Web Technology

Lecture 1: Introduction

An Overview of web technologies , Web Browser, Web Server, How Web works, Intranet, Extranet, Internet Programming, Client-side programming, Server-side programming

প্রকৌশলী আব্দুর রহমান বিশ্বাস,

Engineer Abdur Rahman Biswas,

Web: http://arbbd.wordpress.com

Class Schedule & Marks Distribution

Marks Distribution

Class Test	15%
Attendance & Assignment	15%
Mid Term	20%
Final Exam	50%

Class Resources & Contact Info

Special Notes

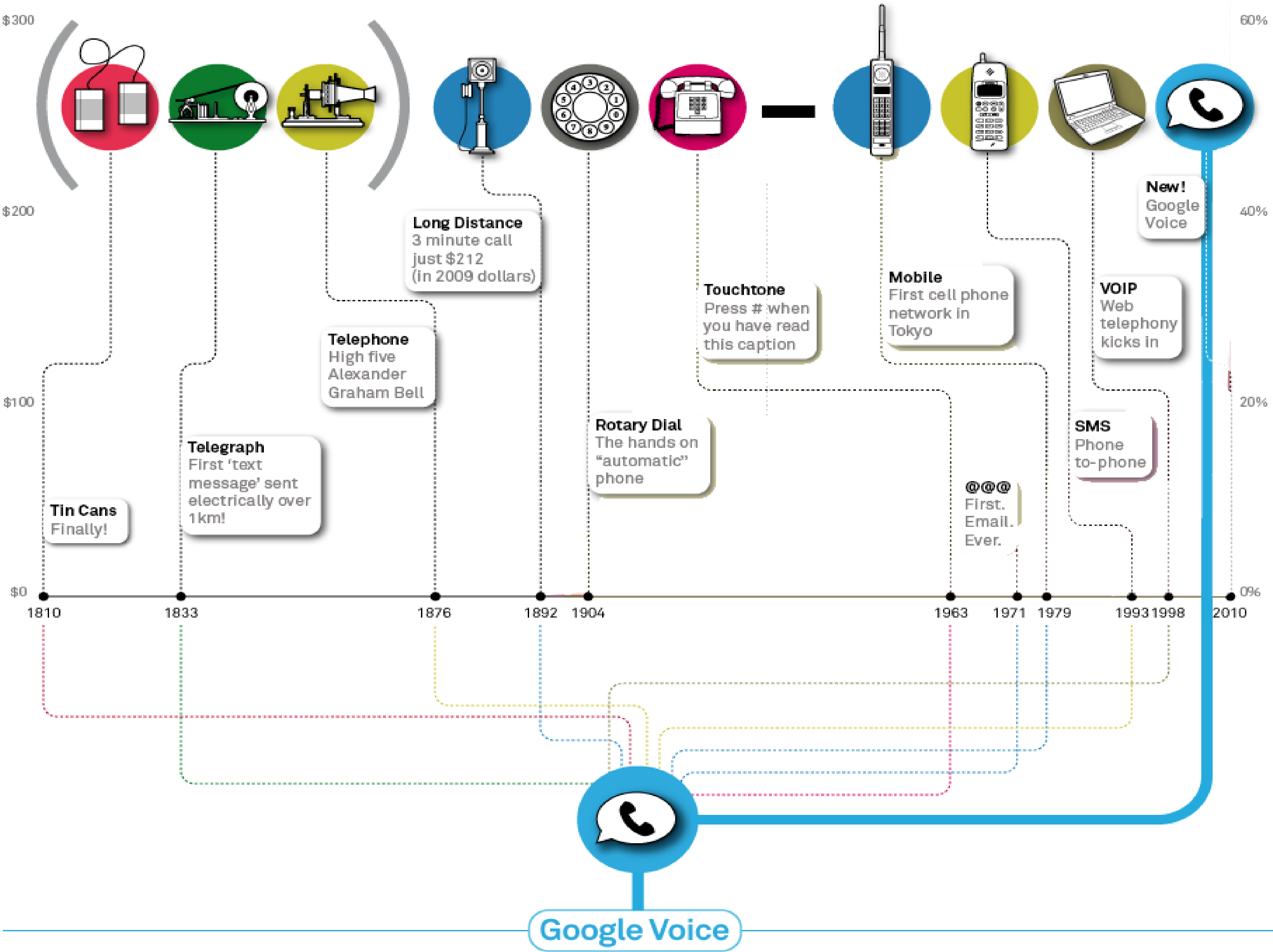
- Lectures are electronic and will be available online after class.
- There will usually be a low-tech component (Whiteboard) which you are responsible for.
- Regular contacts with students will be maintained through the following website - **edu.itzone.asia** (Educator)
- Class Test/ Assignment will be online based– they will be posted on Educator. It will be students responsibility to check Educator at least once a day, preferably at night, for important announcements, course materials, and class tests.
- Students must make sure they have received account information to log in to Educator from me.

Warnings:

- *Missing classes will not be tolerated*
- *Disturbing the class will be punishable by grade reduction*
- *All works must be turned in by the due date*

This lesson includes the following sections:

- A Brief Introduction to the Internet
- A Brief Introduction to the WWW
- Web Browser
- Web server
- How Web Works
- Web Programming Languages



Tin Cans
Finally!

Telegraph
First 'text message' sent electrically over 1km!

Telephone
High five Alexander Graham Bell

Long Distance
3 minute call just $212 (in 2009 dollars)

Rotary Dial
The hands on "automatic" phone

Touchtone
Press # when you have read this caption

Mobile
First cell phone network in Tokyo

@@@
First. Email. Ever.

SMS
Phone to-phone

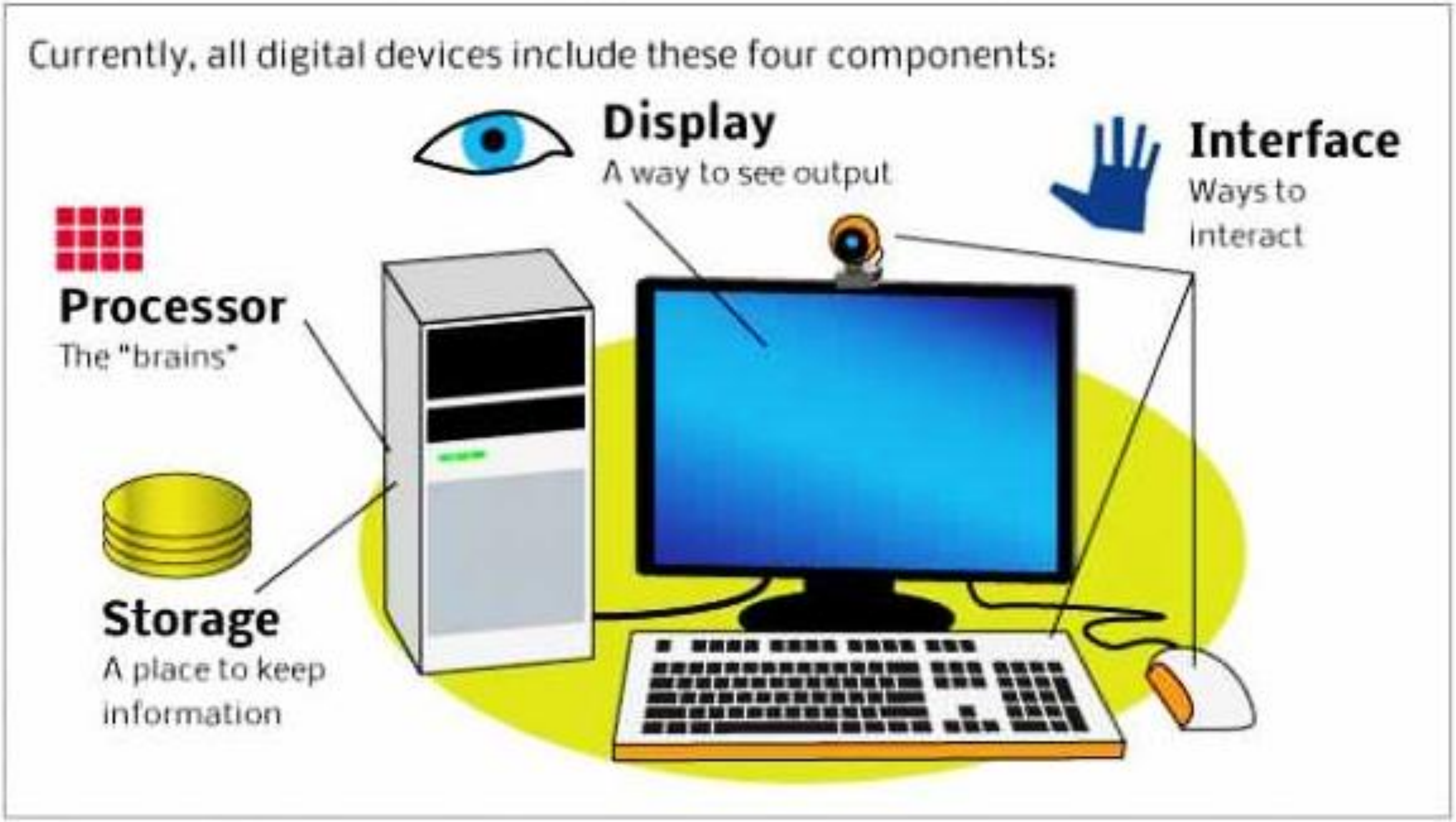
VOIP
Web telephony kicks in

New!
Google Voice

Google Voice

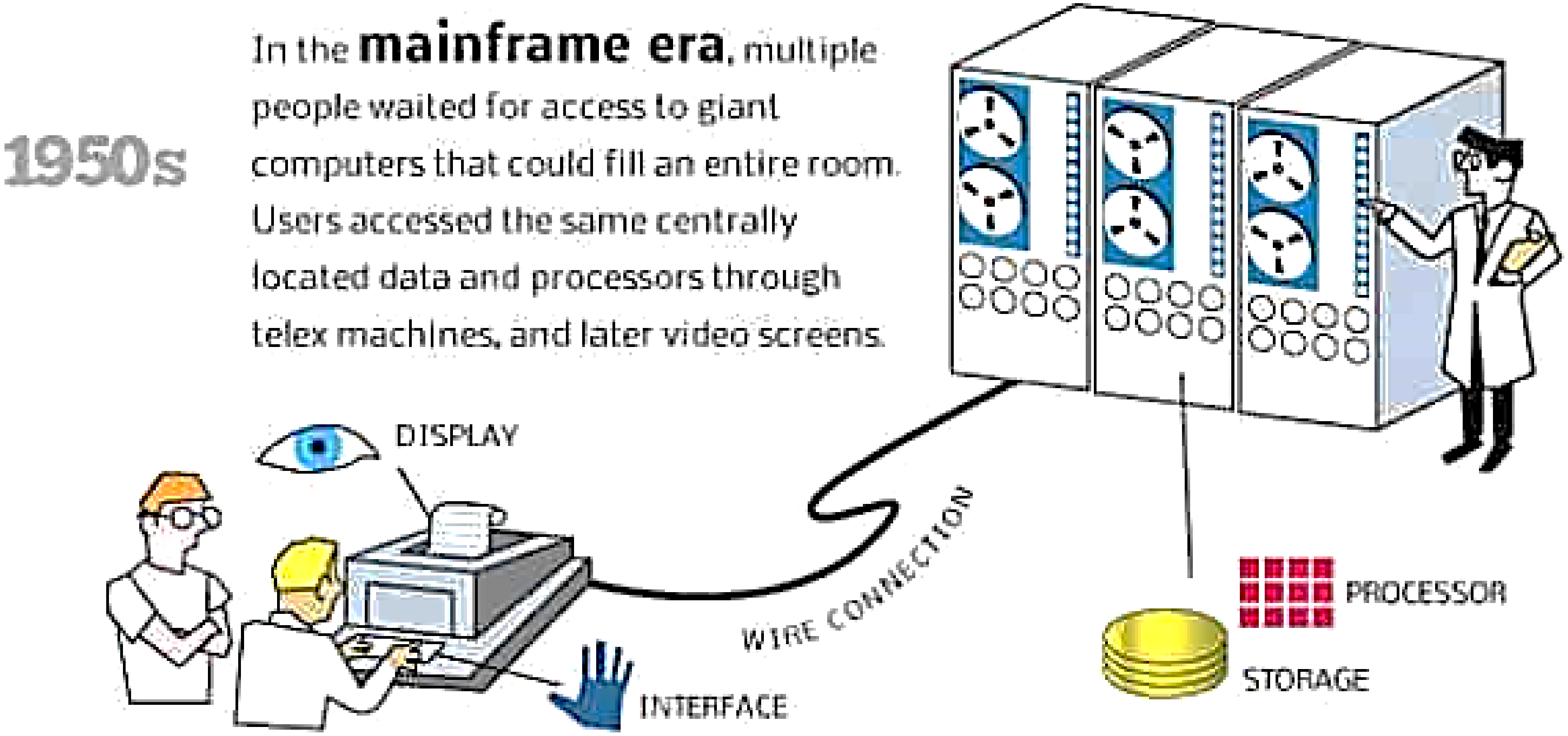
Your Computer is going away from you

Soon, your smartphone, TiVo, laptop, television -- all of your current gadgets -- will be obsolete. The future is "ubiquitous computing." Think Google Docs, but on every screen you use, running every program you use -- every device drawing from the same pool of data and processing power. Here's how we got to this point.



Currently, all digital devices include these four components:

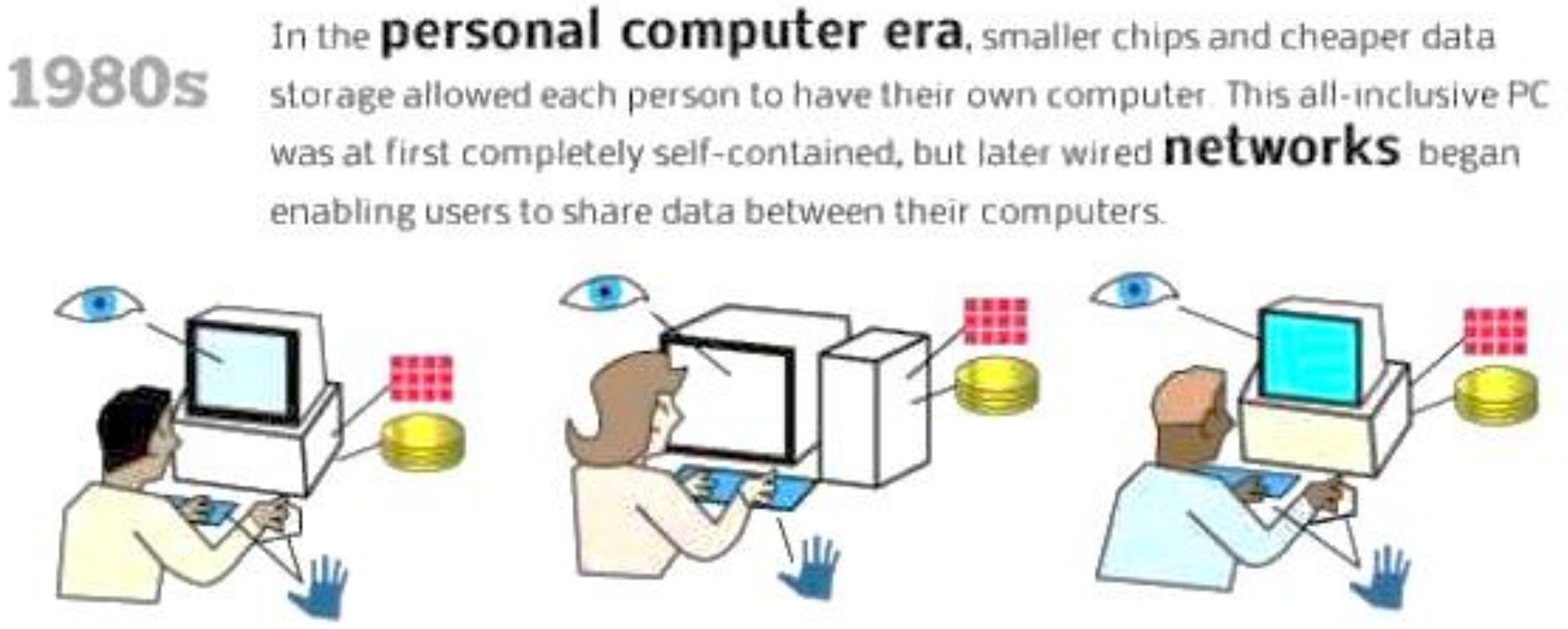
A Brief History of Computer – Mainfram Era



1950s

In the **mainframe era**, multiple people waited for access to giant computers that could fill an entire room. Users accessed the same centrally located data and processors through telex machines, and later video screens.

A Brief History of Computer – Personal Computer Era



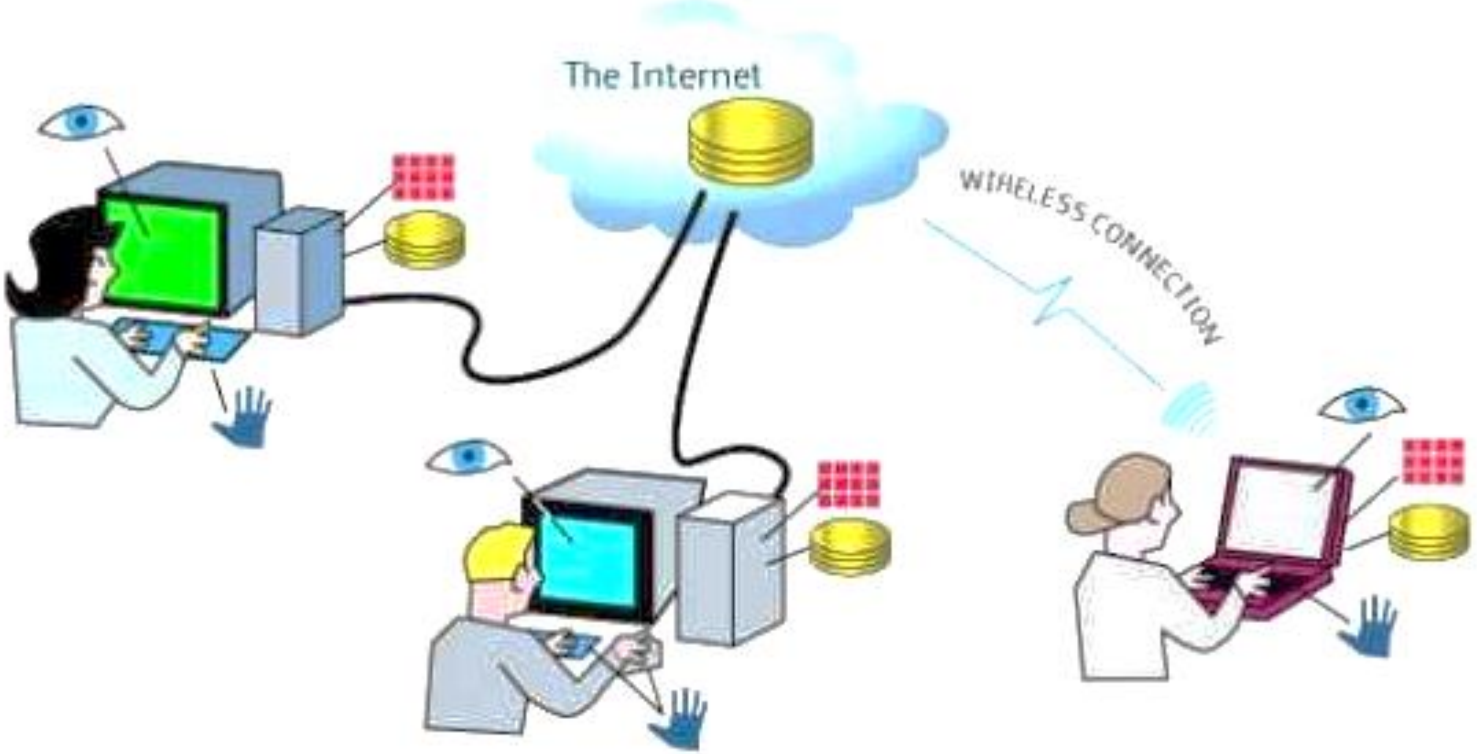
1980s

In the **personal computer era**, smaller chips and cheaper data storage allowed each person to have their own computer. This all-inclusive PC was at first completely self-contained, but later wired **networks** began enabling users to share data between their computers.

A Brief History of Computer – Internet Era

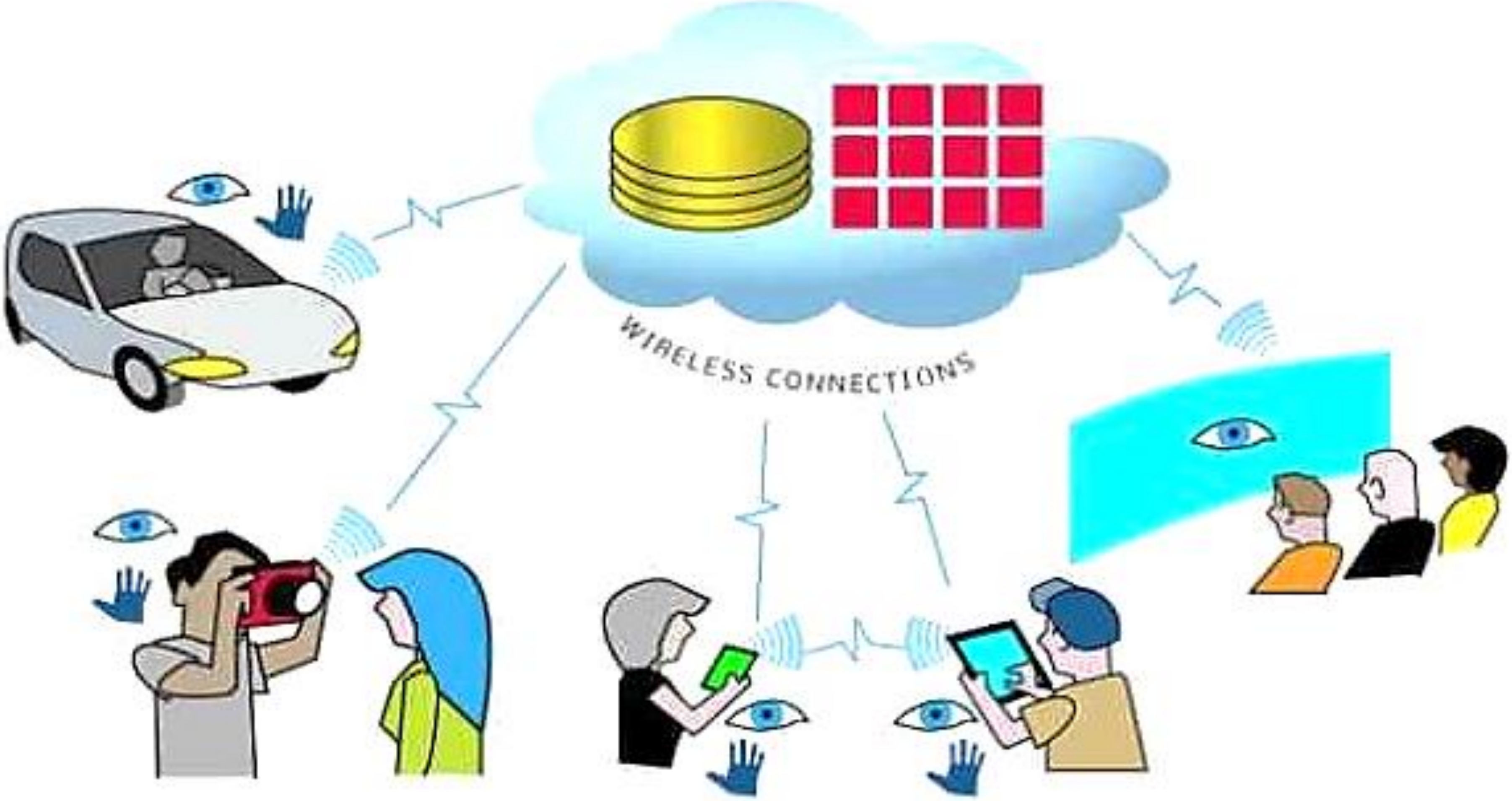
1990s

In the **Internet era**, each person still worked at a PC that housed the memory, inputs and processors that make up a computer However, users began spending more and more time accessing Web pages and downloading media content located on remote servers

