



# **IT4090**

## **Cloud Computing**

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

**<Azure Lab 01>**

Submitted to  
Sri Lanka Institute of Information Technology

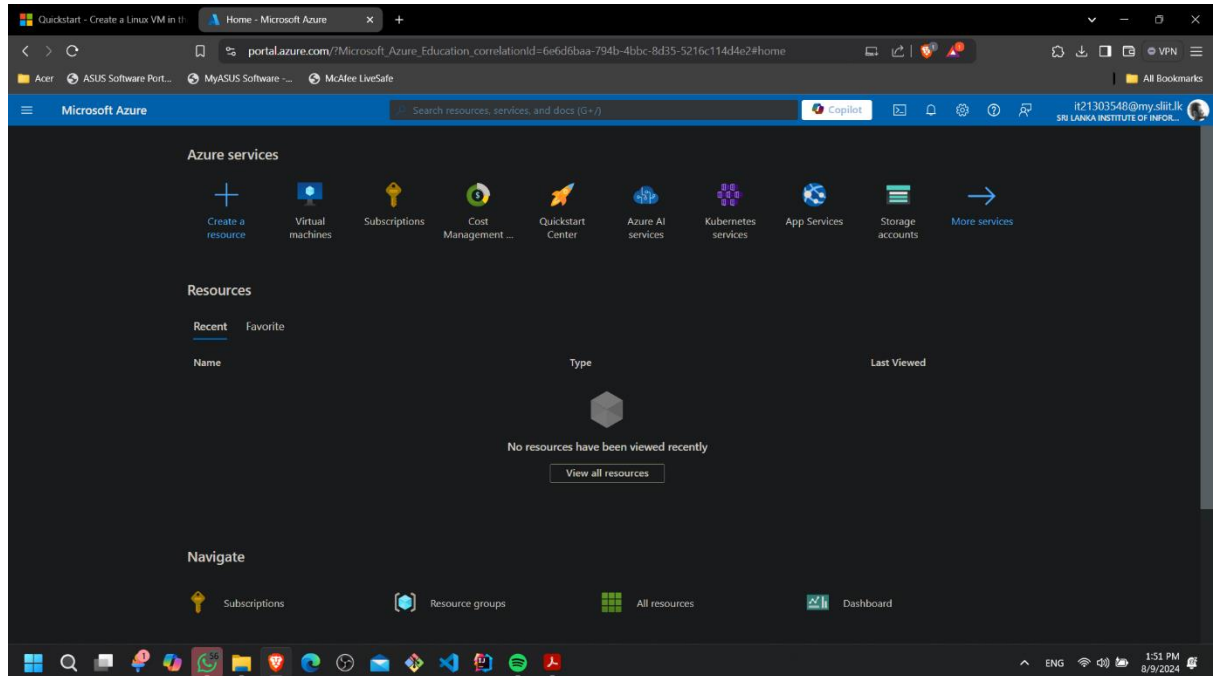
**<IT21303548>**

**<Gunasekara W.M.W.A.G.T.N.A.>**

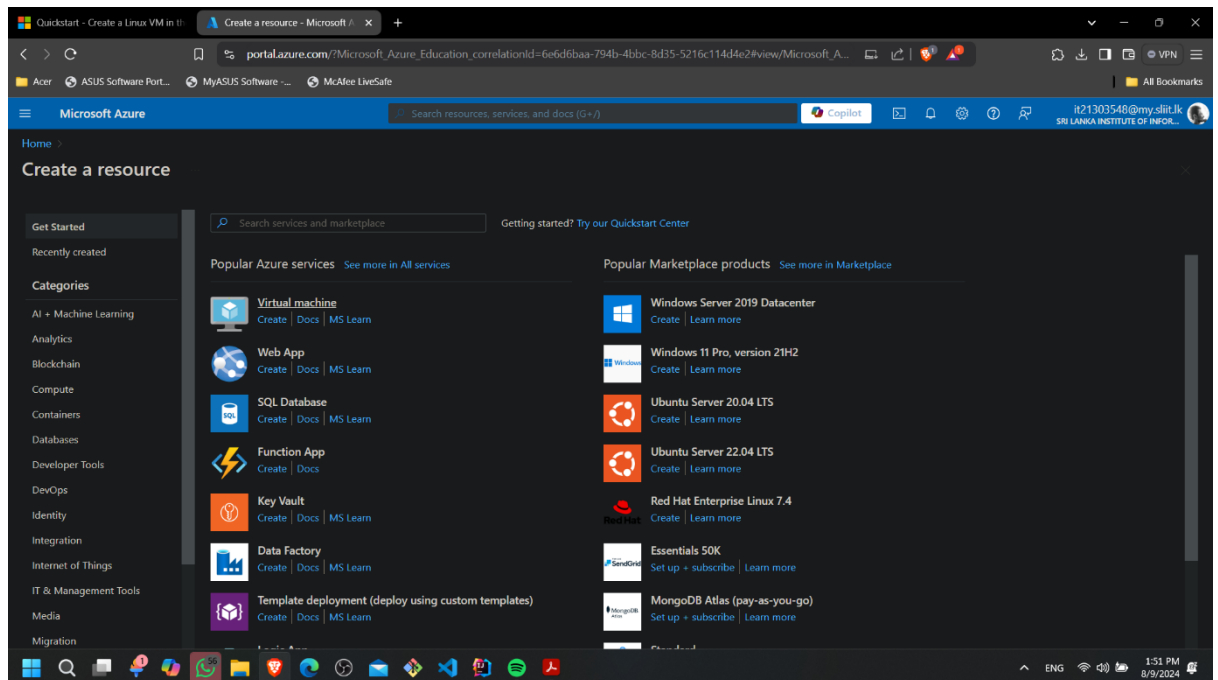
In partial fulfillment of the requirements for the  
Bachelor of Science Special Honors Degree in Information Technology

