

- 1  Chapter 7  
Storage
- 2  Chapter 7 Objectives
- 3  Memory Versus Storage
  - 1 **What is storage?**
  - 2 **Media and devices used to store and retrieve data, instructions, and information**
- 4  Memory Versus Storage
  - 1 **How does storage differ from memory?**
  - 2 **Stores items for future use, rather than temporarily**  
**Storage is nonvolatile, rather than volatile**
- 5  Memory Versus Storage  
**How does volatility compare?**
- 6  Memory Versus Storage  
**What is a storage device and a storage medium?**
- 7  Memory Versus Storage
  - 1 **What is reading and writing?**
  - 2 **reading**  
Process of transferring data, instructions, and information from a storage medium into memory  
Serves as a source of input
- 8  Memory Versus Storage
  - 1 **What is access time?**
  - 2 **Amount of time it takes device to locate item on disk**  
**Defines speed of disk storage device**
- 9  Memory Versus Storage
  - 1 **What is capacity?**
  - 2 **Number of bytes (characters) storage medium can hold**
- 10  Floppy Disks
  - 1 **What is a floppy disk?**
  - 2 **Portable, inexpensive storage medium**  
**Today's standard disk is 3.5" wide**
- 11  Floppy Disks
  - 1 **What are the parts of a floppy disk?**
  - 2 **Thin, circular, flexible film enclosed between two liners**

- 12  Floppy Disks  
**How are floppy disk drives designated?**
- 13  Floppy Disks  
**How does a floppy disk drive work?**
- 14  Floppy Disks  
1 **What are tracks and sectors?**  
2
  - ✦ Track is narrow recording band that forms full circle on disk surface
  - ✦ Sector can store up to 512 bytes of data
- 15  Floppy Disks  
1 **What is formatting?**  
2
  - ✦ Process of preparing disk for reading and writing
  - ✦ Formatting marks bad sectors as unusable
- 16  Floppy Disks  
1 **How do you care for a floppy?**  
2
  - ✦ Proper care helps maximize disk's life
  - ✦ Floppy disk can last at least seven years
- 17  Floppy Disks  
1 **What is a write-protect notch?**  
2
  - ✦ Small opening with a cover that you slide
  - ✦ Protects floppy disks from being erased accidentally
- 18  High-Capacity Disks  
1 **What is a high-capacity disk drive?**  
2
  - ✦ Uses disks with capacities of 100 MB and greater
  - ✦ Primarily used to backup files and transfer files
- 19  High-Capacity Disks  
1 **What is a backup?**  
2
  - ✦ Duplicate of file, program, or disk that you can use if original is lost, damaged, or destroyed
- 20  Hard Disks  
1 **What is a hard disk?**  
2
  - ✦ High-capacity storage
  - ✦ Consists of several inflexible, circular platters that store items electronically
  - ✦ Components enclosed in airtight, sealed case for protection
- 21  Hard Disks  
**How does a hard disk work?**
- 22  Hard Disks  
1 **What is a cylinder?**  
2
  - ✦ Location of a single track through all platters

❖ **Single movement of read/write head arms can read same track on all platters**

23  Hard Disks

1 **What is a head crash?**

- 2
- ❖ **Occurs when read/write head touches platter surface**
  - ❖ **Spinning creates cushion of air that floats read/write head above platter**

24  Hard Disks

1 **What is a disk cache?**

- 2
- ❖ **Portion of memory processor uses to store frequently accessed items**

25  Hard Disks

1 **What is a partition?**

- 2
- ❖ **Formatted hard disk divided into separate areas called partitions**
  - ❖ **Each partition functions as if it were a separate hard disk drive**

26  Hard Disks

1 **What is a removable hard disk?**

- 2
- ❖ **Disk drive in which a plastic or metal case surrounds the hard disk so you can remove it from the drive**
  - ❖ **Used for backup or to transfer files**

27  Hard Disks

1 **How does RAID work?**

- 2
- ❖ **Disk system that duplicates data, instructions, and information to improve data reliability**

28  Hard Disks

**What Windows utilities maintain a hard disk drive?**

29  Hard Disks

1 **What is an Internet hard drive?**

- 2
- ❖ **Service on Web that provides storage to computer users**
  - ❖ **Most offer free storage**
  - ❖ **Revenues come from advertisers**

30  Hard Disks

**What are advantages of an Internet hard drive?**

31  Compact Discs

1 **What is a compact disc (CD)?**

- 2
- ❖ **Storage medium**
  - ❖ **Most PCs include some type of compact disc drive**
  - ❖ **Available in**

