

## Materials for Data Storage- Magnetic Materials

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## The Primary Types of Magnetic Storage are:

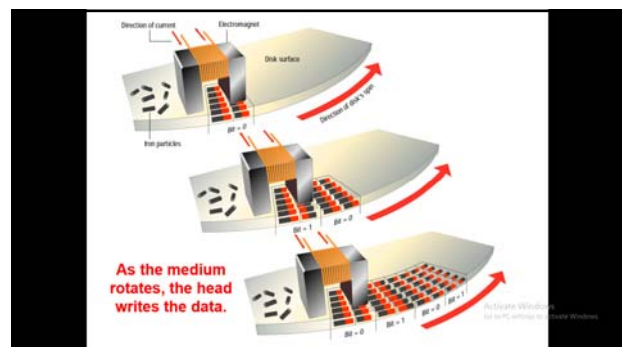
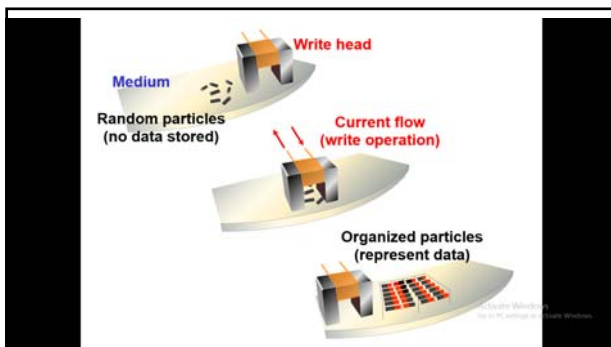
- Diskettes (Floppy disks)
- Hard disks
- High Capacity Floppy disks
- Disk cartridges
- Magnetic Tape

## Magnetic Storage Devices:

- How Magnetic Storage Works
- Formatting
- Disk Areas
- Diskettes
- Hard Disks
- Advantages
- Disadvantages

## How Magnetic Storage Works

- A magnetic disk's medium contains iron particles, which can be polarized- given a magnetic charge- in one of two directions.
- Each particle's direction represent a 1(on) or 0(off), representing each bit of data that CPU can recognize.
- A disk drives uses read/write heads containing electromagnets to create magnetic charges on the medium.

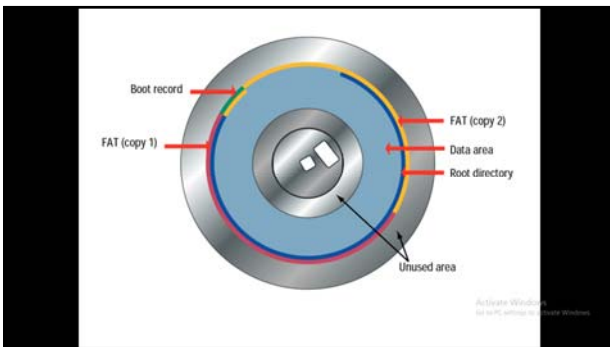


### Magnetic Storage devices-Formatting

- Before a magnetic disk can be used, it must be formatted- a process that maps the disk surfaces and determines how data will be stored.
- During Formatting drive creates circular tracks around the disk's surface, then divide each track into sectors.
- The OS organizes sectors into groups, called clusters, then tracks each file's location according to the clusters it occupies.

### Magnetic Storage Devices-Disk Areas

- When a disk is formatted, the OS creates four areas on its surface:
- Boot Sector – stores the master boot record, a small program that runs when you first start (boot) the computer.
- File allocation table (FAT) – a log that creates each file's location and each sector's status.
- Root folder – enables the user to store data on the disk in a logical way
- Data area – the portion of the disk that actually holds data



### Magnetic Storage Devices-Diskettes

- Diskettes drives, also known as floppy disk drives, read and write to diskettes (called floppy disks or floppies).
- Diskettes are used to transfer files between computers, as a means for distributing software, and as a backup medium.
- Diskettes come in two sizes: 5.25-inch and 3.5-inch

### Magnetic Storage Devices-Hard Disks

- Hard disks use multiple platters, stacked on a spindle. Each platter has two read/write heads, one for each side.
- Hard Disks use higher-quality media and a faster rotational speed than diskettes.
- Removable hard disk combine high capacity with the convenience of diskettes.

### Advantages of Magnetic Storage Devices

- Very fast access to data. In most of the magnetic storage devices the access speed is about 1000kb/s
- Data can be read directly from any part of the hard disc.
- Some of the magnetic storage devices are very cheap for example floppy disks.
- Most of the magnetic storage devices store very large amounts of data.

### Disadvantages of Magnetic storage devices

- Data can be altered by magnetic fields, dust, mechanical problems
- Gradually lose their charge over time - data lost
- Hard disks eventually fail which stops the computer from working.
- Regular crashes can damage the surface of the disk, leading to loss of data in that sector.

Thank You