<8.09.2024>

## 01) Create virtual machine



### 1.1 – Click on Create a resources



### 1.2 – Click Virtual Machines

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

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

Home > Create a resource >

## 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

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](#)

This subscription may not be eligible to deploy VMs of certain sizes in certain regions.

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

**Instance details**

Virtual machine name \*

Region \* ((Europe) North Europe)

Availability options \* Availability none

## 1.3 – Fill The Details

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

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## Create a virtual machine

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

Availability options \* No infrastructure redundancy required

Security type \* Standard

Image \* Ubuntu Server 24.04 LTS - x64 Gen2 [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 \* Standard\_D2s\_v3 - 2 vcpus, 8 GiB memory (\$78.11/month) [See all sizes](#)

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**

< Previous Next: Disks > Review + create

[Give feedback](#)

## 1.4 - Fill The Details

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

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## 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

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

☐ 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

< Previous Next : Disks > Review + create Give feedback

## 1.5 - Fill The Details

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

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Home > Create a resource >

## Create a virtual machine

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

Username \*

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

## 1.6 – Click Review + Create

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic...

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

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

Home > Create a resource >

## Create a virtual machine

Validation passed

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

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

Price

1 X Standard D2s v3 by Microsoft

Subscription credits apply

**0.1070 USD/hr**

Terms of use | Privacy policy 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.

Name IT21303548 Gunasekara W.M.W.A.G.T.N.A.

Preferred e-mail address it21303548@my.sliit.lk

Preferred phone number

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## 1.7.1 –

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic...

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

Home > Create a resource >

## Create a virtual machine

Validation passed

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

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

Basics

Subscription	Azure for Students
Resource group	(new) myVM_group
Virtual machine name	myVM
Region	North Europe
Availability options	No infrastructure redundancy required
Zone options	Self-selected zone
Security type	Standard
Image	Ubuntu Server 24.04 LTS - Gen2
VM architecture	x64
Size	Standard D2s v3 (2 vcpus, 8 GiB memory)
Enable Hibernation	No
Authentication type	SSH public key
Username	azureuser
SSH Key format	RSA

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## 1.7.2 - Details

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

Acer ASUS Software Port... MyASUS Software ... McAfee LiveSafe

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

Capilot

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Home > Create a resource >

## Create a virtual machine

Validation passed

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

SSH Key format	RSA
Key pair name	myKey
Public inbound ports	SSH, HTTP
Azure Spot	No

### Disks

OS disk size	Image default
OS disk type	Premium SSD LRS
Use managed disks	Yes
Delete OS disk with VM	Enabled
Ephemeral OS disk	No

### Networking

Virtual network	(new) myVM-vnet
Subnet	(new) default (10.0.0.0/24)
Public IP	(new) myVM-ip
Accelerated networking	Off
Place this virtual machine behind an	No

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## 1.7.3 - Details

Quickstart - Create a Linux VM in th... Create a virtual machine - Mic... +

portal.azure.com/?Microsoft\_Azure\_Education\_correlationId=6e6d6baa-794b-4bbc-8d35-5216c114d4e2#create/Microsoft...

Acer ASUS Software Port... MyASUS Software ... McAfee LiveSafe

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

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## Create a virtual machine

Validation passed

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

existing load balancing solution?

