Operating system is a core set of the programs that manages all the hardware and other software on a computer and provides services that can be used by other applications. It handles input and output devices, and communicates with the device’s hardware using device drivers. Operating system manages system’s internal memory, allocating memory between running applications. Operating System handles multi-tasking, allocating hardware resources among multiple running programs. The operating system controls which processes run at the moment. If computer has multiple CPUs it controls processes between different CPUs.

1. **Apple macOS**

Apple's macOS runs on Apple laptops and desktops. MacOS is known for its user-friendly features, which include Siri, a natural-voice personal assistant, and FaceTime, Apple's video-calling application. Signature elements of macOS:

* The dock used to find programs and frequently used files
* Unique keyboard keys including the Command key
* Stoplight-colored buttons used to resize open program windows

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| **Advantages** | **Disadvantages** |
| * Macintosh operating system is cleaner and stable operating system than all versions of Microsoft Windows * Apple Macintosh computer is built with better materials when compared with most PC computers * Macintosh computers are more secure than Windows PC, less viruses are designed for Apple. * Macintosh operating systems are more powerful than Windows due to its UNIX base. * Macintosh software focuses on its user interface. They are easier to use for the non-technical users. * The operating system is more stable, less likely to encounter driver related issues because most of the hardware and drivers developed by Apple. | * Macintosh computers are more expensive than PCs. They have fewer options for customization, when compared to a PC. The parts that can be upgraded are usually more expensive. * Macintosh operating system cannot be upgraded or customized. When you buy Mac you cannot mix and match the components like for PCs. The easiest way to upgrade a Mac is to buy a new one. * Macintosh operating system requires less maintenance that is why they have less support. Users should go to Apple for all hardware problems. * Playing the games requires Windows. Macintosh computers have not touch abilities yet. Very few games comparing to Windows are designed for Apple. Games are released for PC users first. |

1. **Microsoft Windows**

Microsoft Windows has existed since 1985, it remains the most popular operating system for home and office computers. Its latest versions, including Windows 10, are also used on some tablets, and the OS is used on some web and number-crunching server computers as well. Computers from a wide variety of manufacturers can use Windows. Signature features of Microsoft Windows:

* Windows – rectangle-shaped, on-panel screens that represent individual applications
* Start menu has helped generations of users find programs and files on their devices

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| **Advantages** | **Disadvantages** |
| * Much larger selection of available hardware, drivers and software programs, utilities and games for Windows. * Microsoft Windows is easy to use, still less difficult to use than Linux. * Most of the software programs, utilities, and games for Windows have backward compatibility. Windows also usually does a good job at recognizing new hardware. * Microsoft Windows has its own help section, and a lot of help documentation for each version of Windows OS online * A lot of different gaming software and hardware is available for Windows * Most popular web browser Internet Explorer (IE) is available only for Windows, and allows to take advantage of website which use Microsoft’s technology. Windows has compatibility with MS driven websites. | * Microsoft Windows has poor security, compared to other operating systems. * Prone to viruses since over 95% of all viruses and malicious software are written for the Windows OS. The security vulnerabilities of Windows operating systems make them popular targets for the programmers of malicious code. * Microsoft Windows has poor support for older hardware. Legacy support for older hardware is gone in Windows 2000 and Windows XP. Microsoft claims this that was necessary to increase the overall stability of their systems. * Microsoft Windows uses high resource requirements. Microsoft requires its customers to invest the most in their computer hardware, a faster processor (CPU), more internal memory and a larger hard disk. * Windows computers are more likely than other systems to be hijacked and used to distribute everything from spam to pornography to hate mail. |

*Resources:*

[*https://www.online-sciences.com/computer/macintosh-operating-system-advantages-and-disadvantages/*](https://www.online-sciences.com/computer/macintosh-operating-system-advantages-and-disadvantages/)

[*https://www.online-sciences.com/computer/microsoft-windows-advantages-and-disadvantages/*](https://www.online-sciences.com/computer/microsoft-windows-advantages-and-disadvantages/)

Screen shot of the OS I use:

