

Software – What Is It?

- Programs (and Data)
- No weight
- No size
- May be invisible

The Bit

- The basic unit of information
- Binary (that is, two states)
On or Off; 1 or 0
- Example: Light switch, Coin
- By itself, relatively useless
- Powerful in *bitstreams*:
01010100110101001010...

The Byte

- 8 bits grouped together
- 256 possible combinations
 - $2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2 \times 2$
= 256
- Code:
 - “A” = 01000001 (65 dec.)
 - “B” = 01000010 (66), etc.

The Kilobyte

- Computers speak binary:
 - $256 \times 2 = 512$
 - $512 \times 2 = 1024$
- 1 Kilobit (Kb) = 1,024 bits
- 1 Kilobyte (KB) = 1,024 bytes
or 8 Kb
 - *Approximately* equal to 1,000 bytes

Bunches of Bytes

- **Megabyte (MB)** = 1,024 KB
= 1,048,576 B
≈ 1,000,000 B
- **Gigabyte (GB)** = 1,024 MB
= 1,073,741,824 B
≈ a billion bytes

How Many Bytes?

- Simple Email message 200 B
- Small Word document 20 KB
- Small photograph 500 KB
- MP3 song 3 MB
- Short video 10 MB

Media

- Paper
- Magnetic Media
 - Tape & Disks (floppy & hard)
- Optical Media
 - CDs
 - DVDs

Types of Software

- Instructions
 - Programs or applications
- Also, Information
 - Text or Numeric data files
 - Pictures
 - Sounds and Music
 - Video

Types of Programs

- Operating Systems
 - Windows (XP, Vista, 7)
 - Mac OS X
 - Linux (Ubuntu, SUSE, etc.)
 - Google Chrome
- Applications
 - Microsoft Word, Excel, etc.
- Utilities
 - Norton AntiVirus, McAfee

Comparison: College Staffing

- Infrastructure
 - Janitors
 - Mail room
 - *Like the Operating System*
- Mission-oriented
 - Professors
 - Administration
 - *Like Applications*

Microsoft Office 2007

- Word
 - Excel
 - PowerPoint
 - Access*
 - Outlook**
- * Only in Professional version.
** Not in Home/Student version.

Relative Importance of S/W

- Operating System, e.g., *Win XP*
Extremely essential for anything
- Application, e.g., *MS Word*
Essential for certain work
- Utility, e.g., *Norton AntiVirus*
Somewhat essential

Windows “Accessories”

- WordPad
- Paint
- Notepad
- Calculator
- Character Map
- Solitaire and other games

Updating Windows

- Security “holes” constantly found
- Microsoft issues “patches”
- Major updates: Service Packs
- Update Windows often
(at www.microsoft.com)

Files & Filenames

- On disks, data grouped as files
- Files should have unique names
- Old programs may limit names to 8 chars
- Names can’t have certain chars:
 \ / : * ? “ < > |

Filename Extensions

- 3 or 4 letters added to filenames
- Specify the type of file
- We usually cannot see them
- Examples
 - Thank_you_letter_2.**doc**
 - Thank_you_letter_2.**jpg**

Types of Extensions

- .doc Word document
- .rtf Rich Text Format
- .jpg JPEG photo
- .bmp bitmap image
- .mp3 MPEG music file

To see Filename Extensions:

- Click **Start > My Documents**
- Click **Tools > Folder Options > View**
- Uncheck **Hide Extensions**