

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

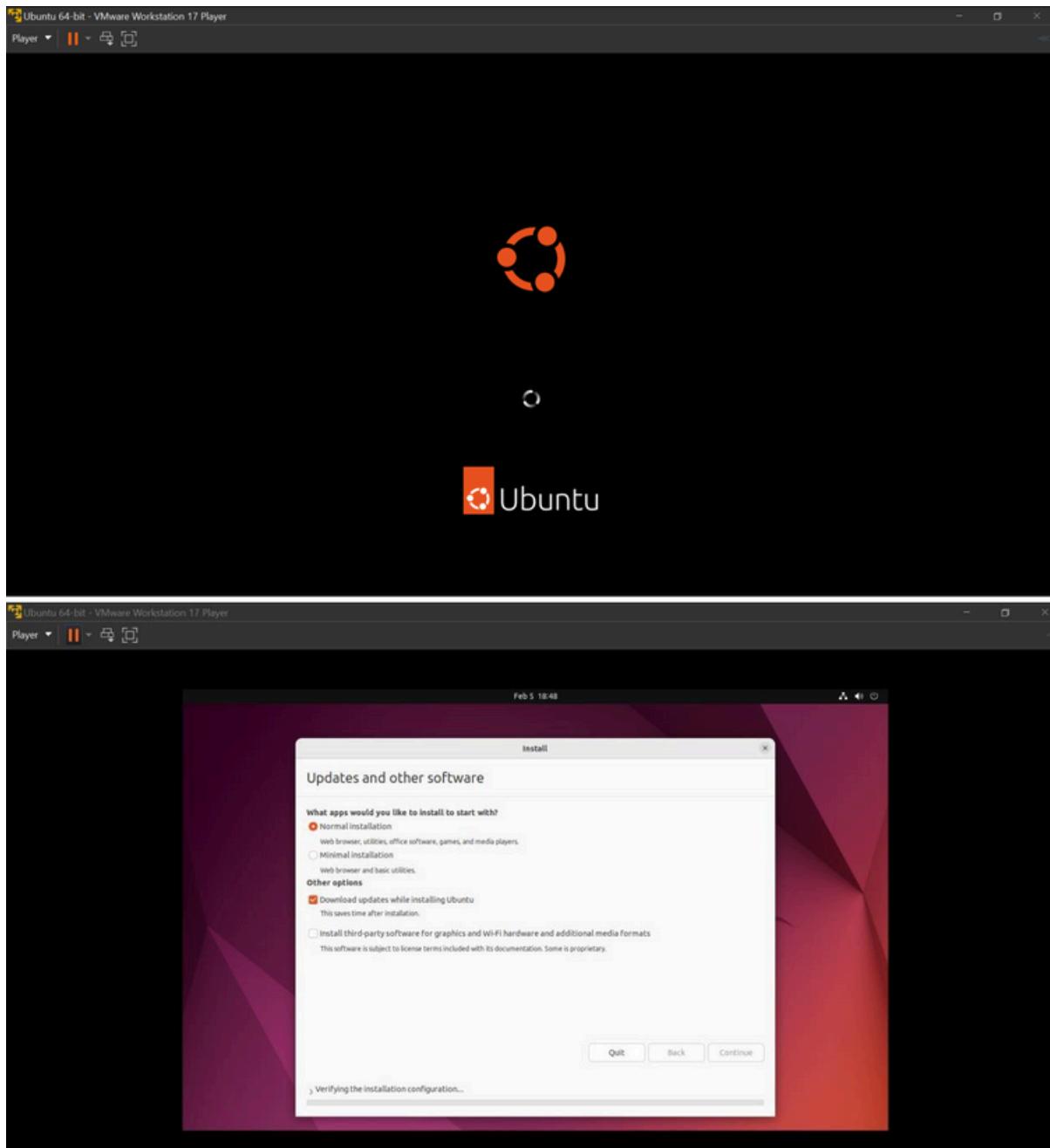
