Tomorrow's Technology and You

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"The trouble with the world is not that people know too little, but that they know so many things that ain't so."

- Mark Twain

Tomorrow's Technology and You

Appendix A

Objectives

- ✓ Describe the basic parts of a PC and how they work together.
- ✓ Explain the relationship between hardware and software.
- ✓ Use a keyboard and mouse to enter and edit text.
- ✓ Explain how files are organized within a PC.




Objectives (continued)

- ✓ Explain how the Internet extends the functionality of a PC.
- ✓ Describe some of the risks of Internet use and how to minimize them.
- ✓ Use a Windows PC to visit the class website.

http://csc.csudh.edu/suchenek/CSC/101




Hardware Basics

- **Computer's hardware:**
  - ✓ Built around a tiny **microprocessor** that controls the workings of the computer
    - ➢ This microprocessor, called **central processing unit**, or **CPU**, is usually housed in a box.
      - ❑ Serves as command central for the entire computer system




Hardware Basics

- **Computer's hardware:**
  - The CPU is the brains of the computer.
    - Controls the operation of the core computer components
  - **Peripheral devices (peripherals):** external devices connected via cables or wireless links to the system unit




Hardware Basics

- Part of the computer that houses CPU is called a system unit (motherboard in tech jargon)
- System unit also includes built-in **memory (RAM)** and a **hard disk.**
- CPU uses memory for instant access to information.
- Hard disk serves as a longer-term storage device:
  - Stores large quantities of information
  - Is non-volatile (not susceptible to power loss)

Hardware Basics

- **Removable media**: memory devices that can be separated from their drives
  - The most popular types are
    - 5-1/4 inch optical disks
    - USB flash drives
      - A USB flash drive consists of a flash memory data storage device integrated with a USB (Universal Serial Bus) interface.

– A Micro SD flash drive consists of a flash memory data storage device accessible via a Ultra High Speed (UHS) Bus. Adapters to other formats (USB, MultiMediaCard (MMC)) are readily available.

Hardware Basics

- Typical PC system unit includes a CD/DVD-RW drive.
- Internal drives are included in the system unit.

Hardware Basics

- External drives are attached to the system unit via cables or wireless links.

Hardware Basics

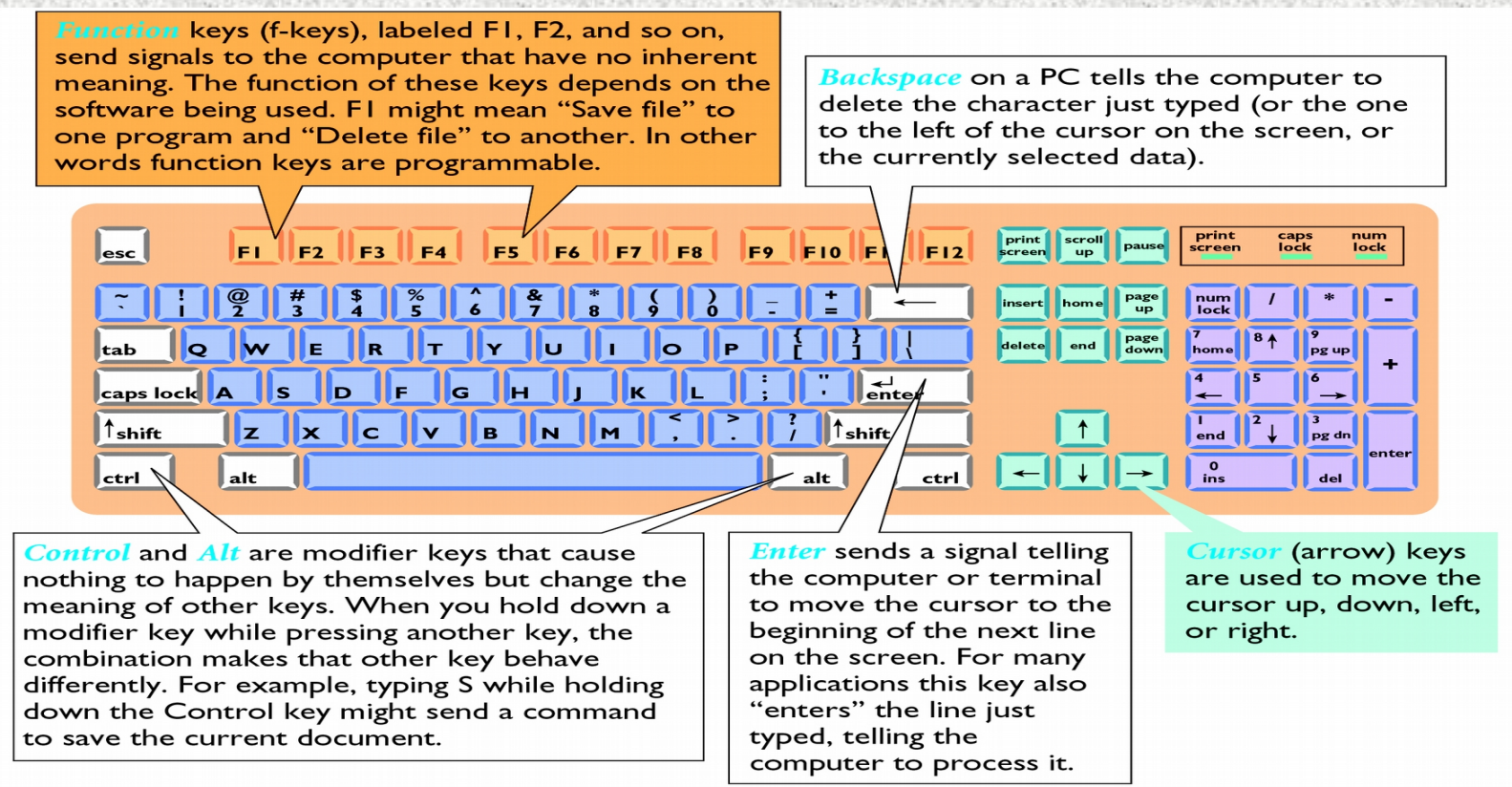
- Other system unit components may include:
  - Video display card
  - Sound card
  - Network interface card
  - Modem




