



Vidyavardhini's College of Engineering & Technology
Department of Computer Science and Engineering (Data Science)

Course: SBL: Cloud Computing

Course code: CSL605

Year: TE **SEM:** VI

Experiment No. 04

AIM:- To study and implement virtualization through installation of Ubuntu on VirtualBox

Name:

Roll Number:

Date of Performance:

Date of Submission:

Evaluation

Performance Indicator	Max. Marks	Marks Obtained
Performance	5	
Understanding	5	
Journal work and timely submission.	10	
Total	20	

Performance Indicator	Exceed Expectations (EE)	Meet Expectations (ME)	Below Expectations (BE)
Performance	5	3	2
Understanding	5	3	2
Journal work and timely submission.	10	8	4

Checked by

Name of Faculty : Ichhanshu Jaiswal

Signature :

Date :



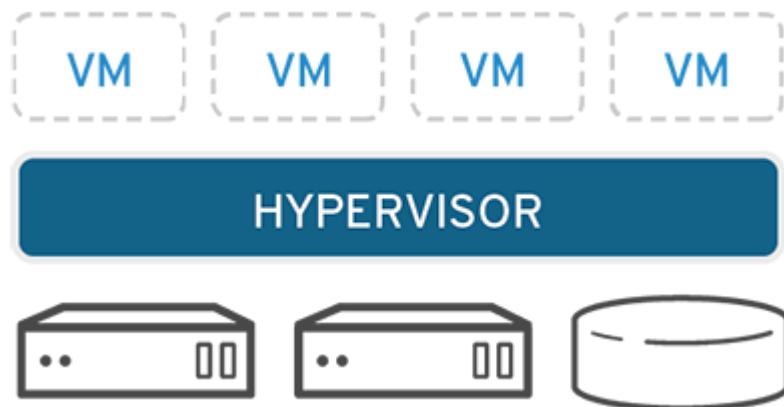
Experiment No. 4

Aim: To study and implement virtualization through installation of Ubuntu on VirtualBox

Theory:

Virtualization is technology that you can use to create virtual representations of servers, storage, networks, and other physical machines. Virtual software mimics the functions of physical hardware to run multiple virtual machines simultaneously on a single physical machine.

Software called hypervisors separate the physical resources from the virtual environments—the things that need those resources. Hypervisors can sit on top of an operating system (like on a laptop) or be installed directly onto hardware (like a server), which is how most enterprises virtualize. Hypervisors take your physical resources and divide them up so that virtual environments can use them.



Types of virtualization:

- Server virtualization
- Storage virtualization
- Network virtualization
- Data virtualization
- Application virtualization
- Desktop virtualization



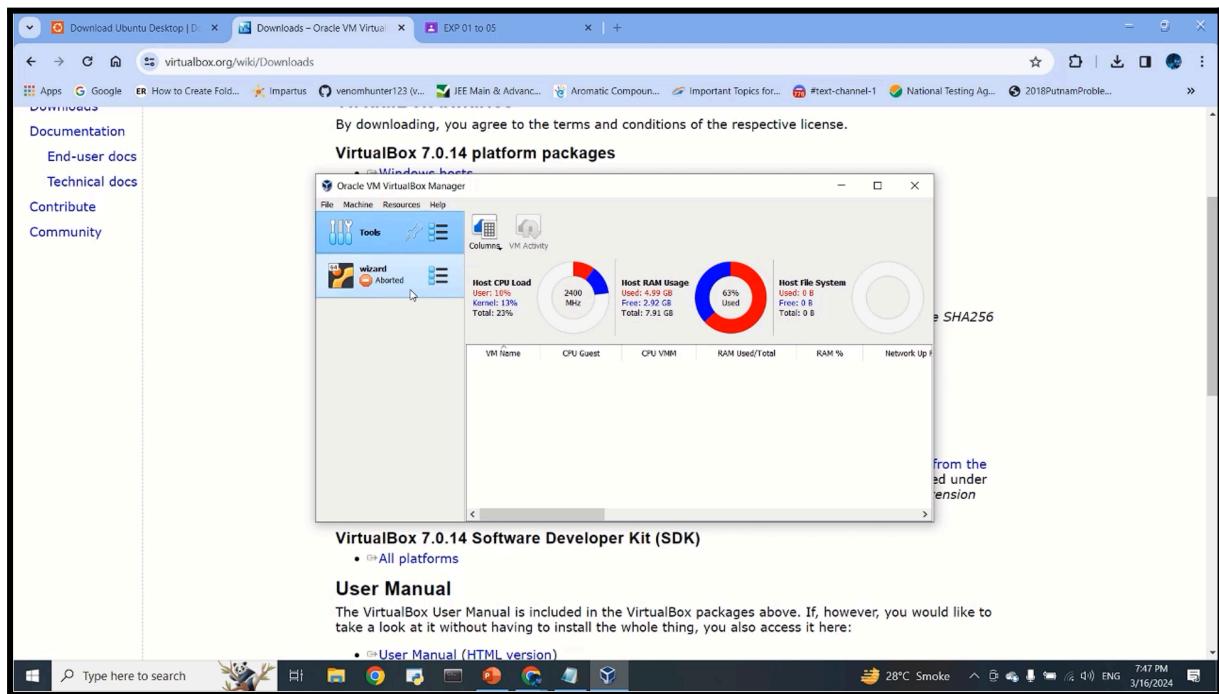
Steps of implementation:

