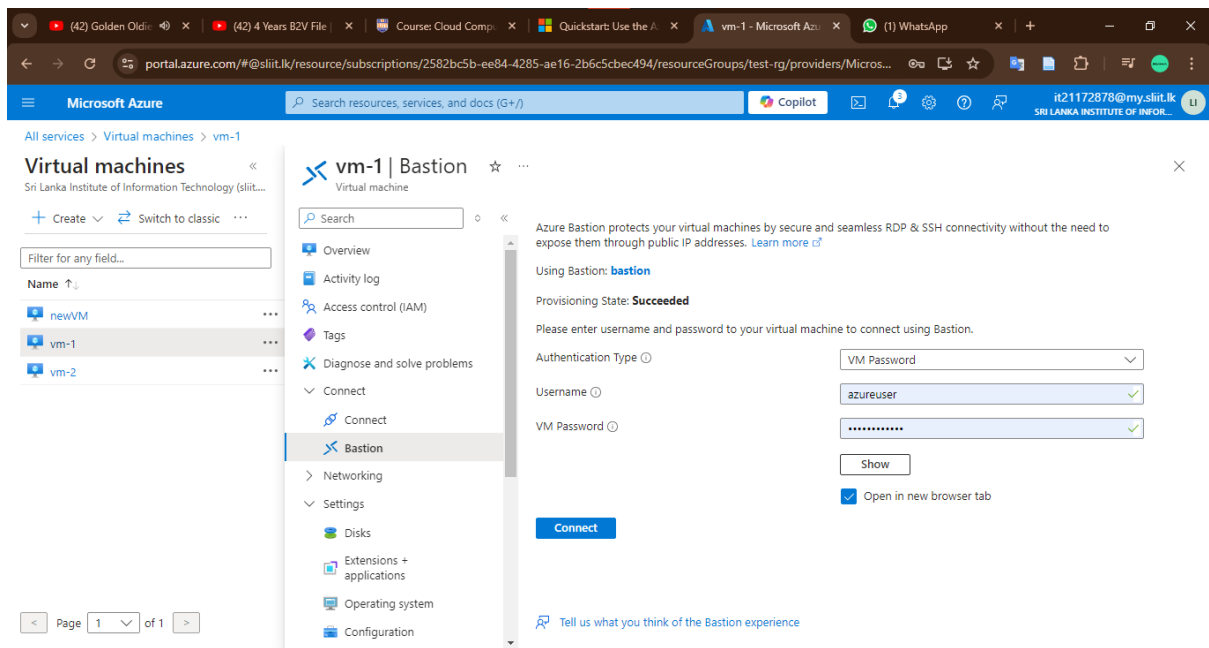


Figure 3. 1: Connect first virtual machine

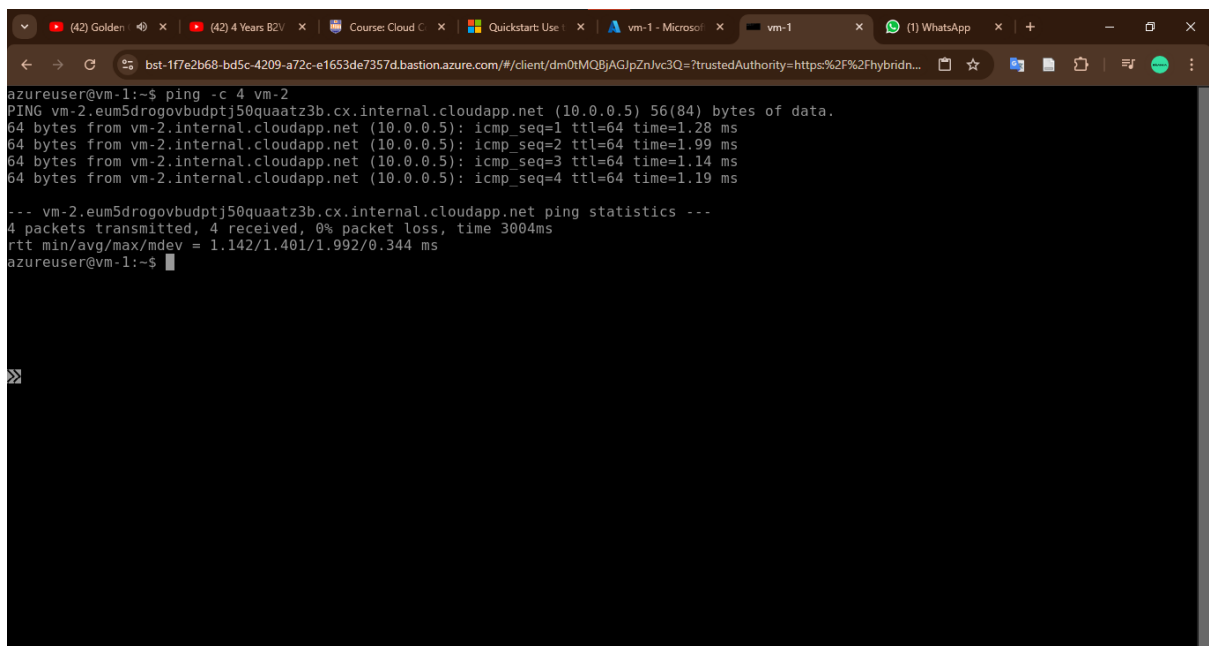