Hardware Basics

More like this:

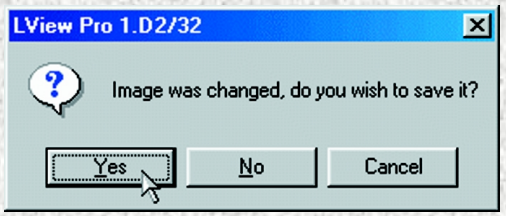
Using a Keyboard

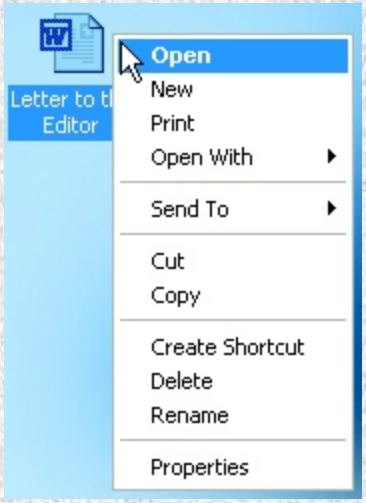


Ergonomic keyboard

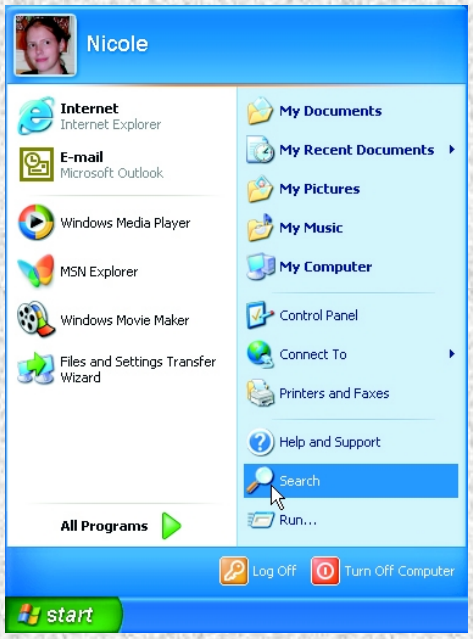
Using a Pointing Device (like Mouse)

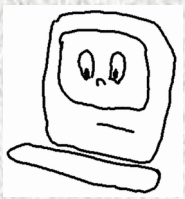
- ✓ Clicking the mouse
- ✓ Dragging the mouse
- ✓ Other mouse operations:
  - ➢ Double click
  - ➢ Right click





The zany Duck Soup captured the Marx Brothers at their peak.





