LAB-1 : Setting up and using Virtual Machine with Oracle VM Box.
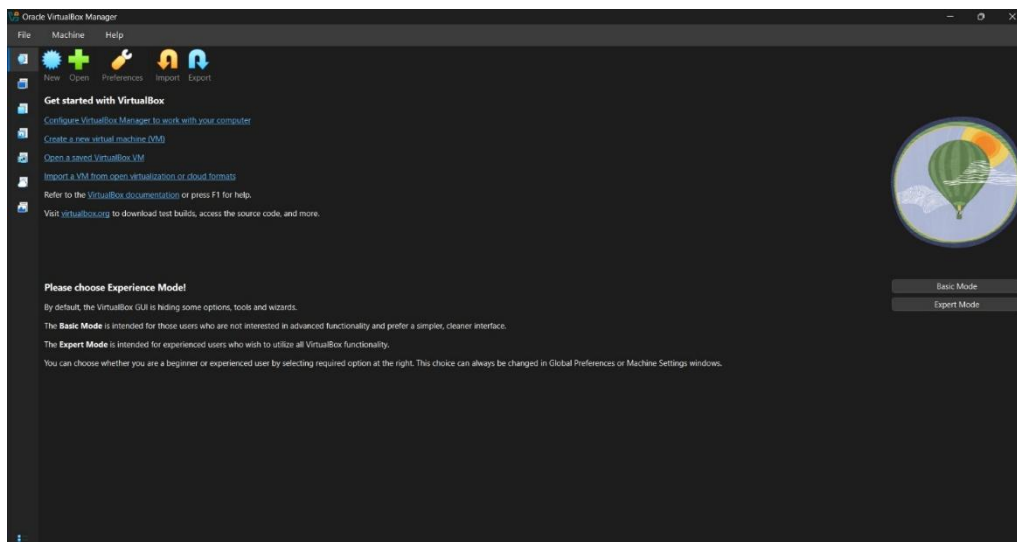
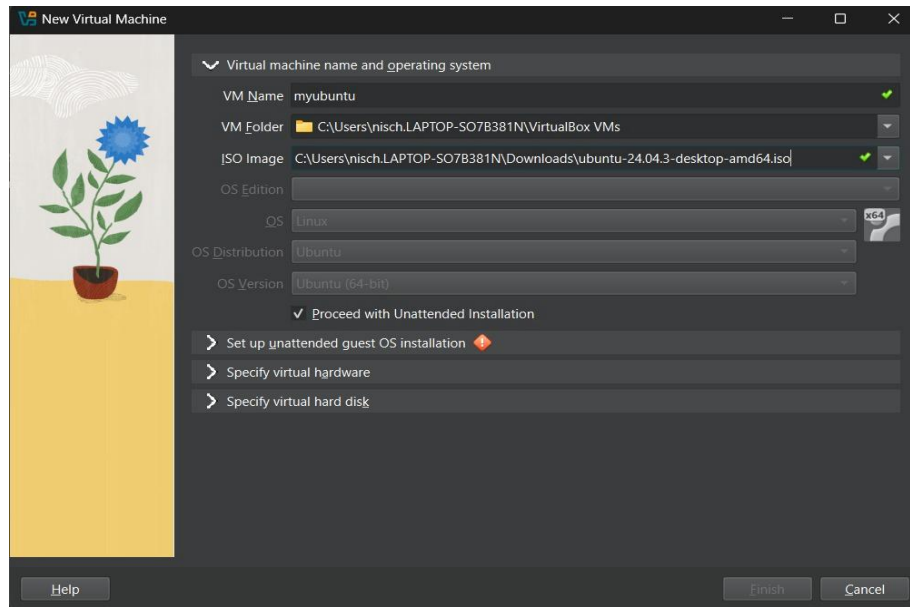**Objective:** To set up and use Ubuntu in Oracle Virtual box.