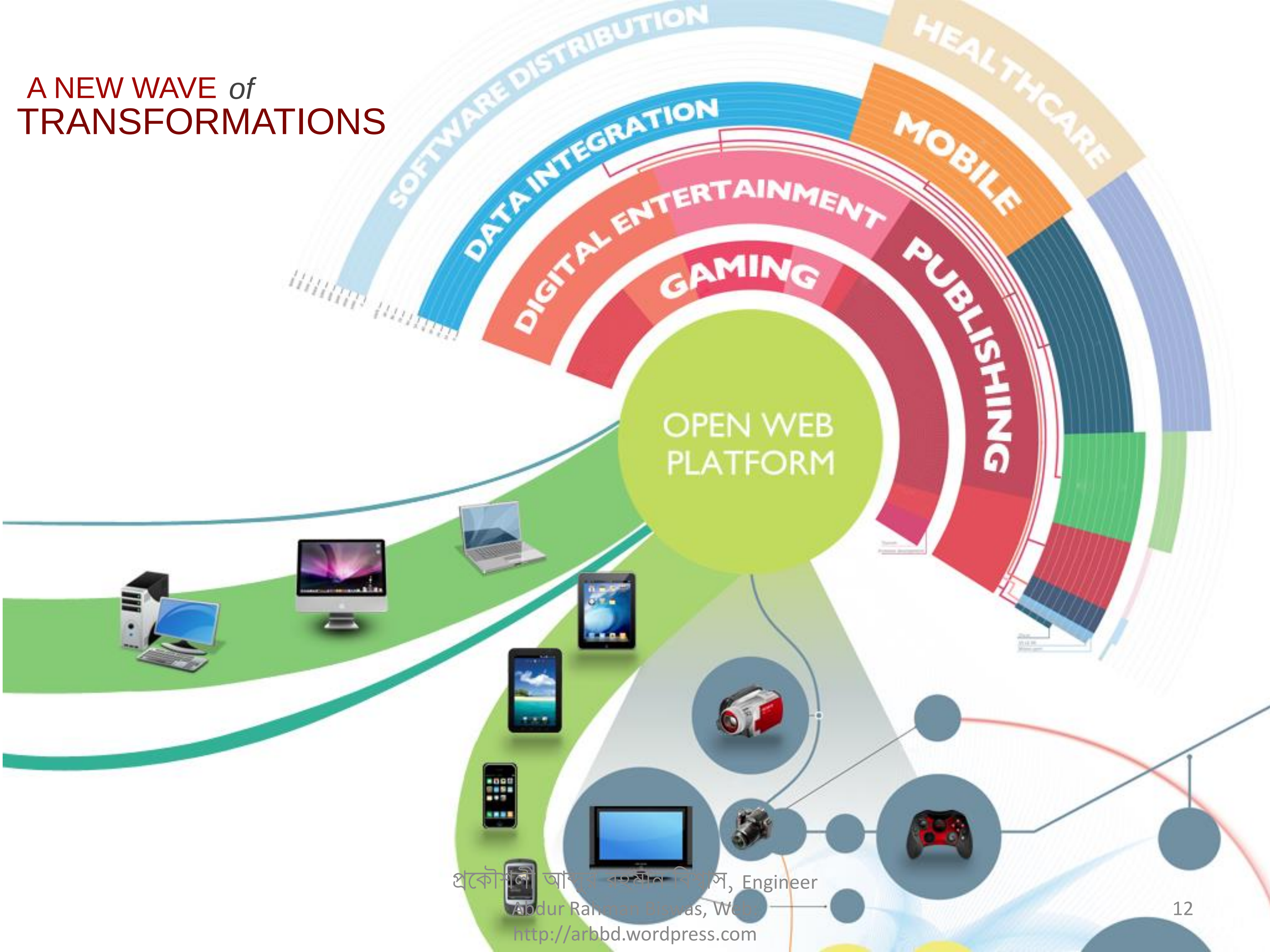


2010

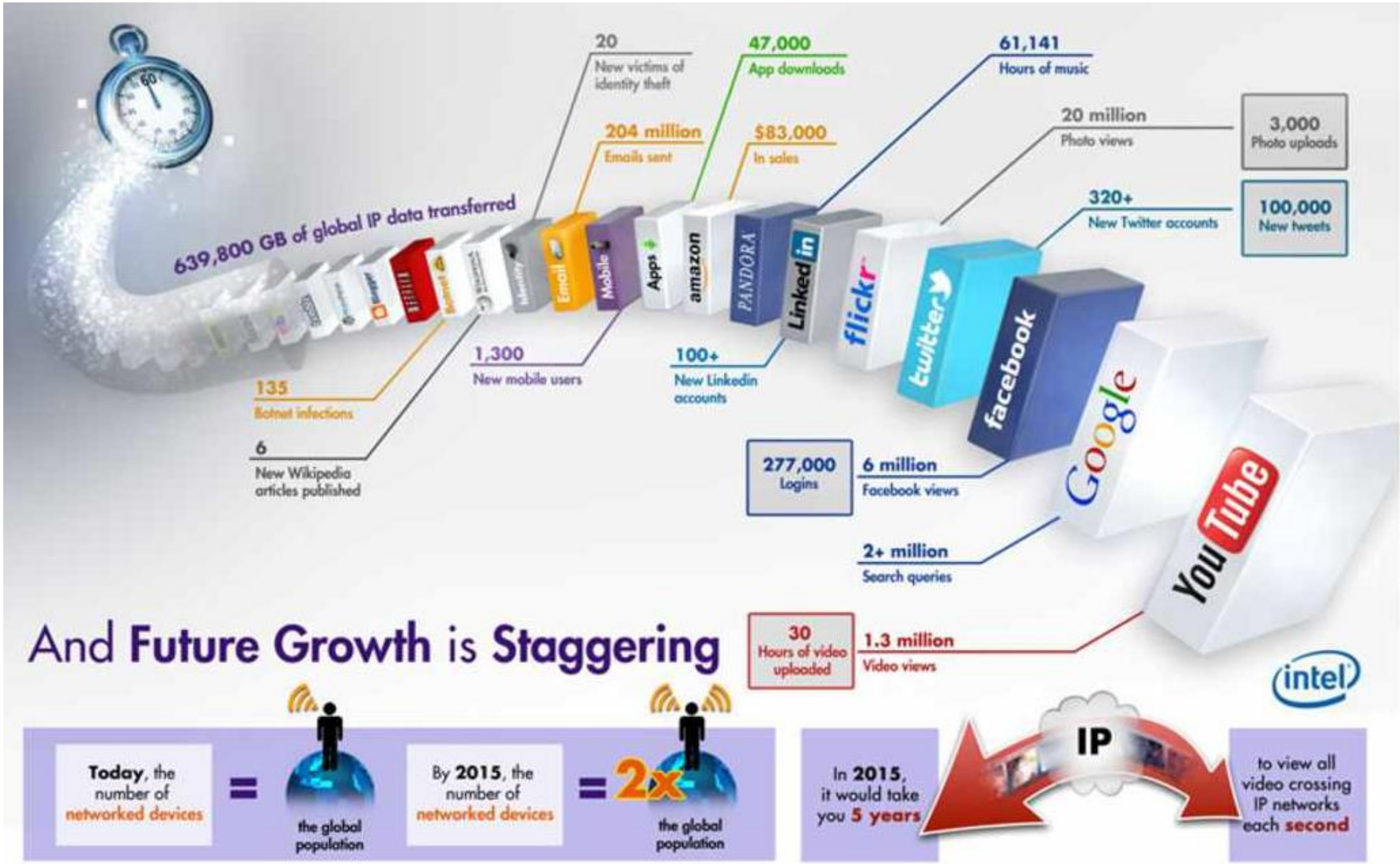
In the emerging **ubiquitous computing era**, every device accesses all its data and processing power from the Internet **"cloud."** This means the devices themselves need not have any on-board processing or data storage, reducing their price and increasing their deployment. Additionally, the interface will move beyond the mouse and keyboard into task specific form-factors. Computers will be everywhere, but you won't even notice them.



A NEW WAVE *of* TRANSFORMATIONS

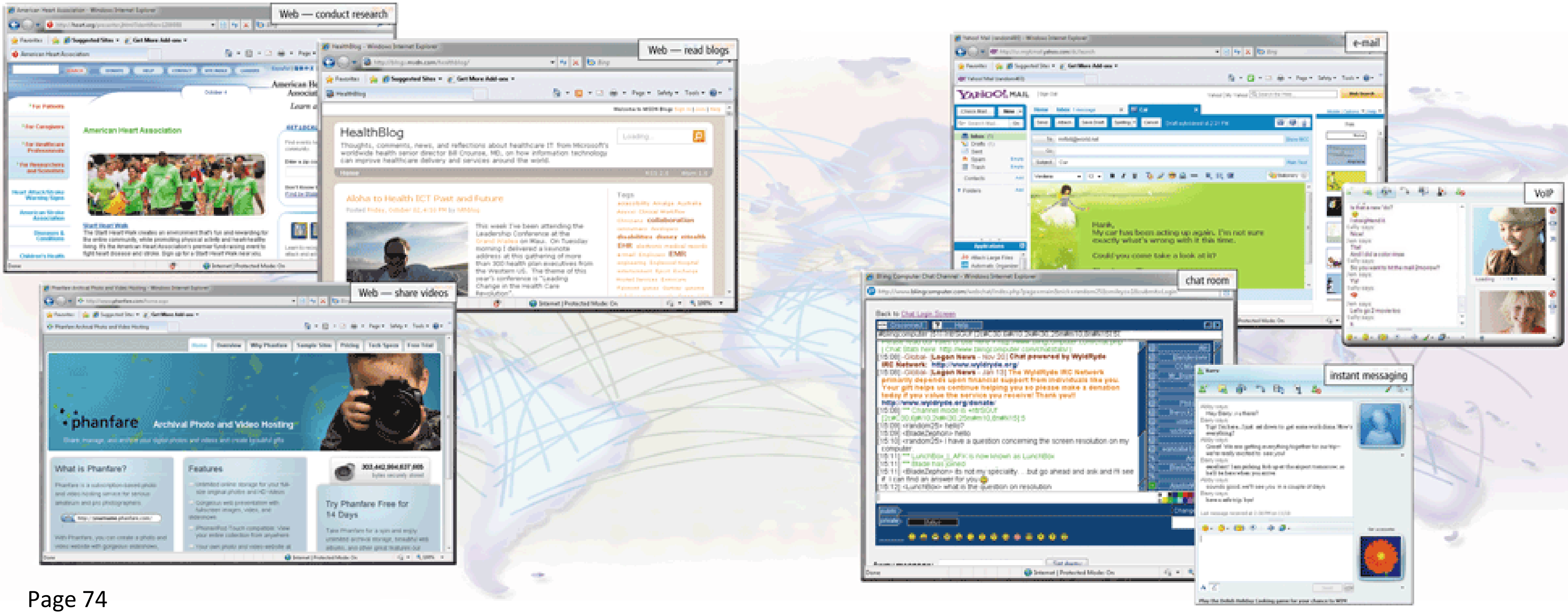


What Happens in an Internet Minute



The Internet

- The **Internet** is a worldwide collection of networks that links millions of businesses, government agencies, educational institutions, and individuals.



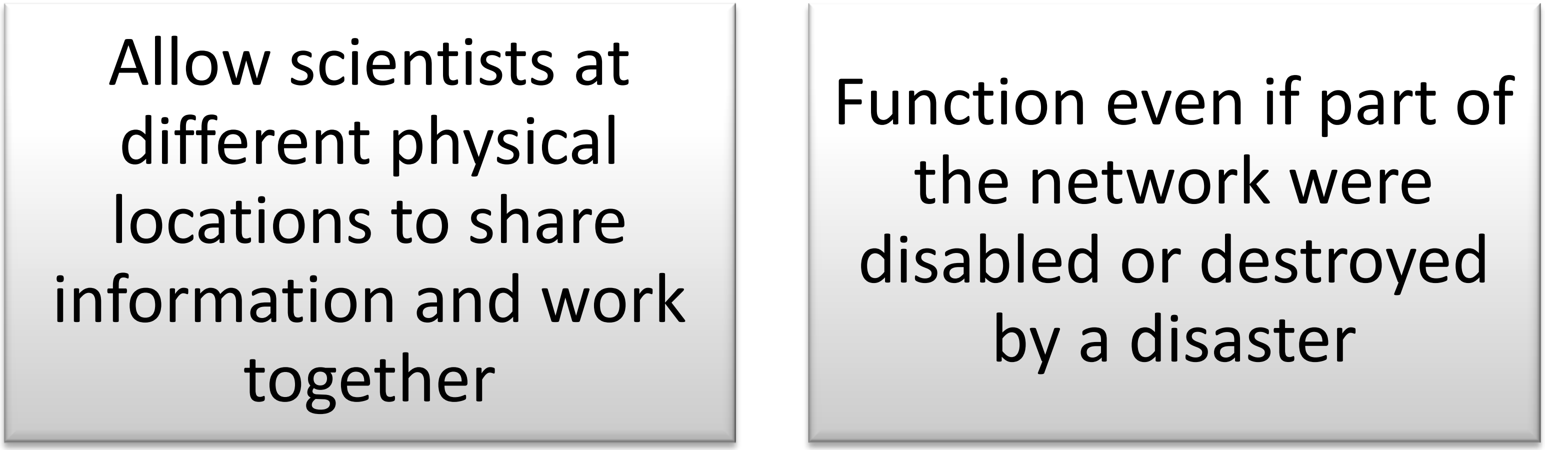
Page 74
Figure 2-1

Internet

- At its most basic level, the ***Internet*** is an utility connecting localized computer networks (that might exist in a lab, in a building, in a department, or on a campus) with computer networks that extend across a wider area, like a region or a continent.
- Technically, what distinguishes the Internet is its use of a set of protocols called ***TCP/IP***. Two recent adaptations of the **Internet technology** are the **Intranet** and the **Extranet**.
- The term **'Internet'** comes out of the concept of '***internetworking***'

Evolution of the Internet

- The Internet originated as ARPANET in September 1969 and had two main goals:

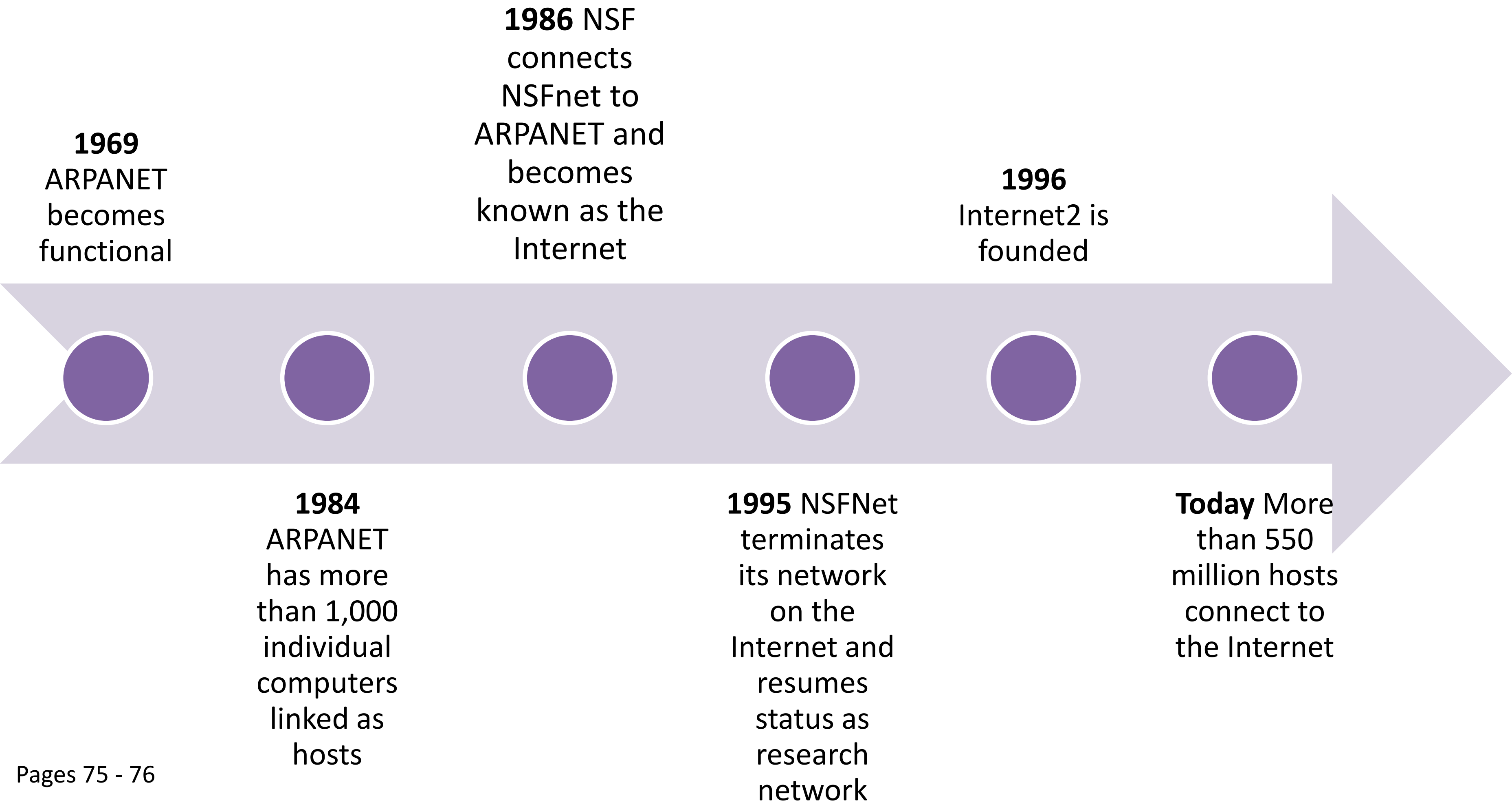


Allow scientists at different physical locations to share information and work together

Function even if part of the network were disabled or destroyed by a disaster

Page 75

Evolution of the Internet



1969 ARPANET becomes functional

1984 ARPANET has more than 1,000 individual computers linked as hosts

1986 NSF connects NSFnet to ARPANET and becomes known as the Internet

1995 NSFNet terminates its network on the Internet and resumes status as research network

1996 Internet2 is founded

Today More than 550 million hosts connect to the Internet

Pages 75 - 76

Introduction to the WWW (Contd.)

- WWW allows computer users to locate and display multimedia-based documents,
- Introduced in 1990 by Tim Berners-Lee of CERN.
- Purpose: to allow scientists to have access to many databases of scientific work through their own computers.
- Today’s Internet mixes computing and communications technologies.
- It makes our work easier.
- It is changing the nature of the way business is done.

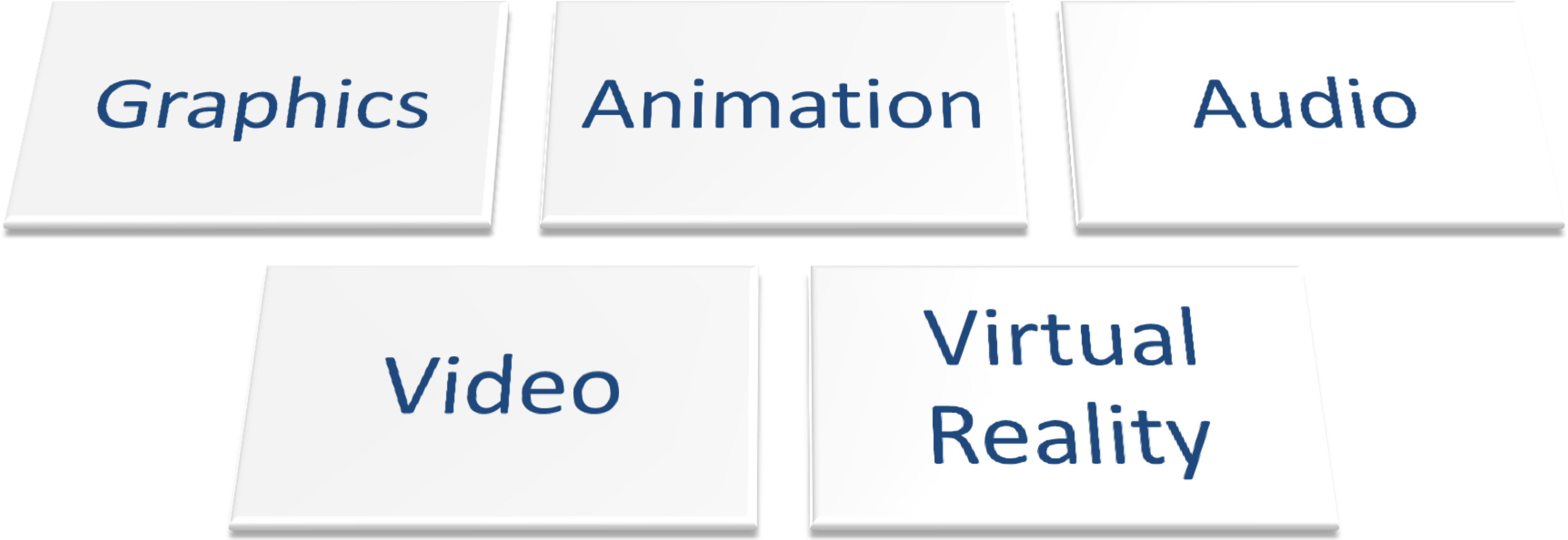
The World-Wide Web (Cont.)

- It makes information instantly and conveniently available to anyone with a connection
- Communities can stay in touch with one another.
- Researchers can learn of scientific and academic breakthroughs worldwide.