Delete public IP and NIC when VM is deleted	Disabled
---	----------

### Management

Microsoft Defender for Cloud	None
System assigned managed identity	Off
Login with Microsoft Entra ID	Off
Auto-shutdown	Off
Enable hotpatch	Off
Patch orchestration options	Image Default

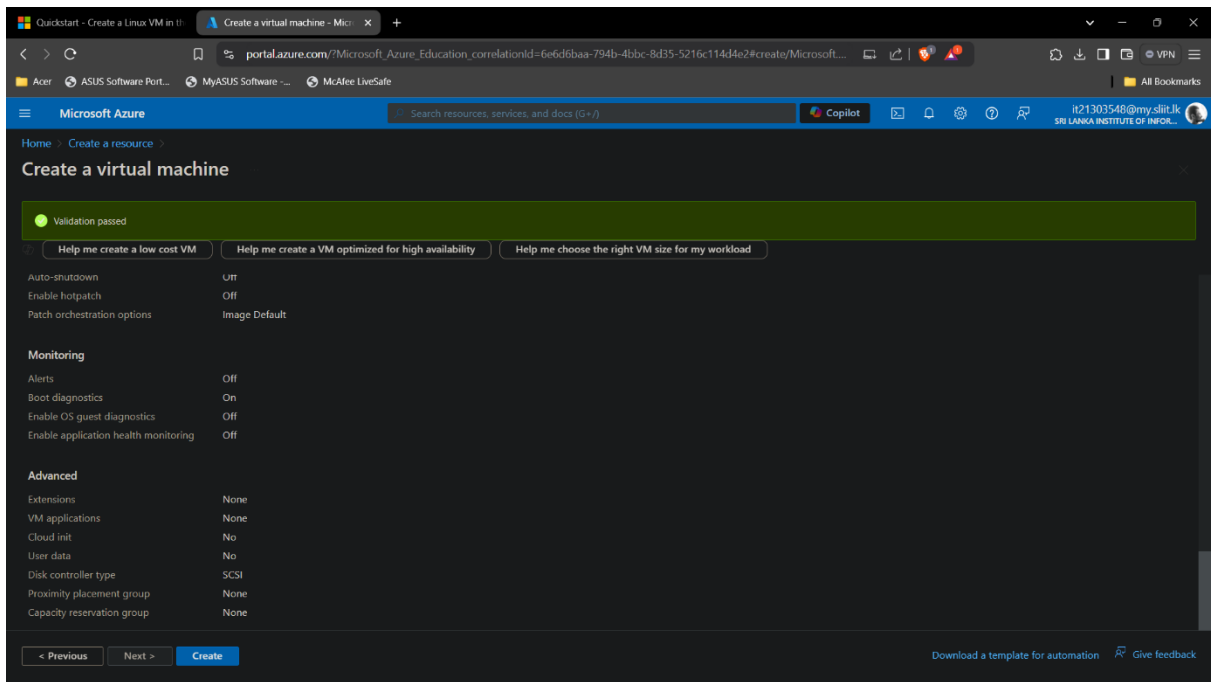
### Monitoring

Alerts	Off
Boot diagnostics	On
Enable OS guest diagnostics	Off
Enable application health monitoring	Off

