

Introduction

- CMSC 102 – Sections 0301/0201
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- Class Web site:
<http://www.cs.umd.edu/class/spring2006/cmssc102/index.shtml>
- Keep in mind there are two other sections taught by other coordinators
- Read the information provided on the class web page.
- Office hours will be posted next week
- Go over class Syllabus and grades.cs.umd.edu
- Check announcements link at least once a day
- Accessing slides for next week (password projected)

Computer Systems Overview

- **Program Execution:**

- Programs are **stored** permanently in secondary memory (e.g. on hard disk).
- Programs are encoded as binary numbers (**machine code**).
- When a program is to be run, it is copied (**loaded**) into main memory, and the CPU **executes** the instructions of the program.
- Program may **read** data from secondary memory and input devices.
- Results are **written** to output devices or to secondary memory.

Computer Systems Overview

Software Categories

- **Operating System Software**
- **Application Software**

Operating System (OS): Manages the computer's resources and acts as interface between applications and hardware.

OS Responsibilities:

Process management: Determines which programs (processes) to run.

Memory management: Controls main memory.

Input and Output control: Provides driver support, and basic input/output operations.

Network Control: Controls communications.

Enforces Security: Controls user-IDs and passwords and access to files.

Computer Systems Overview

OS Examples: Windows XP, Unix (Linux, Solaris), Mac OS

Application Software:

Any software other than the operating system.

Examples: word processors and text editors, spreadsheets, games, etc.

Computer Systems Overview

- How hardware, Operating System and Application software interact with one another?
- Operating systems are written for specific types of machines. There are several versions of Unix (for Mac, Sun, etc.)
- Application software is written for a specific operating system.
- There could be several versions of an application for different O.S. (e.g., Word for Windows or for Mac OS X)
- Platform – Term frequently used to refer to an O.S.
- Driver – Software specifically designed for an O.S. which controls a device (e.g., DVD drive, mouse).

Programming Languages

- **Types of programming languages**

Machine code – Instructions in binary

Assembly language – Representation of machine language instructions using mnemonics.

High-level languages –

1950's-early 60's: **Fortran/Cobol (Fortran used punch cards)**

late 60's: **Algol**

70's: **Pascal** (use in teaching environment)

80's: **C** (Unix is written in C),

C++ (Object-Oriented C)

90's: **Java** (Used in Applets)

00's: **C#** (Microsoft's Java)

What is Research?

- What parts of research can you do using the internet?
- What parts of research should you do using the internet?
- What are the limitations of using the internet for research?
- What are the risks of research through the internet?

Internet and Society

- What is the impact of the internet on society?
- What are our rights in relation to this medium?
- What are our responsibilities?

Internet and Society

- Did Dan Rather's career come to a sudden halt because of the Internet?
http://www.salon.com/opinion/feature/2005/03/09/rather/index_np.html
- How do wiretap laws apply to VOIP (Voice Over Internet Protocol)?
http://news.com.com/Feds+fund+VoIP+tapping+research/2100-7348_3-5825932.html
- Should potential employers judge an applicant for merely having a blog (regardless of the content of that blog)?
<http://chronicle.com/jobs/2005/07/2005070801c.htm?pg=dji>

Web Resources

- The Free Encyclopedia online
<http://www.wikipedia.org/>
- How Stuff Works
<http://www.howstuffworks.com/>

Internet

- Computer Network
 - System where two or more computers can communicate with each other.
- Definition
 - Worldwide system of interconnected computer networks which communicate over connecting media.

- History
 - 1969 ARPANET
 - 1986 NSFnet
 - 1995 Internet
- Packet Switching System