- The **World Wide Web**, or **Web**, consists of a worldwide collection of electronic documents (**Web pages**)
- A **Web site** is a collection of related Web pages and associated items

The World Wide Web

- **Multimedia** refers to any application that combines text with:



Graphics

Animation

Audio

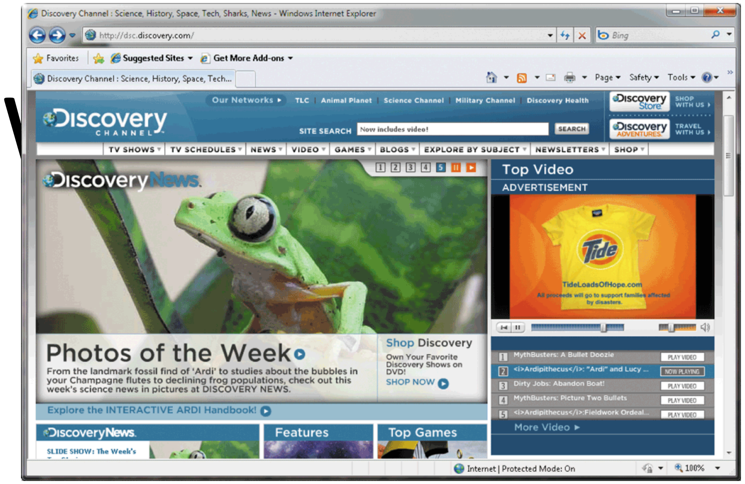
Video

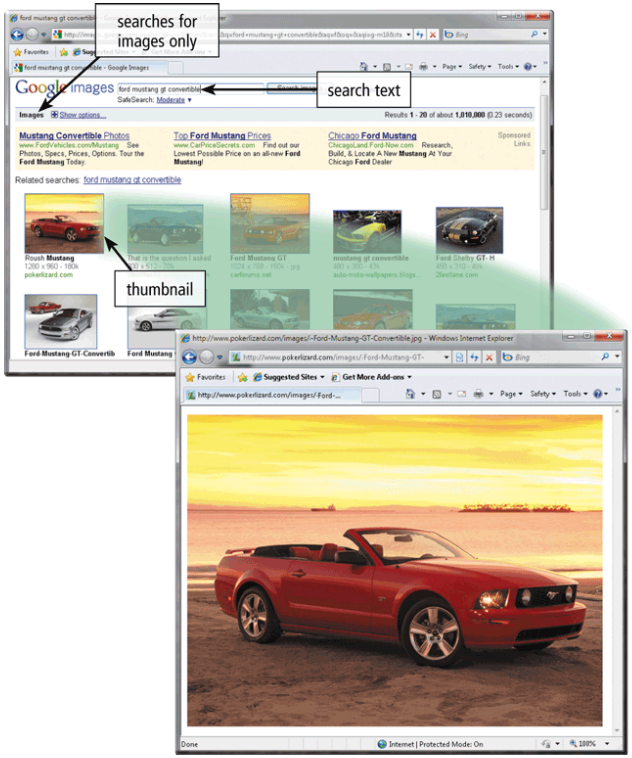
Virtual Reality

Page 92

The World W

- A **graphic** is a digital representation of nontext information
- Graphic formats include BMP, GIF, JPEG, PNG, and TIFF
- A thumbnail is a small version of a larger graphic

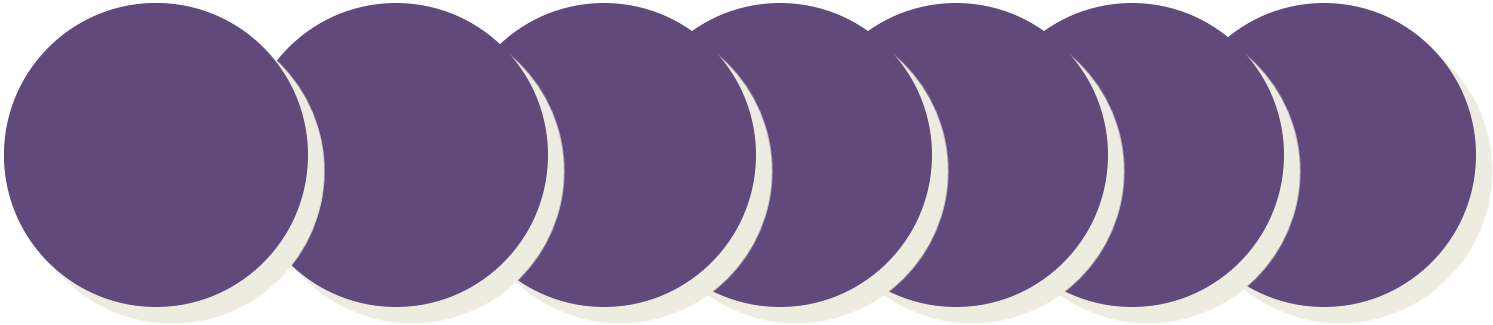

Discovery Channel : Science, History, Space, Tech, Sharks, News - Windows Internet Explorer
http://dsc.discovery.com/
Discovery CHANNEL
DiscoveryNews
Photos of the Week
Top Video
Shop Discovery
Features
Top Games



Page 93
Figure 2-17

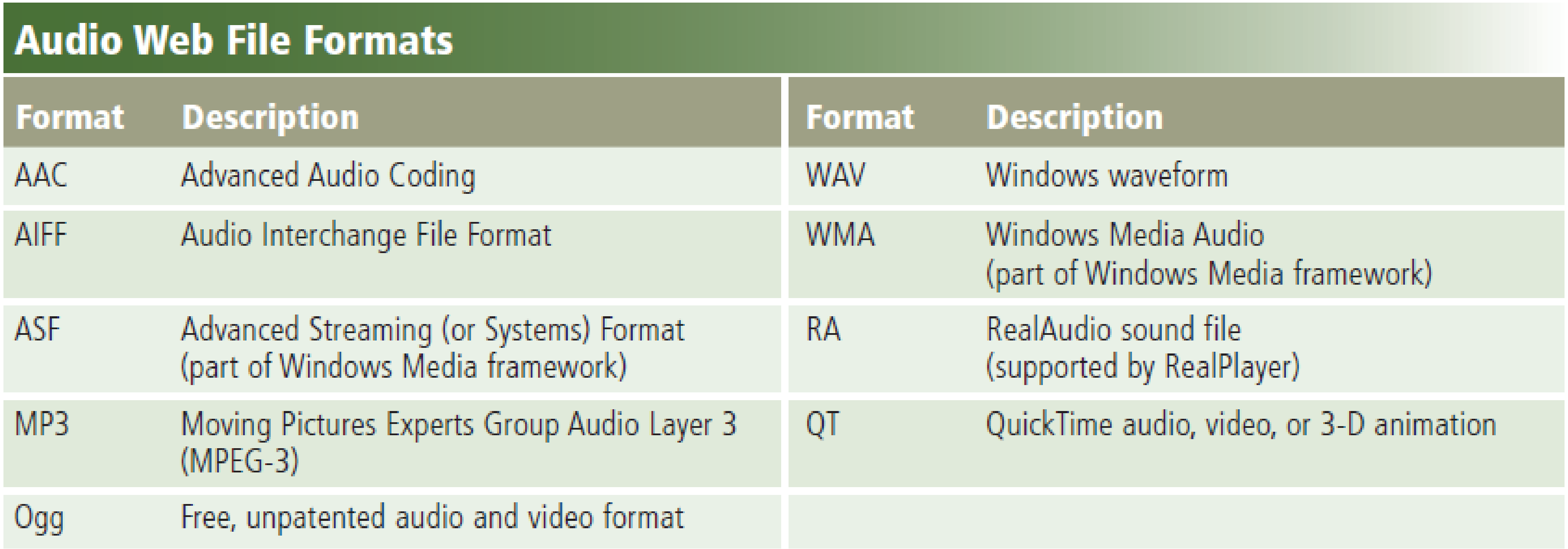
The World Wide Web

- **Animation** is the appearance of motion created by displaying a series of still images in sequence



The World Wide Web

- **Audio** includes music, speech, or any other sound
  - Compressed to reduce file size
- You listen to audio on your computer using a **player**
- **Streaming** is the process of transferring data in a continuous and even flow



Audio Web File Formats

Format	Description	Format	Description
AAC	Advanced Audio Coding	WAV	Windows waveform
AIFF	Audio Interchange File Format	WMA	Windows Media Audio (part of Windows Media framework)
ASF	Advanced Streaming (or Systems) Format (part of Windows Media framework)	RA	RealAudio sound file (supported by RealPlayer)
MP3	Moving Pictures Experts Group Audio Layer 3 (MPEG-3)	QT	QuickTime audio, video, or 3-D animation
Ogg	Free, unpatented audio and video format		

Pages 94 – 95
Figure 2-20

Web Browser

To view / read the WWW pages you must have a special application i.e. a **web browser**

A Web browser is an application program that provides a way to look at and interact with all the information on the World Wide Web.

- In 1993, by Marc Andreessen with the release of Mosaic (later Netscape)
- Microsoft responded with its Internet Explorer in 1995, also heavily influenced by Mosaic.
- Browsers are clients - always initiate, servers react (although sometimes servers require responses).

Web Browser (contd.)

Technically, a Web browser is a client program that uses the Hypertext Transfer Protocol (HTTP) to make requests of Web servers throughout the Internet on behalf of the browser user and then displays web pages by interpreting the HTML that is used to build thses pages on the web.

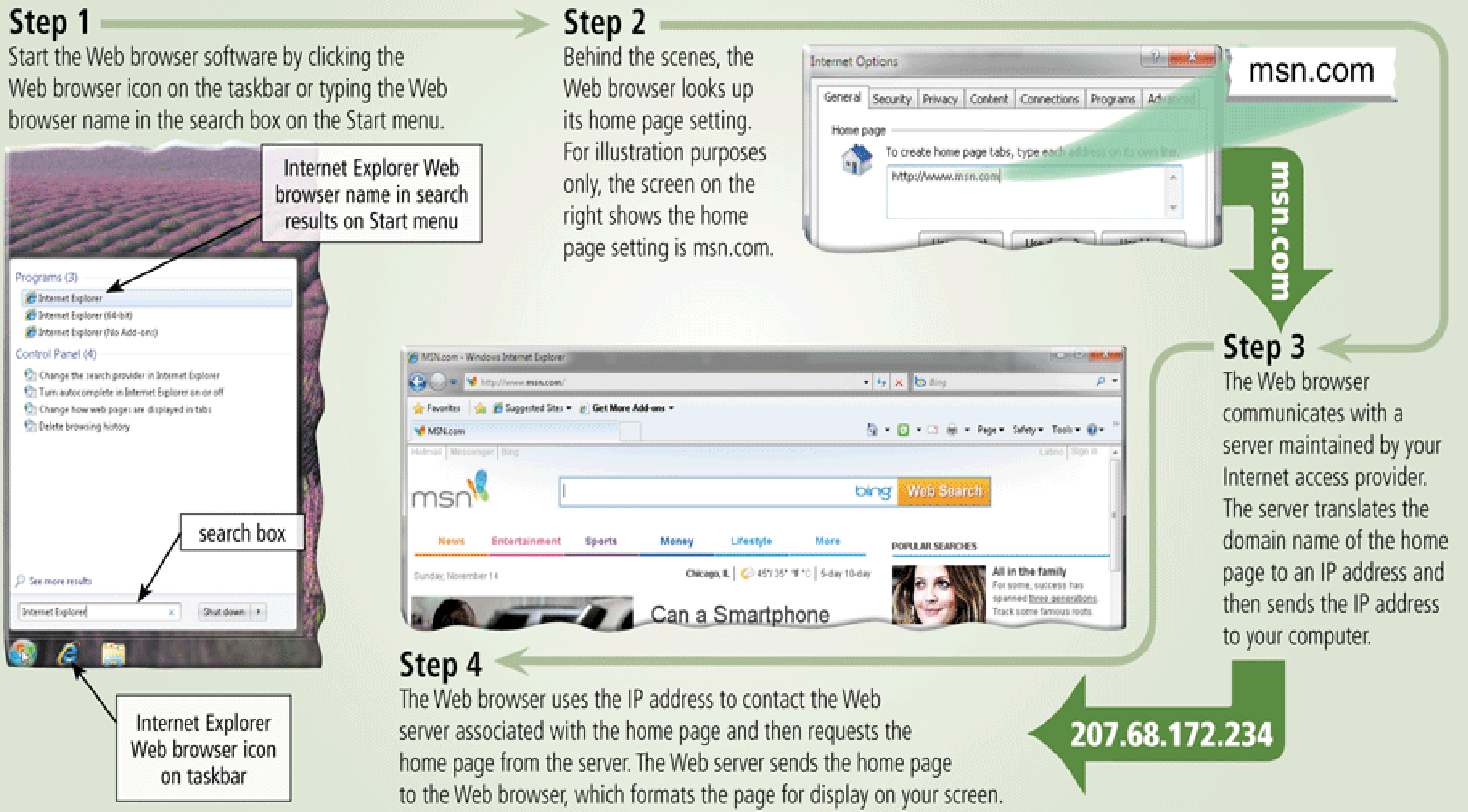
- Most requests are for existing documents, using HyperText Transfer Protocol (HTTP).
- But some requests are for program execution, with the output being returned as a document.

Netscape, Opera, Internet Explorer, Mozilla Firefox, Google Chrome, Safari.

Common Errors with Browsers

- Server Does Not Have A DNS Entry
- 503 Service Unavailable
- 403 Access Forbidden – Too Many Users are Connected
- Spinning Hourglass
- 404 Not Found
- 401 Unauthorised and 402 Forbidden

How a Web Browser Displays a Home Page



Step 1

Start the Web browser software by clicking the Web browser icon on the taskbar or typing the Web browser name in the search box on the Start menu.

Internet Explorer Web browser name in search results on Start menu
Programs (3)
Internet Explorer
Internet Explorer (64-bit)
Internet Explorer (No Add-ons)
Control Panel (4)
Change the search provider in Internet Explorer
Turn autocomplete in Internet Explorer on or off
Change how web pages are displayed in tabs
Delete browsing history
See more results
search box
Internet Explorer
Shut down
Internet Explorer Web browser icon on taskbar

Step 2

Behind the scenes, the Web browser looks up its home page setting. For illustration purposes only, the screen on the right shows the home page setting is msn.com.

Internet Options
General
Security
Privacy
Content
Connections
Programs
Advanced
Home page
To create home page tabs, type each address on its own line.
http://www.msn.com
msn.com
msn.com

Step 3

The Web browser communicates with a server maintained by your Internet access provider. The server translates the domain name of the home page to an IP address and then sends the IP address to your computer.

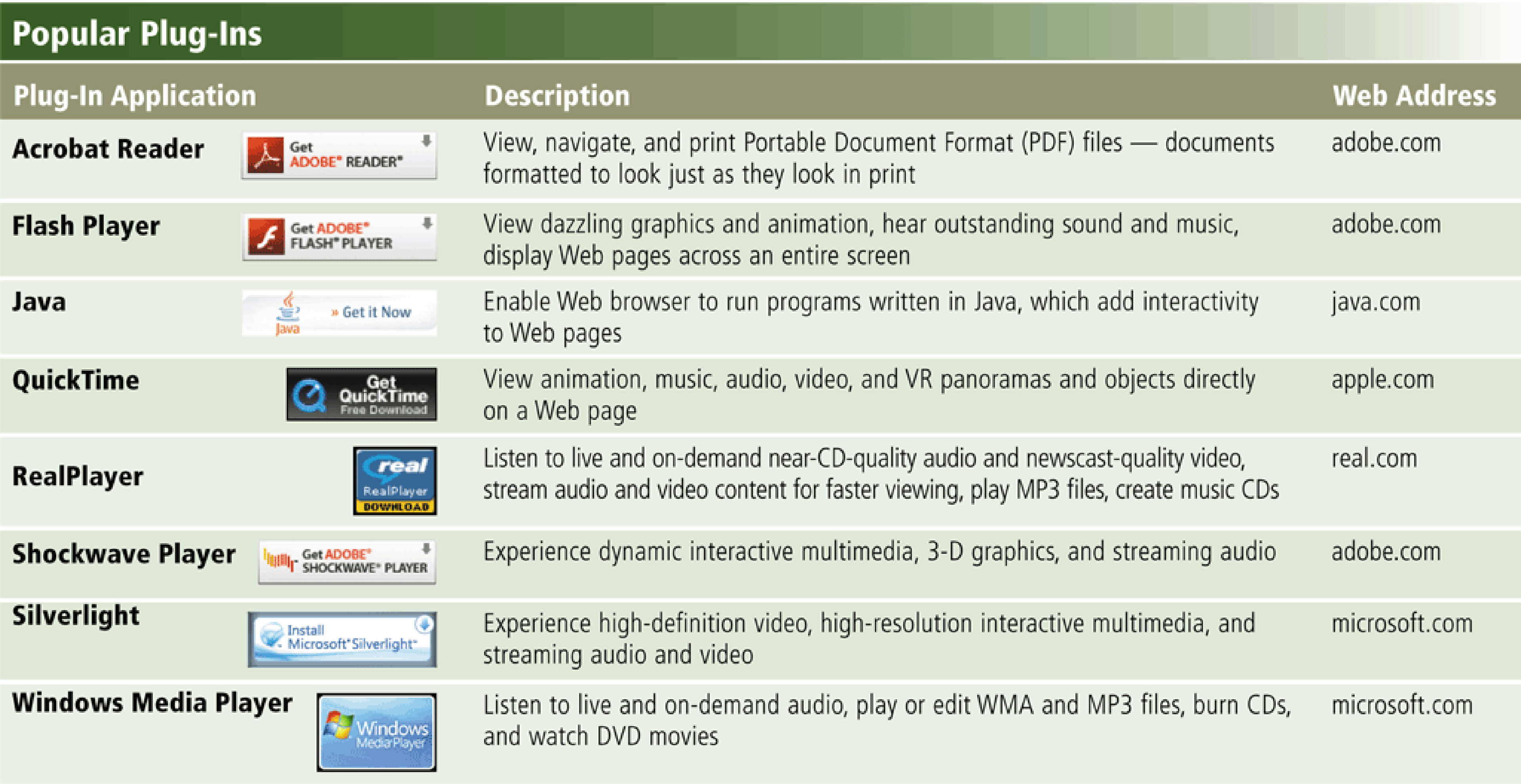
Step 4

The Web browser uses the IP address to contact the Web server associated with the home page and then requests the home page from the server. The Web server sends the home page to the Web browser, which formats the page for display on your screen.

Page 81
Figure 2-6

The World Wide Web

- A **plug-in** is a program that extends the capability of a Web browser



Popular Plug-Ins

Plug-In Application	Description	Web Address
Acrobat Reader	View, navigate, and print Portable Document Format (PDF) files — documents formatted to look just as they look in print	adobe.com
Flash Player	View dazzling graphics and animation, hear outstanding sound and music, display Web pages across an entire screen	adobe.com
Java	Enable Web browser to run programs written in Java, which add interactivity to Web pages	java.com
QuickTime	View animation, music, audio, video, and VR panoramas and objects directly on a Web page	apple.com
RealPlayer	Listen to live and on-demand near-CD-quality audio and newscast-quality video, stream audio and video content for faster viewing, play MP3 files, create music CDs	real.com
Shockwave Player	Experience dynamic interactive multimedia, 3-D graphics, and streaming audio	adobe.com
Silverlight	Experience high-definition video, high-resolution interactive multimedia, and streaming audio and video	microsoft.com
Windows Media Player	Listen to live and on-demand audio, play or edit WMA and MP3 files, burn CDs, and watch DVD movies	microsoft.com

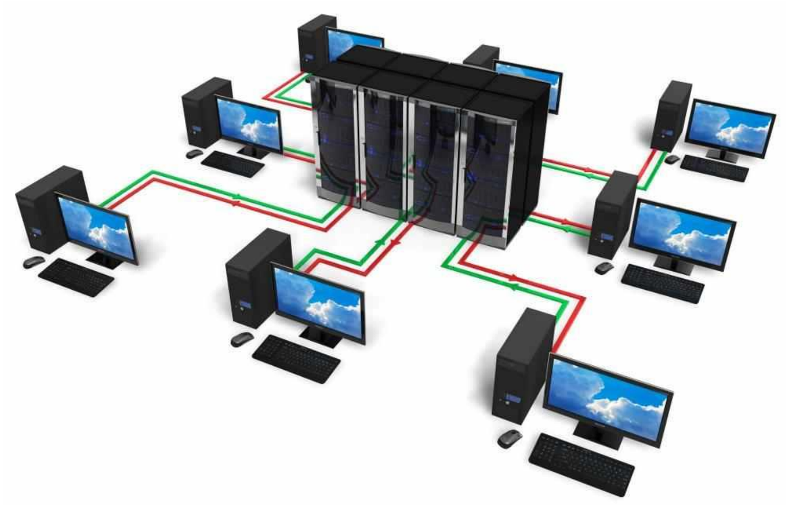
Web Server

To **publish** and **deliver information** on the web you need a **web Server**

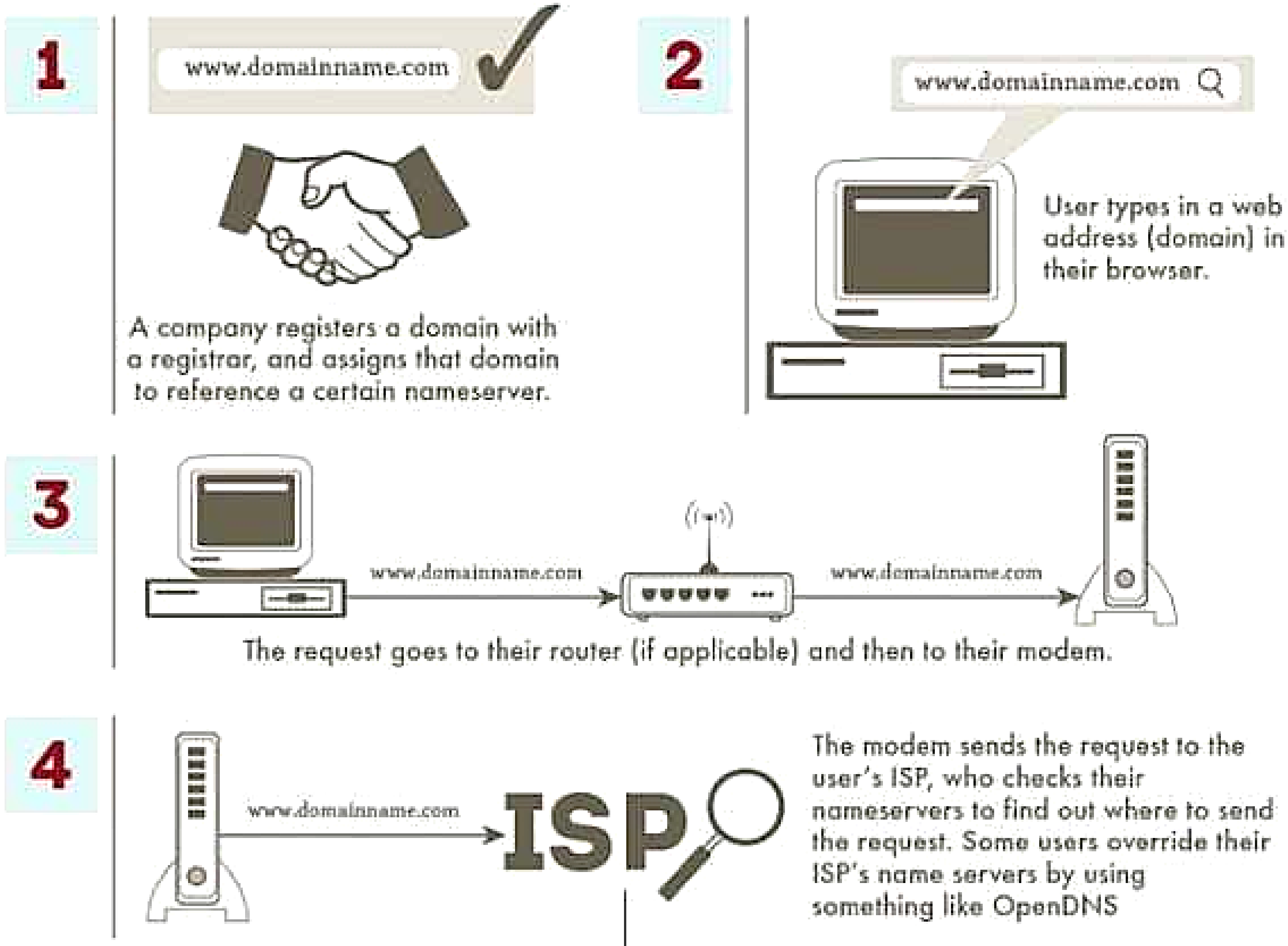
A web server is a system that host many web sites and is responsible for replying to a web browsers request for files

- Provide responses to browser requests, either existing documents or dynamically built documents.

Example of web server:
Apache, Microsoft Internet
Information Server.



How does Web (internet) works



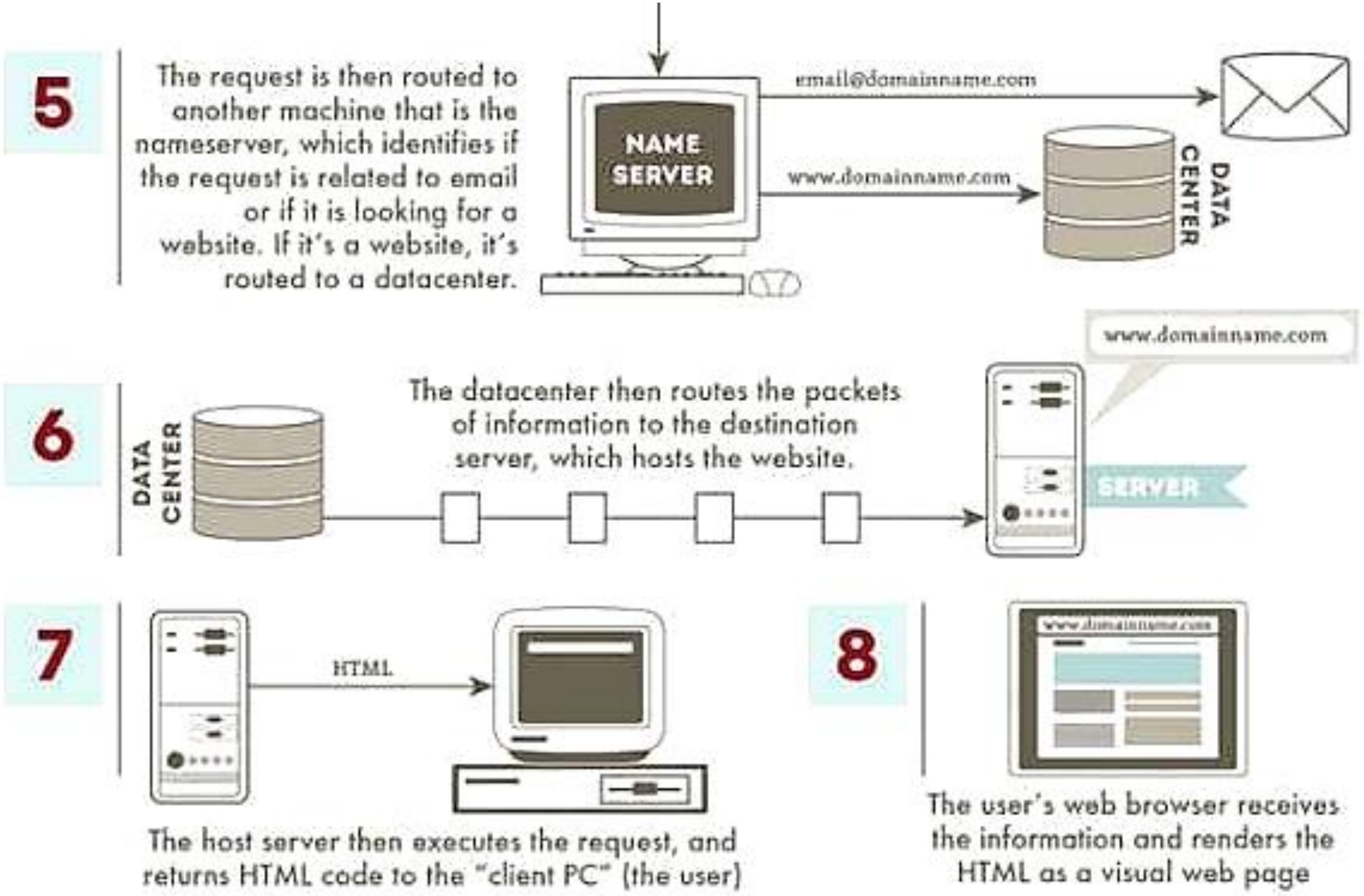
A company registers a domain with a registrar, and assigns that domain to reference a certain nameserver.

