

Hardware

- Hardware refers to the **physical components** of a computer system
- These components can be internal or external

Internal Components

- **Central Processing Unit (CPU):** the computer's "brain" that performs calculations, processes instructions, and controls other components
- **Processor:** a chip inside the CPU that carries out instructions from a program
- **Motherboard:** the main circuit board that connects all internal components

Internal Memory

- **Random Access Memory (RAM):** temporary storage for running programs and data; it is volatile, meaning data is lost when the computer is turned off
- **Read-Only Memory (ROM):** permanent storage for essential data, like the computer's BIOS; it is non-volatile, meaning data is retained even when the computer is turned off

Hardware Components

- **Graphics card:** processes images and videos for display on a monitor
- **Sound card:** processes audio for output through speakers or headphones
- **Network Interface Card (NIC):** enables connection to a network, such as the internet
- **Camera:** captures images or video for input into the computer
- **Internal/external storage devices:** stores data permanently, such as hard drives or USB flash drives
- **Input devices:** allow users to enter data, like keyboards and mice
- **Output devices:** display or produce results, like monitors and printers

Software

- **Software** refers to programs that control the operation of a computer or the processing of electronic data

Application Software

- **Application software** provides the services that users require to solve a task
- E.g.:
 - **Word processing:** creating and editing text documents
 - **Spreadsheet:** organising and analysing data in a grid format
 - **Database management systems:** storing, retrieving and managing data in databases
 - **Control/measurement:** uses sensors to measure and control a system
 - **Applets and apps:** specialised software for specific tasks
 - **Video editing:** creating and modifying video files
 - **Graphics editing:** creating and modifying images

- **Audio editing:** creating and modifying sound files
- **Computer Aided Design (CAD):** designing and modelling objects in 2D or 3D

System Software

- **System software** provides the services that the computer requires to operate e.g.
 - **Compilers:** translating high-level programming languages into machine code
 - **Linkers:** combining object files into a single executable program
 - **Device drivers:** controlling hardware components and peripherals
 - **Operating systems:** managing the computer's resources and providing a user interface
 - **Utilities:** tools for maintaining and optimising the computer's performance