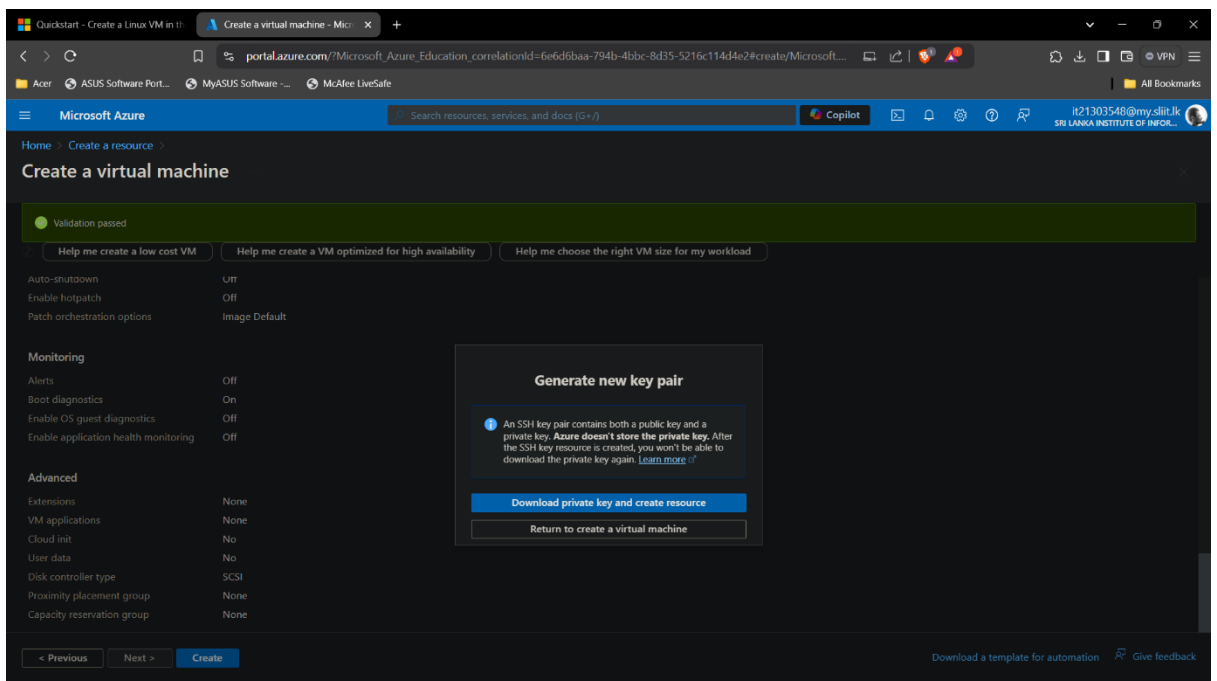
< Previous Next > Create

Download a template for automation Give feedback

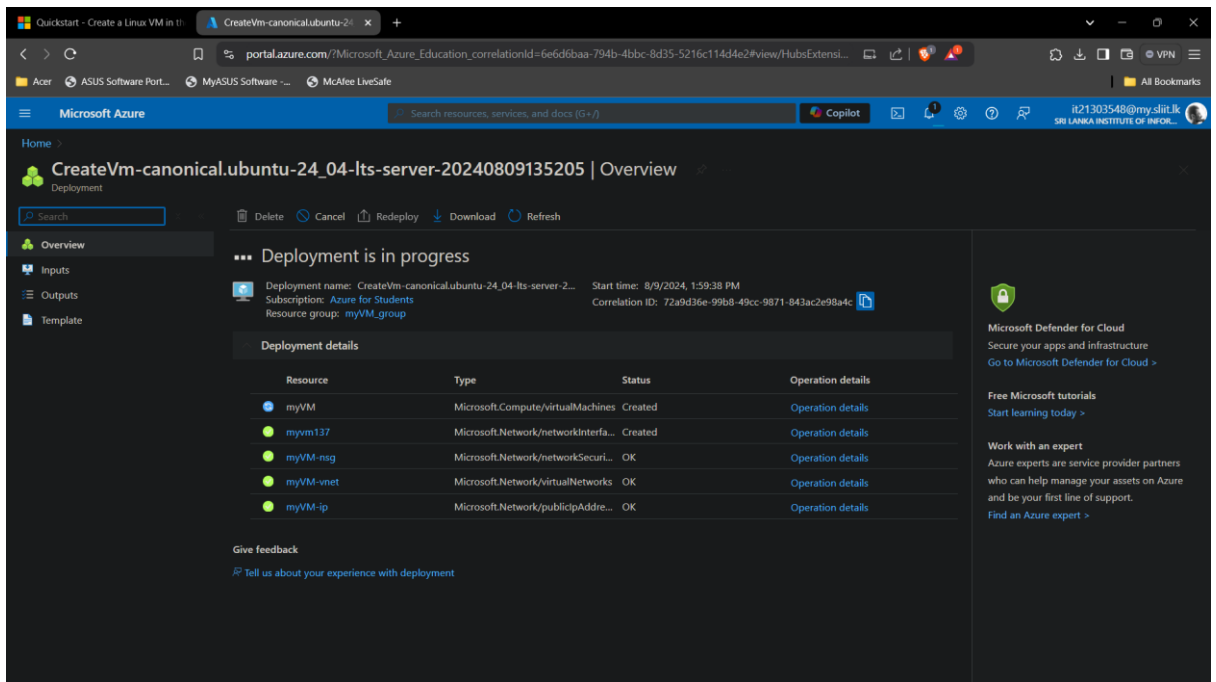
## 1.7.4 - Details



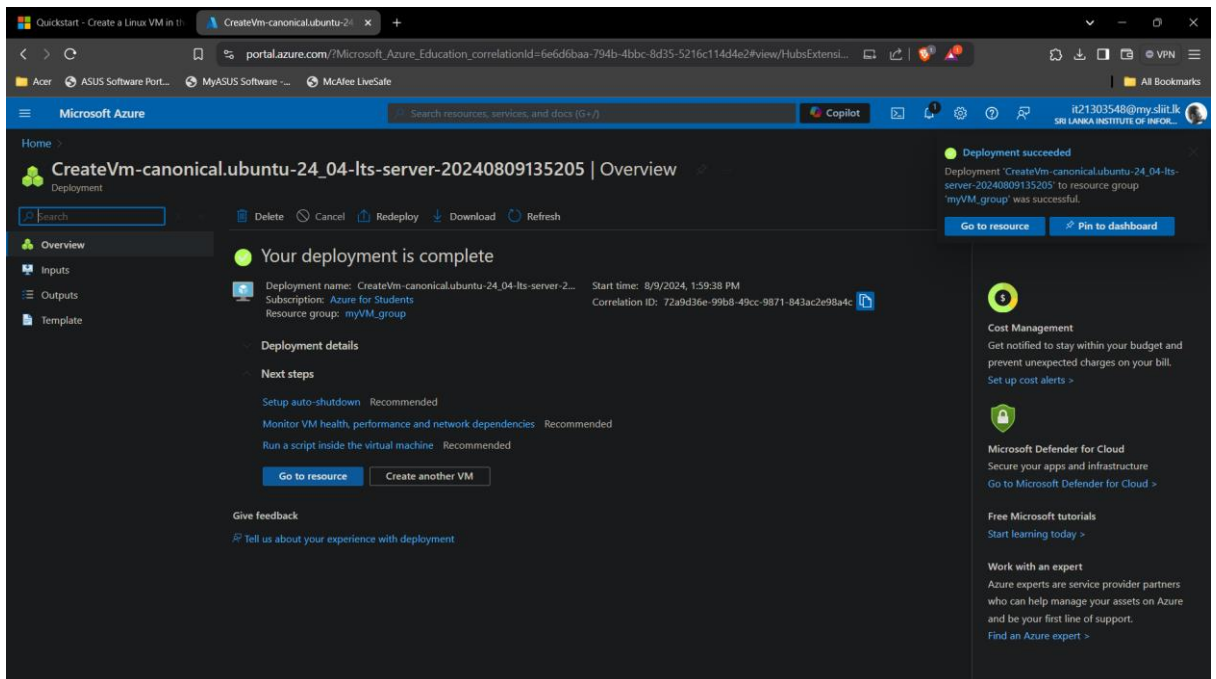
## 1.7.5 – Click Create



## 1.8 – Click Download Private key and create resources



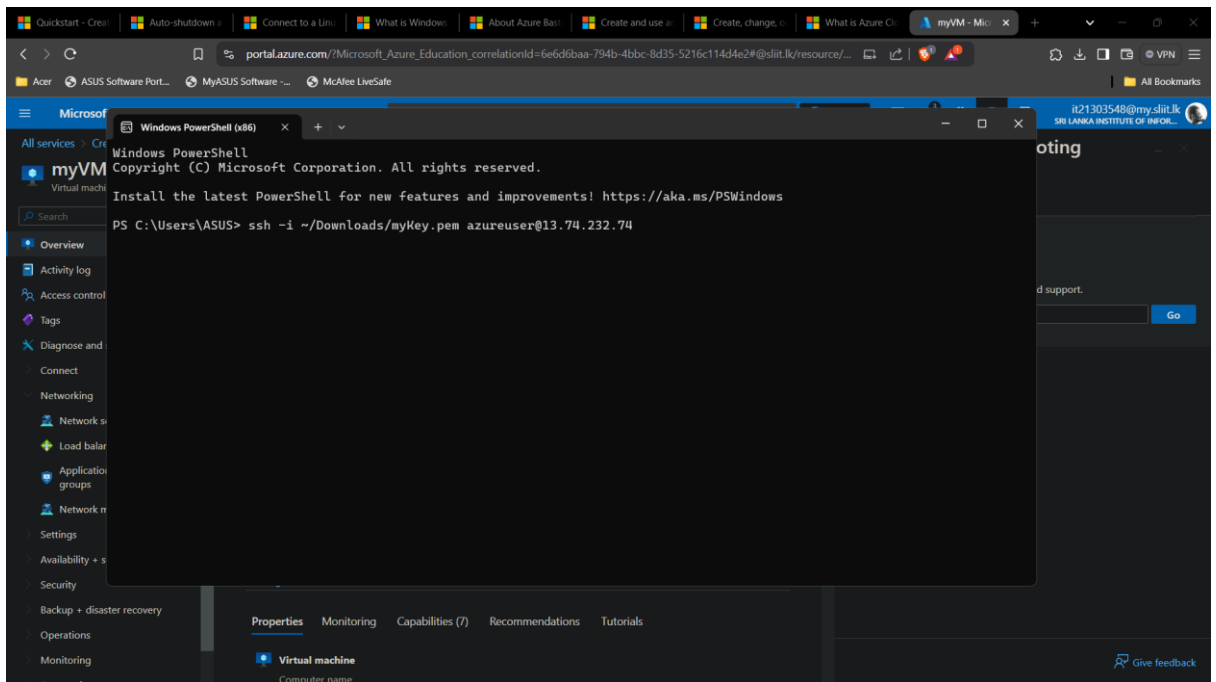
## 1.9 – deployment Progress



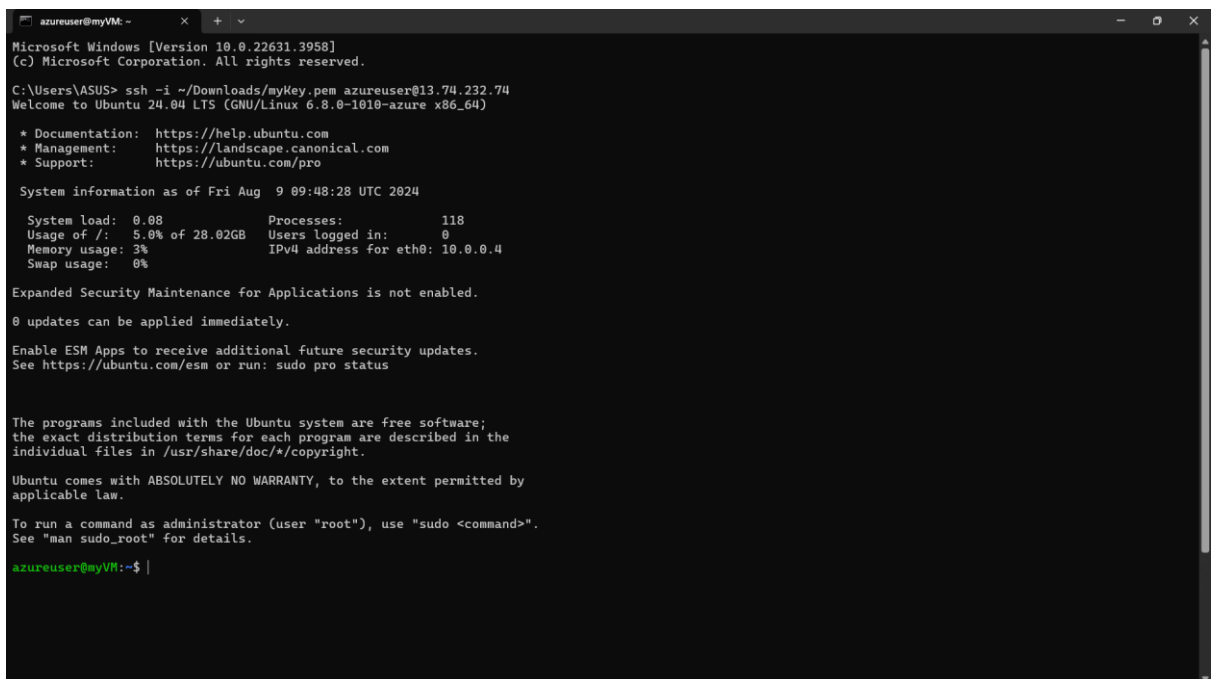
## 1.10 – Go to resources

## 02) Connect to virtual machine





## 2.1 – Open Power shell and type codes

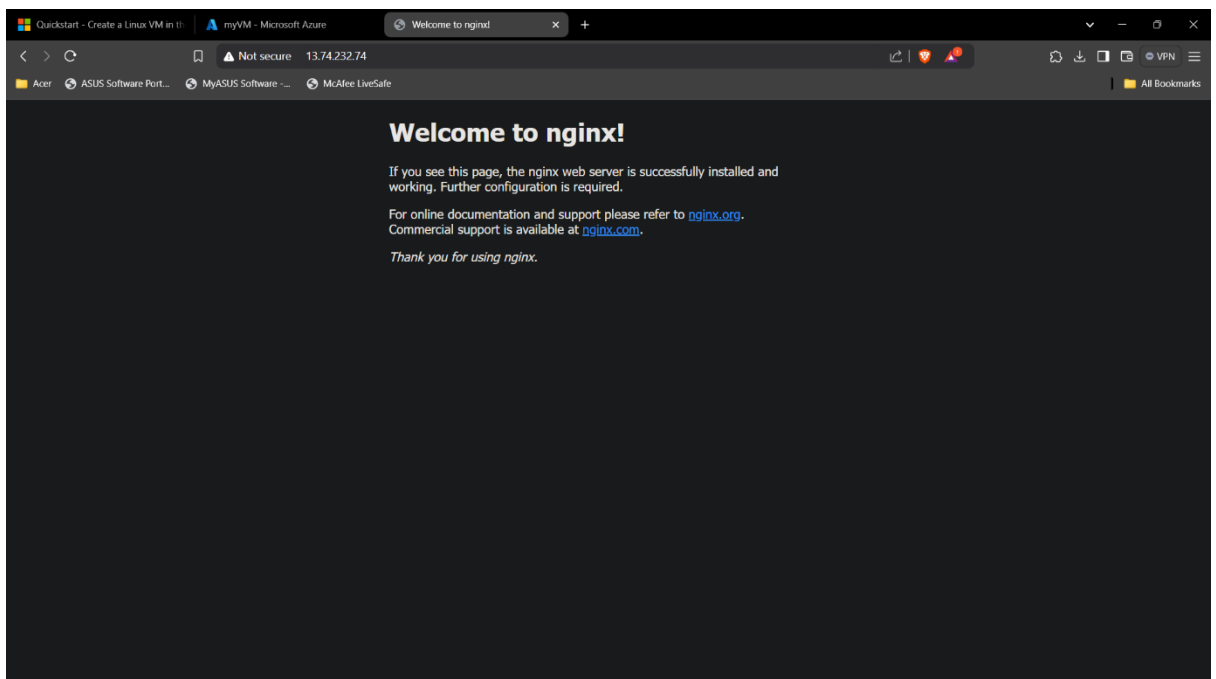


## 2.2 - Install

```
azureuser@myVM: ~  
$ sudo apt-get -y update  
Get:1 http://azure.archive.ubuntu.com/ubuntu noble InRelease [126 kB]  
Get:2 http://azure.archive.ubuntu.com/ubuntu noble-updates InRelease [126 kB]  
Get:3 http://azure.archive.ubuntu.com/ubuntu noble-backports InRelease [126 kB]  
Get:4 http://azure.archive.ubuntu.com/ubuntu noble-security InRelease [126 kB]  
Get:5 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Packages [15.0 MB]  