Introduction

A Virtual Machine (VM) is essentially a computer made of software. It is a digital emulation of a physical computer that runs an operating system and applications just like a real machine, but it exists entirely within a "host" computer. Oracle VM box utilizes host resource to power a new virtual machine that seems like it has its own resources. Here is how it works:

1. Environment Initialization

The process begins by launching the Oracle VM VirtualBox Manager. This dashboard serves as the central control unit for all virtual machines. To initiate the creation of a new instance, the user must locate and select the "New" button, typically represented by a blue starburst icon in the top toolbar.
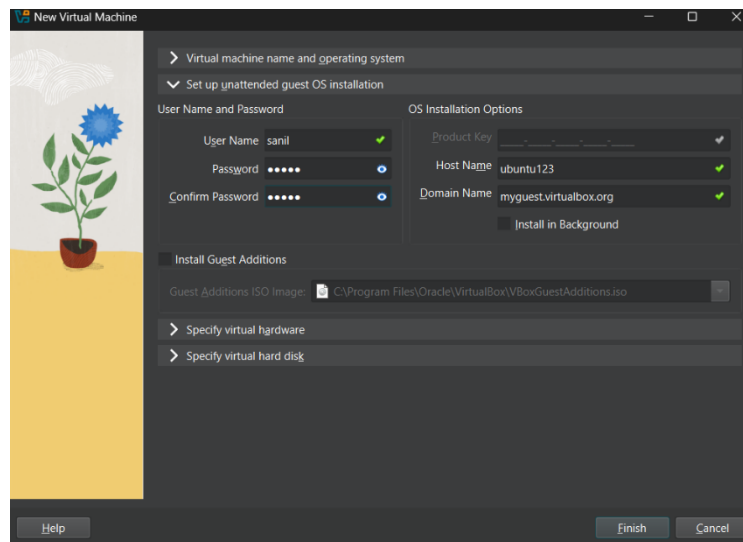

Upon clicking "New," a prompt appears requiring the Name and Operating System details. The user must assign a name to the virtual machine and select the pre-downloaded Ubuntu ISO image file from the host directory. VirtualBox automatically detects the OS type (Linux) and Version based on the ISO selected.

2. Automated User Configuration.

A key feature in modern VirtualBox versions is the **Unattended Guest OS Installation**. This phase allows the user to pre-configure administrative credentials, bypassing the need to manually enter them during the actual OS installation workflow.
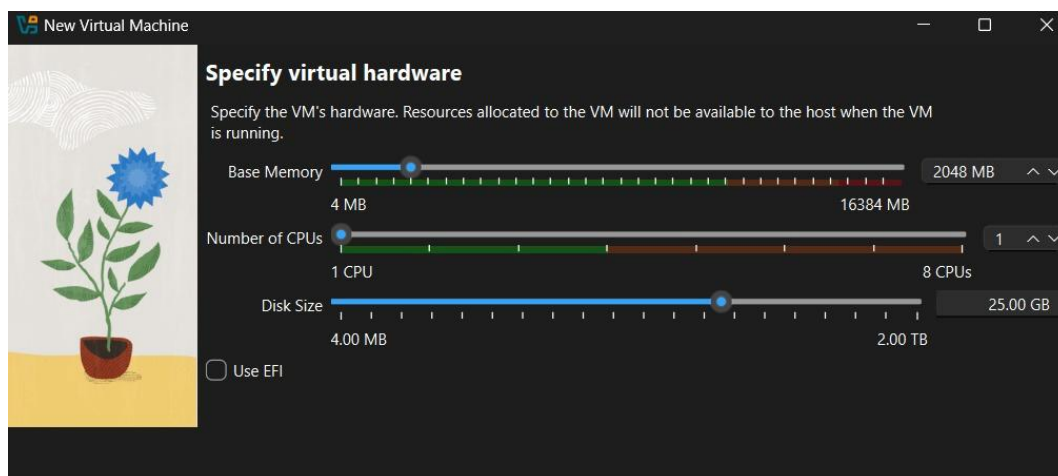
Configuration Details:

- **User Credentials:** In the fields provided, the user defines the primary username and password.
- **Hostname and Domain:** The machine's network identity is established here.
- **Guest Additions:** A crucial step shown in the setup screen is the checkbox for "Install Guest Additions." Checking this ensures that essential drivers for screen resolution, mouse integration, and shared folders are installed automatically along with the OS. The path to the VBoxGuestAdditions.iso is specified here.

