

IMPLEMENTATION OF VIRTUAL MACHINES

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Aim

To create and configure a local virtual machine using VMware and deploy a cloud-based virtual machine using Microsoft Azure.

Tools Required

- VMware Workstation
- Ubuntu ISO
- Microsoft Azure Portal
- Internet Connection
- SSH Client / Terminal

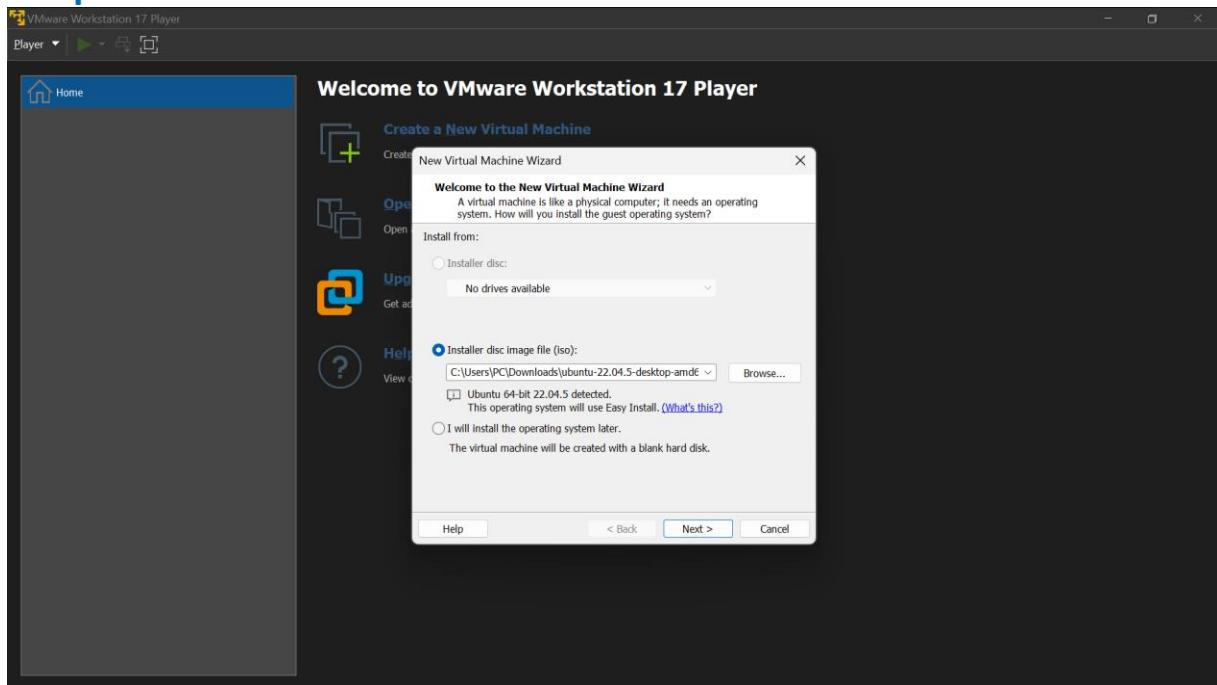
Procedure

