

Lesson 11

Types of Storage Devices

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Review from Previous Lesson



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Today's Class Agenda

-  Categorizing storage devices
-  Magnetic storage devices
-  Optical storage devices
-  Solid-state storage devices



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Storage Devices

- **Store data when computer is on**
- **Two processes**
 - Writing data
 - Reading data
- **Media** is the material storing data
- **Storage devices** manage the media



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Types of Storage Devices

- **3 types**
 - **Magnetic devices: use a magnet**
 - **Optical devices: use lasers**
 - **Solid-state devices: have physical switches**



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Magnetic Storage Devices

- **Most common form of storage**
- **Hard drives, floppy drives, tape**
- **All magnetic drives work the same**
- **Data storage and retrieval**
 - **Media is covered with iron oxide**
 - **Read/write head is a magnet**
 - **Magnet writes charges on the media**
 - **Positive charge is a 1**
 - **Negative charge is a 0**
 - **Magnet reads charges**
 - **Drive converts charges into binary**



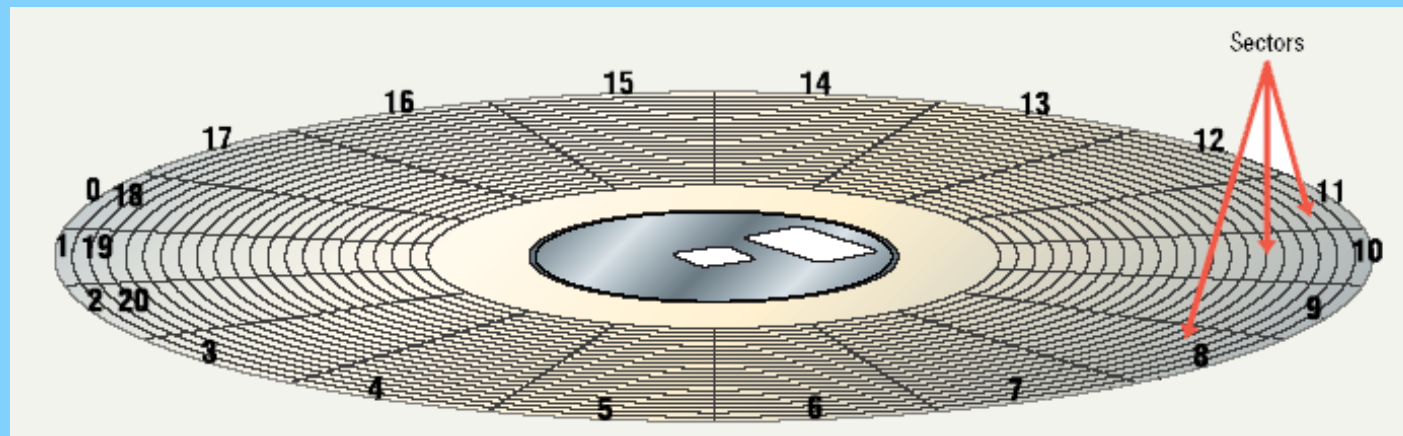
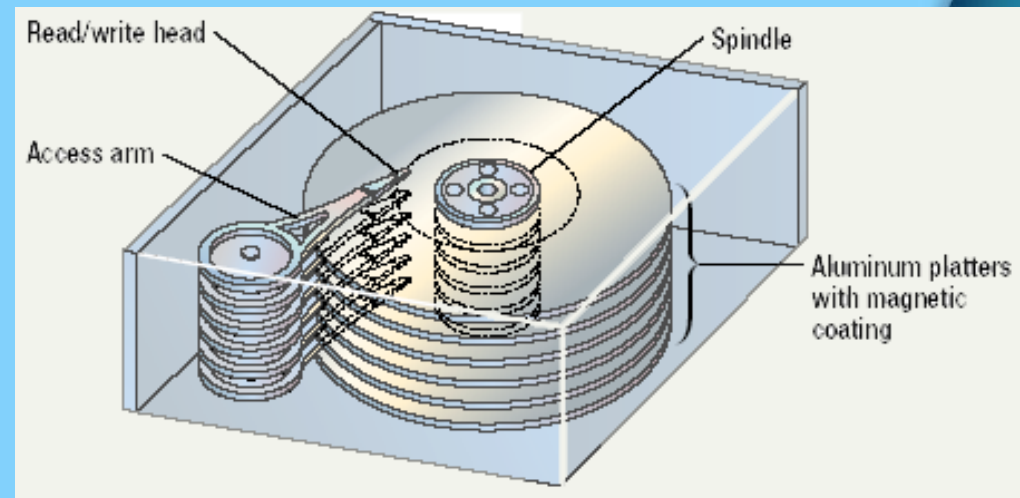
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Magnetic Storage Devices...

- **Data organization**
 - Disks must be formatted before use
 - Format draws tracks on the disk
 - Uses **magnet** to access data
 - Tracks is divided into sectors
 - Amount of data a drive can read

Illustrated HDD



Tracks and Sectors



Optical Storage Devices

- **CD-ROM**

- Most software shipped on a CD (Compact Disk)
- Read using a **laser**
- CD speed is based on the original
 - Original CD read 150 Kbps
 - A 10 X will read 1,500 Kbps
- Standard CD holds **650 MB**

- **DVD-ROM**

- Digital Video Disk
- Use both sides of the disk
- Capacities can reach **18 GB**
- DVD players can read CDs



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Optical Storage Devices...

- **CD Recordable (CD-R)**
 - Create a data or audio CD
 - Data **cannot be changed**
 - Can continue adding until full
- **CD Regrettable (CD-RW)**
 - Create a **reusable** CD
 - Cannot be read in all CD players
 - Can reuse about 100 times



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Solid State Devices

- **Data is stored physically**
- **No magnets or laser**
- **Electricity flows through solid semiconductor crystals**
- **Extremely fast**
- **Definite mass, volume, and shape**



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Solid State Devices...

- **Flash memory**
 - Found in cameras and USB drives
 - Combination of RAM and ROM
 - Long term updateable storage
 - Pen drive, memory card
- **Smart cards**
 - Any cards with a chip
 - Chip stores data
 - Eventually used for transactions



i Do it!



References

- Peter Norton, M. (2004). *Peter Norton's intro to computers 6/E*. McGraw-Hill Education.
- Rahman, M. L., Kaiser, M. S., Rahman, M. A., & Hossain, M. A. (2017). *Computer Fundamentals and ICT* (1st ed.). Daffodil International University Press.
- Different sites found in internet



End of Course Lessons

- **Based on today's discussion, activity will be assigned to you. You have to make a solution to the problem.**
- **At the end there will be a short assessment test based on Lecture lesson-11**



Discussion Questions and Learning Summary!





The end of Lesson-11

Thanks!