Software Basics

Entering, Editing, and Formatting Text

- **Work on a word processing document using standard PC techniques and tools:**
  - As you type, your text displayed on screen and stored in RAM
  - Screen appearance the same as the printed version – WYSIWYG




Software Basics

Basic editing tools:

- ✓ **Clipboard** – stores text from **Cut** or **Copy** of text
- ✓ **Find and Replace** – for making repetitive changes

✓ **Formatting**:

- ✓ Change the way the words look on the page
- ✓ Adjust the size and shape of the text to achieve a certain look




Software Basics

- The CPU is controlled by **software**—instructions that tell it what to do.
- **System software** takes care of behind-the scenes details.
  - **Operating system (OS)**
    - The operating system determines what your screen display looks like as you work and how you tell the computer what you want it to do.
    - And much more ...




Software Basics

- Most PCs today use **Microsoft Windows** operating system (Windows 8 as of 2013).

- **Linux** becomes more and more popular, particularly among pros.

- Macintosh computers use Apple's **Mac OS** (OS X as of 2013).




Software Basics

- **Application programs (applications)** are software programs that enable you to use a computer for specific purposes.
- A **document** is a file created by an application, regardless of whether it has actually been printed.




Software Basics

Applications and documents are two different types of files.

- A **File** is a named collection of data stored in memory, on a computer disk, or on some other storage medium.
- **Applications** contain instructions that can be executed by the computer.




Software Basics

Applications are sometimes called **executable files.**

Documents contain passive data rather than instructions.

Documents are sometimes called **data files.**




File Management Basics

- In Windows, Linux, and the Mac OS, a file is represented by a name, usually with an extension.

Example: Appendix.pdf

  - **Extension—**a string of (usually) one to four characters
    - Follows a period (.) at the end of the file name
    - Extension indicates file's origin or use

- Files can be organized into collections using **folders** (sub-**directories**).