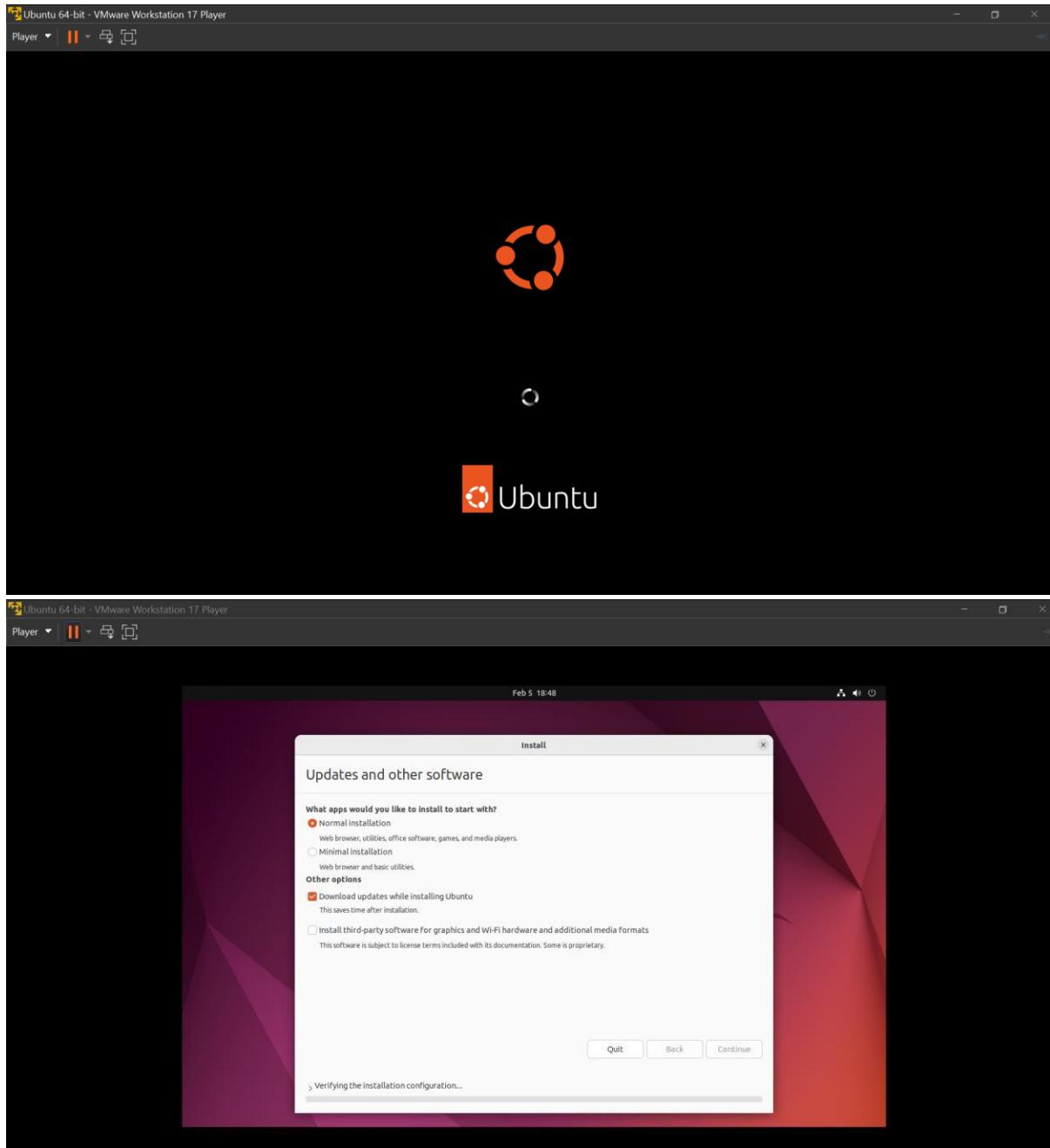
Local Virtual Machine (Ubuntu)

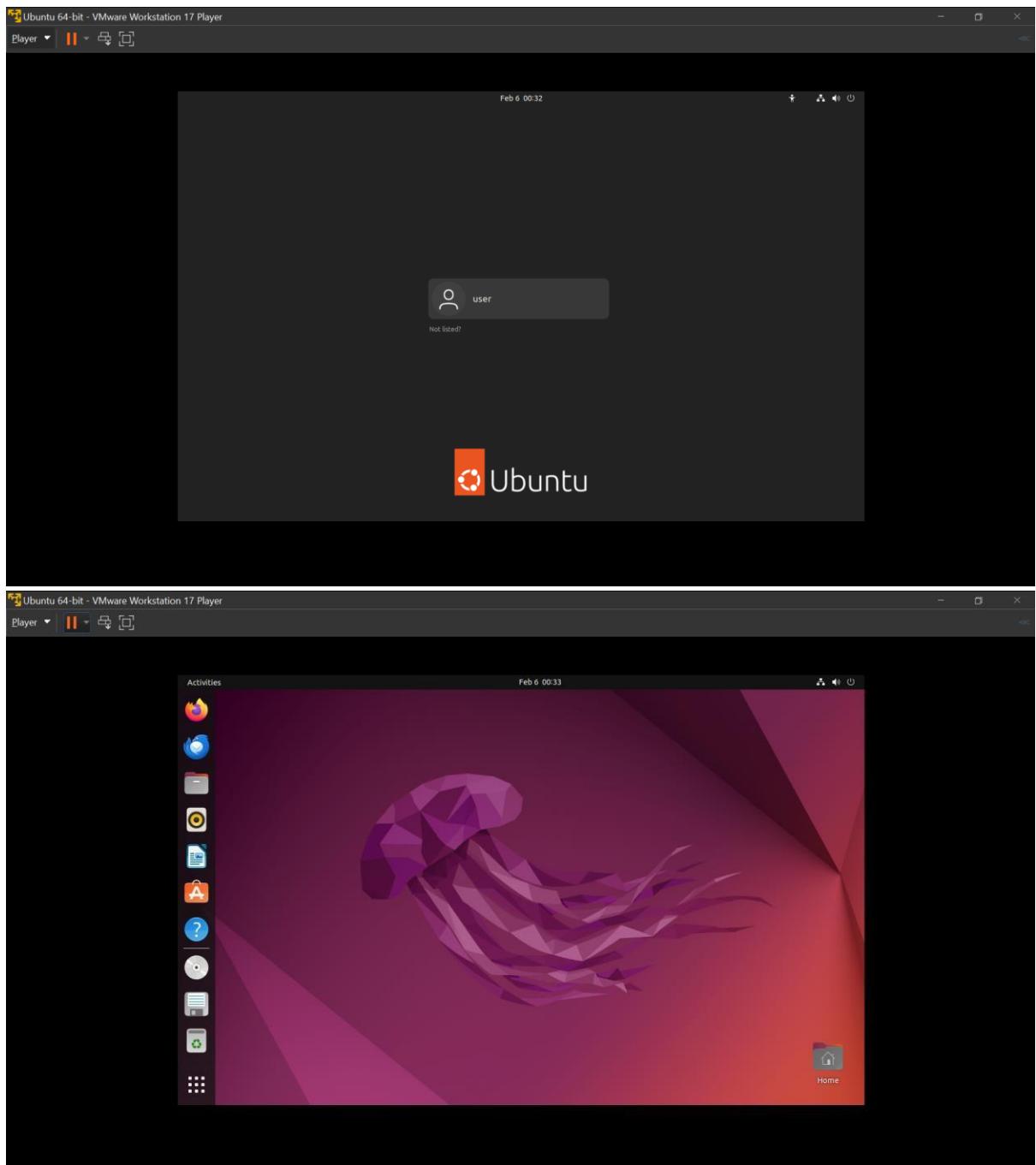
- ❖ Installed VMware Workstation and launched the application.
- ❖ Created a new virtual machine and selected the Ubuntu ISO file.
- ❖ Allocated system resources such as RAM, processor, and storage.
- ❖ Installed the Ubuntu operating system by following the setup instructions.