1. Installation of virtual box
2. Installation of ubuntu on virtual box

Virtual box:

VirtualBox is a powerful x86 and AMD64/Intel64 [virtualization](#) product for enterprise as well as home use. Not only is VirtualBox an extremely feature rich, high performance product for enterprise customers, it is also the only professional solution that is freely available as Open Source Software

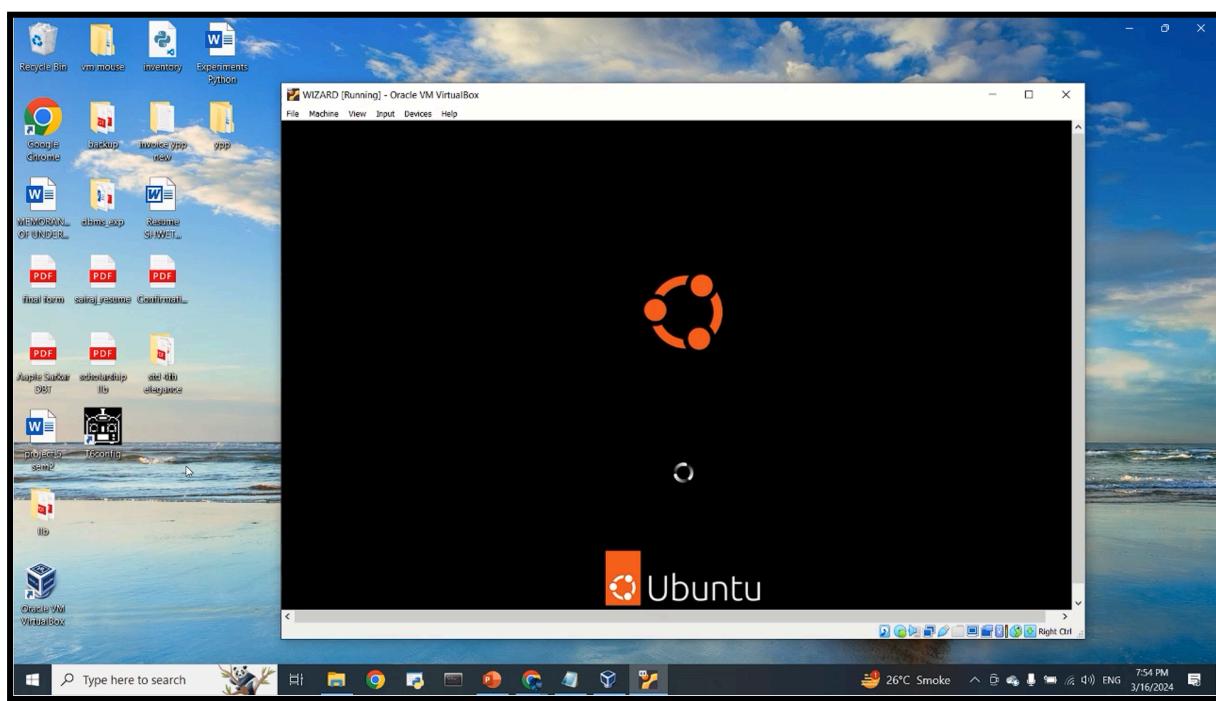
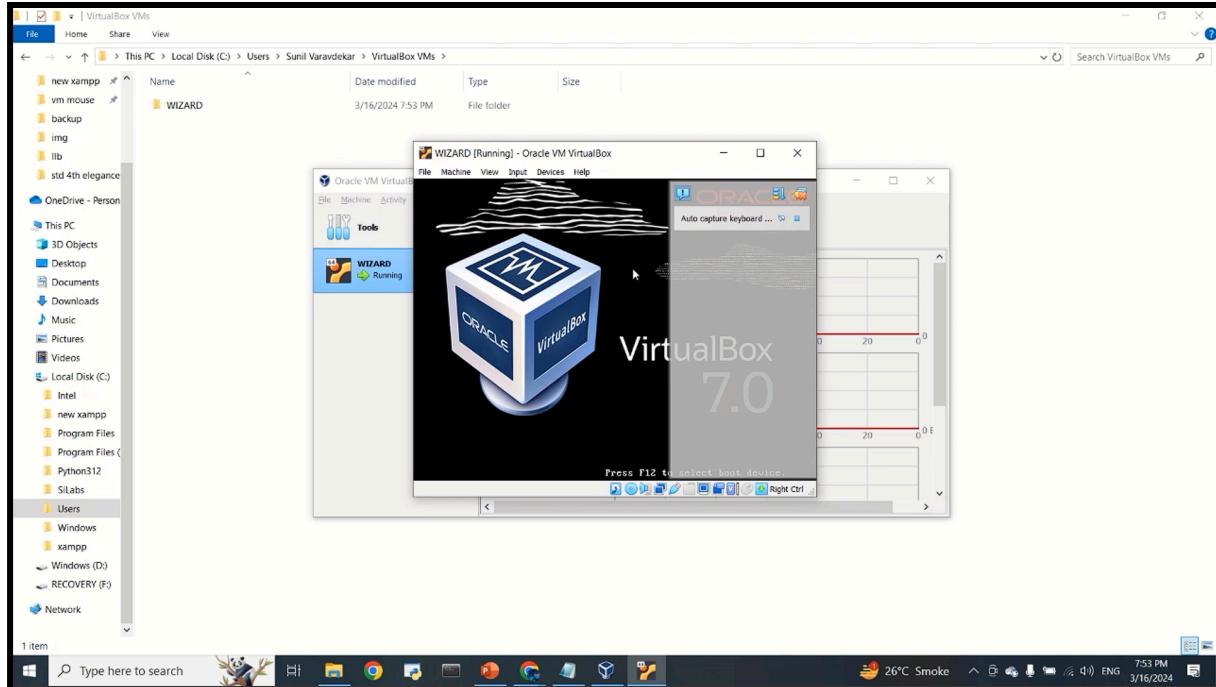
Snapshot of implementation :