3. Virtual Hardware Allocation

Following user configuration, the wizard proceeds to the **Hardware** setup. This step involves allocating physical resources from the host computer to the guest virtual machine. It is critical to balance these resources to ensure smooth performance for the guest without crashing the host.

Resource Settings:

- **Base Memory (RAM):** The user must allocate sufficient RAM. The interface provides a color-coded bar (Green/Red) to prevent the user from allocating too much of the host's memory.
- **Processors (CPU):** The user assigns CPU cores to the VM. Assigning multiple cores significantly improves the responsiveness of the Linux interface.

- **EFI:** The "Use EFI" checkbox is generally left unchecked for standard Linux installations unless specific boot requirements are needed.

4. Virtual Storage Creation

While the hardware screen shows a small slider for disk size, the wizard typically confirms the creation of a Virtual Hard Disk. The user must create a virtual drive (usually a VDI file). A dynamic allocation is preferred, meaning the file starts small and grows as the guest OS uses space, up to a fixed limit (e.g., 25 GB). This separates the guest OS file system from the host machine, ensuring data isolation.
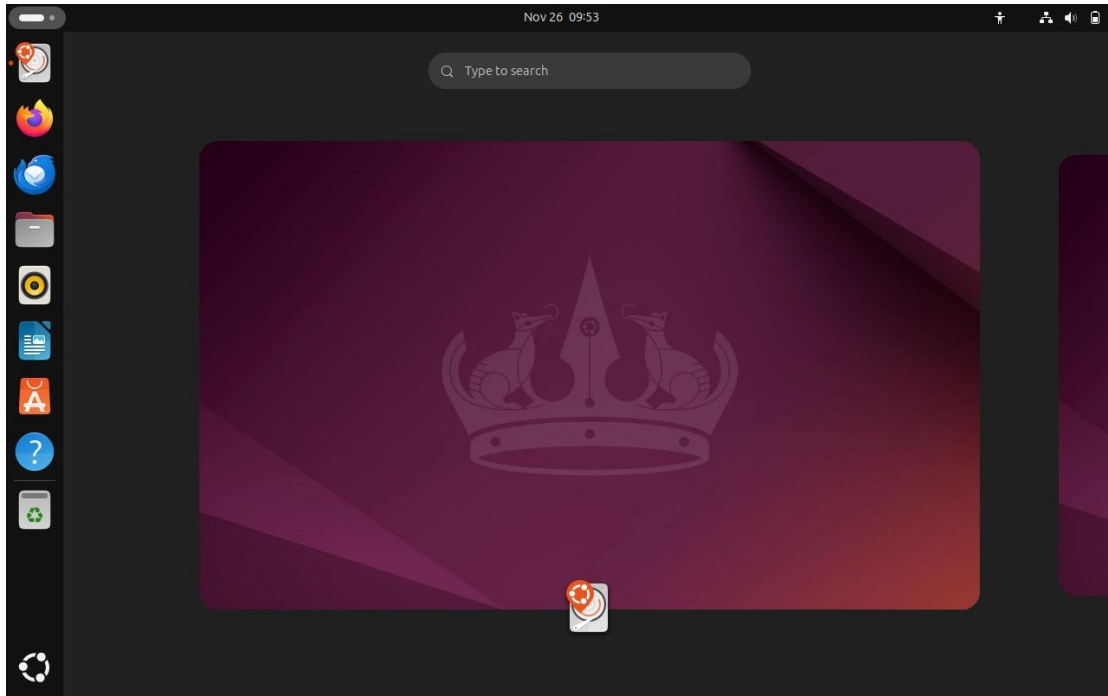
5. Execution and Installation

Once the "Finish" button is clicked in the wizard, the Virtual Machine is provisioned. The user is provided with a summary of selection and allocated resources before proceeding.

Because the "Unattended Installation" was configured above, the Ubuntu installer will launch automatically. It will format the virtual hard disk, copy system files, and configure the user "sanil" without requiring further input. The system will reboot automatically upon completion.

6. Post-Installation and Usage

After the reboot, the user is presented with the Ubuntu login screen. Using the credentials defined above, the user logs into the desktop environment.

The Ubuntu virtual machine is now fully operational and ready for development or testing tasks.