Secondary Storage

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- stores data and instructions when the computer is switched off
- can be changed, deleted and reused - unlike ROM

This is the **slow external memory** from the von Neumann architecture

Secondary Storage

Secondary storage is any non-volatile storage mechanism which **can not be accessed directly by the CPU**

- this means the data stored there needs to be loaded into main memory (RAM) before it can be used
- this includes programs and the operating system (but not the BIOS stored in ROM)

Secondary Storage

Secondary storage includes:

- hard drives (magnetic and solid state)
- memory sticks/pen drives/usb drives
- SD cards
- CD and DVD
- floppy disks
- backup tapes
- paper tape/punched cards etc...

Secondary Storage

These allow:

- data and instructions to be stored when the computer is turned off
- a large amount of data (including programs and the operating system) to be stored where it can be accessed to be moved in to main memory when required
- data to be portable

Secondary Storage

Three types of secondary storage you need to know detail on:

- magnetic storage
- optical storage
- solid state storage

This means:

- knowing the **detail** on how each works
- knowing the pros and cons of each

Secondary Storage

Example question:

Describe how data is stored on, and read from, a magnetic hard disk [4 marks]

- this question can be rewritten for each type of secondary storage
- requires **detailed** knowledge of how the storage method actually works