Figure 3. 2: Ping to second virtual machine

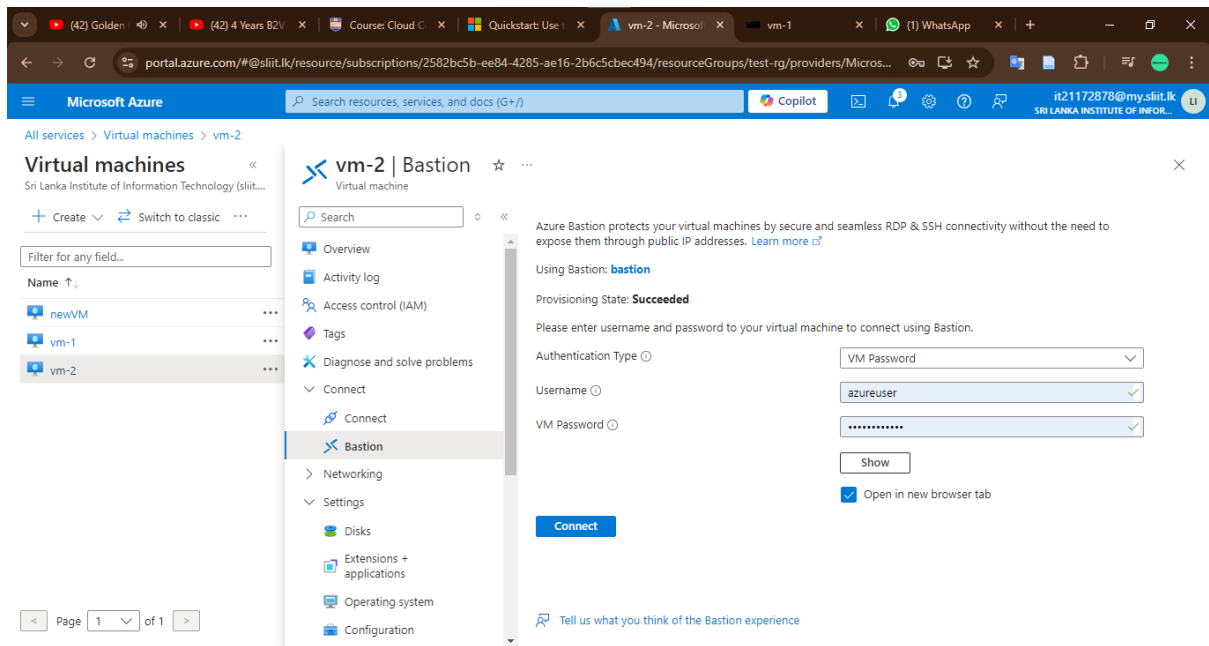


Figure 3. 3: Connect second virtual machine