Get:6 http://azure.archive.ubuntu.com/ubuntu noble/universe Translation-en [5982 kB]  
Get:7 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 Components [3871 kB]  
Get:8 http://azure.archive.ubuntu.com/ubuntu noble/universe amd64 c-n-f Metadata [381 kB]  
Get:9 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Packages [269 kB]  
Get:10 http://azure.archive.ubuntu.com/ubuntu noble/multiverse Translation-en [118 kB]  
Get:11 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 Components [35.0 kB]  
Get:12 http://azure.archive.ubuntu.com/ubuntu noble/multiverse amd64 c-n-f Metadata [8328 B]  
Get:13 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 Packages [344 kB]  
Get:14 http://azure.archive.ubuntu.com/ubuntu noble-updates/main Translation-en [86.7 kB]  
Get:15 http://azure.archive.ubuntu.com/ubuntu noble-updates/main amd64 c-n-f Metadata [5716 B]  
Get:16 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Packages [321 kB]  
Get:17 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe Translation-en [135 kB]  
Get:18 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 Components [45.0 kB]  
Get:19 http://azure.archive.ubuntu.com/ubuntu noble-updates/universe amd64 c-n-f Metadata [12.7 kB]  
Get:20 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted amd64 Packages [241 kB]  
Get:21 http://azure.archive.ubuntu.com/ubuntu noble-updates/restricted Translation-en [47.0 kB]  
Get:22 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Packages [14.1 kB]  
Get:23 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse Translation-en [3608 B]  
Get:24 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 Components [212 B]  
Get:25 http://azure.archive.ubuntu.com/ubuntu noble-updates/multiverse amd64 c-n-f Metadata [532 B]  
Get:26 http://azure.archive.ubuntu.com/ubuntu noble-backports/main amd64 Components [208 B]  
Get:27 http://azure.archive.ubuntu.com/ubuntu noble-backports/main amd64 c-n-f Metadata [112 B]  
Get:28 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Packages [10.3 kB]  
Get:29 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe Translation-en [10.5 kB]  
Get:30 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 Components [17.6 kB]  
Get:31 http://azure.archive.ubuntu.com/ubuntu noble-backports/universe amd64 c-n-f Metadata [1016 B]  
Get:32 http://azure.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 Components [216 B]  
Get:33 http://azure.archive.ubuntu.com/ubuntu noble-backports/restricted amd64 c-n-f Metadata [116 B]  
Get:34 http://azure.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 Components [212 B]  
Get:35 http://azure.archive.ubuntu.com/ubuntu noble-backports/multiverse amd64 c-n-f Metadata [116 B]  
Get:36 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 Packages [288 kB]  
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Get:38 http://azure.archive.ubuntu.com/ubuntu noble-security/main amd64 c-n-f Metadata [3696 B]  
Get:39 http://azure.archive.ubuntu.com/ubuntu noble-security/universe amd64 Packages [249 kB]  
Get:40 http://azure.archive.ubuntu.com/ubuntu noble-security/universe Translation-en [108 kB]  
Get:41 http://azure.archive.ubuntu.com/ubuntu noble-security/universe amd64 Components [8632 B]
```