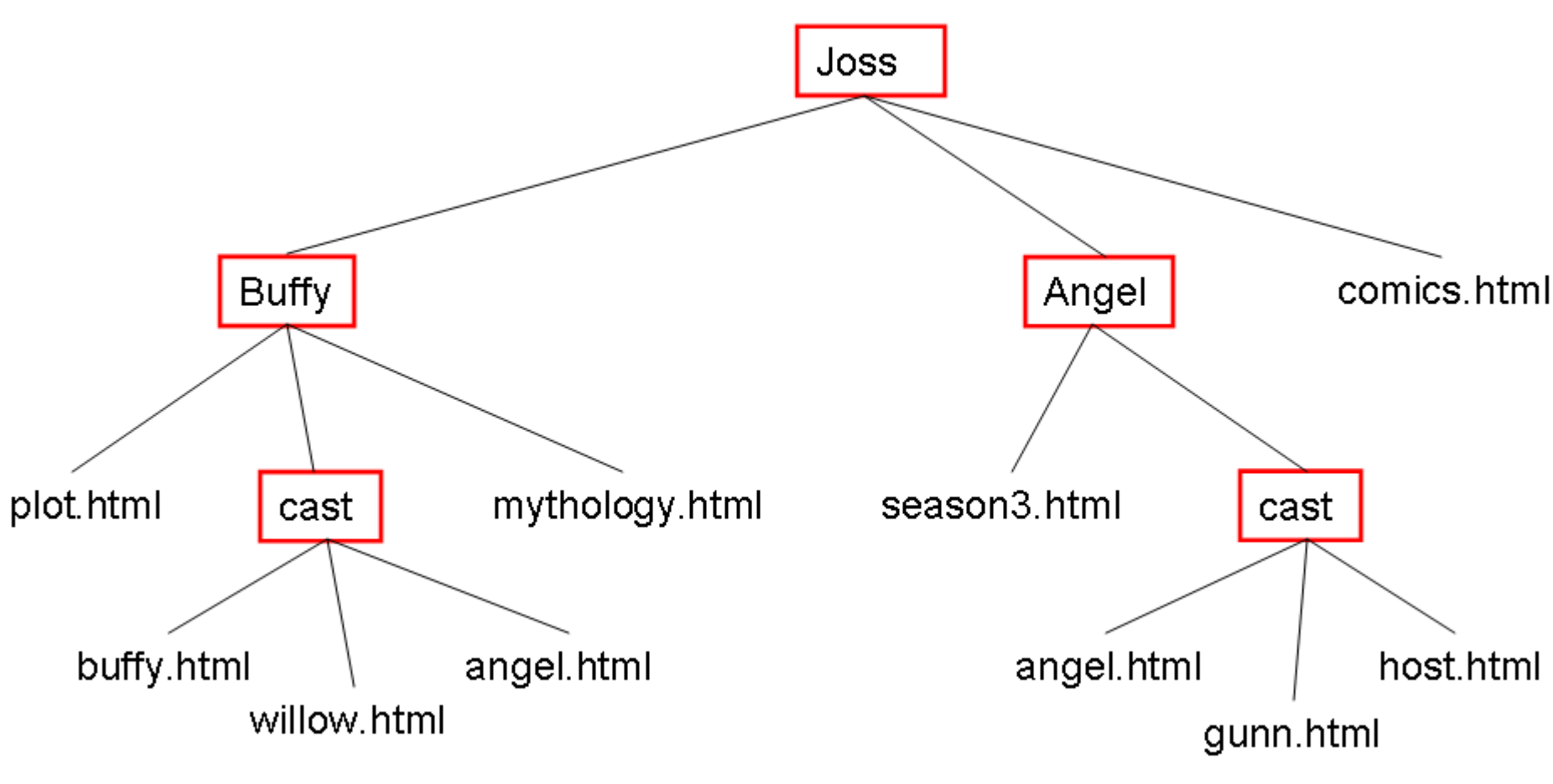



File Management Basics

- The operating system allows one to:
  - create folders,
  - give them meaningful names,
  - store documents and other files inside them,
  - search folders and files.
- Folders can be organized hierarchically in a tree-like structure—a folder can contain other folders, which in turn can contain still more folders.




Directory tree



File Management Basics

- Modern operating systems include **Search** and **Find** commands that can help find files no matter where they might be stored on a system.
  - Search for file names or for words or phrases inside a document.