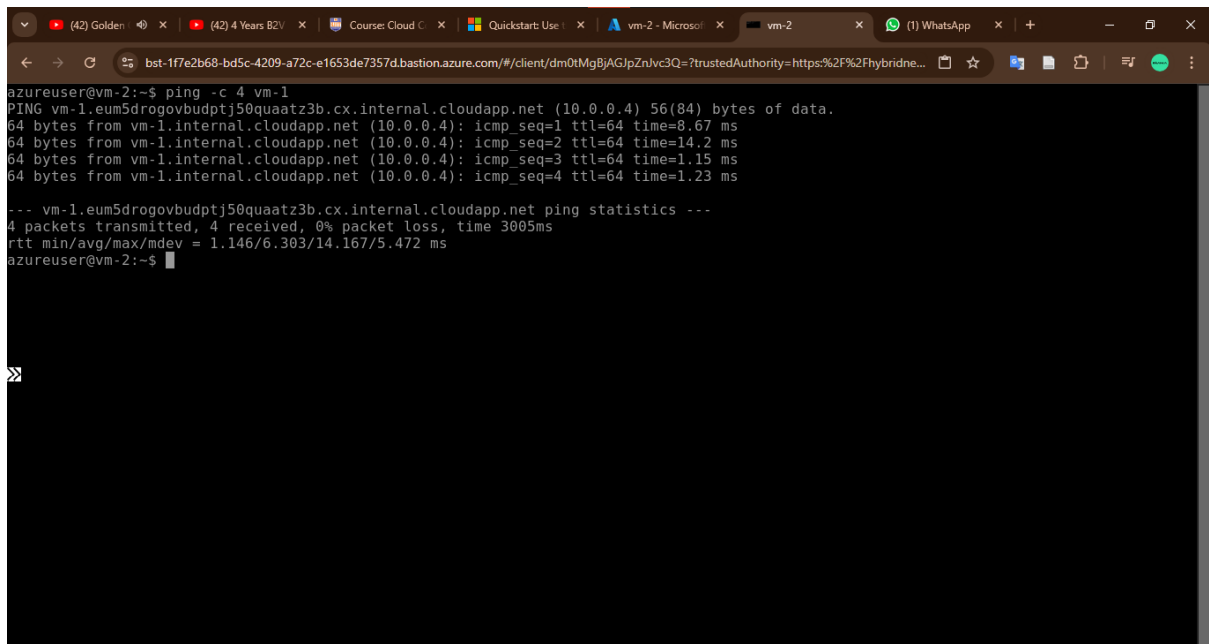


Figure 3. 4: Ping to first virtual machine

## 4. Clean up resources

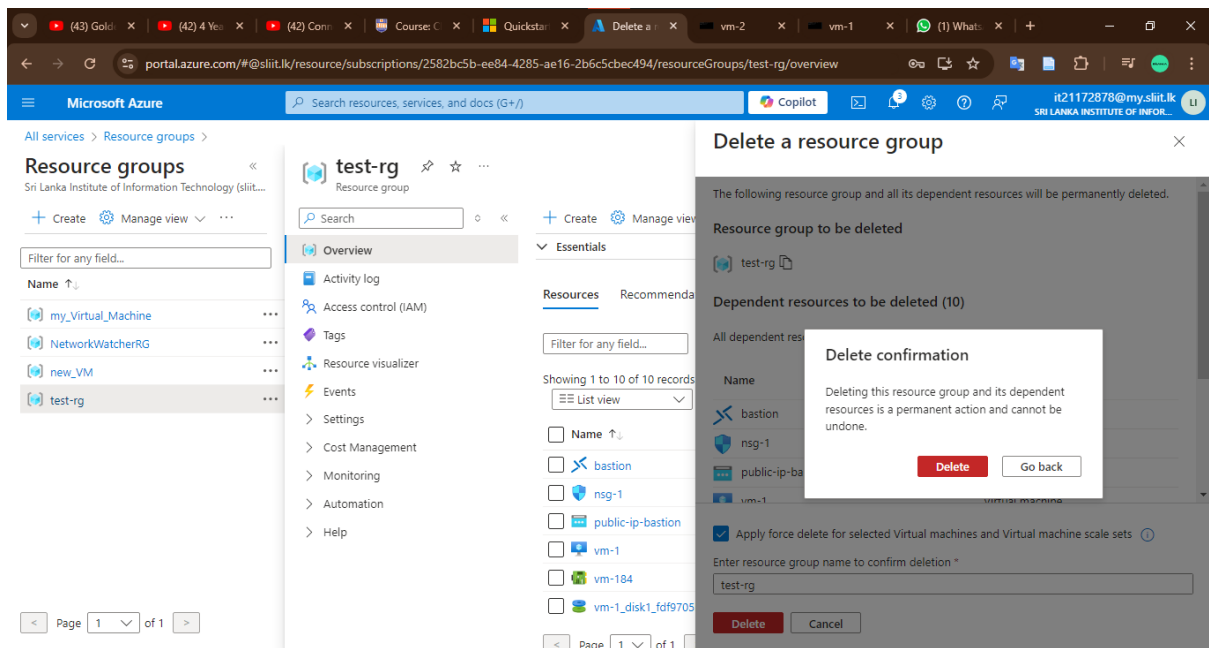