User types in a web address (domain) in their browser.

The request goes to their router (if applicable) and then to their modem.

The modem sends the request to the user's ISP, who checks their nameservers to find out where to send the request. Some users override their ISP's name servers by using something like OpenDNS

How does Internet works (Contd.)



5

The request is then routed to another machine that is the nameserver, which identifies if the request is related to email or if it is looking for a website. If it's a website, it's routed to a datacenter.

6

The datacenter then routes the packets of information to the destination server, which hosts the website.

7

The host server then executes the request, and returns HTML code to the "client PC" (the user)

8

The user's web browser receives the information and renders the HTML as a visual web page

Brief description of "How Web Works"

The Web works on a client / server model in which client software (Browser) runs on a local computer. The Server software runs on a web host. To use the web you must make an Internet connection and then launch your web browser.

- – Type the URL you want to visit
- – Browser makes a connection to a server using HTTP protocol
- – The Server then
  - Accepts the connection
  - Sends the file contents back to browser, and
  - Closes the connection

Web browsers interpret the html pages and display them on screen, they can also display programs, animation, graphics, video-conferencing, download files etc., Browsers also allow you to create and publish web pages.

Intranets

✓ **What is an Intranet?**

Intranets are private corporate information and collaboration systems that use Internet software and standards.

✓ **Why an Intranet**

The Intranet can increase market share, profitability, and efficiency.

Why Intranet

- Ideal place for publishing continuously updated Corporate information.
- Powerful, not expensive communications alternative that can provide information anywhere at anytime.
- Intranet technology can be used across wide area networks.
- Web server software inter-operates well.
- Web servers do not need large capital expenditures in hardware.

Extranets

- An Extranet is a collaborative network that uses Internet technology to link businesses with their suppliers, customers or other businesses that share common goals.
- An Extranet can be viewed either as part of a company's Intranet that is made accessible to other companies or as a collaborative Internet connection with other companies.
- The shared information can be accessible only to the collaborating parties or can be publicly accessible.

Thank you

Web Technology

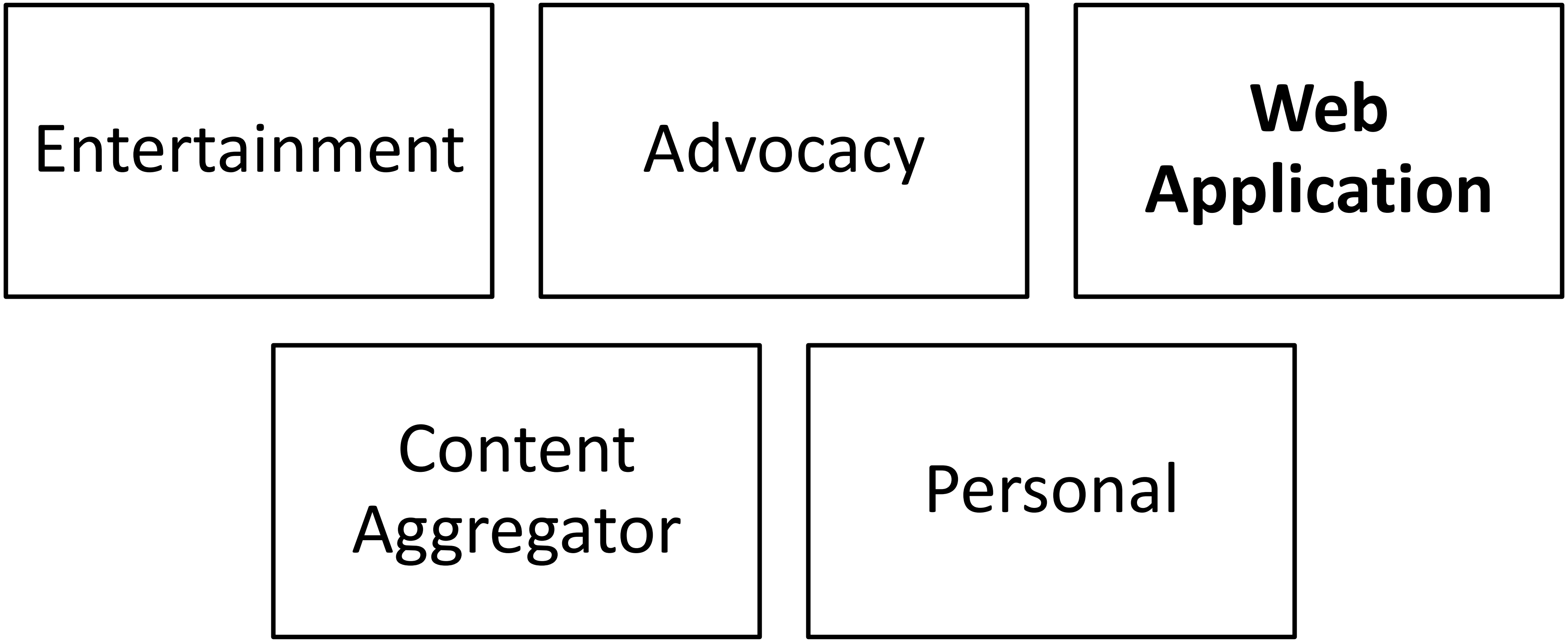
Lecture 2: Introduction

প্রকৌশলী আব্দুর রহমান বিশ্বাস,
Engineer Abdur Rahman Biswas,
Web: http://arbbd.wordpress.com

The World Wide Web

- Few types of Web sites
  - **Portal**
  - News
  - Informational
  - Business/Marketing
  - **Blog**
  - **Wiki**
  - **Online Social Network**
  - Educational

The World Wide Web



Entertainment

Advocacy

Web Application

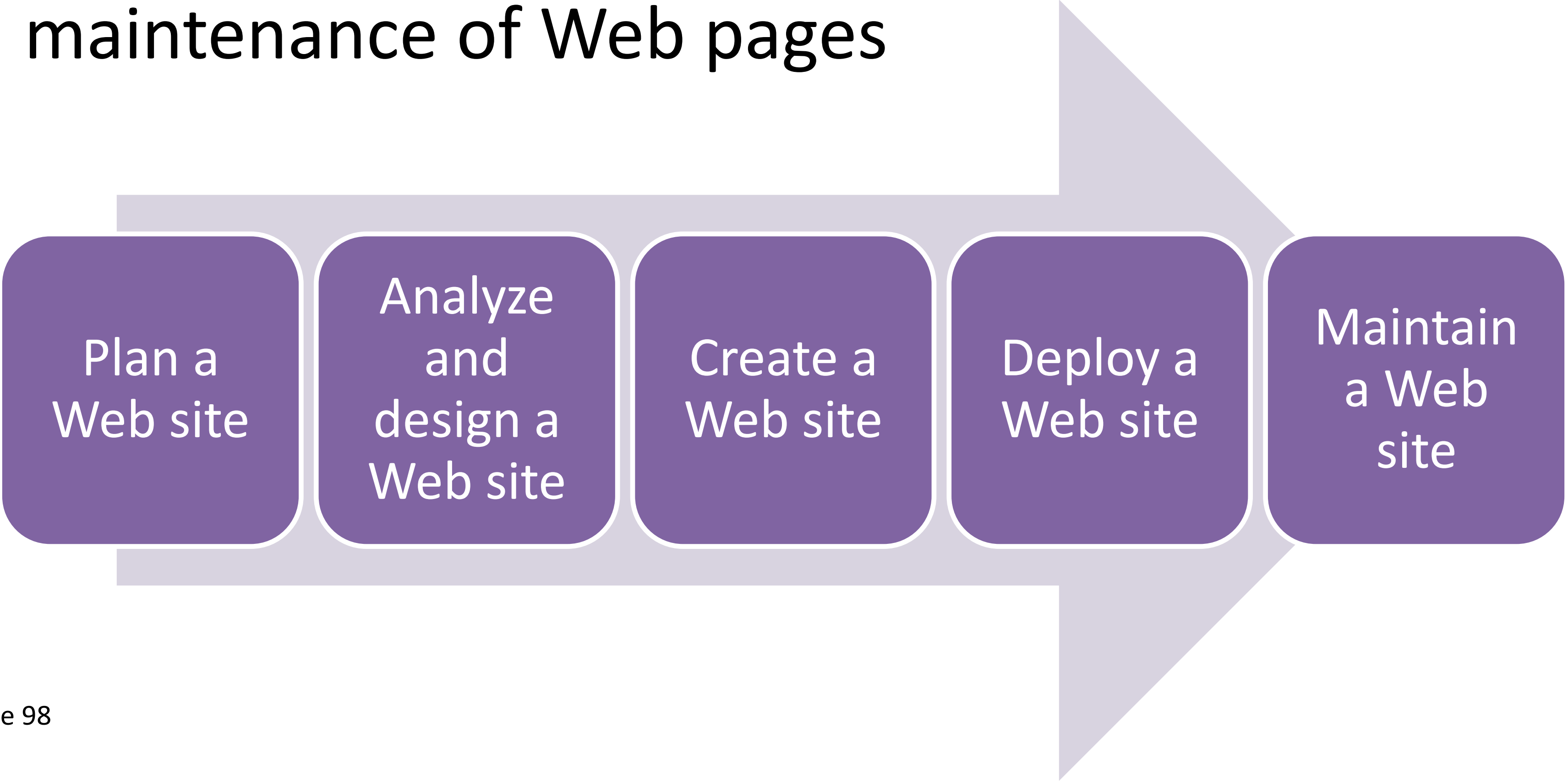
Content Aggregator

Personal

Pages 91 – 92
Figure 2-15

The World Wide Web

- **Web publishing** is the development and maintenance of Web pages



Page 98

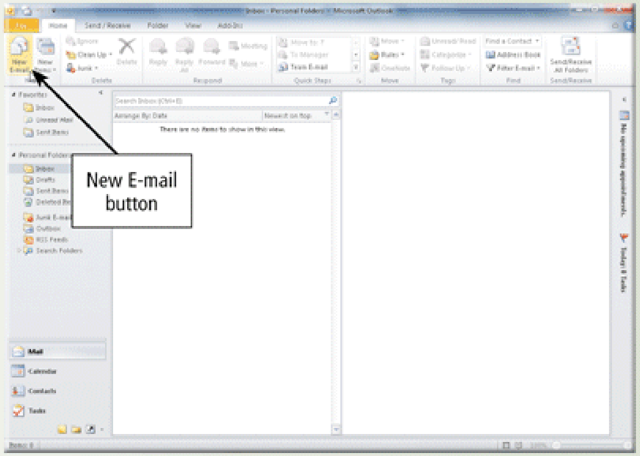
Other Internet Services

- **E-mail** is the transmission of messages and files via a computer network
- An **e-mail program** allows you to create, send, receive, forward, store, print, and delete e-mail messages

How to Send an E-Mail Message Using Outlook

Step 1

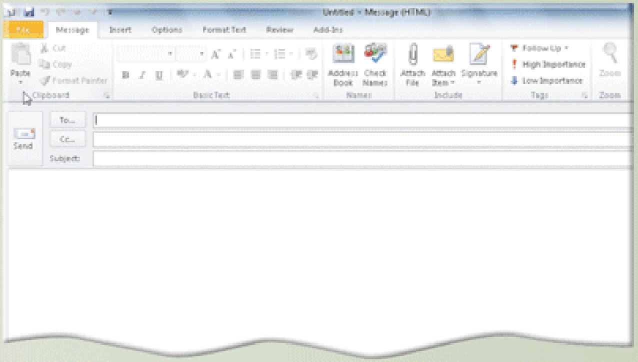
Start an e-mail program and point to the New Mail Message button.



New E-mail button

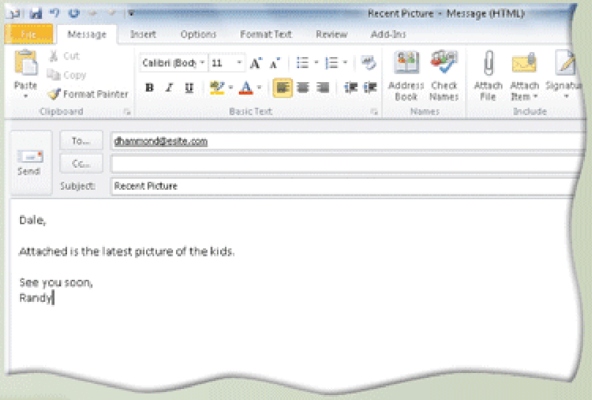
Step 2

Click the New Mail Message button to display the Message window.



Step 3

Enter the recipient's e-mail address, the subject, and the message in the Message window.



To... dhammond@esite.com

Cc...

Subject: Recent Picture

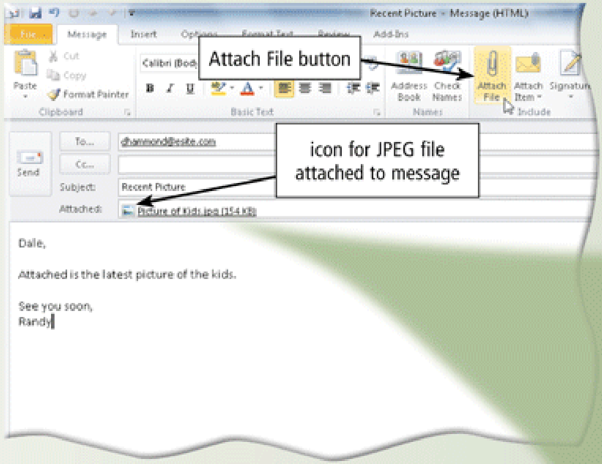
Dale,

Attached is the latest picture of the kids.

See you soon,
Randy

Step 4

Click the Attach File button on the Message tab to attach a JPEG file containing a photo to the message. Click the Send button to send the message.



Attach File button

icon for JPEG file attached to message

To... dhammond@esite.com

Cc...

Subject: Recent Picture

Attached: Picture of Kids.jpg (154 KB)

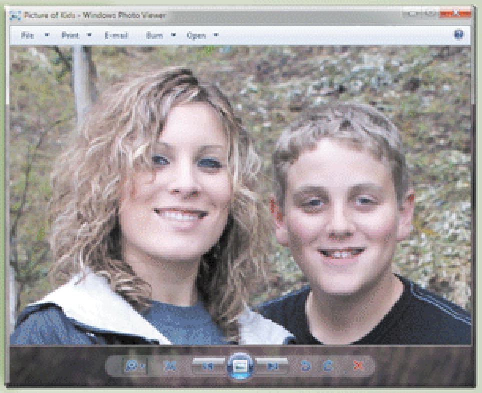
Dale,

Attached is the latest picture of the kids.

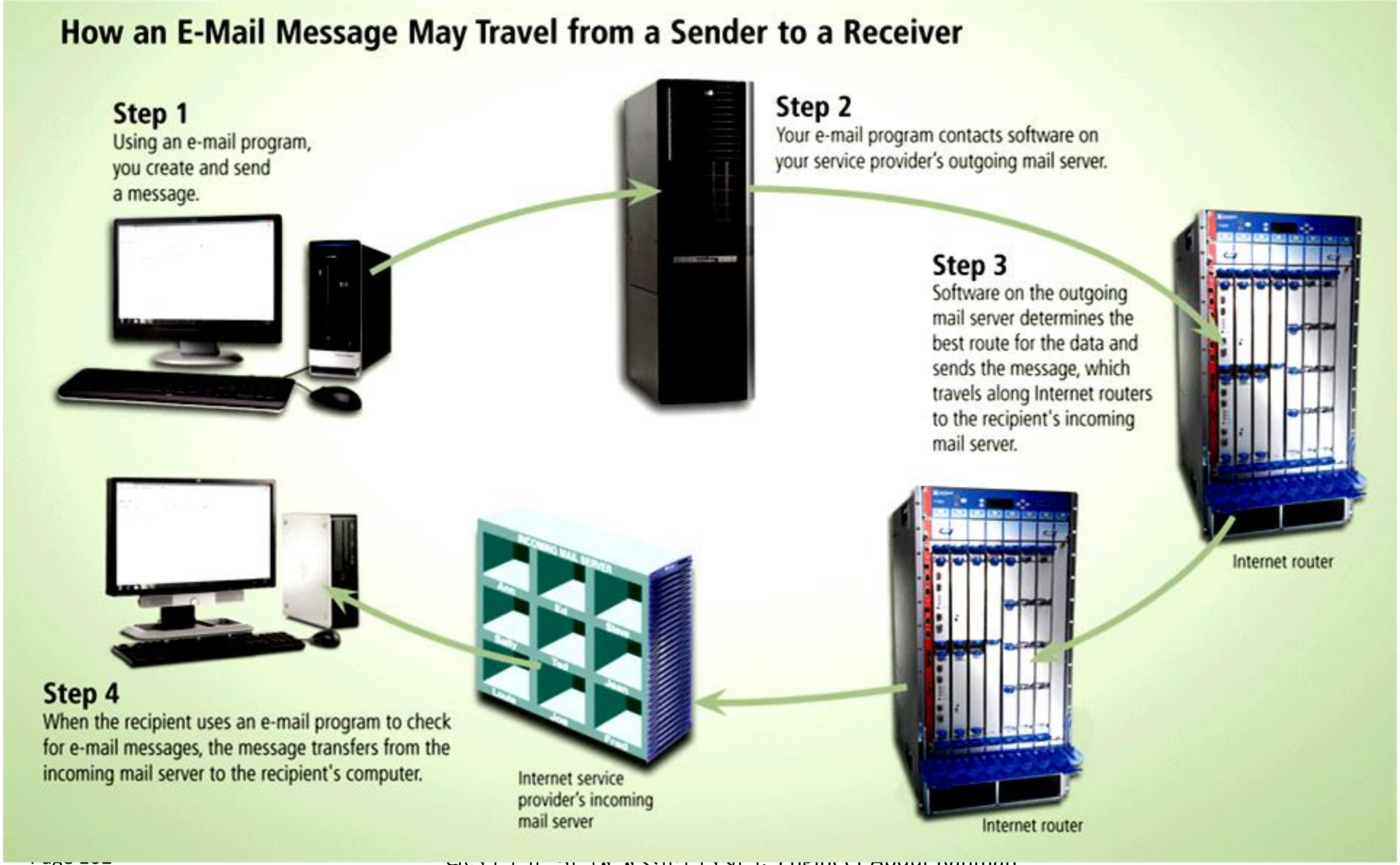
See you soon,
Randy

Step 5

When Dale receives the e-mail message, she opens the JPEG file to view the photo.



Other Internet Services



How an E-Mail Message May Travel from a Sender to a Receiver

Step 1
Using an e-mail program, you create and send a message.

Step 2
Your e-mail program contacts software on your service provider's outgoing mail server.

Step 3
Software on the outgoing mail server determines the best route for the data and sends the message, which travels along Internet routers to the recipient's incoming mail server.

Step 4
When the recipient uses an e-mail program to check for e-mail messages, the message transfers from the incoming mail server to the recipient's computer.

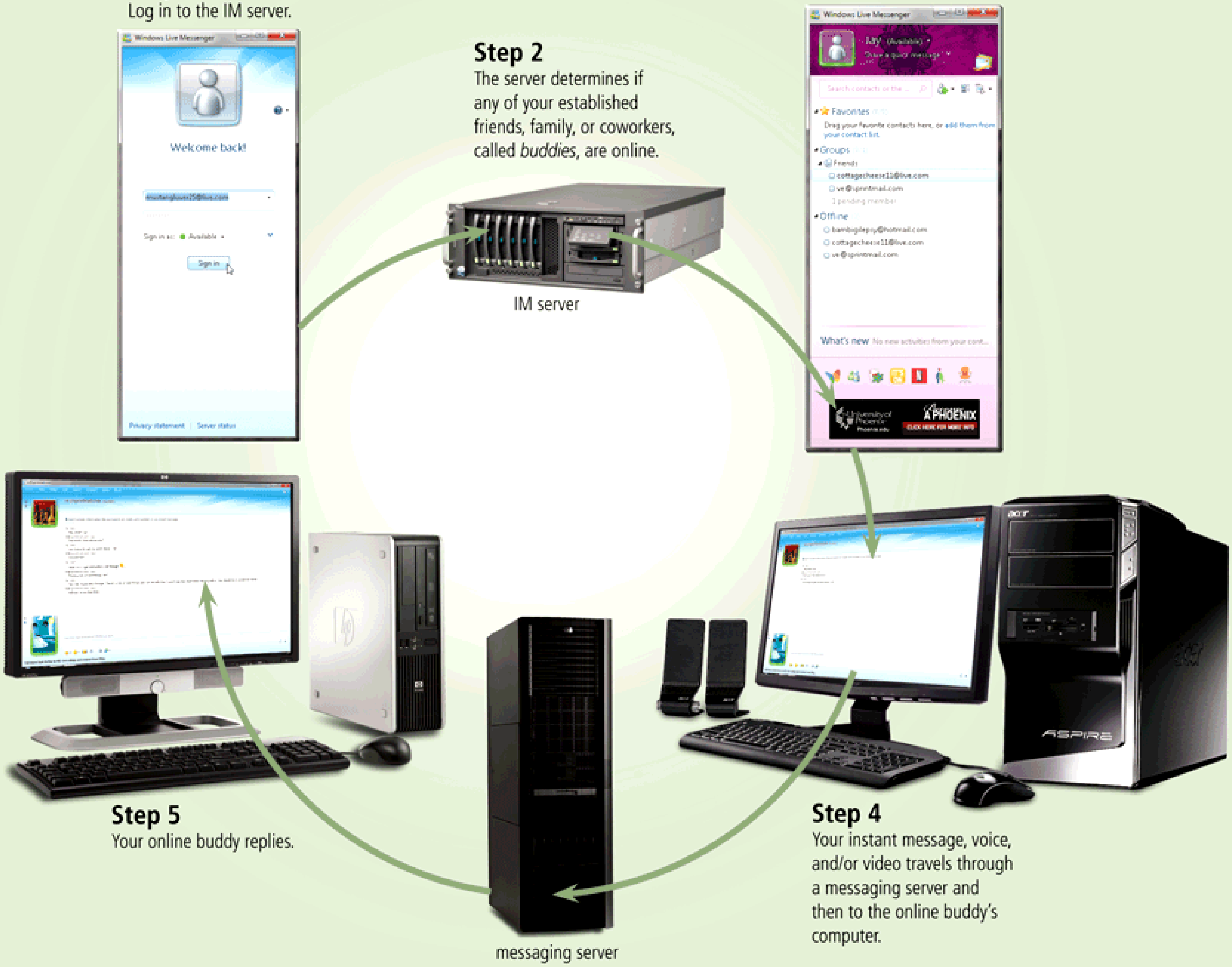
Figure 2-27

Other Internet Services - **Chat**

- A **chat** is a real-time typed conversation that takes place on a computer
- A **chat room** is a location on an Internet server that permits users to chat with each other

Page 105
Figure 2-30

An Example of Instant Messaging



Step 1
Log in to the IM server.

Step 2
The server determines if any of your established friends, family, or coworkers, called *buddies*, are online.