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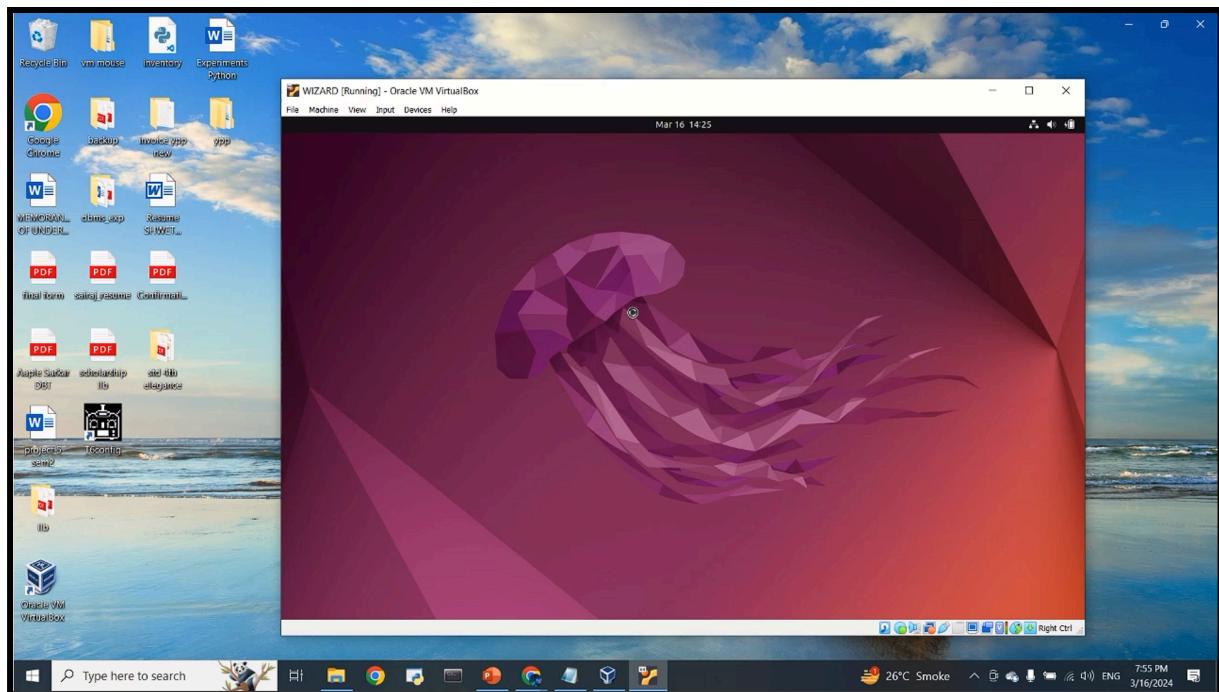
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Video Link: [Dhanashree_Thakur_56_Exp4.mp4](#)



Conclusion:

Comment on the type of virtualization used for installation of ubuntu on virtual box

Ans. VirtualBox, a popular open-source virtualization platform, primarily utilizes hardware virtualization to run guest operating systems such as Ubuntu. Within this overarching category, it predominantly relies on a technology called "hardware-assisted virtualization."

Specifically, VirtualBox supports Intel Virtualization Technology (VT-x) and AMD Virtualization (AMD-V) extensions, which are present in modern CPUs from Intel and AMD, respectively. These extensions allow VirtualBox to create a virtualized environment that closely resembles a physical computer, enabling efficient execution of guest operating systems.

With hardware-assisted virtualization, VirtualBox can run guest operating systems like Ubuntu with near-native performance, making it suitable for various development, testing, and production scenarios. This approach offers advantages such as improved performance, better compatibility with a wider range of guest operating systems, and support for advanced virtualization features like nested virtualization.

In summary, VirtualBox primarily employs hardware-assisted virtualization, leveraging Intel VT-x and AMD-V extensions, to create and manage virtual machines running Ubuntu and other guest operating systems efficiently.