

# **Lab Assignment 1- Comparative study of Windows and Linux Operating System**

**AIM** :- Comparative study of windows and Linux operating system.

**THEORY** :-

## **1. Architecture**

ASPECT	LINUX	WINDOWS
Kernal Type	Monolithic kernel	Hybrid Kernal
Source Code	Open-source	Closed-source
Modularity	Highly modular	Less modular

## **2. File System**

ASPECT	LINUX	WINDOWS
File System Types	Uses ext2, ext3, ext4	Uses NTFS, FAT32, exFAT
File Structure	uses forward slashes (/) for paths	uses backslashes (\) for paths
Case Sensitive	Case-sensitive	Case-insensitive

## **3. Prominent Features**

### **LINUX** :

- Open source and free.
- Highly customizable.
- Generally more faster and efficient.
- User accounts: administrative, regular, and service users.

- Preferred by developers, users and server environments.

### **WINDOWS :**

- Requires purchasing license.
- User friendly graphical interfaces.
- User accounts: Administrator, Child, Standard, Guest.
- Preferred in business, general user, and personal computing environments.

### **4. Security Features**

<b>ASPECT</b>	<b>LINUX</b>	<b>WINDOWS</b>
Security Model	Decentralized	Centralized
Vulnerability	Less common target due to diversity and permissions	More frequent target due to popularity
Updates	Fast, community-driven; users can apply patches directly	Updates controlled and pushed by Microsoft
Customization of security	Extensive, can tailor system for specific needs	Limited to built-in features and external tools

### **5. Networking and Connectivity**

<b>ASPECT</b>	<b>LINUX</b>	<b>WINDOWS</b>
Network Configuration	Rich command line tools	Primary GUI based configuration
Remote Management	Advance scripting	PowerShell, Remote Desktop
Server Support	Dominant in web, application	Used for file/print server, Active Directory

## **6. Additional Aspect**

- **Performance and Efficiency:**  
Linux is generally lighter and more efficient, especially on older hardware or in server environment. Windows requires more system resources but offers optimized performance.
- **Cost:**  
Linux is typically free, while windows requires ;license fee.
- **Software Availability:**  
Windows leads in availability of commercial software, while Linux is favored for open-source and server-side applications.

## **Conclusion:**

Hence we learned about the different advantage of Linux and Windows and some difference like Linux is most efficient but windows is more user friendly. Finally conclude that the assignment-1 is completed about comparative study of Linux and Windows.