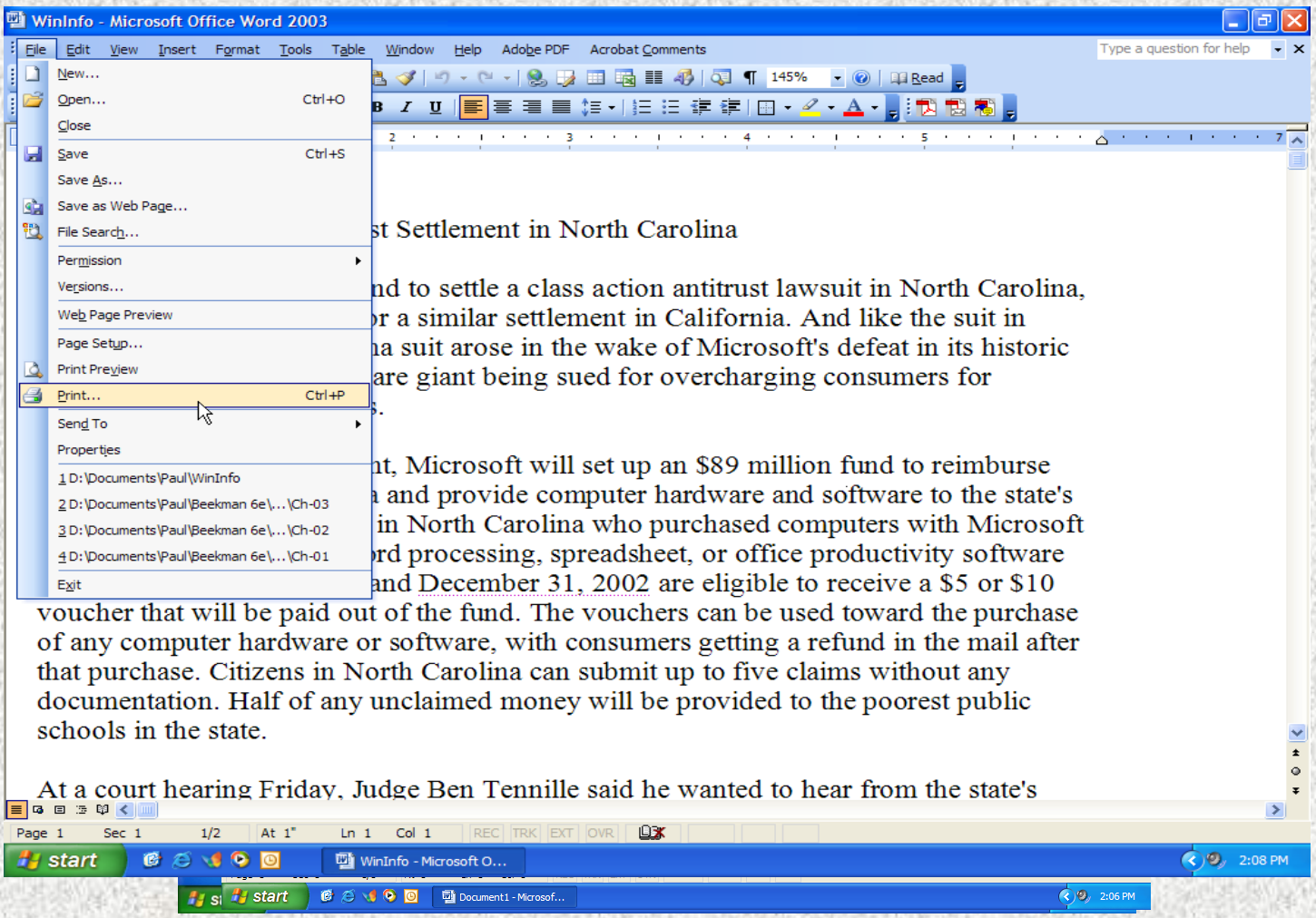



File Management Basics

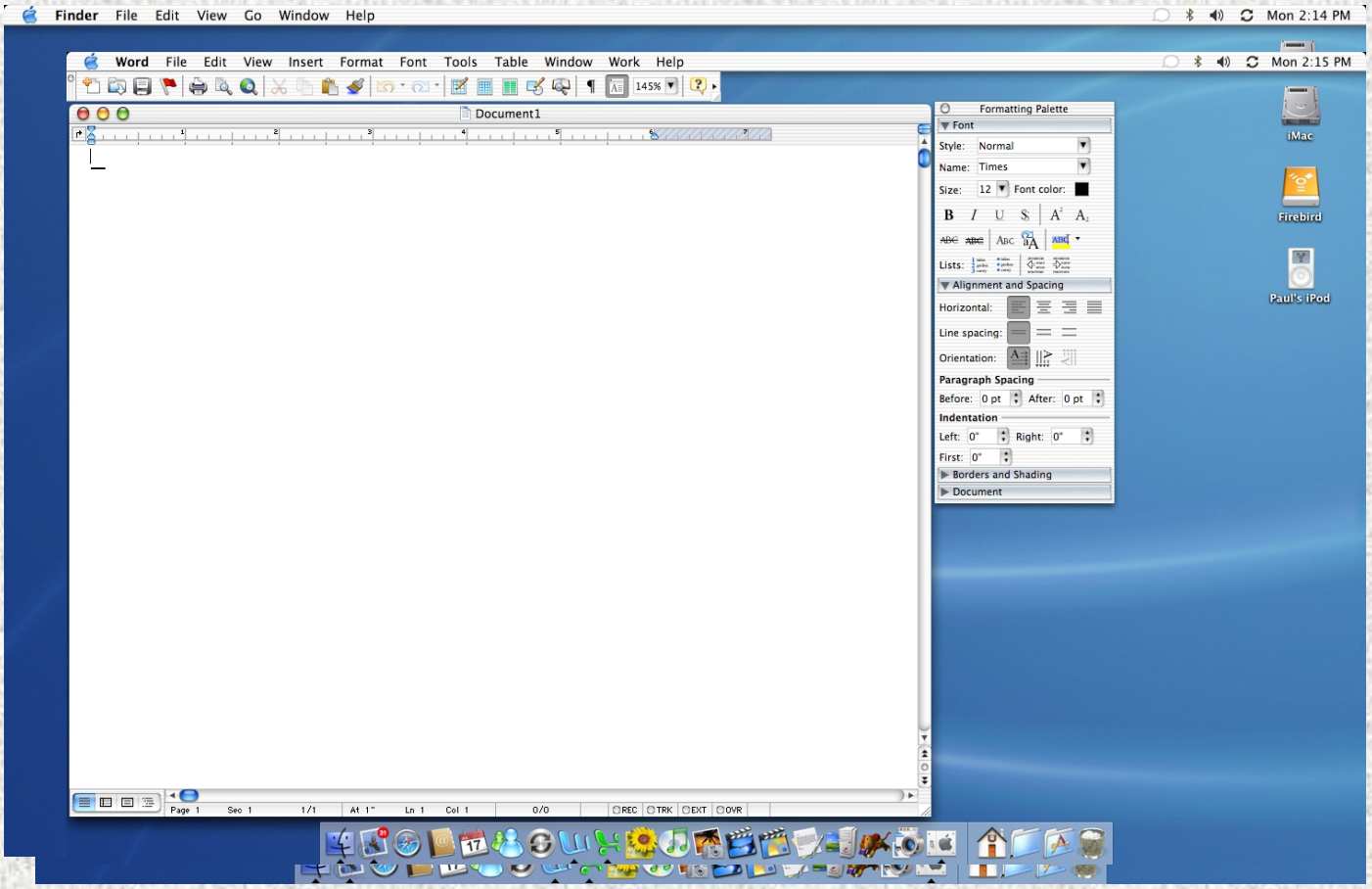
- A wide range of multimedia activities are supported.
  - These are the largest files: videos, songs, or images.
  - Reducing file size is key to managing storage; the process is called **compression.**
- **Back-up** of information ensures that crucial data is not lost.