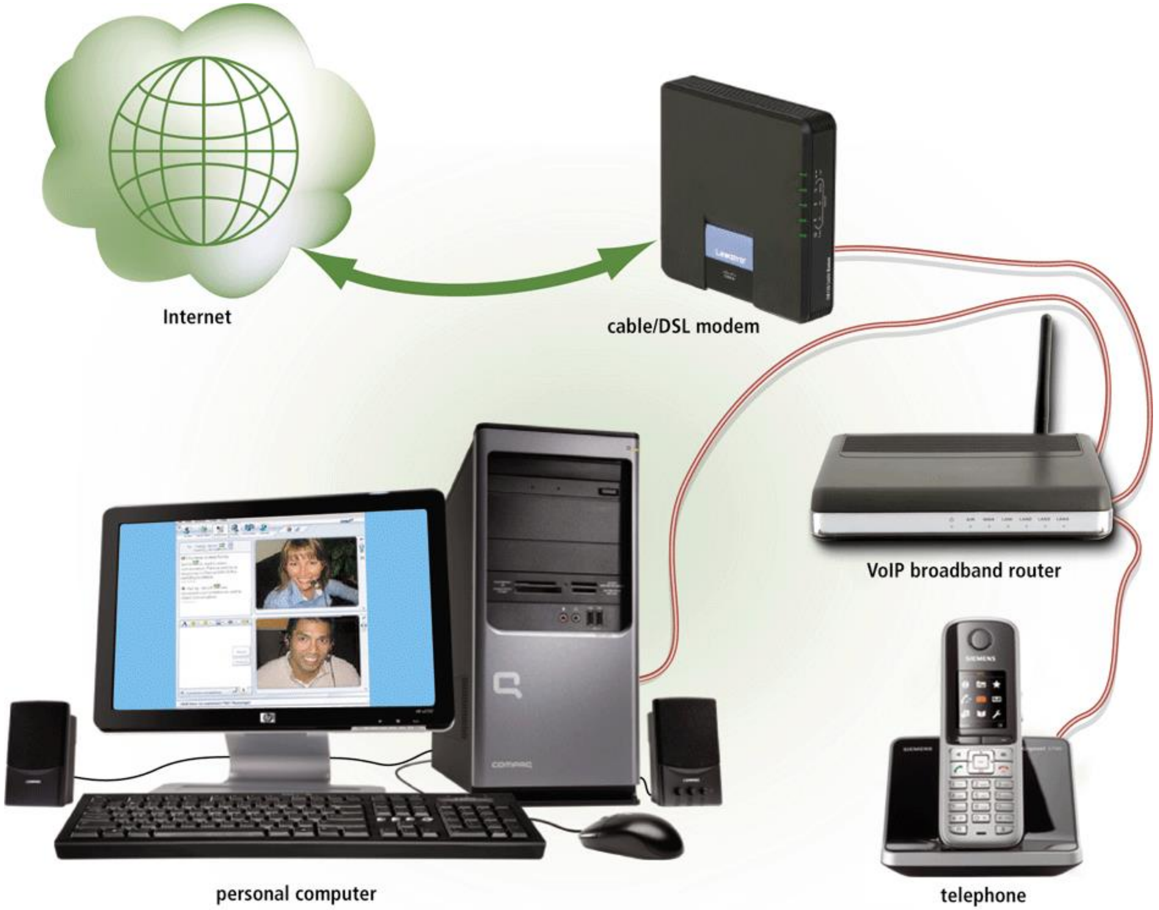
Step 3
You send instant messages, voice, and/or video communications to an online buddy.

Step 4
Your instant message, voice, and/or video travels through a messaging server and then to the online buddy's computer.

Step 5
Your online buddy replies.

Other Internet Services- **VoIP**

- **VoIP** (Voice over IP) enables users to speak to other users over the Internet
  - Also called Internet telephony

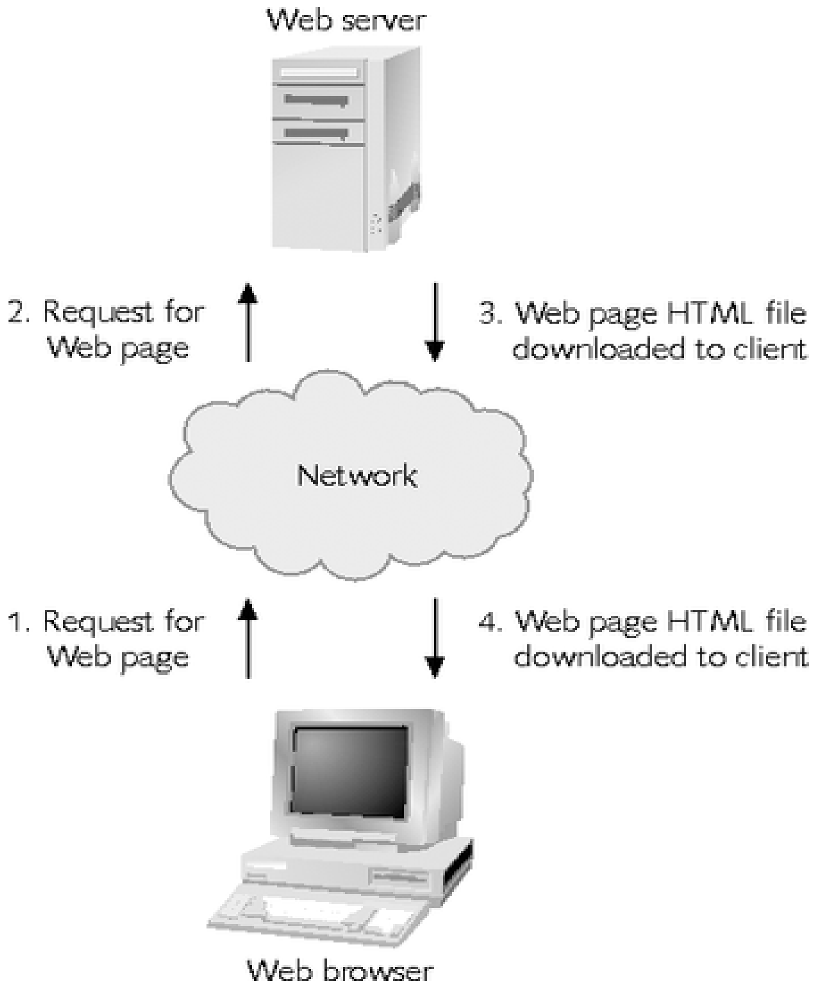


Page 106
Figure 2-31

Other Internet Services

- **FTP** (File Transfer Protocol) is an Internet standard that permits file **uploading** and downloading with other computers on the Internet
- Many operating systems include FTP capabilities
- An FTP server is a computer that allows users to upload and/or download files using FTP

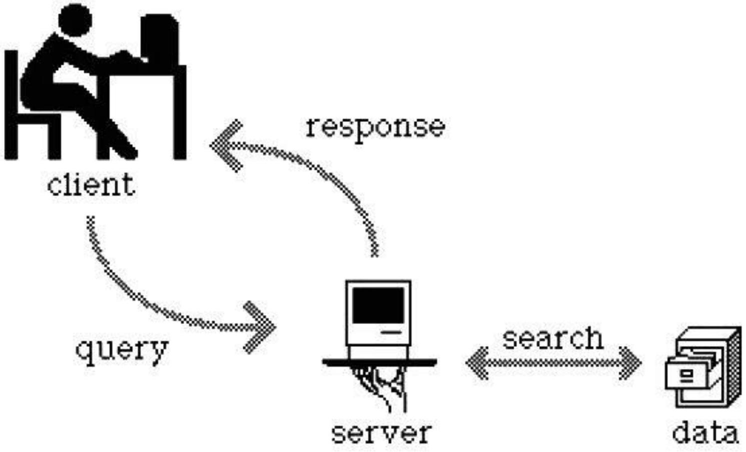
The Architecture of the World Wide Web


Web server
2. Request for Web page
3. Web page HTML file downloaded to client
Network
1. Request for Web page
4. Web page HTML file downloaded to client
Web browser

- The Web has a client/server architecture
- Programs on servers communicate and share files with client workstations over a network

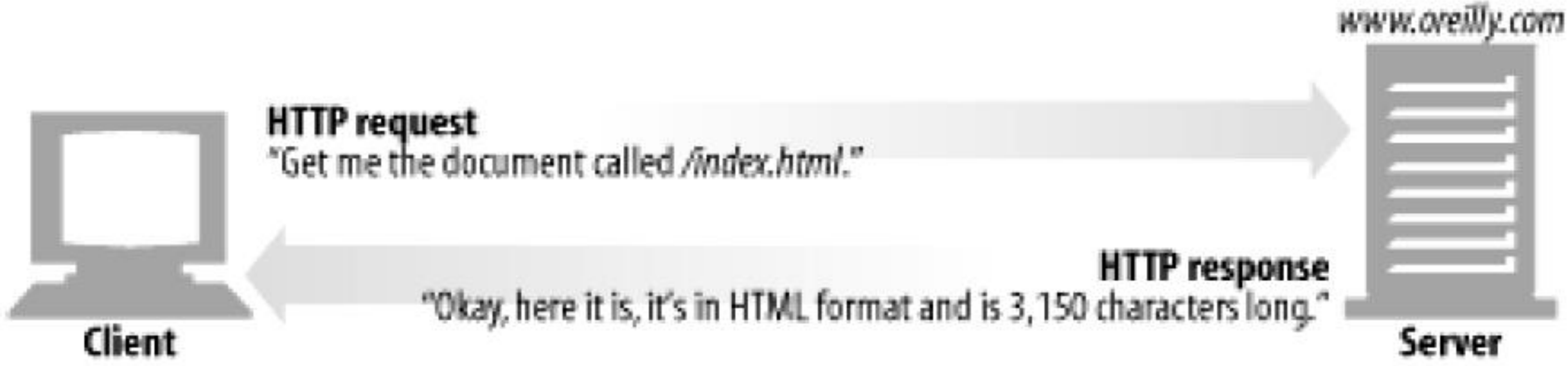
The Architecture of the World Wide Web

- Client-side computers that are connected to the Internet use Web browsers to access information on the Internet
- Web servers are computers connected to the Internet that run special Web server software
- Web servers store the files that people can access via the Internet



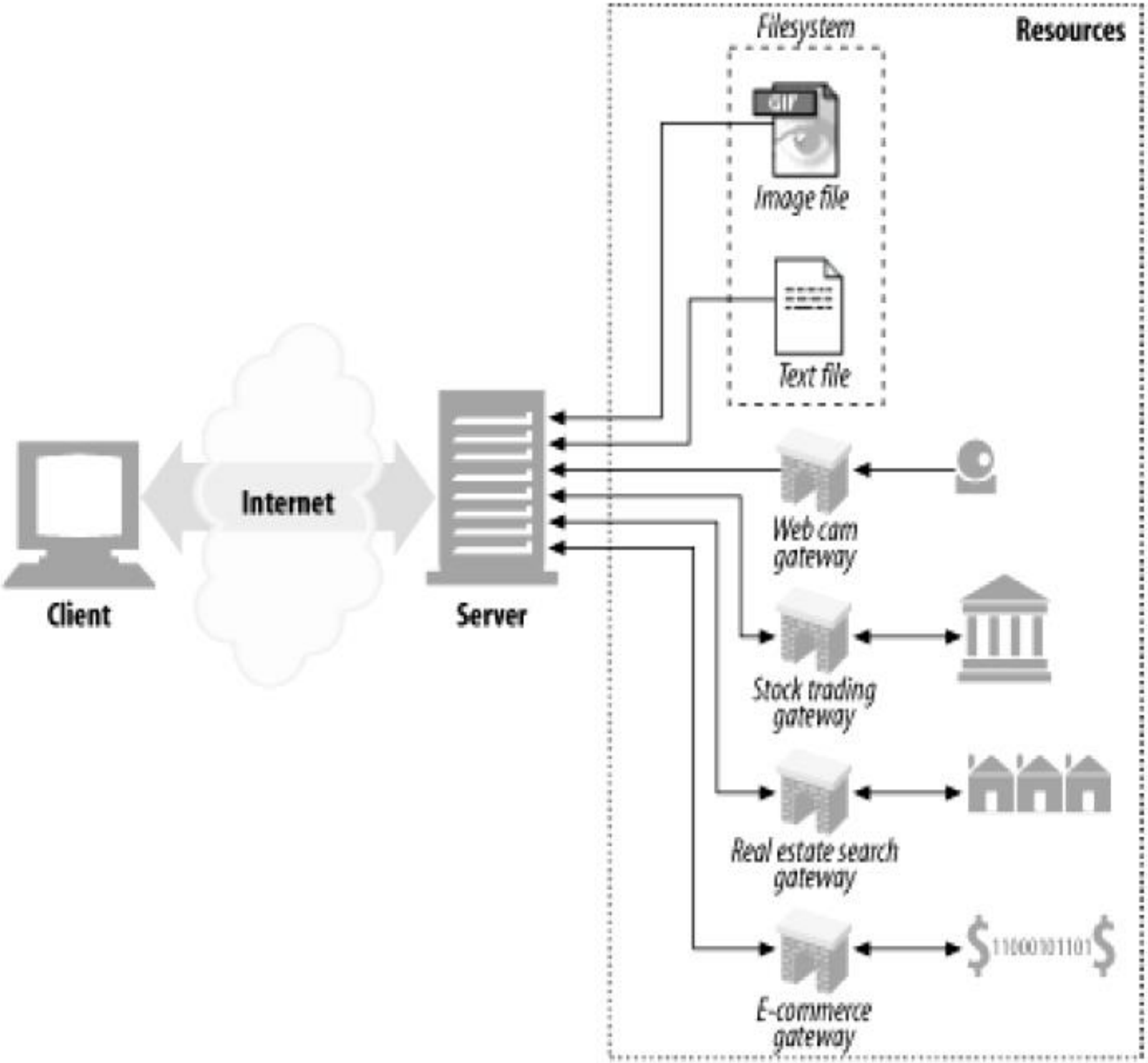
Web Clients and Servers

- ❑ Basic components of WWW (World Wide Web).


www.oreilly.com
HTTP request
"Get me the document called /index.html."
HTTP response
"Okay, here it is, it's in HTML format and is 3,150 characters long."
Client
Server

The Architecture of the World Wide Web (Contd.)

- HTML is a document-layout language that defines the content and appearance of Web pages
- The listener is a server process that “listens” for messages sent to the server from client browsers
- When a Web server receives a message from a browser requesting a Web page, it reads and sends, or downloads, the requested HTML file back across the Internet to the user’s browser


Resources
Filesystem
GIF
Image file
Text file
Client
Internet
Server
Web cam gateway
Stock trading gateway
Real estate search gateway
E-commerce gateway
11000101101

Communication Protocols and Web Addresses 1

- Communication protocols are agreements between a sender and a receiver regarding how to send and interpret data
- All data transported over the Internet is broken into packets
- Transmission Control Protocol (TCP) defines how
  - Sending computer breaks down long messages into packets
  - Receiving computer reassembles them into complete messages

Communication Protocols and Web Addresses 2

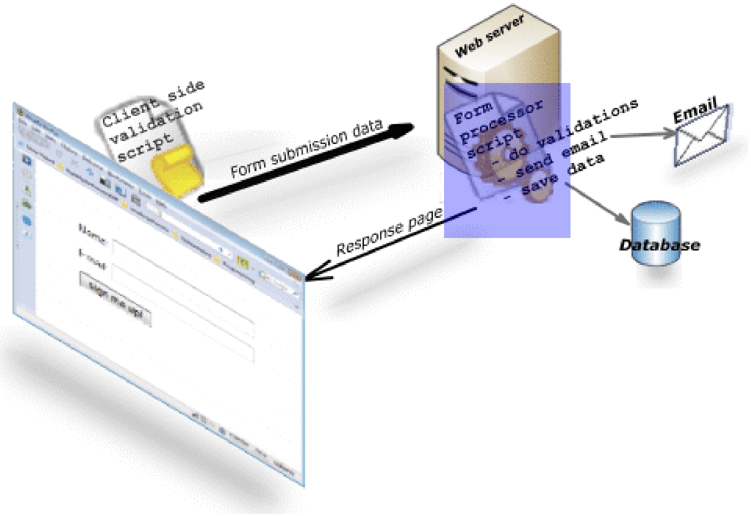
- Internet Protocol (IP) specifies how the sending computer formats message addresses
- Every computer connected to the Internet has a unique IP address that specifies the computer’s network location
- Information on the World Wide Web is usually transferred via HyperText Transfer Protocol (HTTP)

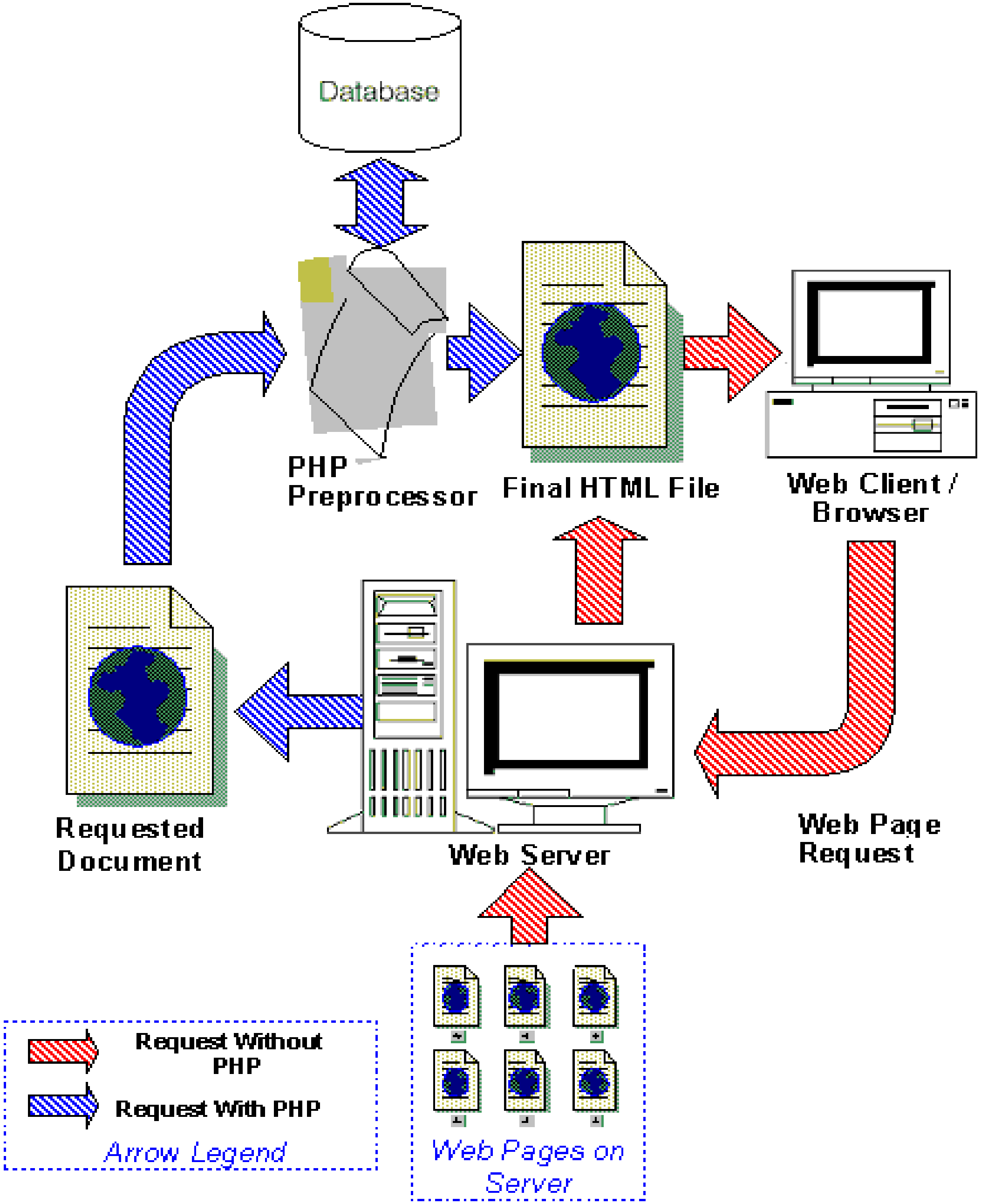
Communication Protocols and Web Addresses 3

- Users request a Web page from a Web server by entering the Web page’s Web address in their browser
- A Web address, called a Uniform Resource Locator (URL), specifies:
  - Communications protocol (such as HTTP or FTP)
  - Domain name or IP address of a Web server

HTTP

- HTTP (Hypertext Transfer Protocol)
  - protocol used to access data on the WWW.
  - uses one TCP connection on well-known port 80.
  - two types of http messages: *Request, Response*
  - transfer data in the for :,
    audio, video, and so o




Database
PHP Preprocessor
Final HTML File
Web Client / Browser
Requested Document
Web Server
Web Page Request
Request Without PHP
Request With PHP
Arrow Legend
Web Pages on Server

Internet Programming

- Web service is a kind of client / server process
- Need interaction between client and server
- Programming for providing Web service can also be divided into
  - Client-side programming: to define the operation to be performed on the client's machine
  - Server-side programming: to define the operation to be performed on the server

Server-Side Programming

- Web pages are produced on-the-fly by server-side programs, frequently based on parameters in the URL or from an HTML form.
  1. The browser sends an HTTP request.
  2. The server retrieves the requested file with the script.
  3. The server executes the script or program which typically outputs an HTML web page.
  4. The server sends the HTML output to the client's browser.
  5. Example: www.google.com
- Scripting Languages (PHP, ASP, Perl, etc.) in combination with database.
- The code remains hidden from users, and browser independent.

Client-Side Programming

- Web pages containing content that can change without the actual HTML code being changed. Client-side dynamic content is generated on the client's computer.
- Embedded in <script> elements and execute in the browser, provides immediate feedback to the user.
- Reduces the load on a server, reduces network traffic.
- JavaScript: client-side scripting language.
- Flash: an alternative approach to scripting language, prepackages the scripted actions into a new file format.

Client-side & Server-side Technologies

Client-Side	Server-Side
HTML, XML	CGI/Perl
CSS	PHP, ASP, JSP
Flash	ColdFusion
Scripting languages	Scripting Languages
- JavaScript, VBScript	- Server-side JavaScript
Java Applets	- ASP, JSP, Java Servlets
ActiveX controls	ISAPI/NSAPI programs
Plug-ins and Helpers application	

Web Programming Languages: HTML

- To describe the general form and layout of documents.
- An HTML document is a mix of content and controls.
- Controls are tags and their attributes.
- Tags often delimit content and specify something about how the content should be arranged in the document.
- Attributes provide additional information about the content of a tag.

Web Programming Languages: CSS

- Formally known as **Cascading Style Sheets**
- It is one of the best way to format HTML documents easily and consistently
- Style sheets control how the page elements look, their color and size etc
    - Using style sheets allow to manage the formatting of the document more easily
    - Style sheets reduce the time necessary to develop and maintain HTML documents

Web Programming Languages: JavaScript

- A client-side HTML-embedded scripting language.
- A scripting language is a lightweight programming language
- Provides a way to access elements of HTML documents and dynamically change them.
- JavaScript was designed to add interactivity to HTML pages
- JavaScript is usually embedded directly into HTML pages
- Everyone can use JavaScript without purchasing a license

Web Programming Languages: PHP

- A server-side scripting language.
- PHP is a powerful tool for making dynamic and interactive Web pages.
- PHP stands for **P**HP: **H**ypertext **P**reprocessor
- PHP is a server-side scripting language, like ASP
- PHP scripts are executed on the server , and the plain HTML result is sent to the browser.
- Great for form processing and database access through the Web.
- PHP supports many databases (MySQL, Informix, Oracle, Sybase, Solid, PostgreSQL, Generic ODBC, etc.)
- PHP is free to download and use

Web Programming Languages: XML

XML allows to define languages („applications“) to represent text documents / textual data

- Truly Portable Data
- Easily readable by human users
- Very flexible and customizable (no finite tag set)
- Easy to convert into other representations (XML transformation languages)
- Many additional standards and tools
- Widely used and supported

Web Programming Languages: Ajax

- Asynchronous Javascript and XML.
- Not a stand-alone language or technology.
- It is a technique that combines a set of known technologies in order to create faster and more user friendly web pages.
- It is a client side technology.
- AJAX uses:
  - Javascript (for altering the page)
  - XML (for information exchange)
  - PHP(server side)

Thank you

Web Technology

Lecture

CSS

Outline

- Style Sheets
- Associating Style Sheets to HTML documents
- Developing Style Sheets
  - Setting font properties
  - Setting text properties
  - Setting color and background properties
  - Setting classification properties

Style Sheets

- Formally known as **Cascading Style Sheets**
- It is one of the best way to format HTML documents easily and consistently
- Style sheets control how the page elements look, their color and size etc

Style Sheets (Contd..)

