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**LINUX VS WINDOWS OPERATING SYSTEM**

An operating system (OS) is system software that manages computer hardware, software resources, and provides common services for computer programs. It provides efficient use of the system. For hardware functions such as input and output and memory allocation, the operating system acts as an intermediary between programs and the computer hardware. Operating systems are found on many devices that contain a computer – from cellular phones and video game consoles to web servers and supercomputers. The OS also provides services to facilitate the efficient execution and management of, and memory allocations for, any additional installed software application programs.

Linux is a Unix-like, open source and community-developed operating system for computers, servers, mainframes, mobile devices and embedded devices. It is supported on almost every major computer platform including x86, ARM and SPARC, making it one of the most widely supported operating systems. Linux is the best-known and most-used open source operating system. As an operating system, Linux is software that sits underneath all of the other software on a computer, receiving requests from those programs and relaying these requests to the computer’s hardware. But Linux also is different from other operating systems in many important ways. First, and perhaps most importantly, Linux is open source software. The code used to create Linux is free and available to the public to view, edit, and—for users with the appropriate skill. It was first released on September 17, 1991, by Linus Torvalds.

Windows OS, computer operating system (OS) developed by Microsoft Corporation to run personal computers (PCs). Featuring the first graphical user interface (GUI) for IBM-compatible PCs, the Windows OS soon dominated the PC market. Approximately 90 percent of PCs run some version of Windows. The first version of Windows, released in 1985, was simply a GUI offered as an extension of Microsoft’s existing disk operating system, or MS-DOS. Based in part on licensed concepts that Apple Inc. had used for its Macintosh System Software, Windows for the first time allowed DOS users to visually navigate a virtual desktop, opening graphical “windows” displaying the contents of electronic folders and files with the click of a mouse button, rather than typing commands and directory paths at a text prompt. Subsequent versions introduced greater functionality, including native Windows File Manager, Program Manager, and Print Manager programs, and a more dynamic interface.

The Linux kernel, and the GNU utilities and libraries which accompany it in most distributions, are entirely free and open source. You can download and install GNU/Linux distributions without purchase. Some companies offer paid support for their Linux distributions, but the underlying software is still free to download and install. On the other hand, Microsoft Windows usually costs between $99.00 and $199.00 USD for each licensed copy. Windows 10 was originally being offered as a free upgrade to current owners of Windows 7 or Windows 8.1 if they upgraded before July 29, 2016, but that offer is no longer available. More recent distributions of Linux are easier to use than previous variants. Some Linux distributions feature a GUI, much like Windows, allowing for ease of use for the average computer user. Linux GUI distributions are more user friendly and do not contain all the extra "bloatware" that Windows is known to include. Examples of easier to use distributions include Ubuntu and Linux Mint. Windows is one of the easiest desktop operating systems to use. One of its primary design characteristics is user friendliness and simplicity of basic system tasks. Its ease and lack of difficulty is considered a positive by users who want their system to work. However, more proficient users may be frustrated by oversimplification of system tasks at the expense of fine-grained control over the system itself. Linux is notoriously reliable and secure. It has a strong focus on process management, system security, and uptime. Users usually experience less issues in Linux. Although Microsoft Windows has made great improvements in reliability in recent years, it's considered less reliable than Linux. Many of the sacrifices it makes in the name of user-friendliness can lead to security vulnerabilities and system instability. There are thousands of programs available for Linux, and many are available as easy-to-install software packages — all for free. Also, many Windows programs can be run on Linux using compatibility layers, such as WINE. Linux supports a wider array of free software than Windows. On the other hand Windows commands the highest number of desktop users, and therefore the largest selection of software. It also has the largest selection of video games by a wide margin. Many of the available software programs, utilities, and games available on Linux are free and open source. Even complex applications, such as GIMP, Open Office, and Star Office, are available for free. Although there are many free Windows programs, utilities, and games, the majority of Windows software is commercial and must be purchased. Most Windows software can cost between $4.99 and $99. Linux is a highly secure operating system. Although attack vectors are still discovered, its source code is open and available for any user to review, which makes it easier to identify and repair vulnerabilities. Microsoft has made great security improvements in Windows over the years. But as the operating system with the largest user base, especially among novice computer users, it is the primary target for malicious coders. As a result, of all major operating systems, Microsoft Windows is the most likely to be the victim of viruses and malware. There is a massive amount of online support available for Linux, including here on Computer Hope. There are also many books providing help with many of the Linux distributions. Microsoft Windows offers integrated and online help systems, and there are thousands of informative books about Windows available for every skill level. Linux is used by corporate, scientific, and academic organizations of every size. It's used to power the development machines and servers at Google, Facebook, Twitter, NASA, and the New York Stock Exchange, just to name a few. On the desktop, it is often used by technically proficient users who prioritize system security and reliability, and by enthusiasts who want to learn more about computers and how they work. It's also used to give new life to older hardware, enable low-budget computing projects to succeed, and serve as the operating system on single-board computers, such as the Raspberry Pi. Microsoft Windows is usually the operating system of choice for gamers, novice users, and business users who rely on Microsoft software. It doesn't run well on older hardware, however. Many Windows users are thrilled with the changes that Microsoft has introduced with Windows 10.

Both Widows and Linux operating system have a great impact in computer hardware and software. Although there are some differences between them but a user should select his operating system according to his need.

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