File Management Basics



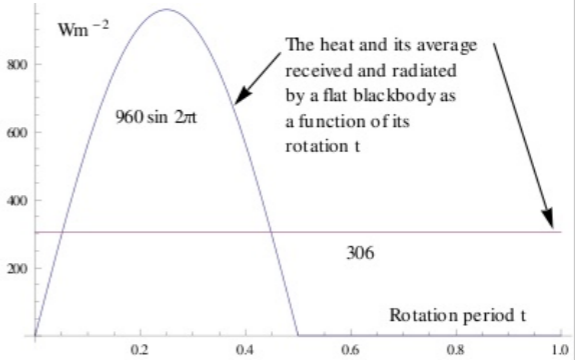
Same with Mac

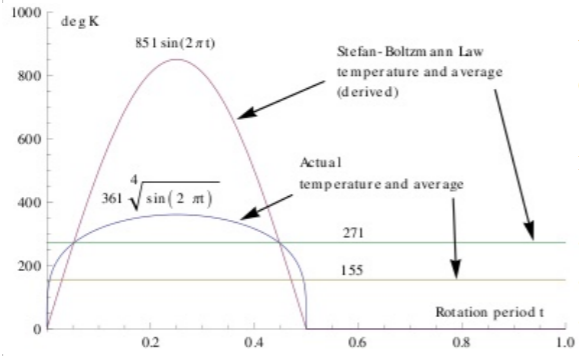


Same with Linux

where x is the angle in radians between Z and the direction of the Sun radiation.

F, of course, varies with x according to the graph on Illustration . The average radiation on the black side of Z is 306 W m^{-2}, and the "average" temperature obtained by an application of the Stefan-Boltzmann law to 306 W m^{-2} is 271 K, some 114 K more than the actual average temperature of Z, as we show below.





The actual temperature of Z in function of its rotation t is visualized on Illustration . Here, the sinusoidal curve (the one that reaches maximum of 851 K) shows what the actual temperature should have been in order to yield average of 271 K under assumption of its linearity with respect to heat radiation: an invalid assumption that is needed in order to make the *temperature of average radiation* the same as the *average temperature of radiation*.

Networks

- Computers can be connected to a network.
  - **Direct connection:** a cable connects computer to another computer or device close by
  - **Remote access connection:** used when computer isn't physically close to the network




Network and Internet Basics

- Using a modem, a remote computer can connect to a network through an ordinary phone line or other analog link.

- ✓ A network can be connected to other networks.
  - ➢ Connected through cables, wireless radio transmissions, or other means
- ✓ The Internet is an elaborate network of interconnected networks that is dramatically changing the way people work.




Network and Internet Basics

World Wide Web Basics

- The **World Wide Web** (**WWW**) makes the Internet accessible to people all over the planet.
  - The WWW includes a wealth of multimedia content accessible through simple point-and-click programs called **Web browsers.**




Network and Internet Basics

- It is made up of millions of interlinked documents called **Web pages.**
- A collection of related pages stored on the same computer is called a **Web site.**
- Each Web page has a unique address:
  - Referred to as a **URL (uniform resource locator)**
  - For example, the URL for this course is http://csc.csudh.edu/suchenek/CSC101/

