Chapter 1: Computer, Internet, and Network Basics

- What was life like without computers?
- What was your 1st experience with a computer?
- What aspects of your daily life require usage of a computer?

What is a computer?

- A computer system includes a computer, peripheral devices, and software
- ***Computer*** refers to a device that accepts input, processes data, stores data, and produces output
- ***Input*** means to feed information into a computer
  - Words and symbols in a document
  - Numbers for a calculation
  - Pictures

What is a computer?

- ***Data*** refers to the symbols that represent facts, ideas and objects
- ***Processing*** is the way that a computer manipulates data
  - performing calculations
  - sorting lists and numbers
  - drawing graphs
- A computer processes data in a device called the ***central processing unit*** (CPU)

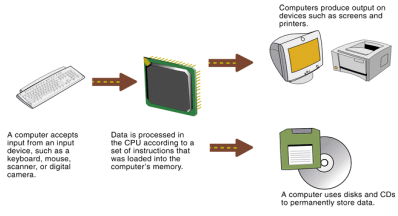
What is a computer?

- A computer stores data so that it will be available for processing
- ***Memory*** is an area of a computer that holds data that is waiting to be processed
  - Volatile memory
  - Non-volatile memory
- ***Storage*** is the area where data can be left on a permanent basis
- Can

What is a computer?

- Computer ***output*** is the results produced by the computer
  - Reports
  - Documents
  - Music
  - Graphs
  - Pictures
- An output device displays, prints or transmits the results of processing

What is a computer?



Computer Categories

- Today's Computer Categories
  - Personal computers
  - Handheld computers
  - Workstations
  - Videogame Consoles
  - Mainframes
  - Supercomputers
  - Servers

What does a personal computer system usually consist of?

- ***Computer system unit***
- ***Display device***
- ***Keyboard***
- ***Mouse***
- ***Floppy disk drive***
- ***Hard disk drive***
- ***CD-ROM or DVD drive***
- ***CD-writer***
- ***Sound card and speakers***
- ***Modem***
- ***Printer***

Label this PC's 11 components:

A computer stores data in files, right?

- A ***file*** is a named collection of data that exists on a storage medium
- A ***data file*** contains data such as the text for a document
- An ***executable file*** contains the programs or instructions that tell a computer how to perform a specific task
- A ***filename extension*** indicates a file's contents
  - EXE
  - GIF

Application Software vs. System Software

- Application software is a set of one or more computer programs that helps a person carry out a task
- An ***operating system*** is essentially the master controller for all activities that take place within a computer
  - Classified as ***system software***
  - System software is used by the system
  - MacOS, WindowsXP, Windows2000, Windows NT, Windows 98, DOS, UNIX, Linux

Let's look at a typical computer ad…

Do you really know what you're getting? Is it really a good deal?

http://circuitcity.com

EXTRA CREDIT: (due Jan. 29 in class)

- p. 109, Project #2
- Submit descriptions of 3 computers, which one you chose and why

How does the Internet work?

- The ***Internet*** is a collection of local, regional, national, and international computer networks that are linked together to exchange data and distribute processing tasks
- The main high capacity routes of the Internet are referred to as the ***Internet backbone***.
- Communication between all of the different devices on the Internet is made possible by ***TCP/IP*** (Transmission Control Protocol/ Internet Protocol)

How does data get from point A to point B on the Internet?

- Every computer that connects to the Internet has a unique number called an ***IP address***.
- Information is sent in chunks called ***packets***
- A ***router*** examines the IP address and then forwards the data to its destination.
- Packets are reassembled into a replica of the original file

What sort of resources does the Internet provide?

- ***Web Sites*** – various locations in cyberspace that correspond to a corporation, a store, a magazine, and more
- ***Search engines*** – help catalog a huge portion of the data stored on servers that are connected to the Internet
- ***E-commerce*** – online activities such as banking and shopping
- ***E-mail*** – electronic messages
  - Mailing list server

What sort of resources does the Internet provide?

- ***Bulletin boards*** – discussion groups
  - Usenet
  - Newsgroups
- ***Downloads and uploads***
  - Downloading
  - Uploading

What sort of resources does the Internet provide?

- ***Chat groups and instant messaging*** – interaction between users in real time
- ***Internet telephony*** – telephone-style conversations to travel over the Internet to virtually anywhere in the world
- ***Broadcasting*** – multicasting technology, can reach all over the world

What sort of resources does the Internet provide?

- ***Remote access and control*** – with the right software and passwords, can link two computers together and allow one to control the other
  - Telnet
- ***P2P*** – peer-to-peer. It makes direct access of a computer by another available – with permission, of course
  - Popular music and file exchange Web sites

Internet Connections (via modem)

Click to start

What are my options for Internet connections?

- Existing telephone line
- Cable television line
- Personal satellite link
- Wireless or cell phone service
- High-speed telephone services
  - ISDN, DSL

What's the easiest, cheapest way to access the Internet?