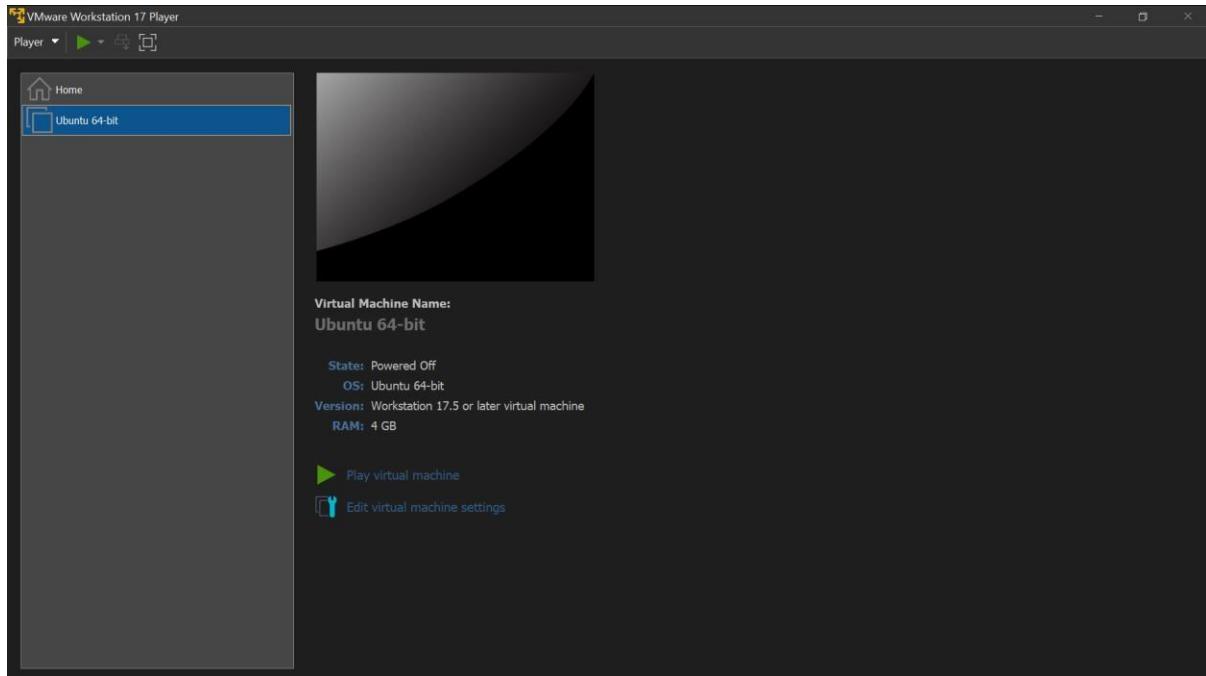
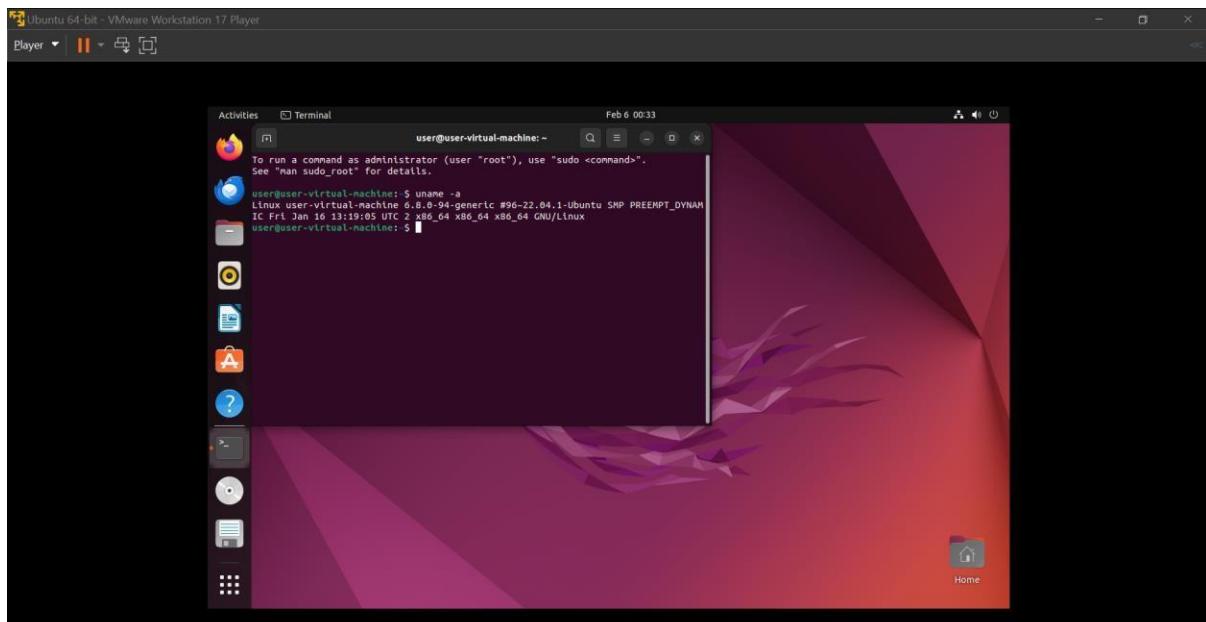
- ❖ Logged into the system and verified functionality using terminal commands.