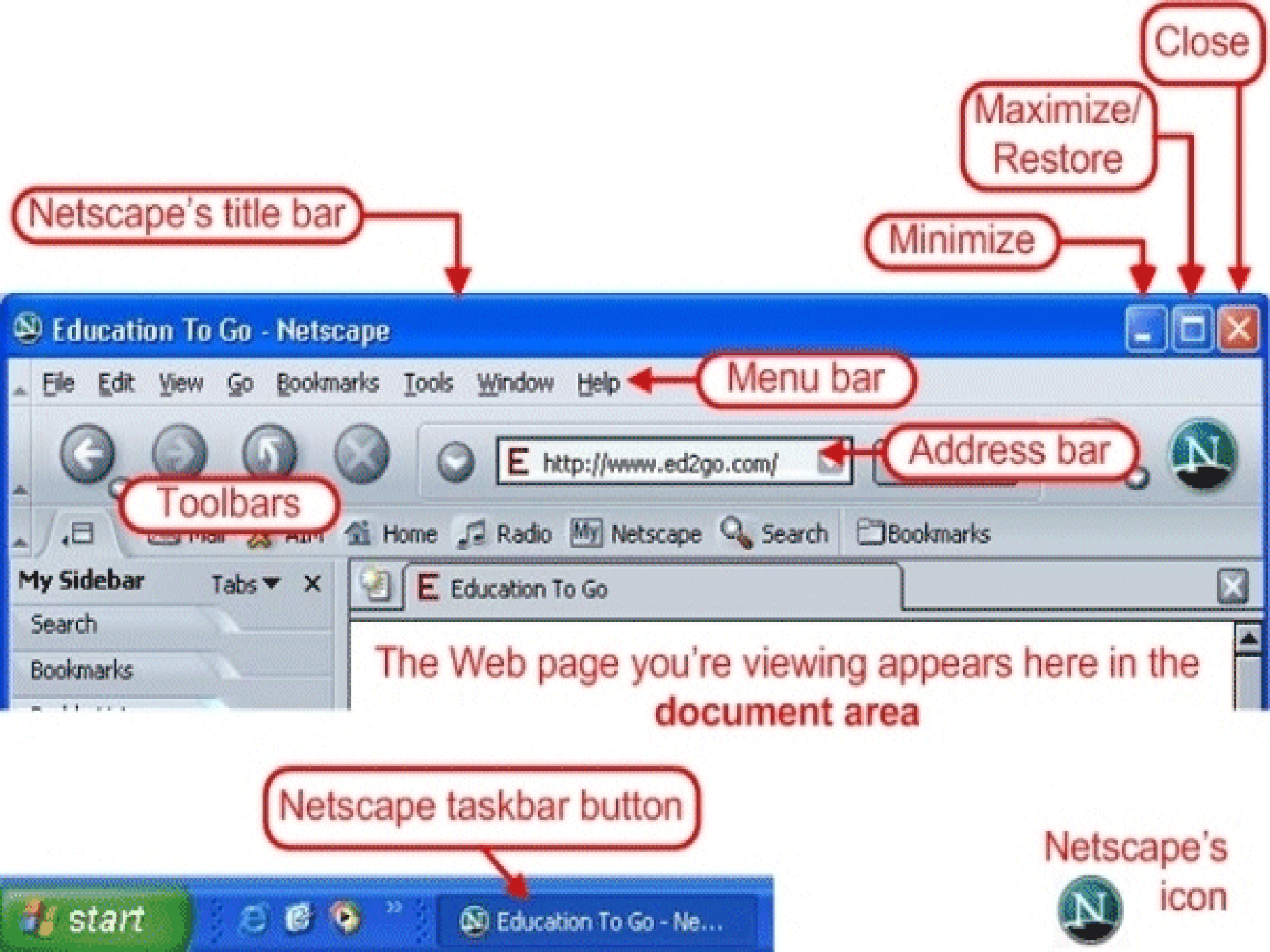



Network and Internet Basics

World Wide Web Basics

- At the heart of the Web is the concept of **hypertext.**
  - Using a Web browser, you can jump from one Web page to another by clicking **hyperlinks** (often called just **links**)—words, pictures, or menu items that act as buttons.

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Maximize/
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Bookmarks
Education To Go
The Web page you're viewing appears here in the
document area
Netscape taskbar button
start
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icon

