Aim:

Create a virtual machine in any hypervisor and figure out the differences in host machine and guest machine (any 5 differences) add a screenshot.

Requirement:

- Host machine with Windows operating system
- VirtualBox or any hosted hypervisor installed
- Ubuntu ISO image (lightweight version recommended)
- Basic knowledge of installing operating systems on virtual machines

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Theory:

ABOUT:

● Linux is an open-source, Unix-like operating system that offers flexibility, security, and stability. It is customizable and widely used in servers, supercomputers, and by developers. With various distributions available, Linux is known for being free, secure, and developer-friendly, offering complete control over the system.
● Windows is a proprietary operating system developed by Microsoft, widely used for personal computers, business, and gaming. Known for its user-friendly interface, extensive software compatibility, and integration with Microsoft services, Windows provides a stable environment for everyday use and productivity.

NETWORK:

● Linux offers robust networking tools with commands like **ping**, **ifconfig**, and **nmcli** to configure and manage network settings from the terminal. It provides deep control over networking options, making it a go-to for server administrators and network professionals.
● Windows simplifies network management with a graphical interface for Wi-Fi, Ethernet

settings, and more. Tools like **Network & Internet settings** make configuration easier, but network management is generally less flexible compared to Linux.

FILE MANAGER:

● Linux offers various file managers based on the desktop environment, such as **Nautilus** (GNOME) or **Dolphin** (KDE). These tools allow flexible file navigation with features like tabbed browsing, quick access, and customizable options.
● Windows uses **File Explorer**, which offers a simple, standardized interface for managing files and folders, including access to quick links, cloud storage, and integrated search.

TASK MANAGER:

● Linux has several tools for managing system resources, such as **System Monitor** (GNOME) and **KSysGuard** (KDE). The terminal also offers utilities like **top** and **htop** for monitoring CPU, memory, and processes in real time.
● Windows provides **Task Manager**, which gives users a clear view of running processes, performance statistics, and the ability to end tasks or adjust startup programs, offering an intuitive graphical interface for system monitoring.

SOFTWARE INSTALLATION:

● Linux uses terminal-based package managers like **apt** (`sudo apt install package`) or graphical tools like **Ubuntu Software Center** to install and manage software.
● Windows installs software via executable files (`.exe` or `.msi`) downloaded from the internet or via the **Microsoft Store** app, offering a user-friendly installation process.

SYSTEM INFORMATION:

● Linux users can find system information in **Settings** → **About** or by running terminal commands like `uname -a` and `lsb_release -a` to get detailed OS and kernel information.
● Windows users can find system details by right-clicking **This PC** and selecting **Properties**, or by searching for the **System Information** app for more detailed data.

Where to Find These Features in Ubuntu and Windows:

Feature	Ubuntu (Guest) Location	Windows (Host) Location
Network Settings	Settings → Network or Terminal (`ifconfig`, `nmcli`)	Settings → Network & Internet or taskbar icon
File Manager	Files app (Nautilus) from dock or activities menu	File Explorer via taskbar icon or `Windows + E`
Task Manager	System Monitor app or Terminal (`top`, `htop`)	Task Manager (`Ctrl + Shift + Esc`) or right-click taskbar
Software Install	Ubuntu Software Center or Terminal (`sudo apt install`)	Microsoft Store app or `.exe` installers
System Info	Settings → About or Terminal (`uname -a`, `lsb_release -a`)	Right-click This PC → Properties or System Information app

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Conclusion:

In this experiment, we successfully created and ran a virtual machine using a hosted hypervisor like VirtualBox. By configuring the VM settings and installing an operating system (Ubuntu), we explored how virtualization enables running multiple OS environments on a single system. We also compared Linux and Windows in terms of networking, file management, task management, software installation, and system information, highlighting their strengths and differences. This experiment provided valuable insights into virtualization technology, which is essential for software development, system administration, and testing environments, making it a crucial skill in modern computing.