Outputs:









Cloud Virtual Machine (Azure)

1. Logged into the Microsoft Azure portal.
2. Created a new virtual machine by selecting the required OS and size.
3. Configured networking settings and security rules.
4. Launched the VM and obtained the public IP address.
5. Connected to the virtual machine remotely using SSH and verified its operation.

Outputs:

The screenshot shows the Microsoft Azure 'Create a virtual machine' wizard. The current step is 'Basics'. The configuration details are as follows:

Setting	Value
Subscription	Azure for Students
Resource group	Distributed-Assessments
Virtual machine name	VM01
Region	Central India
Availability options	Availability zone
Zone options	Self-selected zone
Availability zone	1
Security type	Trusted launch virtual machines
Enable secure boot	Yes
Enable vTPM	Yes
Integrity monitoring	No
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
Key pair name	azureuser
Public inbound ports	SSH, HTTP, HTTPS, RDP
Azure Spot	No

At the bottom, there are buttons for 'Previous' and 'Next >', and a prominent blue 'Create' button.

```
az user@VM01: ~ > ssh -i ~/azureuser.pem azureuser@98.70.25.35
Welcome to Ubuntu 24.04.3 LTS (GNU/Linux 6.14.0-1017-azure x86_64)

 * Documentation: https://help.ubuntu.com
 * Management: https://landscape.canonical.com
 * Support: https://ubuntu.com/pro

System information as of Thu Jan 29 17:07:57 UTC 2026

System load: 0.0          Processes: 134
Usage of /: 5.6% of 28.02GB Users logged in: 0
Memory usage: 3%          IPv4 address for eth0: 172.17.0.4
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 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@VM01: $
```

Result:

Both local and cloud virtual machines were successfully created, configured, and accessed. The Ubuntu VM operated on VMware, while the Azure VM was deployed and managed through the cloud.

Conclusion:

This experiment helped in understanding virtualization concepts by implementing both local and cloud-based virtual machines, demonstrating their importance in modern computing environments.
