

## The Computer System

- The equipment associated with a computer system.

- The set of instructions that tell a computer what to do.

- Use the power of the computer for some purpose.

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## Hardware = Physical Computer

Computers process and communicate using *Data*

People communicate using *Information*

- ❖ **Input** receives data (keyboard, mouse)
- ❖ **Processor** processes data (CPU, RAM Memory)
- ❖ **Output** produces information (Monitor, Printer)
- ❖ **Secondary storage** (Hard Drive, CD)

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## People = End Users & Programmers

- ❖ **End User's**
  - ◆ Utilize computer resources
  - ◆ Utilize software applications
- ❖ **Programmers**
  - ◆ **Analyze** a problem and create a solution algorithm
  - ◆ **Code** the solution algorithm into a specific programming language
  - ◆ **Verify** program works using known test data

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## The Internet - A Huge Virtual Network

- ❖ All details of physical networks hidden from users and application programs

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## Client Server Network Connectivity

Client contacts server specified by **URL =Uniform Resource Locator**

**Client Computers**  
HTTP  
TCP  
IP

**Server Computers**  
HTTP, TCP, IP

**Local Area Network**

**The Internet Infrastructure**

- ❖ **IP** = Internet Protocol
  - ◆ Provides end to end communication
- ❖ **TCP** = Transmission Control Protocol
  - ◆ Provides reliable data transport
- ❖ **HTTP** = Hyper-Text Transfer Protocol
  - ◆ Provides Application Facilities

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## Accessing a Web Site

- ❖ HTTP (Hyper Text Transfer Protocol) accesses web sites files located on the web server
- ❖ Each web site has **URL (Uniform Resource Locator)**
  - ◆ <http://www.islandman.org>      ◆ .edu (education)
  - ◆ <http://www.nmcnet.edu>      ◆ .com (commercial)
  - ◆ <http://mail.yahoo.com>      ◆ .gov (government)
  - ◆ <http://maps.google.com>      ◆ .mil (military)
  - ◆ <ftp://ftp.islandman.org>      ◆ .net (network admin.)
  - ◆ .org (non-profit)

**<http://www.nmcnet.edu/cs/courses/index.html>**

Protocol    Server    Domain    TLD    Folder Path    File

- ❖ **Domain Name Server** matches URL with **IP address**
  - ◆ [www.nmcnet.edu](http://www.nmcnet.edu) → **12.178.198.111** ( Octet <= 255)
  - ◆ [www.whois.ws](http://www.whois.ws) → **69.25.212.161**

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## The World Wide Web

- ❖ WWW utilizes the Internet to link all computers with **Hypertext Documents**

**N.Y. Stock Exchange**  
Wall Street  
Stock Prices

**Wall Street**  
New York City  
Stock Exchange

**New York City**  
Financial District

**Stock Prices**  
N.Y.S.E.

**Financial District**  
Wall Street

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## HTML –HyperText Markup Language

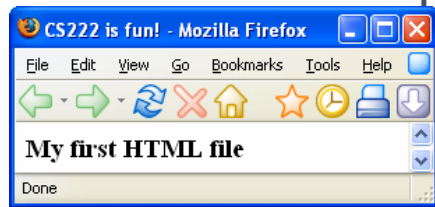
- ❖ HTML is a document description language
  - ◆ Web Publishing Syntax
  - ◆ CPU and Operating System Independence
  - ◆ Web Browser Independence
- ❖ Provides document layout description for:
  - ◆ Text, Images, Animation, Sound, Hyperlinks
  - ◆ Interaction with server forms and programs
- ❖ **HTML Element Tags**
  - ◆ ASCII text based
  - ◆ Denoted by enclosing in < >
  - ◆ Not case sensitive – May use upper or lower case
- ❖ HTML is **NOT** a programming language

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## HTML: Simple Document Example

HTML Tag nesting order: **Last Open is First Closed**

```
<html>
<head>
  <title>CS222 is fun!</title>
</head>
<body>
  <h3>
    My first HTML file
  </h3>
</body>
</html>
```



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## WWW Format Description Languages

- ❖ **HTML:** (Hyper Text Markup Language) 1990
  - ◆ Interpreted Language by Web Browser
  - ◆ Describes both the *structure* and *format* of document
  - ◆ HTML v3.2 The first standard
  - ◆ HTML v4.0 format tags are deprecated (phased out)

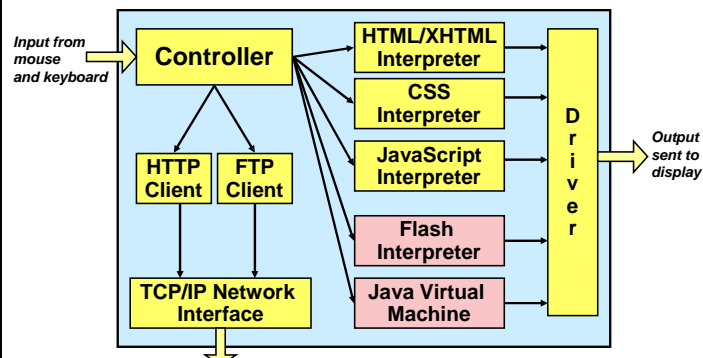
- ❖ **XHTML:** v1.0 Strict
  - ❖ Extensible Hyper Text Markup Language
  - ❖ Describes *structure* using elements in an html document.

- ❖ **CSS:** v1 and v2
  - ❖ Cascaded Style Sheet
  - ❖ Describes *format* of elements in an html document.

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## The Web Browser Application

A Web Browser is a fault tolerant HTML/XHTML, CSS, and JavaScript interpreter that renders a web page.



Communication with remote server through network

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