- **Advantages of Style Sheets**
  - Using style sheets allow to manage the formatting of the document more easily
  - Style sheets reduce the time necessary to develop and maintain HTML documents

- **Implementing Style Sheets**
  1. Develop the style, complete with all the formatting options
  2. Associate the style sheet to the HTML document

Associating Style Sheets to HTML documents

- **3 ways to associate Style Sheets to HTML documents**

1. **Inline** - using the style **attribute** in HTML elements
2. **Internal** - using the <style> **element** in the <head> section
3. **External** - using an external CSS **file**

HTML – Identify/Group Tags

Identifying and Grouping elements (e.g. for CSS)

- <div>...</div>
  - division or section
  - groups and identifies one or more block-elements
  - usually causes a line break before and after

- <span>...</span>
  - groups and identifies in-line elements (e.g. words)
  - no visual change by itself (no line break)
  - used to apply styles to parts of a text line, e.g.

```
This <span style=”color: red”>red</span> apple.
```

Inline Style Definition

- Applying inline style definitions throughout a document is similar to adding formatting attributes.
- Example

<p style=”color: red; font-family: ‘Times New Roman’”> Many people buy ASR products despite the higher cost.</p>

Internal Style Sheet

Embedding Style Sheet in HTML Documents

- Style Sheet can be embedded in the HTML document by defining it within the <head> tags
- The tag used in this case is <style>
- Style information is provided within the <style> tag

Embedding Style Sheet in HTML Documents

- **Example**

```
<head>
<title>Here goes a title</title>
<style type=“text/css”>
<!--
p {color : red}
-->
</style>
</head>
```

Embedding Style Sheet in HTML Documents

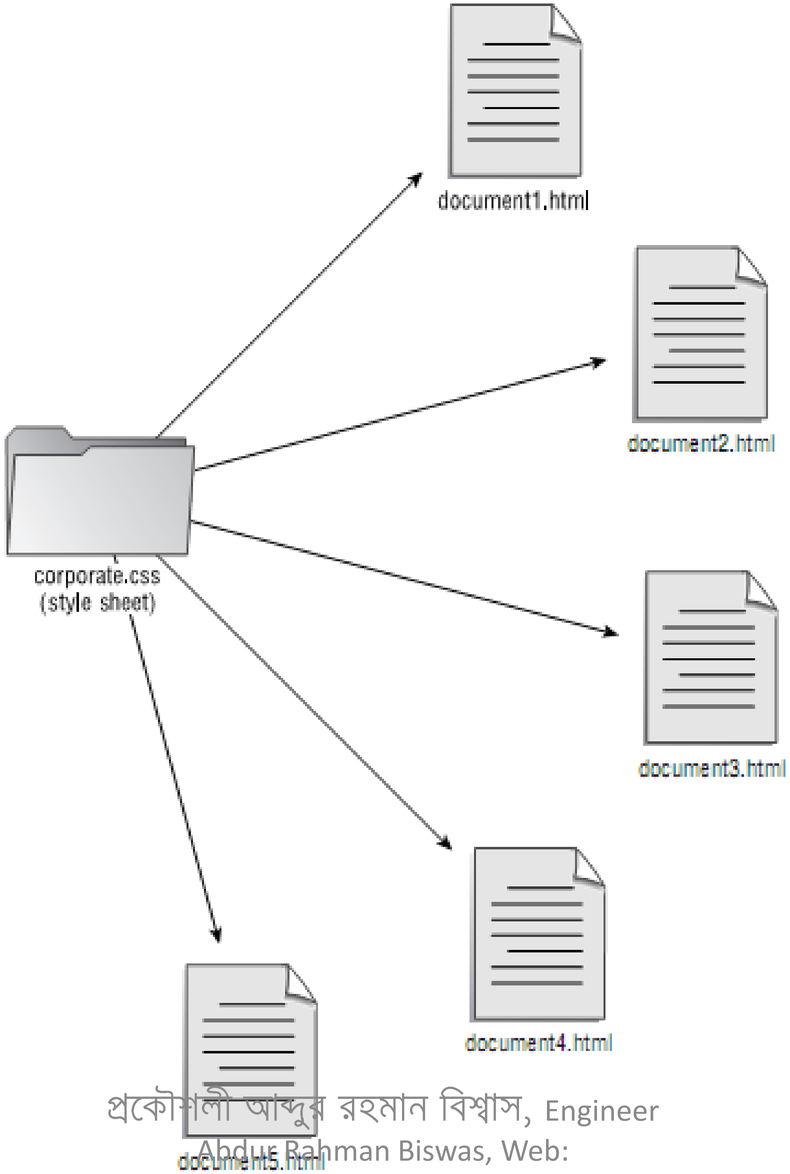
- **<style>** specify the style sheet area within an HTML document
- **<!-- -->** Comment tag that hides Style Sheet contents from non-style capable browser
- **type="text/css"** Specifies the type of style sheet

External Style Sheet

Storing Style Sheets Separately

- A separate style sheet is simply a plain text file and includes only the style definitions
- It is useful when working with several HTML documents which share similar formatting

Storing Style Sheets Separately



Linking

- Linking is done as follows

```
<head>
<link rel=“stylesheet” href=“blue.css” type=“text/css” />
</head>
```

- Multiple Style Sheets can be linked to one HTML document by inserting multiple <link> tag within the <head> tag

Linking

- **<link>** tag defines the relationship between a document and an external resource
- **rel** attribute specifies the relationship between the current document and the linked document
- **href** Specifies the location of the linked document

Style definition to specified part of HTML

- Styles included in a style sheet can be applied to specific parts of documents using style class
- Style classes are defined in the style sheet
- The style sheet may have created the imprtant and warning classes
  - .important { color: lime; background: #ff80c0 }
  - .warning { font-weight: bolder; color: red; background: white }
- These classes could be referenced in HTML with the CLASS attribute:
- <h1 class=“important”>This is a Heading</h1>
  <p class=“warning”>This is a warning paragraph.</p>

CSS Id

- The id selector is used to specify a style for a single, unique element.
- The id selector uses the id attribute of the HTML element, and is defined with a "#".
- The style rule below will be applied to the element with id="para1":

Example

```
#para1
{text-align:center; color:red;}
```

```
<p id="para1">Hello World!</p>
```

CSS Class

- The class selector is used to specify a style for a group of elements. Unlike the id selector, the class selector is most often used on several elements.
- This allows you to set a particular style for many HTML elements with the same class.
- The class selector uses the HTML class attribute, and is defined with a "."
- In the example below, all HTML elements with class="center" will be center-aligned:

```
    Example    .center {text-align:center;}
              p.date {text-align:right;}
```

```
<h1 class="center">This heading will not be affected</h1>
<p class="date">May, 2009</p>
```

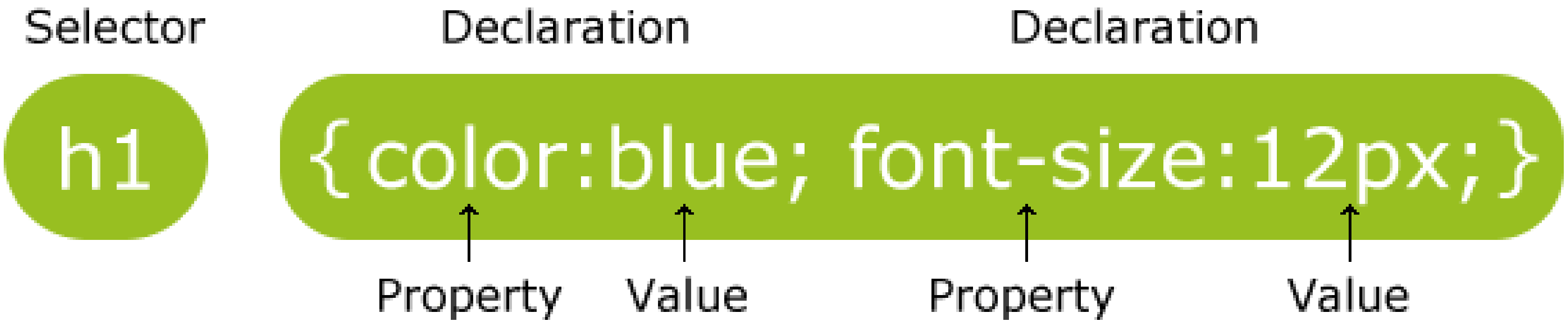
precedence for the various types of styles

- CSS cascades - that is, certain CSS declarations naturally override other declarations. The order of precedence for the three types of style are as follows:
    - Inline styles
    - Embedded styles
    - External styles
- Inline styles take priority over embedded styles and external styles. Embedded styles take priority only over external styles.

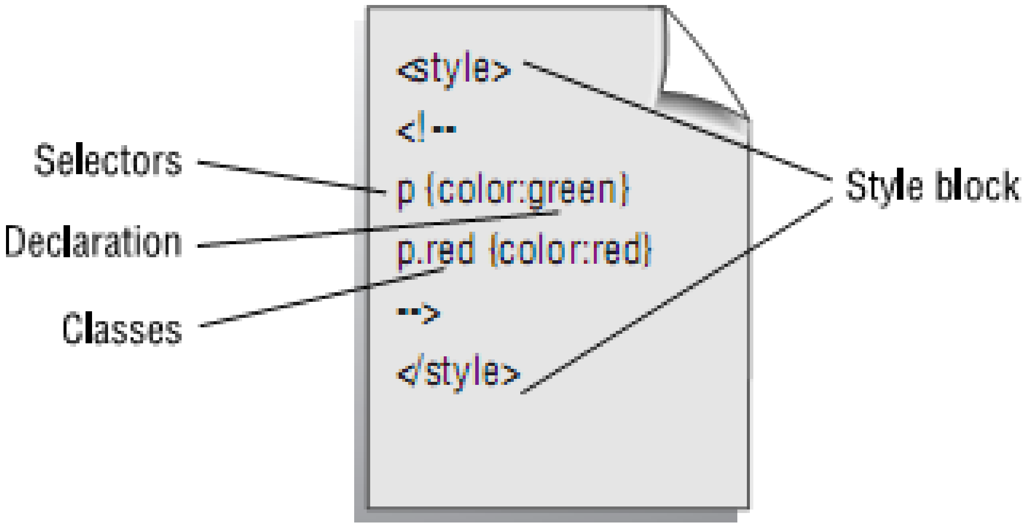
Developing Style Sheets

- **Font properties** Specify character-level formatting
- **Text properties** Specify display characteristics for text
- **Color and background properties** Specify color, background color, and images
- **Classification properties** Specify display characteristics of lists and elements

Developing Style Sheets



```
h1 {color:blue; font-size:12px;}
```



```
<style>
<!--
p {color:green}
p.red {color:red}
-->
</style>
```

Developing Style Sheets

- **Style Block:** This includes style elements and comment tag, plus style definitions
- **Selectors:** These are HTML elements
- **Declarations:** These are the properties of the elements. Declarations consist of two parts, a property and a value, separated by a colon
- **Classes:** These specify an additional style definition associated with specific occurrences of an element.

Font Properties

Property	Possible Values
font-family	Times New Roman, Arial, serif, sans-serif
font-size	xx-small, x-small, small, medium, large, x-large, xx-large
font-style	normal, italic
font-weight	normal, bold, bolder, lighter, 100, 200, 300, 400, 500, 600, 700, 800, 900

Font Properties

```
<style type="text/css">
<!--
body { font-family: Times New Roman}
body {font-size:100%;}
 h2 {font-size:20px;}
h1 {font-size:2.5em;}
h1, h2, h3, h4, h5, h6
{
font-family: sans-serif;
font-style: italic;
font-size: x-large;
font-weight: bolder
}
-->
</style>
```

Text Properties

Property	Possible Values
word-spacing	Measurement
letter-spacing	Measurement
text-decoration	underline, overline, line-through, blink
text-indent	Measurement or percentage

Text Properties

```
<style type="text/css">
<!--

p { text-indent: 5% }
p.noindent { text-indent: 0% }

h1, h2, h3
{
text-decoration: underline;
text-align: center;
letter-spacing: 5
}
-->
</style>
```

Color and Background Properties

Property	Possible Values
color	#rrggbb
background-color	#rrggbb
background-image	url(http://sampleurl.com)

Color and Background Properties

```
<style type="text/css">
<!--

body {
background-color: #ffffcc;
background-image: url(creek.jpg);
}
h1
{
color: red
}
-->
</style>
```

Classification Properties- list

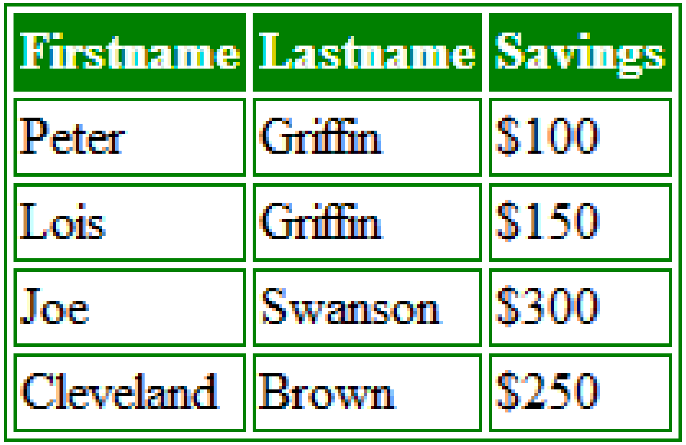
Property	Possible Values
line-height	measurement or %
list-style-type	disc, circle, square, decimal, lower-roman, upper-roman, lower-alpha, upper-alpha, none
list-style-image	url(http://example.com/image.gif)

Classification Properties

```
<style type="text/css">
<!--

ul { list-style-type: square }

-->
</style>
```

CSS Tables

```
<head>
<style>
table, td, th
{
border:1px solid green;
}
th
{
background-color:green;
color:white;
}
</style>
</head>
```



Firstname	Lastname	Savings
Peter	Griffin	$100
Lois	Griffin	$150
Joe	Swanson	$300
Cleveland	Brown	$250

Thank You

Web Technology

HTML Basic

Hypertext Markup Language, **HTML Tags and Attributes, HTML Elements, Document Type Tag, Text Formatting, HTML Lists,** HTML – Entities (Special Characters)

প্রকৌশলী আব্দুর রহমান বিশ্বাস, Engineer Abdur Rahman Biswas, Web: http://arbbd.wordpress.com

HTML (Hypertext Markup Language)

HTML is a tagging language used to compose documents that will be viewed by a web browser.

It is a standard adopted so that no matter what computer platform someone is using, the web browser knows how to display the web document.

HTML Components

- Documents
  - Document = page = HTM file = topic
  - Content (text, images)
  - Tags (display commands)
- Other terms
  - Window: browser display window
  - URL: Uniform Resource Locator
  - Hyperlink: hypertext jump to a resource
  - Resource: URL, image, mailto, external file

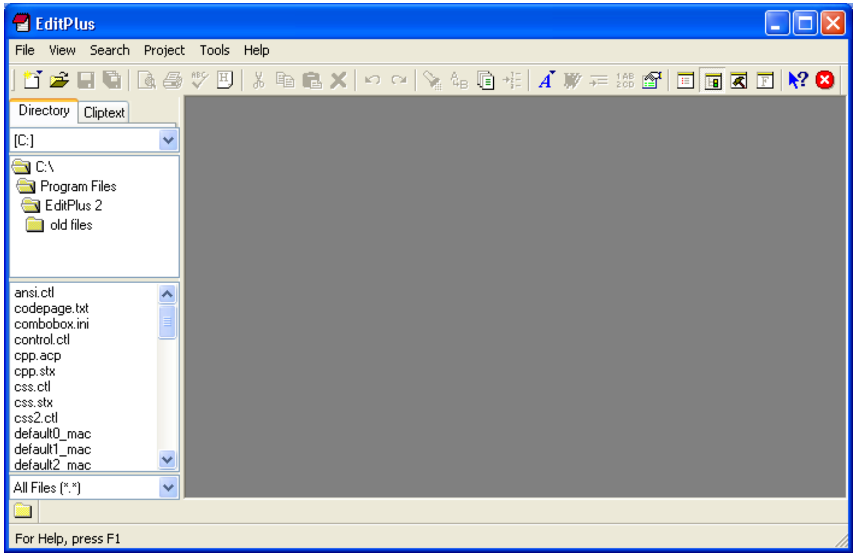
HTML Pages

- HTML pages are tag-based documents
  - Really plain ASCII text files
  - Don't look like documents they represent
  - Tags indicate how processing program should display text and graphics
  - Designed to describe hypertext, not paper
  - Processed by browsers "on the fly"
  - Tags usually appear in pairs
  - Most have reasonable names or mnemonics
  - Most can be modified by attributes/values

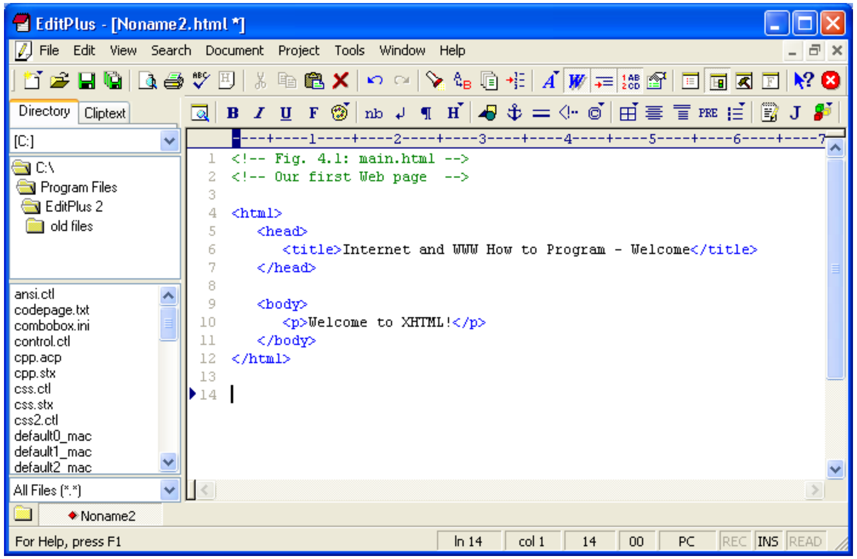
Editing HTML

- HTML documents are in source-code form
- It can be edited by using a text editor (e.g. Notepad, WordPad, Dreamweaver, **Notepad ++)**
- `.html` or `.htm` file-name extension
- Web server: Stores HTML documents
- Web browser: Requests HTML documents

Your first html file



(a)



```
<!-- Fig. 4.1: main.html -->
<!-- Our first Web page  -->

<html>
   <head>
      <title>Internet and WWW How to Program - Welcome</title>
   </head>

   <body>
      <p>Welcome to XHTML!</p>
   </body>
</html>

```

(b)

- Make sure you have installed Notepad ++ text editor
- Select: **File -> New -> HTML Pages**:
- Delete all the initial content of the page
- Compose your first HTML code.
- Save the file. Select **File -> Save As**. At the file name, type ‘**name.html**’
- Click the file ‘name.html’ from the directory where you saved the file.
- You will see the output on the browser

HTML Tags and Attributes

- HTML is made up of **tags** and **attributes**.
- Tags and attributes work together to identify document parts and tell browsers how to display them.
- **Tags** indentify document parts by specifying which part is a heading or paragraph etc.
- **Attributes** are optional parts of tags and more thoroughly specify information in tags, such as color, alignment, height or width.
  - each tag may have one or more attributes
  - eg. <p align=“center” >
-

HTML Tags

- An HTML tag is a coded command used to indicate how part of a Web page should be displayed
- All tags are composed of elements that are contained within **angle bracket** < >
- Most tags are paired, with an opening tag **<TAG>** and a closing tag **</TAG>**
- Beginning tag includes any parameters necessary for the tag.
- Tags are not case sensitive.
- Tags usually come in pairs (with some exceptions)

    <html>…</html>, <body>…</body>, <p>…</p>, <hr>, <br>

- Example – to make a word bold –

    This is a example of <b> bold </b> tag.

HTML Tags (cont’d)

- To apply more than one tag, nested tag is used.
- Example – to make a word both bold and italic –

```
<b><i> This text is both bold and italic. </i></b>
```

Comment Tag

- <!-- *comments here* -->
    - notice that the comment is typed as an attribute inside the tag
    - comments may be one or multiple lines long (HTML is free-form)
    - text within this tag will not be displayed or processed by your browser
    - comments do **not** nest! No comments inside comments!

HTML Elements

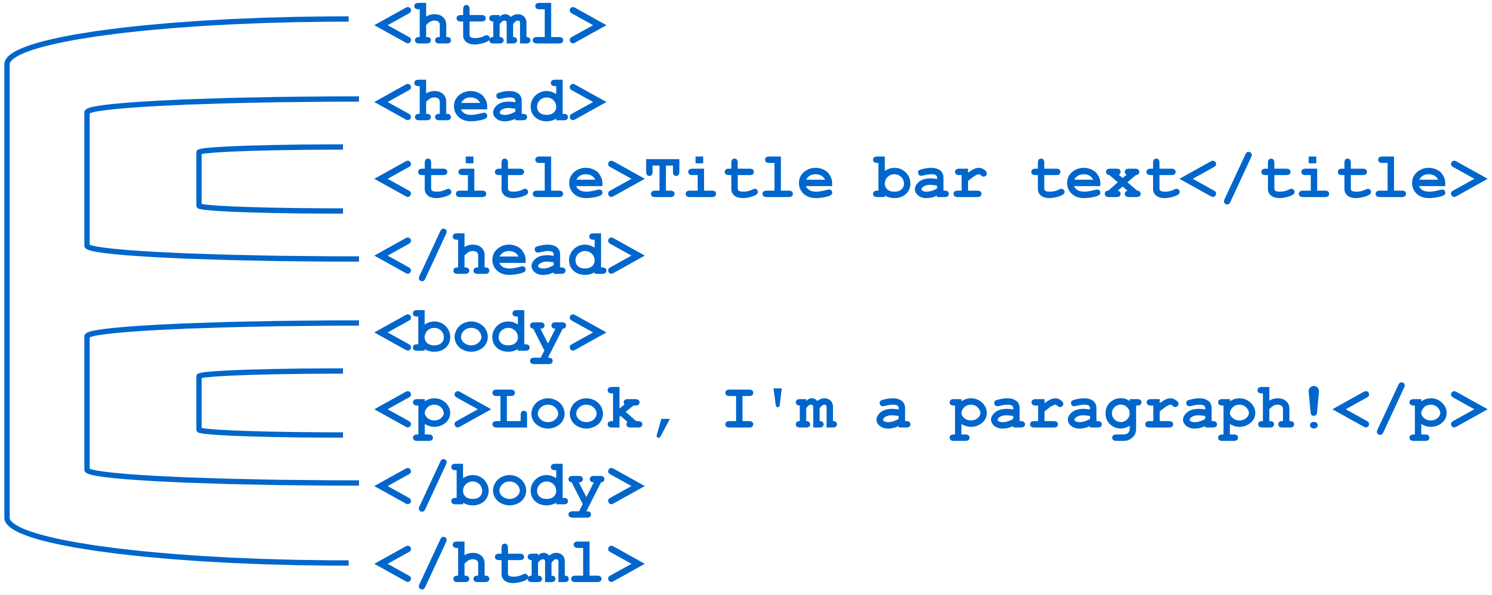
- An HTML element is everything from the start tag to the end tag
- An HTML element starts with a **start tag / opening tag**
- An HTML element ends with an **end tag / closing tag**
- The **element content** is everything between the start and the end tag
- Some HTML elements have **empty content**
- Empty elements are **closed in the start tag**
- Most HTML elements can have **attributes**

First Web Page

```
<html>
<!--a simple web document-->
<head>
<title>My First Web Page</title>
</head>
<body>
<p>This is a sample text</p>
</body>
</html>
```

HTML Document Layout

- Example of basic tag positioning



```
<html>
<head>
<title>Title bar text</title>
</head>
<body>
<p>Look, I'm a paragraph!</p>
</body>
</html>
```

- Always think *containers*!
  - Tag pairs that enclose content

HTML – Required Tags

- <html> … </html> (Required!)
  - The <html> tag tells the browser that this is an HTML document.
  - This tag indicates the beginning and end of a html document.
  - All other contents are placed between these tags.
  - Basic tag to identify portion of file that contains HTML
    - <html> is an opening tag
    - </html> is a closing tag (note the direction of the slash!)
- <head> … </head>   (Required!)
  - placed at the top of document immediately after the <html> tag
  - tags information about the document, e.g. author, style, etc.
  - The <head> tag contains information about the document, including its title, scripts used, style definitions and document description.
  - contains the required document <title>...</title> tag

HTML – Required Tags (Cont’d)

- <title> … </title> (Required!)
  - included as an element inside the <head>…</head> section
  - element of this tag is the title displayed in title bar of the browser
  - may also be used as title of page when page is bookmarked
  - should be meaningful and uniquely identify the page

- <body> … </body>   (Required!)
  - included as the second element inside the <html>…</html> tags.
  - follows the <head>…</head> portion of the document
  - contains the information to be displayed in the browser window
  - The body element defines the document's body
  - The body element contains all the contents of an HTML document, such as text, hyperlinks, images, tables, lists, etc.