Figure 4. 1: Delete confirmation to delete resource group

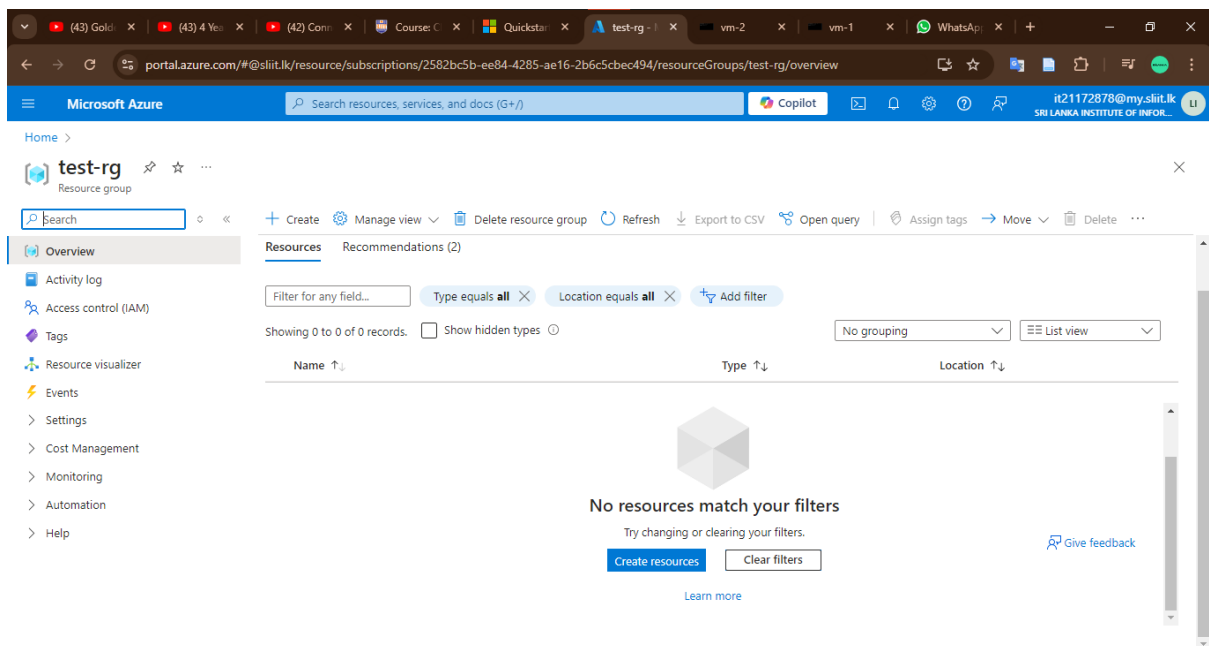


Figure 4. 2: Windows After deleted resources