**variety of  
formats**

- 32  Compact Discs  
1 **How do you use a compact disc?**  
2 ❖ CD drives can read compact discs, including audio discs
- 33  Compact Discs  
**How does a laser read data on a compact disc?**
- 34  Compact Discs  
1 **How is data stored on a compact disc?**  
2 ❖ Typically stores items in singletrack  
❖ Track divided into evenly sized sectors that store items
- 35  Compact Discs  
1 **What is a jewel box?**  
2 ❖ Protective case for compact disc
- 36  Compact Discs  
**How should you care for a compact disc?**
- 37  CD-ROMs  
1 **What is a CD-ROM?**  
2 ❖ Compact disc that uses same laser technology as audio CDs for recording music  
❖ Cannot erase or modify contents  
❖ Typical CD-ROM holds about 650 MB  
❖ Commonly used to distribute software and games
- 38  CD-ROMs  
**What is the data transfer rate of a CD-ROM drive?**
- 39  CD-R and CD-RW  
1 **What is a CD-R (compact disc-recordable)?**  
2 ❖ Compact disc onto which you can record text, graphics, and audio  
❖ Write on CD-R using CD burner (recorder) or CD-R drive and special software
- 40  CD-R and CD-RW  
1 **What is a CD-RW (compact disc-rewritable)?**  
2 ❖ Erasable disc you can write on **multiple times**  
❖ Must have a CD-RW disc, CD-RW software, and CD-RW drive
- 41  CD-R and CD-RW  
**How is an audio CD created?**

- 42  DVD-ROMs
- 1 **What is a DVD-ROM (digital video disc-ROM)?**
  - 2
    - ❖ High capacity compact disc capable of storing from 4.7 GB to 17 GB
    - ❖ Must have DVD-ROM drive or DVD player to read DVD-ROM
    - ❖ Primarily used for movies
    - ❖ Next-generation software will be delivered on DVD
- 43  DVD-ROMs
- 1 **How does a DVD-ROM store data?**
  - 2
    - ❖ Two layers of pits are used, where lower layer is semitransparent
    - ❖ Laser can read through it to upper layer
    - ❖ DVD+RW is a rewritable DVD
- 44  Tapes
- 1 **What is tape?**
  - 2
    - ❖ Magnetically coated ribbon of plastic capable of storing large amounts of data and information at a low cost
    - ❖ Primarily used for backup
- 45  Tapes
- What is sequential access versus direct access?**
- 46  Enterprise Storage Systems
- 1 **What is an enterprise storage system?**
  - 2
    - ❖ Strategy that focuses on availability, protection , organization, and backup of storage in a company
- 47  PC Cards
- What are uses of PC Cards?**
- 48  Miniature Mobile Storage Media
- 1 **What is miniature mobile storage media?**
  - 2
    - ❖ Handheld devices use to augment internal storage
- 49  Miniature Mobile Storage Media
- 1 **How is miniature storage media used?**
  - 2
    - ❖ Handheld devices, such as players and wallets, read or display c ontents of miniature storage media such as memory cards
- 50  Miniature Mobile Storage Media
- 1 **What is a smart card?**
  - 2
    - ❖ Stores data on thin microprocessor embedded in credit card
- 51  Miniature Mobile Storage Media
- 1 **What are the types of smart cards?**
  - 2
    - ❖ Intelligent smart card contains processor and has input, process, output, and storage capabilities
    - ❖ Memory card has only storage capabilities

- 52  Miniature Mobile Storage Media
- 1 **What is electronic money?**
  - 2 ❖ **Means of paying for goods and services over the Internet**  
❖ **Also called e-money or digital cash**
- 53  Microfilm and Microfiche
- 1 **What are microfilm and microfiche?**
  - 2 ❖ **Store microscopic images of documents on a roll or a sheet of film**  
❖ **Images recorded using a computer output microfilm (COM) recorder**
- 54  Microfilm and Microfiche  
**How do life expectancies of various media compare?**
- 55  Summary  
**What are suggested storage devices for the Home user?**
- 56  Summary  
**What are suggested storage devices for the SOHO user?**
- 57  Summary  
**What are suggested storage devices for the Mobile user?**
- 58  Summary  
**What are suggested storage devices for the Large Business user?**
- 59  Summary  
**What are suggested storage devices for the Power user?**
- 60  Summary of Storage
- ❖ **Memory versus storage**
  - ❖ **Floppy disks**
  - ❖ **High-capacity disks**
  - ❖ **Hard disks**
  - ❖ **Compact discs**
  - ❖ **CD-ROMs**
  - ❖ **CD-R and CD-RW**
  - ❖ **DVD+RW and DVD-ROM**
  - ❖ **Tapes**
  - ❖ **Enterprise storage systems**
  - ❖ **PC Cards**
  - ❖ **Miniature mobile storage media**
  - ❖ **Microfilm and microfiche**