Network and Internet Basics

World Wide Web Basics

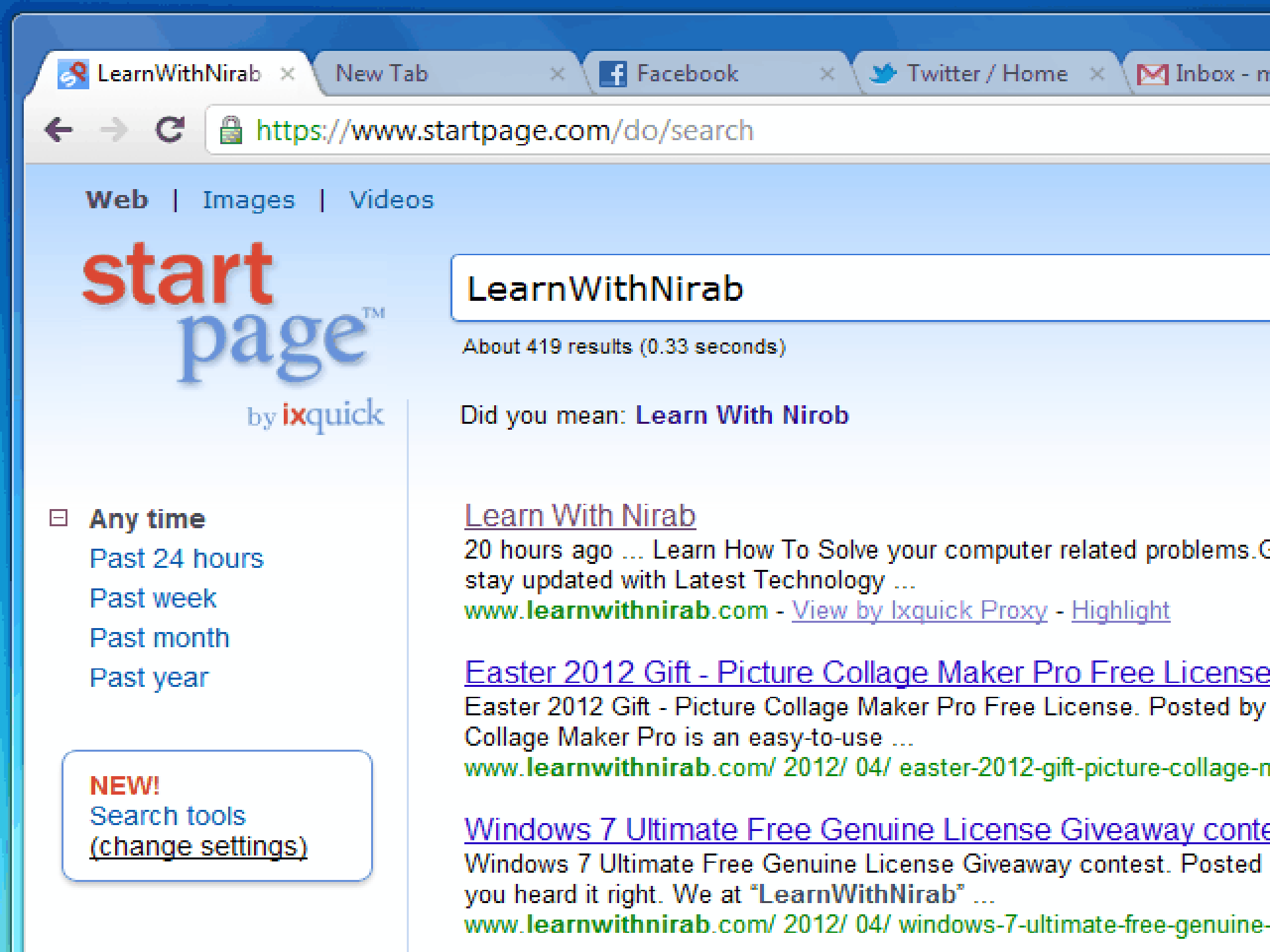
- Most browsers include tools called **bookmarks** or **favorites** for keeping personal lists of memorable sites.




Network and Internet Basics

Web Search Basics

- **Search engines** are used to locate information on the Web.
  - They are built around a database that catalogs Web locations based on content.
    - Some search engines use researchers to organize and evaluate Web sites.
    - Other search engines use software to search the Web and catalog information automatically.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Network and Internet Basics

- **Web Search Basics**

- A **directory** or **subject tree** is a hierarchical catalog of Web sites compiled by researchers.
  - The directory is used to repeatedly narrow a search.
  - The search engine at Yahoo! is probably the best-known example of this technique: http://www.yahoo.com/.




Email Basics

- When you sign up for an email account, you receive:
  - A **user name** (sometimes called a **login name** or **alias**)
  - Example: John.Doe@csu.edu
  - A storage area for messages (usually called a **mailbox**)




Email Basics

- ✓ You sign up for accounts through your school, your company, or a private **Internet service provider (ISP)**.




Internet Security Basics

- Despite its wonders, the Internet can be a dangerous place.
- Once you connect a computer to a network or the Internet, you dramatically increase the risk that your system will be compromised in some way.




Network and Internet Basics

Internet Security Basics

- The most common form of Internet-based security risk is probably **spam**, or junk mail.
  - Most email programs now include **spam filters**.
- Viruses are a more sinister email problem.
- Another problem on the Internet is password theft.
- A wider but related issue concerns identity (ID) theft.




Now is time to take a quiz!