Procedure

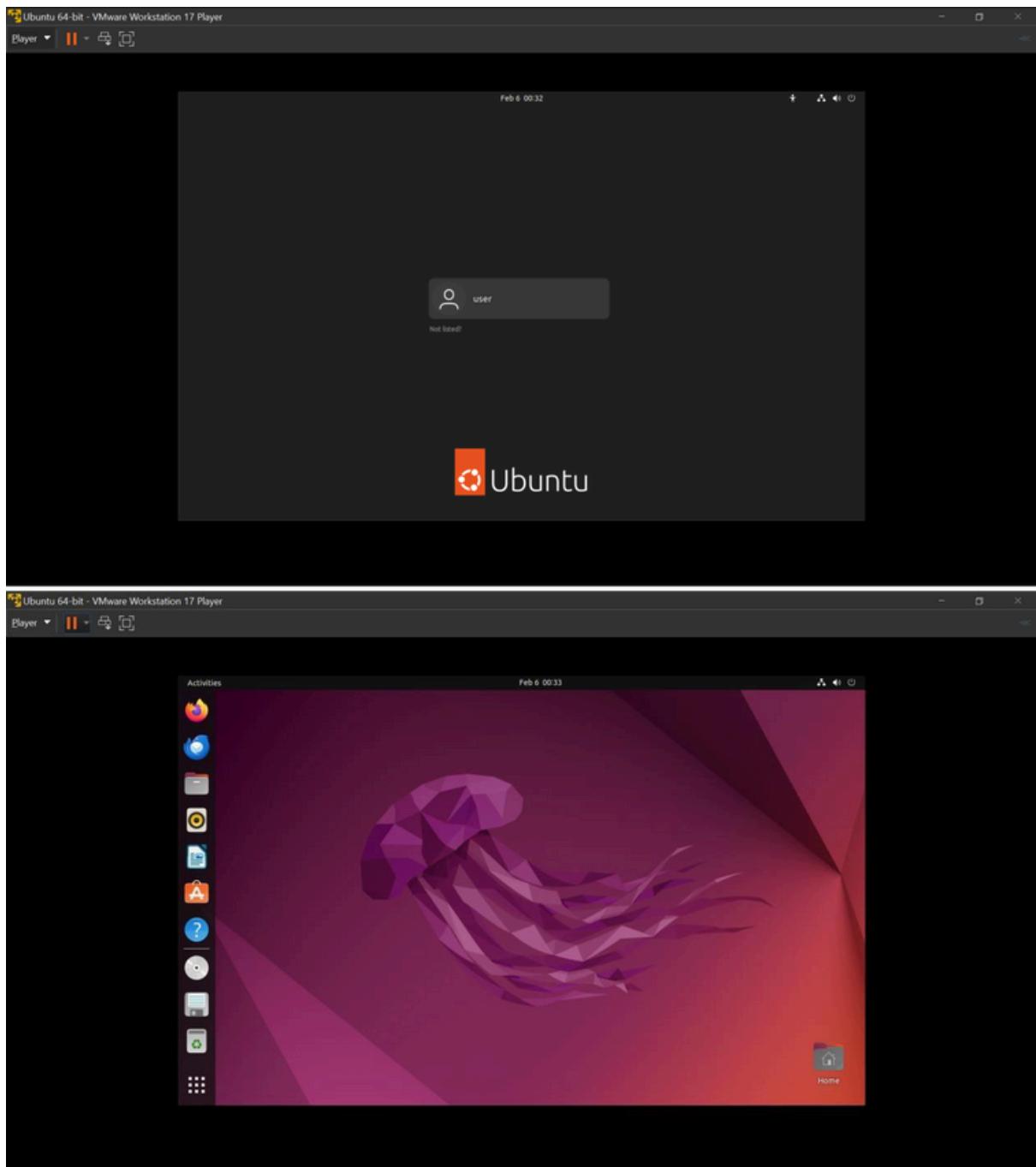
Local Virtual Machine (Ubuntu)