- ***Dial-up connection*** – is relatively simple and inexpensive because the necessary equipment and software are preinstalled on most new computers
- ***Voice band modem*** – converts digital signals into wave format to go over telephone lines and then at destination waves are converted back into digital
- Dial-up top speed is 56 Kbps
- For UCF connections → go to http://cyberknights.ucf.edu

What other high-speed Internet access options are available

- ***ISDN*** (Integrated Services Digital Network) – 64Kbps or 128 Kbps
- ***DSL*** (Digital Subscriber Line) – anywhere from twice as fast to approx. 125 times faster than 56 Kbps
  - Comes from phone company, requires proximity to a switching station
- ***DSS*** (Digital Satellite Service) – 500 Kbps

How do I choose an ISP?

- Geographical coverage
- Type of service
- Quality of service
- Cost of monthly service
- Cost of equipment and installation
- Extra services
- Customer service

FIGURE 5-34 Internet Access Options

	Dial-up	ISDN	DSL	Cable	Satellite	Cell Phone
Downstream Speed (max)	56 Kbps	128 Kbps	384 Kbps–1.5 Mbps	1.5 Mbps	500 Kbps	14.4 Kbps
Upstream Speed (max)	33 Kbps	128 Kbps	128 Kbps–1.5 Mbps	56–256 Kbps	40–60 Kbps	14.4 Kbps
Downstream Speed (avg)	44 Kbps	128 Kbps	384 Kbps	800 Kbps	400 Kbps	9.6 Kbps
Latency	100–200 ms	10–30 ms	10–20 ms	10–20 ms	1–3 seconds	200–500 ms
Image File (2 MB) Download Time	6 minutes	2 minutes	43 seconds	20 seconds	40 seconds	29 minutes
Short Video (72 MB) Download Time	4 hours	78 minutes	26 minutes	12 minutes	25 minutes	17 hours
Requirements	Telephone line, ISP, voiceband modem	Computer must be located within 3 miles of local telephone switch	Computer must be located within 3 miles of local telephone switch	CATV service that provides Internet access	Clear view of southern sky	Cellular Service, cable to connect modem to cell phone
Monthly Service Fee	$10–30	$50–100	$50–200	$30–50	$35–80	$10–50
Installation Cost	$0	$0–300	$0–200	$0–$50	$200–300	$0–50

The World Wide Web

- The ***Web*** is a collection of files organized as a giant hypertext
- Many of these files produce documents called ***Web pages***
- ***Web site*** - location on a computer somewhere on the Internet that stores a collection of Web pages
  - http://www.yahoo.com

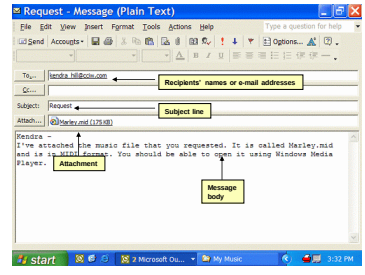
What is the Web?

- ***URL*** (Uniform Resource Locator) - an Internet address of a document on a computer
  - Begins with http://
- ***HTTP*** stands for Hypertext Transfer Protocol - the protocol that allows Web browsers to

Exactly what is a query?

- Describes information you want to find
- You can enter more than one search term. Separate each term with a space or search operator
  - A ***search operator*** is a word or symbol that describes a relationship between keywords and thereby helps you create a more focused query
    - AND, OR, and NOT
    - Quotation marks
    - NEAR
    - Wildcards
    - Field Searches

E-mail Overview



Is e-mail different than other types of communication?

- Netiquette is online jargon for "Internet etiquette." It is a series of customs or guidelines for maintaining civilized and effective communications on-line

Put a meaningful title on the subject line	Use uppercase and lowercase letters
Check spelling	Be careful what you send
Be polite	Be concise
Be cautious with sarcasm and humor	Use ***smileys*** cautiously : -)
Use the Bcc function for group mailings	Don't send replies to "all recipients"
Don't send huge attachments	Explain all attachments
Stay alert for viruses	Notify recipients of viruses

E-mail Technology: What is an e-mail system?

- An ***e-mail system*** is the equipment and software that carries and manipulates e-mail messages
- E-mail servers sort, store, and route email
- ***Store-and-forward technology*** – a communications method in which data that cannot be sent directly to its destination will be temporarily stored until transmission is possible
  - ***POP***
  - ***SMTP***
  - ***Web-based e-mail***

How do POP and IMAP work?

- ***POP server*** – a computer that stores your incoming messages until they can be transferred to your hard disk
- Using POP requires ***e-mail client software***
- Outgoing mail is routed by an ***SMTP server***
- ***IMAP*** is similar to POP, except that you have the option of downloading your mail or leaving it on the server.
- What email system do you use?

How do POP and SMTP work?