CAIE Computer Science IGCSE
4.1 Types of software and interrupts

Flashcards

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What are the two main types of software?

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What are the two main types of software?

System software and application software.

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What is system software?

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What is system software?

Software that manages the computer system resources and acts as a platform to run application software.

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Give examples of system software.

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Give examples of system software.

Operating systems, utility programs (e.g. antivirus, backup software), device drivers, firmware.

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What is application software?

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What is application software?

Software that performs specific tasks for the user.

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Give examples of application software.

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Give examples of application software.

Word processor, web browser, email client, games.

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What is an operating system (OS)?

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What is an operating system (OS)?

A type of system software that manages hardware and software resources.

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Name nine functions of operating systems.

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Name nine functions of operating systems.

Managing files, handling interrupts, providing an interface, managing peripherals and drivers, managing memory, managing multitasking, providing a platform for running applications, providing system security, and managing user accounts.

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What is file management in an OS?

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What is file management in an OS?

Controlling how data is stored, organised, and retrieved. This includes creating, saving, moving, copying, deleting, and renaming files.

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What is an interrupt?

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What is an interrupt?

A signal sent to the processor indicating an event needs immediate attention.

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How does the OS handle interrupts?

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How does the OS handle interrupts?

Using an interrupt handler to identify the cause, deal with it, and return to the original task (provided there are no more interrupts with higher priority).

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What does it mean for the OS to provide an interface?

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What does it mean for the OS to provide an interface?

The OS provides a user interface that allows users to interact with the computer. This could be a graphical or command-line (text-based) interface.

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What are peripherals?

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What are peripherals?

External devices such as printers, keyboards, and monitors.

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What is the role of device drivers?

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What is the role of device drivers?

Drivers provide instructions for hardware so software can use peripherals without knowing hardware details.

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What does the OS do to perform memory management?

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What does the OS do to perform memory management?

Tracking and allocating memory, preventing programs from overwriting each other, and using virtual memory when main memory is full.

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How does an OS manage multitasking?

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How does an OS manage multitasking?

By dividing the CPU's time into slices and rapidly switching between tasks, making them appear to run simultaneously.

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What does it mean that an OS provides a platform for running applications?

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What does it mean that an OS provides a platform for running applications?

It gives applications a consistent environment to run without needing direct hardware control.

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How does an OS provide system security?

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How does an OS provide system security?

By managing permissions, requiring passwords, controlling program execution, and including features like encryption and firewalls.

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What does an OS do to provide user account management?

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What does an OS do to provide user account management?

The OS allows accounts to be created and managed with individual files, settings, and access levels. These accounts are often accessed using a username and password system.

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What are the three main components required to run application software?

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What are the three main components required to run application software?

Hardware, firmware, and the operating system.

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What is firmware?

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What is firmware?

Permanent software stored in non-volatile memory that controls hardware and starts the boot process.

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What is the bootloader?

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What is the bootloader?

Part of firmware that checks hardware and loads the operating system into memory.

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Outline the process of running an application.

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Outline the process of running an application.

Power on → Firmware runs checks → OS loads → OS starts services → Application launches.

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Give an example of a hardware interrupt.

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Give an example of a hardware interrupt.

Pressing a key on the keyboard.

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Give an example of a software interrupt.

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Give an example of a software interrupt.

A division by zero error.

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Outline the process of handling an interrupt.

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Outline the process of handling an interrupt.

CPU finishes current instruction → Current state is saved → Interrupt service routine is run→ Previous state restored → Original task resumed.

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