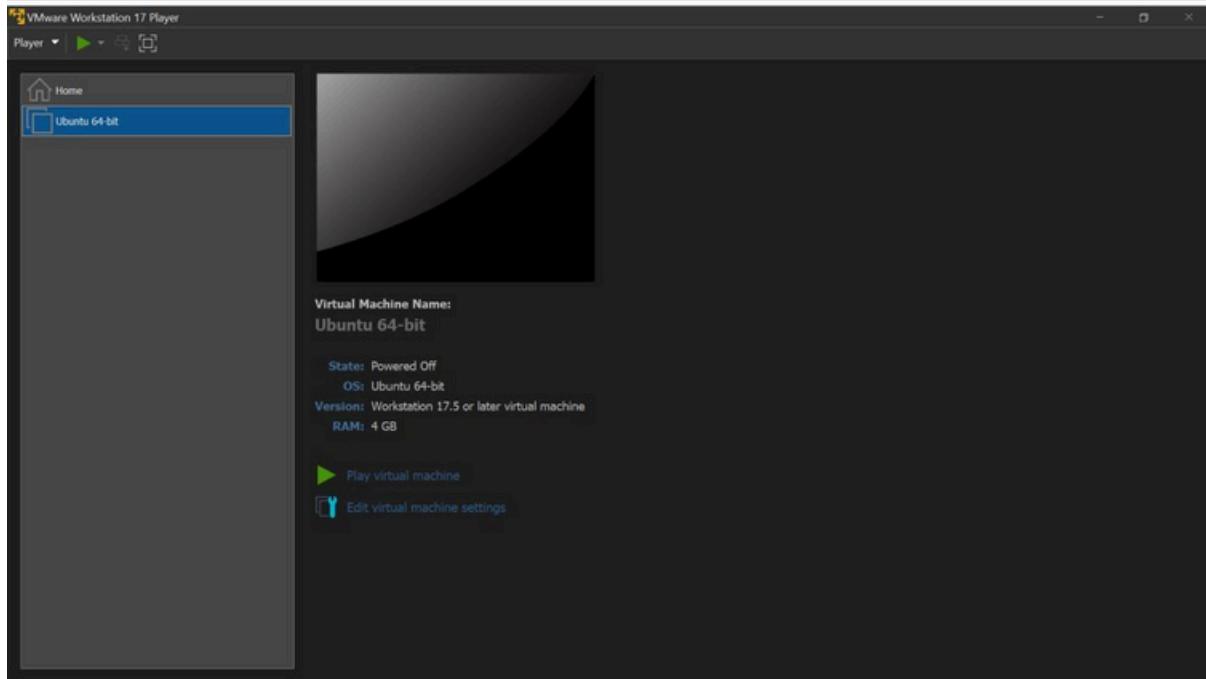
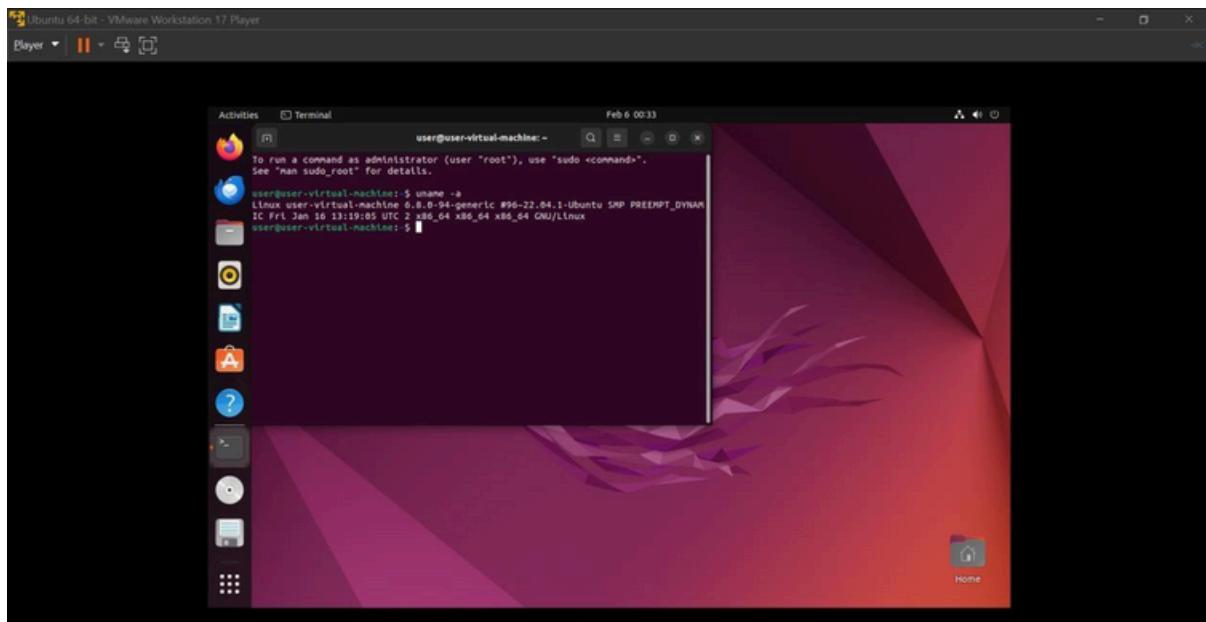
- ❖ Installed VMware Workstation and launched the application.
- ❖ Created a new virtual machine and selected the Ubuntu ISO file.
- ❖ Allocated system resources such as RAM, processor, and storage.
- ❖ Installed the Ubuntu operating system by following the setup instructions.

- ❖ 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.

The screenshot shows the Azure portal interface for creating a new virtual machine. The 'Create a virtual machine' wizard is open, and the 'Basics' step is completed. Key configuration details include:

- Description:** Azure for Students
- Resource group:** Distributed-Assessments
- Virtual machine name:** VM01
- Region:** Central India
- Availability options:** Availability zone (Self-selected zone 1)
- Image:** Ubuntu Server 24.04 LTS - Gen2
- VM architecture:** x64
- Size:** Standard D0s 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

Below the configuration, a terminal window shows the user logging in via SSH as 'azureuser' with a public key:

```
azurermuser@VM01: ~ $ ssh -i ~/azurermuser.pem azurermuser@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.

azurermuser@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.
