

OPERATING SYSTEM

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Group Task

1. List and explain the steps taken by a computer when it first starts up!

When a computer first starts up, it goes through a sequence of steps to initialize its hardware and software components. Here are the main steps a computer takes during the boot process:

Power-on self-test (POST): When the computer is turned on, the power supply sends a signal to the motherboard to start the POST process. During this process, the computer checks the basic hardware components, such as the RAM, hard drive, and CPU, to ensure they are working correctly.

BIOS initialization: After the POST process is complete, the computer initializes the Basic Input/Output System (BIOS), which is a firmware that controls the hardware components of the computer. The BIOS provides a set of instructions to the computer to configure and test the hardware, and then it locates and loads the bootloader.

Bootloader: The bootloader is a program that resides on the hard drive and loads the operating system (OS) into memory. The bootloader typically gives the user the option to select which OS to load if multiple OSes are installed on the computer.

Operating system initialization: After the bootloader loads the OS, the OS initializes its own components, such as the kernel and device drivers. The kernel is the central component of the OS that manages the computer's resources, such as memory and CPU, and communicates with the hardware components.

Login: Once the operating system initialization is complete, the user is presented with a login screen where they enter their username and password to gain access to the computer.

User profile loading: After the user has successfully logged in, the computer loads the user's profile, which includes their personal settings, preferences, and files. This allows the user to start using their computer and launch applications.

Overall, the boot process is a critical step in the functioning of a computer and involves the initialization of multiple hardware and software components.

2. Name the types of operating systems, their developers and their advantages and disadvantages!

There are several types of operating systems, each with their own advantages and disadvantages. Here are some of the most common ones:

Windows:

Developed by Microsoft, Windows is the most widely used operating system for desktop and laptop computers. Its advantages include a wide range of software support, user-friendly interface, and compatibility with a large number of hardware devices. However, it is known for being prone to viruses and malware, and it can sometimes be unstable.

macOS:

Developed by Apple, macOS is the operating system for Apple's Mac computers. Its advantages include a streamlined and intuitive user interface, robust security features, and seamless integration with other Apple devices. However, it has limited software support compared to Windows, and it is only compatible with Apple hardware.

Linux:

Developed by a community of developers, Linux is an open-source operating system that is known for its stability, security, and flexibility. It is highly customizable and can be tailored to meet the specific needs of different users. However, it has a steeper learning curve than other operating systems, and software support can sometimes be limited.

Android:

Developed by Google, Android is the most widely used operating system for mobile devices. Its advantages include a wide range of apps, customization options, and seamless integration with Google services. However, it can be prone to security vulnerabilities, and software updates can sometimes be slow to roll out.

iOS:

Developed by Apple, iOS is the operating system for Apple's mobile devices. Its advantages include a streamlined and intuitive user interface, robust security features, and seamless integration with other Apple devices. However, it has limited customization options compared to Android, and it is only compatible with Apple hardware.

Overall, the choice of operating system depends on the specific needs and preferences of the user.

3. Name and explain the types of computer operating systems!

There are several types of computer operating systems. Here are the most common types:

Windows: Windows is a popular operating system developed by Microsoft. It is used on a wide range of devices, including desktop computers, laptops, tablets, and smartphones. It has a graphical user interface (GUI) and supports a wide range of software applications.

MacOS: MacOS is an operating system developed by Apple Inc. It is used exclusively on Apple computers and is known for its sleek and user-friendly interface. MacOS is often preferred by people who work in creative industries, such as design and music production.

Linux: Linux is a free and open-source operating system that is widely used on servers, supercomputers, and other types of computing devices. It is highly customizable and can be tailored to meet specific needs. There are many different versions of Linux, known as distributions, each with its own set of features and tools.

Unix: Unix is an older operating system that is still used today, particularly in enterprise computing environments. It is known for its stability, security, and reliability. Like Linux, Unix is highly customizable and can be tailored to meet specific needs.

Chrome OS: Chrome OS is a lightweight operating system developed by Google. It is designed to run on low-cost hardware, such as Chromebooks, and is highly optimized for web-based applications. It is simple to use and is ideal for people who primarily use their computers for browsing the web, using social media, and basic productivity tasks.

Mobile operating systems: Mobile operating systems, such as Android and iOS, are used on smartphones and tablets. They are highly optimized for touch-based interfaces and support a wide range of apps and games. They are designed to be highly portable and energy-efficient, making them ideal for use on mobile devices.