Empty Tag..!!

- **Line Break (br)**
- The <br> tag inserts a single line break.
- The <br> tag is an empty tag which means that it has no end tag.
- As it is a tag with no closing sibling it ends with a slash
- <br />
- **Horizontal Rules (hr)**
- The <hr> tag creates a horizontal line in an HTML page.
- The hr element can be used to separate content in an HTML page.
- To control the width, thickness we will use CSS.
- As it is a tag with no closing sibling it ends with a slash
- <hr />

Document Type Tag

- The doctype declaration should be the very first thing in an HTML document, before the <html> tag.
- The doctype declaration is not an HTML tag; it is an instruction to the web browser about what version of the markup language the page is written in.
- The doctype declaration refers to a **Document Type Definition (DTD)**
- The DTD specifies the rules for the markup language, so that the browsers can render the content correctly.
- DTD contains each valid element that can be contained in the document including the attributes for the element and types of values each can contain.

Document Type Tag (Cont’d)

- Example of **“Document Type Tag”**
  - <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN" "http://www.w3.org/TR/html4/loose.dtd">
  - <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
  - To learn more about this tag go to the following site:
    - http://www.webreference.com/html/doctype/

Attributes

- Attributes provide extra information about a tag.
- Example- heading tag with attribute
  - <h1>A heading goes here</h1>
  - <h1 align="center">A centered heading goes here</h1>
- Multiple attributes in one tag
  - <h1 align="center" style = "color = #FF0000">A centered color heading goes here</h1> <body></body>

Attributes and Values

- Properties, traits, or characteristics that modify the way a tag looks or acts
  - Usually in pairs: `<body bgcolor="teal">`
  - Sometimes not: `<dl compact>`
- Most HTML tags can take attributes
  - Format of value depends on attribute
  - `width="150" ... href="page3.htm“`
    - *not*
      `width="page3.htm" ... href="150"`

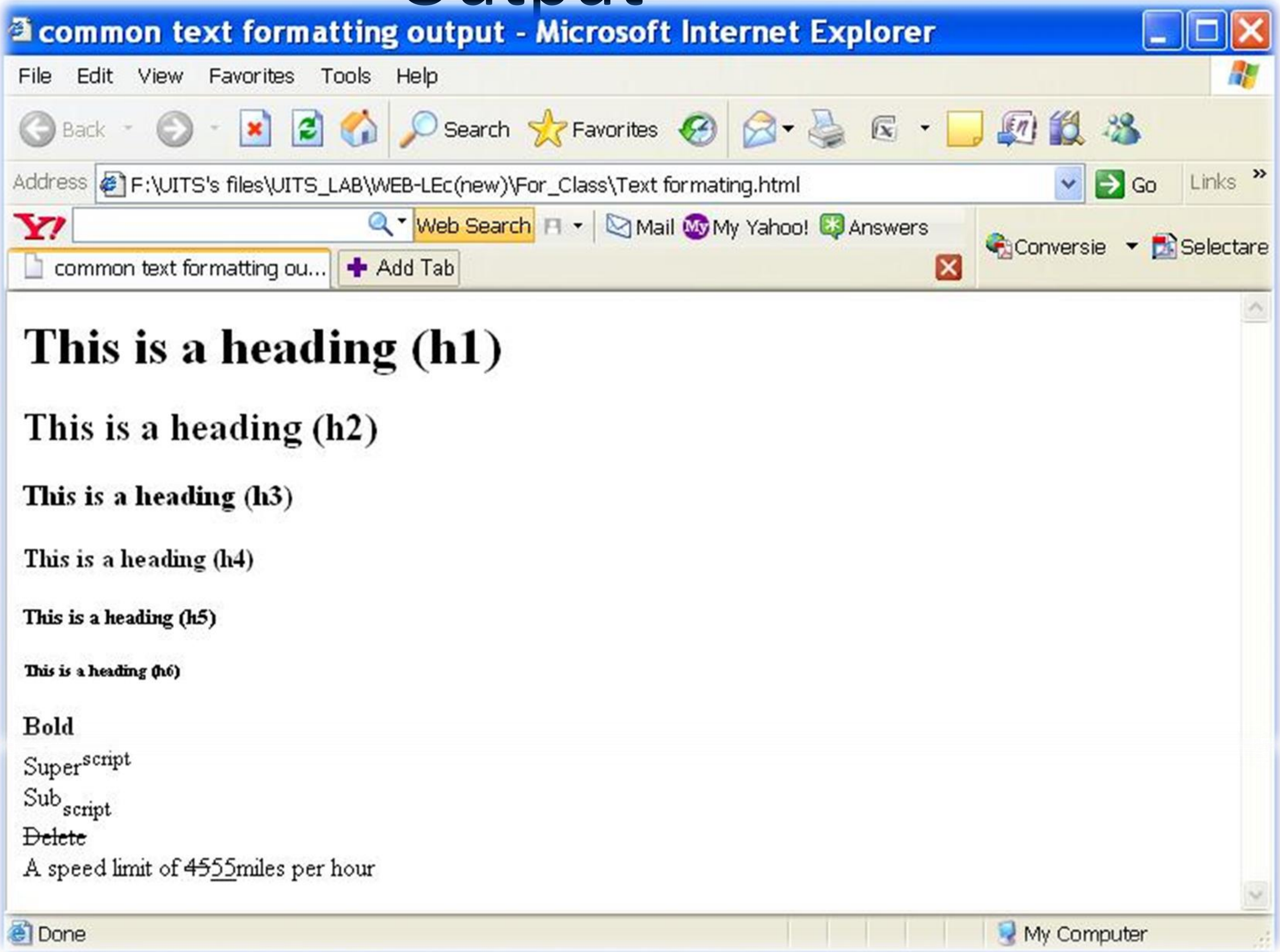
Edit this..!!

```
<!DOCTYPE HTML PUBLIC
   "-//W3C//DTD HTML 4.01//EN"

  "http://www.w3.org/TR/html4/strict.dtd">
<html>
  <head>
    <title>My Title</title>
  </head>
  <body>
    <p>This is my first web page.</p>
  </body>
</html>
```

Text Formatting

```
<html>
<head><title>common text formatting output</title></head>
<body>
<h1>This is a heading (h1)</h1>
<h2>This is a heading (h2)</h2>
<h6>This is a heading (h6)</h6>
<b>Bold</b><br/>
<i>Italic</i><br/>
Super<sup>script</sup><br/>
Sub<sub>script</sub><br/>
<del>Delete</del><br/>
A speed limit of <del>45</del><ins>55</ins>miles per hour
</body>
</html>
```

Output


common text formatting output - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back
Search
Favorites
Go
Links
Web Search
Mail
My Yahoo!
Answers
Conversie
Selectare
common text formatting ou...
Add Tab
Done
My Computer

Address: F:\UITS's files\UITS_LAB\WEB-LEc(new)\For_Class\Text formating.html

This is a heading (h1)

This is a heading (h2)

This is a heading (h3)

This is a heading (h4)

This is a heading (h5)

This is a heading (h6)

Bold

Super$^{\text{script}}$

Sub$_{\text{script}}$

~~Delete~~

A speed limit of ~~45~~55miles per hour

?

- <em> … </em> and <strong> ... </strong>
  - text to be *emphasized* and **strongly emphasized**
  - browser decides how: usually *italicized*, made **bold**

HTML Lists

- There are two types of list
    - Ordered (numbered)
        - Use `<ol>...</ol>` tags
    - Unordered (bulleted)
        - Use `<ul>...</ul>` tags

- List Items make up both lists
    - Use same `<li>...</li>` tags
- Lists can contain almost anything
    - Text, images, paragraphs, links
    - Even other (nested) lists, same type or not

HTML – Ordered Lists

- <ol> … </ol>
  - surrounds an **ordered list**
  - items are indented and numbered (or alphabetized)
  - use styles (**style=**) to change type of numbering:
  - CSS style: list-style-type: *string*
    - examples of *string*: decimal, lower-alpha, upper-roman
    - e.g. <ol style=”list-style-type: upper-latin”> ... </ul>
  - the start= attribute determines first item's value
    - e.g. <ol start=“3”> - begin numbering at 3 (or c, or iii)
    - but this is deprecated, with no CSS replacement!

HTML Ordered Lists

- Changing the Number Style
  - To change the number used to prefix each order list item use the **list-style-type** property with one of the following values:
    - decimal
    - lower-roman
    - upper-roman

HTML – Unordered Lists

- <li>…</li>
  - List Item: surrounds each list item inside a list
  - used inside both <ul> and <ol> list types
- <ul>…</ul>
  - surrounds an **unordered list** – no numbering
  - <li>...</li> items each indented and bulleted
  - use styles (**style=** attribute) to change type of bullet:
  - CSS style: list-style-type: *string*
    - *string* can be: circle, disc, square
    - e.g. <ul style=”list-style-type: square”> ... </ul>

HTML Unordered Lists(Cont...)

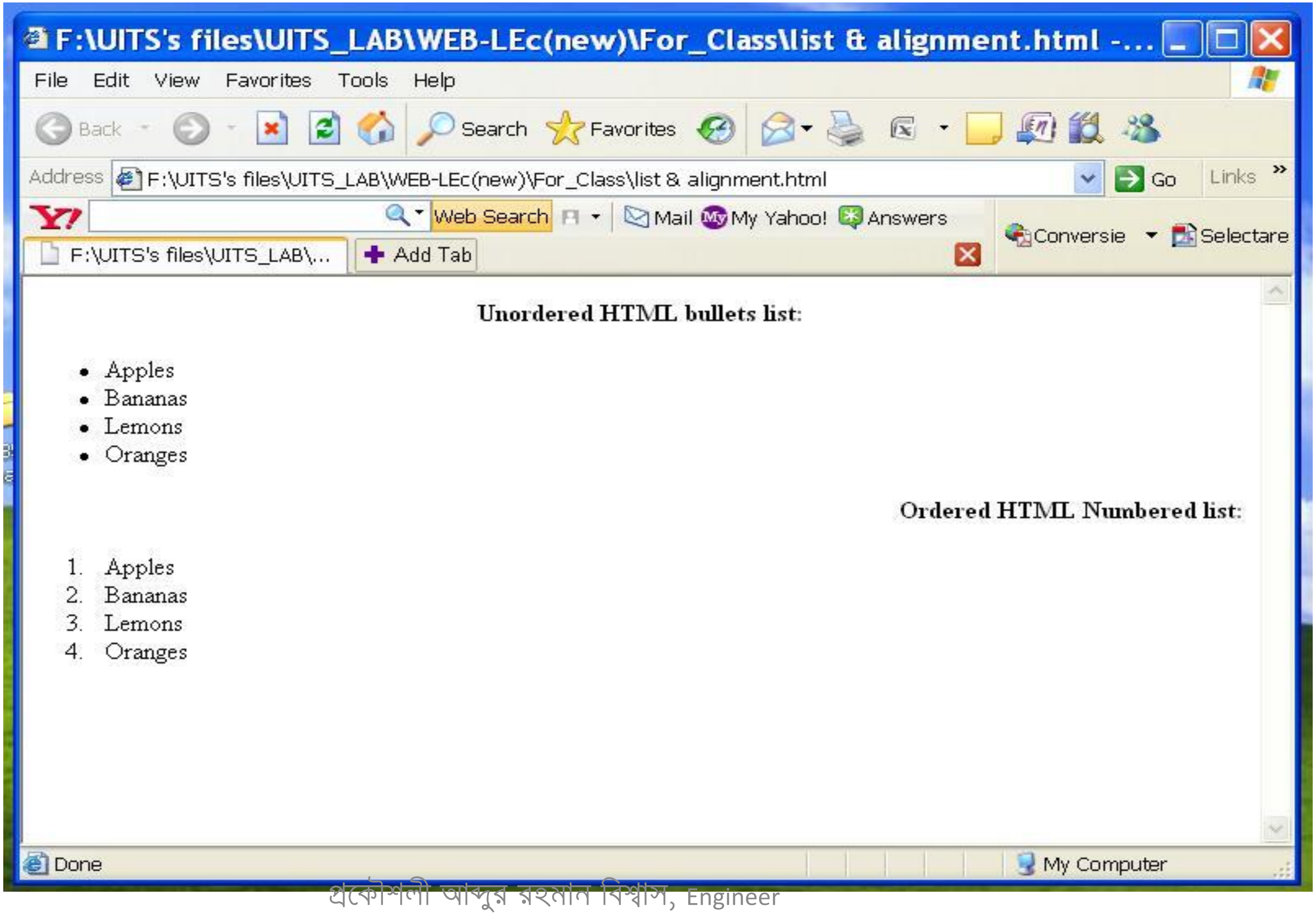
- Changing the list item marker example:

```
<head>
    <style type = "text/css">
        .square{list-style-type: square}
    </style>
</head>
<body>
    <ul class = "square">
        <li>Milk</li>
        <li>Coffee</li>
    </ul>
</body>
```

List & Alignment

```
<html>
<body>
<h4 align="center">Unordered  HTML bullets list:</h4>
<ul type="disc">
 <li>Apples</li>
 <li>Bananas</li>
 <li>Lemons</li>
 <li>Oranges</li>
</ul>
<h4 align="right"> Ordered HTML Numbered list:</h4>
<ol>
 <li>Apples</li>
 <li>Bananas</li>
 <li>Lemons</li>
 <li>Oranges</li>
</ol>
</body>
</html>
```

Output



F:\UITS's files\UITS_LAB\WEB-LEc(new)\For_Class\list & alignment.html -...
File Edit View Favorites Tools Help
Back Search Favorites
Address F:\UITS's files\UITS_LAB\WEB-LEc(new)\For_Class\list & alignment.html Go Links
Web Search Mail My Yahoo! Answers Conversie Selectare
F:\UITS's files\UITS_LAB\...
Add Tab
Done
My Computer

Unordered HTML bullets list:

- Apples
- Bananas
- Lemons
- Oranges

Ordered HTML Numbered list:

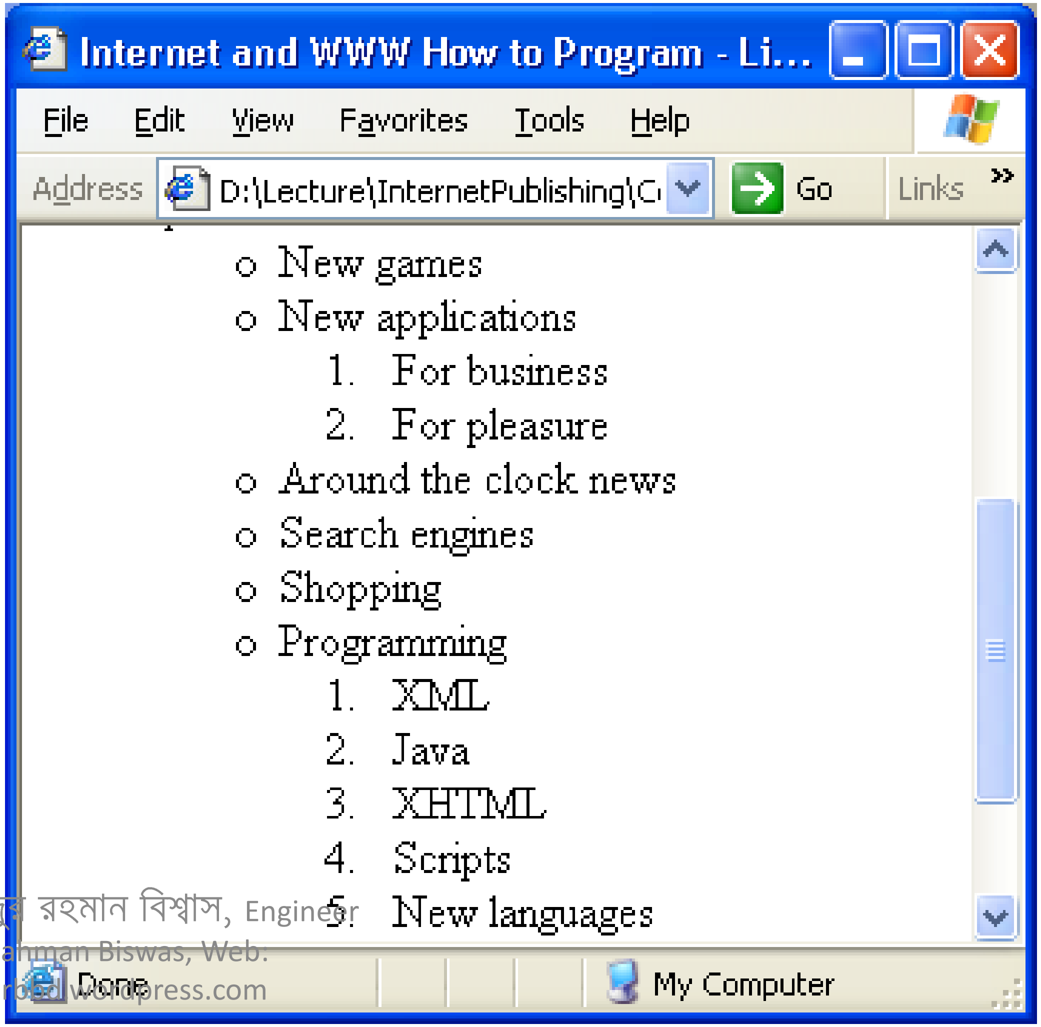
1. Apples
2. Bananas
3. Lemons
4. Oranges

Nested and ordered lists in HTML

```
<ul>
    <li>New games</li>
    <li>New applications
        <ol>
            <li>For business</li>
            <li>For pleasure</li>
        </ol>
     </li>
     <li>Around the clock news</li>
     <li>Search engines</li>
     <li>Shopping</li>
     <li>Programming
         <ol>
             <li>XML</li>
             <li>Java</li>
             <li>XHTML</li>
             <li>Scripts</li>
             <li>New languages</li>
         </ol>
      </li>
</ul>
```

nested ordered list

Another nested ordered list


Internet and WWW How to Program - Li...
File Edit View Favorites Tools Help
Address D:\Lecture\InternetPublishing\C
Go
Links
Done
My Computer

- New games
- New applications
    1. For business
    2. For pleasure
- Around the clock news
- Search engines
- Shopping
- Programming
    1. XML
    2. Java
    3. XHTML
    4. Scripts
    5. New languages

HTML Definition Lists

- A definition list is a list of items, with a description of each item.
- The <dl> tag defines a definition list.
- The <dl> tag is used in conjunction with
  - <dt> definition title (defines the item in the list) and
  - <dd> definition description(describes the item in the list)
- Example:

```
<dl>
    <dt>Coffee</dt>
                <dd>- black hot drink</dd>
    <dt>Milk</dt>
                <dd>- white cold drink</dd>
</dl>
```

HTML – Entities (Special Characters)

HTML Entities – for special characters, accents, foreign

- starts with ampersand and ends with semicolo

&nbsp;   non-breaking-space – acts like a letter

- words connected with &nbsp; will not separate across a line break; they stay together as one word
- e.g. **`Mr.&nbsp;Ian!&nbsp;D.&nbsp;Allen`**

&lt; (less than) = **<**   &gt; (greater than) = **>**

&quot; (double quote) = **"**   &apos; (apostrophe) = **'**

&amp; (ampersand) = **&**

- many, many others!

Character Entities

- Some characters have a special meaning in HTML, like the less than sign (<) that defines the start of an HTML tag. If we want the browser to actually display these characters we must insert **Character Entities** in the HTML source.

- A character entity has three parts:
  - an ampersand (&)
  - an entity name **or** a # and an entity number
  - and finally a semicolon (;).

Character Entities(Cont…)

- To display a less than sign in an HTML document we write: **&lt;** or **&#60;**

- The advantage of using a name instead of a number is that a name is easier to remember.
- The disadvantage is that not all browsers support the newest entity names, while the support for entity numbers is very good in almost all browsers.

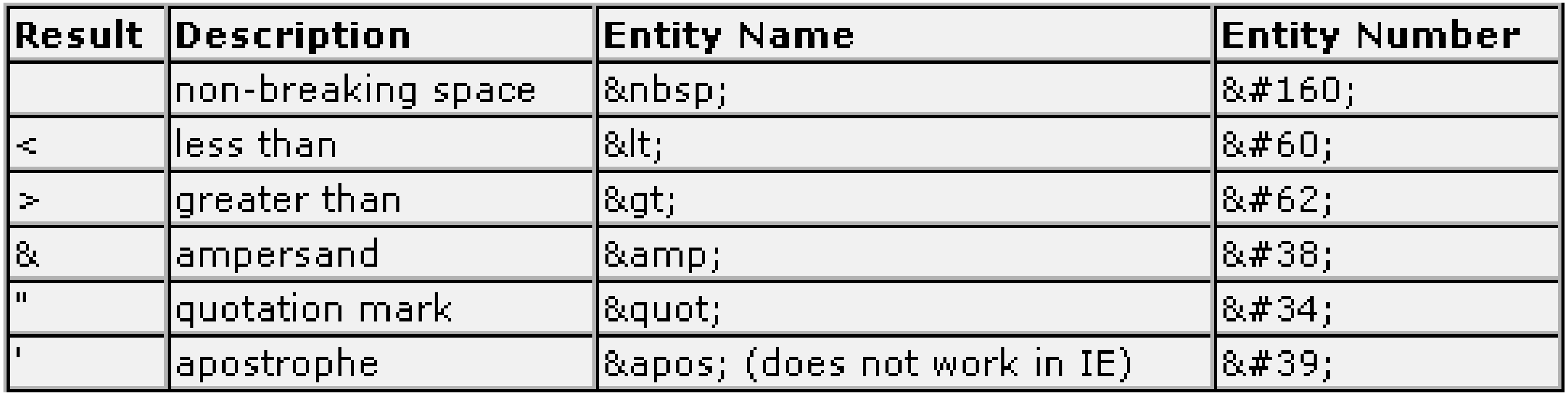
- Note that the entities are **case sensitive**.

Character Entities(Cont…)

- **Non-breaking Space**
  - The most common character entity in HTML is the non-breaking space.
  - Normally HTML will truncate spaces in your text. If you write 10 spaces in your text HTML will remove 9 of them.
  - To add spaces to your text, use the **&nbsp;** character entity.