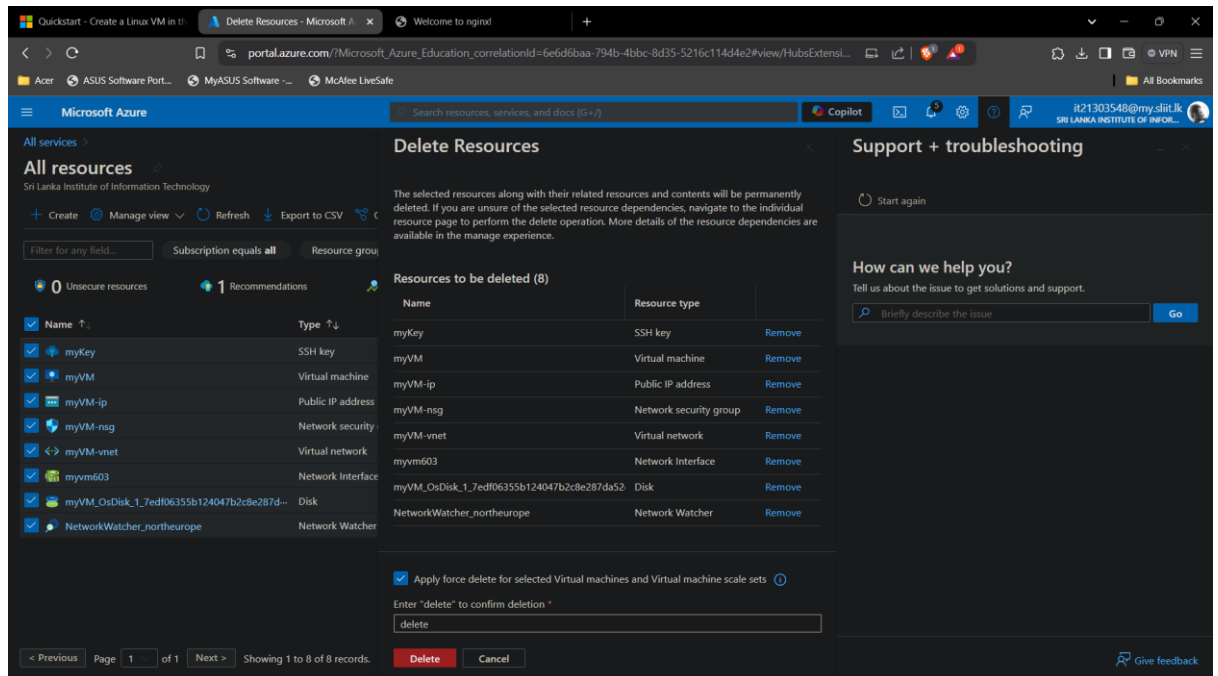
## 2.3 – run it

## 03) View the web server in action

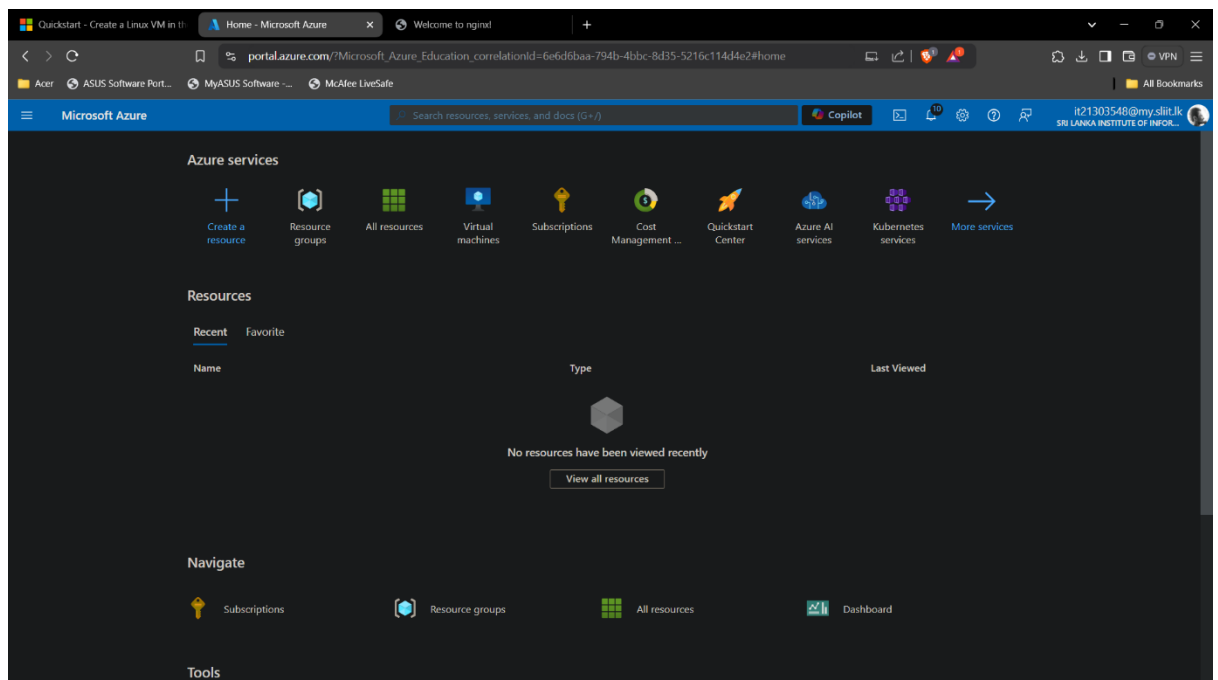


## 3.1 - Open the Browser

## 04) Clean up resources



### 4.1 – Delete Resources



### 4.2 – After Delete It Look Like this