Character Entities(Cont…)

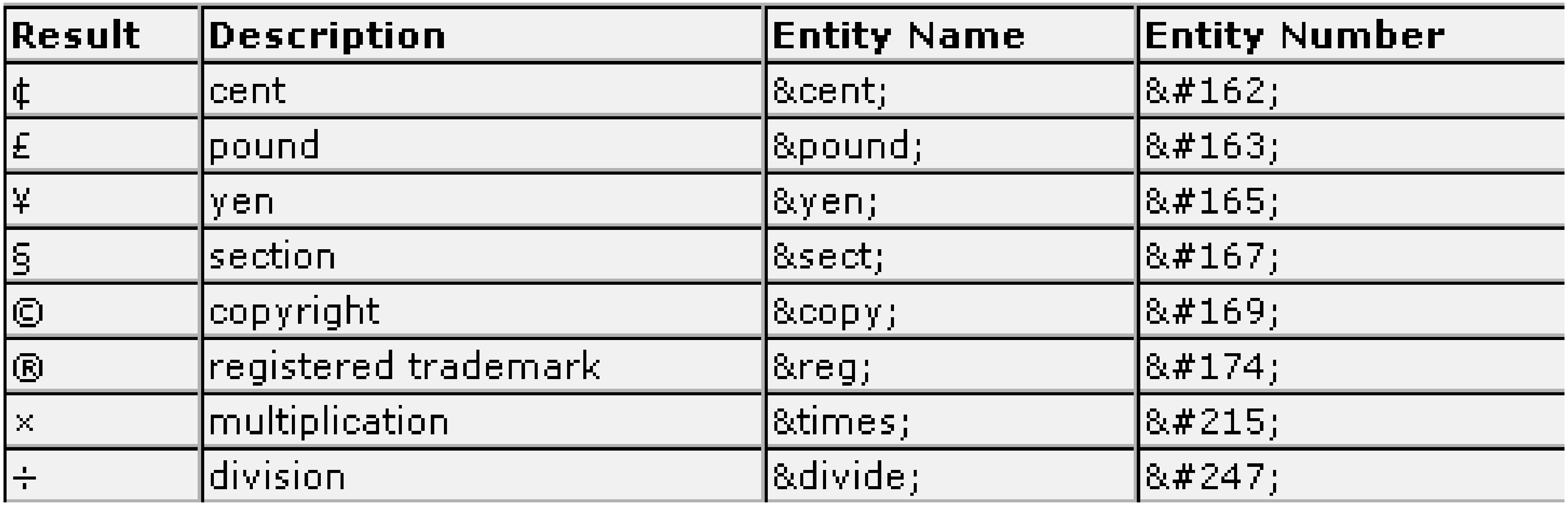
- **The Most Common Character Entities:**



Result	Description	Entity Name	Entity Number
	non-breaking space	&nbsp;	&#160;
<	less than	&lt;	&#60;
>	greater than	&gt;	&#62;
&	ampersand	&amp;	&#38;
"	quotation mark	&quot;	&#34;
'	apostrophe	&apos; (does not work in IE)	&#39;

Character Entities(Cont…)

- **Some Other Commonly Used Character Entities:**



Result	Description	Entity Name	Entity Number
¢	cent	&cent;	&#162;
£	pound	&pound;	&#163;
¥	yen	&yen;	&#165;
§	section	&sect;	&#167;
©	copyright	&copy;	&#169;
®	registered trademark	&reg;	&#174;
×	multiplication	&times;	&#215;
÷	division	&divide;	&#247;

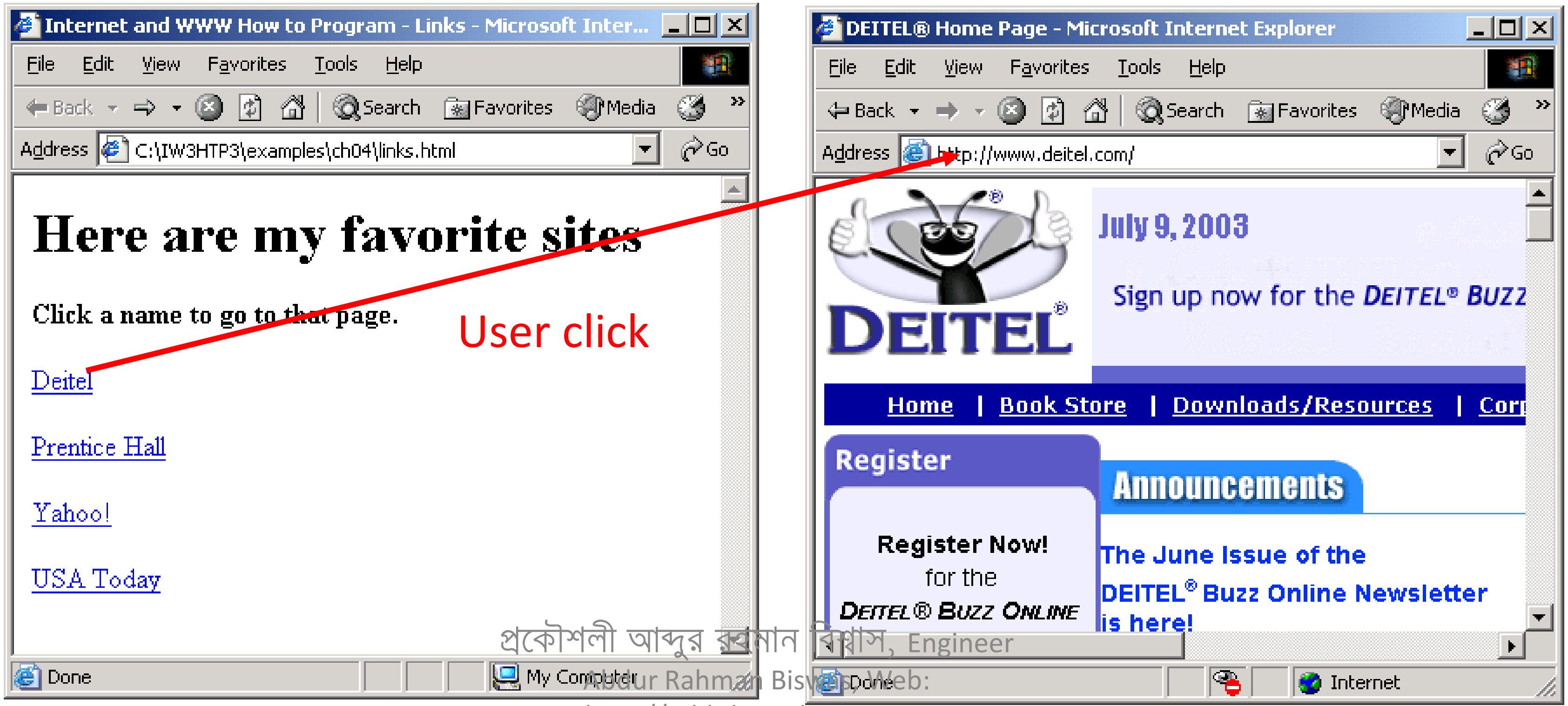
3.6 Linking

- Linking is done through Hyperlink
  - References other sources such as HTML documents and images
  - Both text and images can act as hyperlinks

- Created using the a (anchor) element
  - Attribute `href`: specifies the location of a linked resource
  - Link to e-mail addresses using `mailto:` URL

Example3: Linking to other Web pages: links.html

```
<body>
   <p><a href = "http://www.deitel.com">Deitel</a></p>
   <p><a href = "http://www.prenhall.com">Prentice Hall</a></p>
   <p><a href = "http://www.yahoo.com">Yahoo!</a></p>
   <p><a href = "http://www.usatoday.com">USA Today</a></p>
 </body>
```


Internet and WWW How to Program - Links - Microsoft Inter...
File Edit View Favorites Tools Help
Back Search Favorites Media
Address C:\IW3HTP3\examples\ch04\links.html
Go
Done
My Computer
User click
DEITEL® Home Page - Microsoft Internet Explorer
File Edit View Favorites Tools Help
Back Search Favorites Media
Address http://www.deitel.com/
Go
Done
Internet

Here are my favorite sites

Click a name to go to that page.

Deitel

Prentice Hall

Yahoo!

USA Today

DEITEL®

July 9, 2003

Sign up now for the DEITEL® BUZZ

Home | Book Store | Downloads/Resources | Corp

Register

Register Now! for the DEITEL® BUZZ ONLINE

Announcements

The June Issue of the DEITEL® Buzz Online Newsletter is here!

The Target Attribute

- With the target attribute, you can define **where** the linked document will be opened.

- The line below will open the document in a new browser window:
  - <a href="nextpage.html" target="_blank">Visit Next Page</a>

Some HTML Tag Examples

START TAG	*END TAG*
<HTML>	</HTML>
<HEAD>	</HEAD>
<TITLE>	</TITLE>
<BODY>	</BODY>
<H1>, <H2>, . . .	</H1>, </H2>, . . .
<IMG . . .>	</IMG> (optional)
<A . . .>	</A>
<P>	</P> (optional)
<BR>	(none; "empty" tag)
<OL>	</OL>
<UL>	</UL>
<LI>	</LI> (optional)

Preformatted Text

- Originally browser will ignore any extra white spaces.
- But occasionally it is possible to keep them
- Use preformatted text tag <pre> </pre> for this purpose
- Useful to show programming codes

```
 <pre>
   Web
                    Technology
</pre>
```

Thank You

CSE 205: Web Technology

Web Standards & Layout

Web Standards

- W3C standards define an **Open Web Platform** for application development that has the unprecedented potential to enable developers to build rich interactive experiences, powered by vast data stores, that are available on any device.
- W3C develops these technical specifications and guidelines through a process designed to maximize consensus about the content of a technical report, to ensure high technical and editorial quality, and to earn endorsement by W3C and the broader community.
- Although the boundaries of the platform continue to evolve, industry leaders speak nearly in unison about how HTML5 will be the cornerstone for this platform. But the full strength of the platform relies on many more technologies that W3C and its partners are creating, including CSS, SVG, WOFF, the Semantic Web stack, XML, and a variety of APIs.

Layout Without Tables

Tables should not be used purely as a means to layout document content as this may present problems when rendering to non-visual media. Additionally, when used with graphics, these tables may force users to scroll horizontally to view a table designed on a system with a larger display. To minimize these problems, **authors should use style sheets to control layout rather than tables**.”

www.w3.org/TR/html4/struct/tables.html#h-11.1

Layout Without Tables

- ►Use the <div> tag
  - – Separate your page sections into <div> regions
  - – A <div> is an invisible container for content
- ►Use Cascading Style Sheets to position your regions
- ►Separate your display information from your HTML (No fonts or colors or tables for layout.)

Content Versus Display

- ►Separating display from content can be tricky
  - – Photos are essentially content, so they can be included in the HTML
  - – Backgrounds are not content, and neither are colors or fonts, so they should go into the style sheet
  - – **BOLD and ITALICS** emphasise the content and are often considered part of the content
    - ►**Don’t make a style just to bold words. Use <em>**

Layout Without Tables (Continued)

- ►Separate your page into important regions
  - – Banner area (Title, banner graphic)
  - – Menu or navigation
  - – Content
    - ►Columns? Sidebar?
  - – Footer
- ►DO NOT WORRY ABOUT POSITIONING YET!
  - – You’re not doing layout in HTML!!!

Layout Without Tables (Continued)

- ►Once your structure is defined, start thinking about the “skins” of the page
- ►The style sheet is your skin
  - – You can use more than one “skin” for your page.
  - – Because your “look and feel” is separated from your content, changing your design is easy
  - – PDAs, phones, and even printers can have their own style sheets.

IDs and Classes

- ►Placing IDs as attributes of your elements identifies them as unique. You can use the IDs in your style sheet to manipulate the element.
- ►Classes are applied to elements in order to group the elements
  - – Not unique, but similar
- ►Assign IDs to the “regions” of your page (layout)
- ►Assign CLASSES to sub-regions of your page (look and feel)

CSS

Style sheets for a skinnable website:

1. Layout.CSS – simple structure
2. Style.css – colors and fonts (optional)
3. Printer Friendly CSS

That’s A Lot of CSS!

- ►This structure will
  - – Keeps the layout separate from the colors
  - – Makes it easy to adjust fonts
  - – Makes it really easy to have a “printer friendly version” without doing a lot of additional work.

The “Cascading” Part

- ►Styles are “Cascading” meaning that they can be redefined several times, either adding to the style’s properties or overriding the properties.
  - A **.box** style can have a width defined in one style sheet and a color defined in another.
  - A **.box** style can have a width defined in one style sheet and have its width redefined in another style

The Cascading Part (Continued)

- The style that is displayed to the user is the last style applied **for that media type**

```
.box{
   background-color:#ffffff;
}

.box{
   background-color:#000000;
}
```

This would result in a black background

Stacking styles

This

```
    p {color:#ffffff;}
  td {color:#ffffff; }
  h1 {color:#ffffff; }
```

could be simplified to this:

```
    p, td, h1 {color:#ffffff; }
```

Keeping your style small and compact will reduce download times for your users!

Selector Types

- ►ID
  - – #banner
    - ►# sign is used to identify an ID selector in the stylesheet only
    - ►<div id=“**banner**”>
- ►CLASS
  - – .box
    - ►Period (.) is used to identify a class selector in the stylesheet only
    - ►<div class=“**box**”>

Selector Types

- ►Redefined Elements
  - – body
    - ►No # or . means that you are going to redefine the characteristics of this element.

Using Style to Affect a Region

-
  ```
  #main .content a{
        color:#ffffff;
  }
  ```
- All anchor tags within a region defined as class “contents” within a region defined as id “main”
- This ensures that only the elements in a specific section will be modified

```
<div id=“main”>
  <div class=“content”>
        <a href=“mypage.htm”>Link</a>
  </div>
<div>
```

Why Are We Doing This?

- ►Separating layout from content
  - – Makes pages more accessible
    - ►Text-only
    - ►Printer-friendly
  - – Makes download times smaller
    - ►Large bandwidth reduction because CSS is cached
    - ►We can now use more graphics

Links

CSS

```
a.nav:link { color: pink;}
a.nav:visited { color: red;}
a.nav:hover { color: yellow;}
a.nav:active { color: yellow;}
```

Lo

Ve

H

A!

(LoVeHA!)

HTML

```
<a href=“index.html” class=“nav”>index page</a>
```

CSS images

```
li { list-style-image: url(“pic.jpg”); }

body { background-image:  url(“pic.jpg”); }
```

Positioning – what is it?

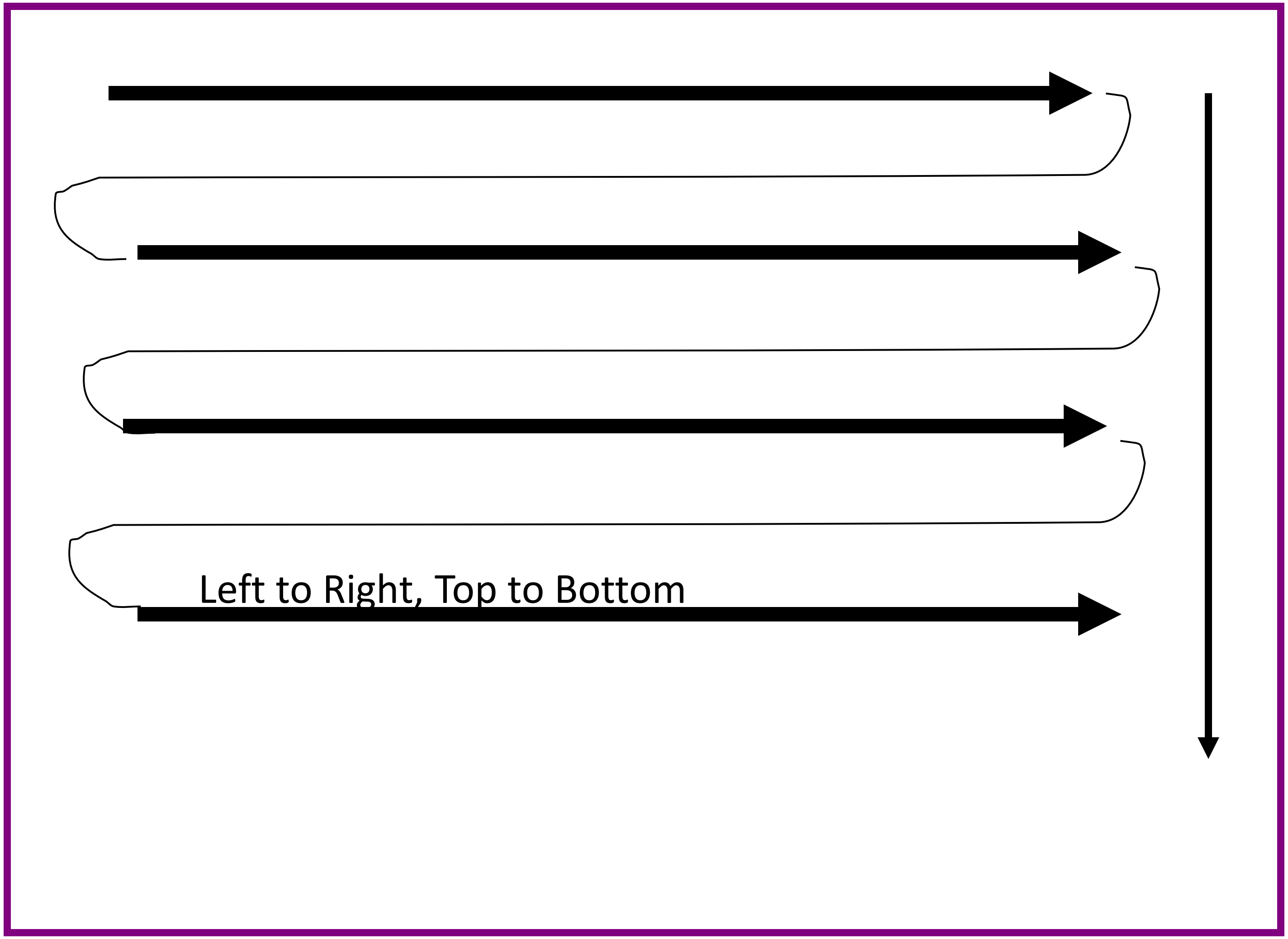
Positioning refers to the layout of the items on your page.

It also refers to the “position” descriptor in CSS rules (more on this in a minute)

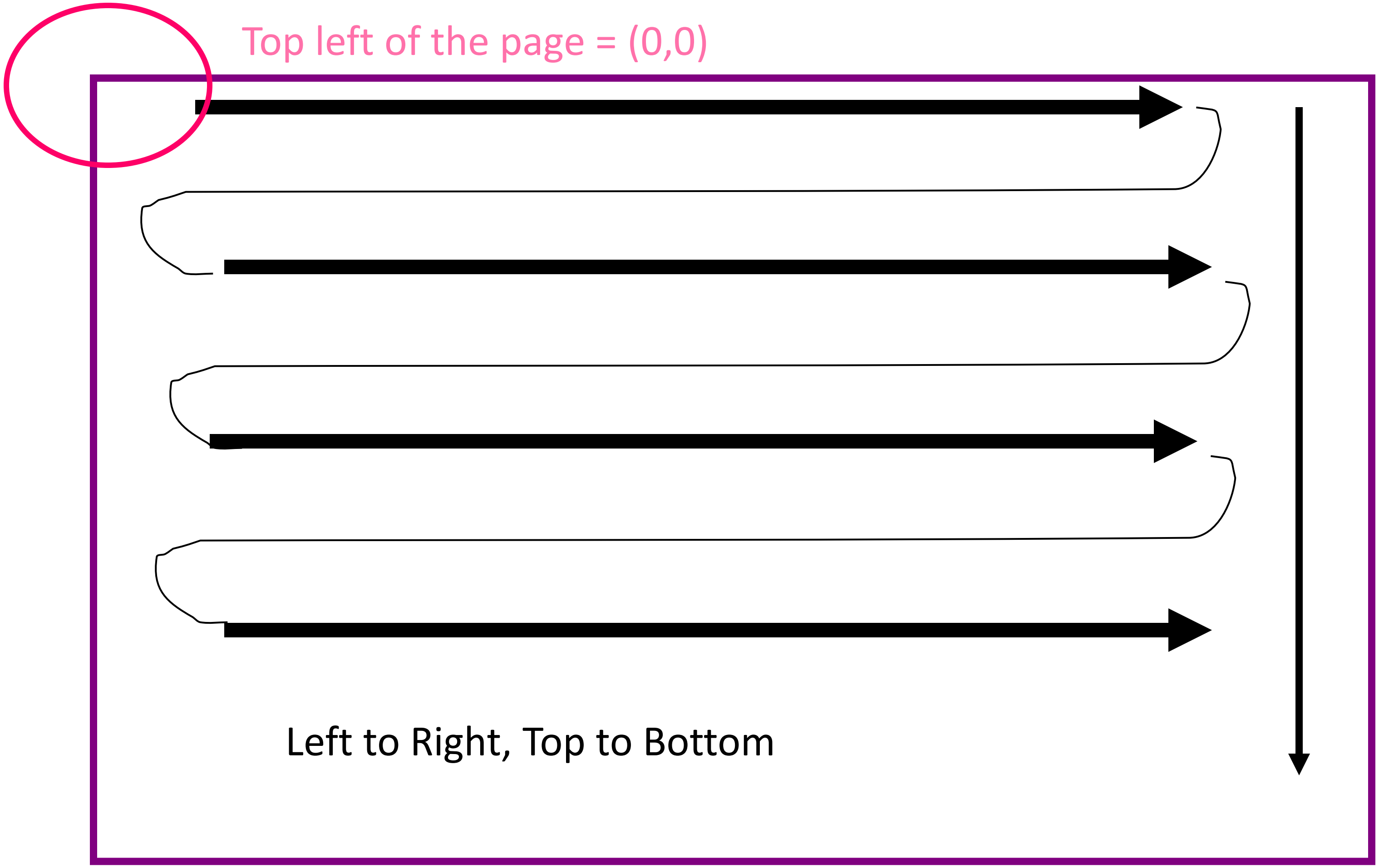
http://edu.itzone.asia/

http://uits.edu.bd/

Normal Flow – no “positioning”

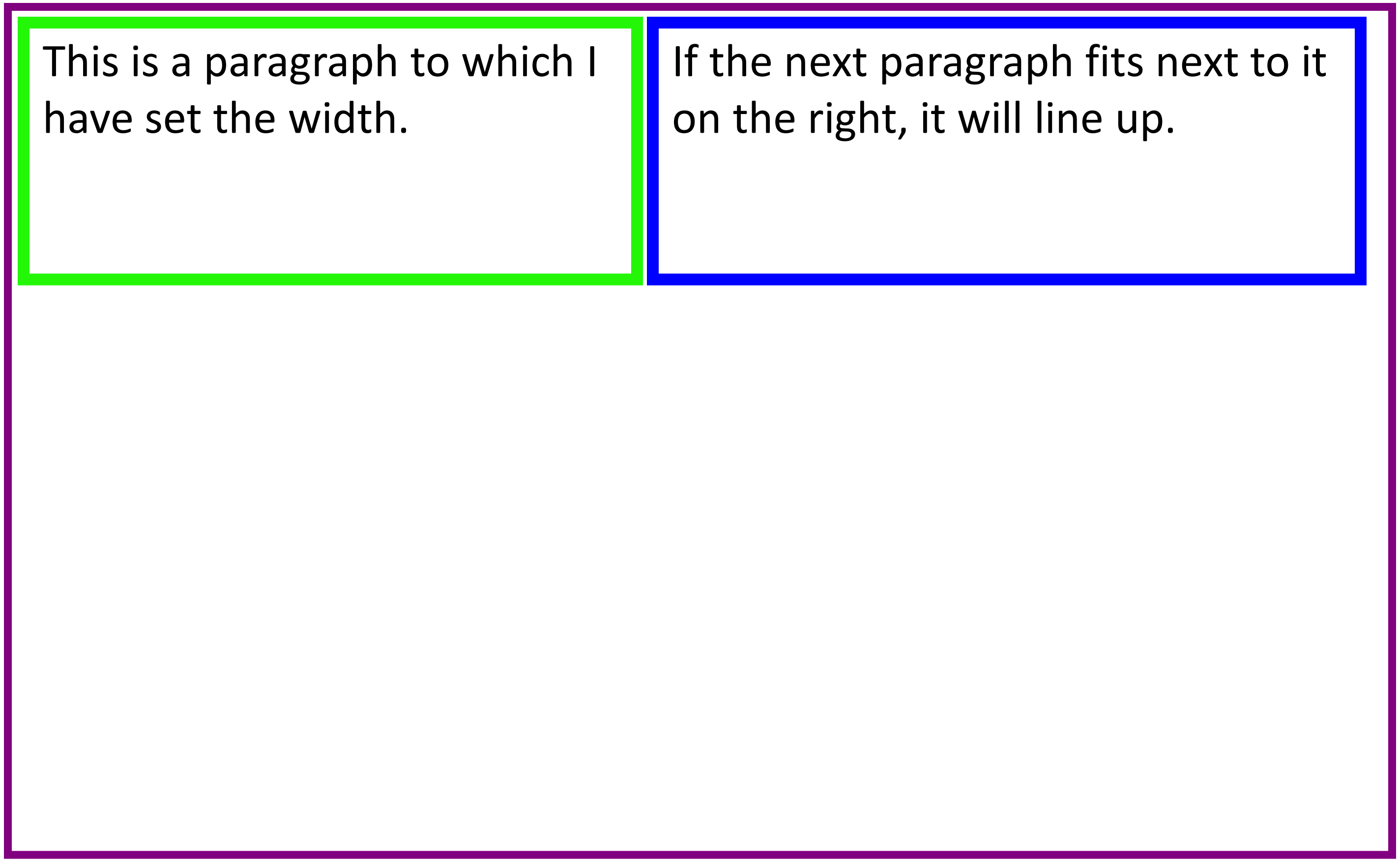


Normal Flow – no “positioning”



Normal Flow

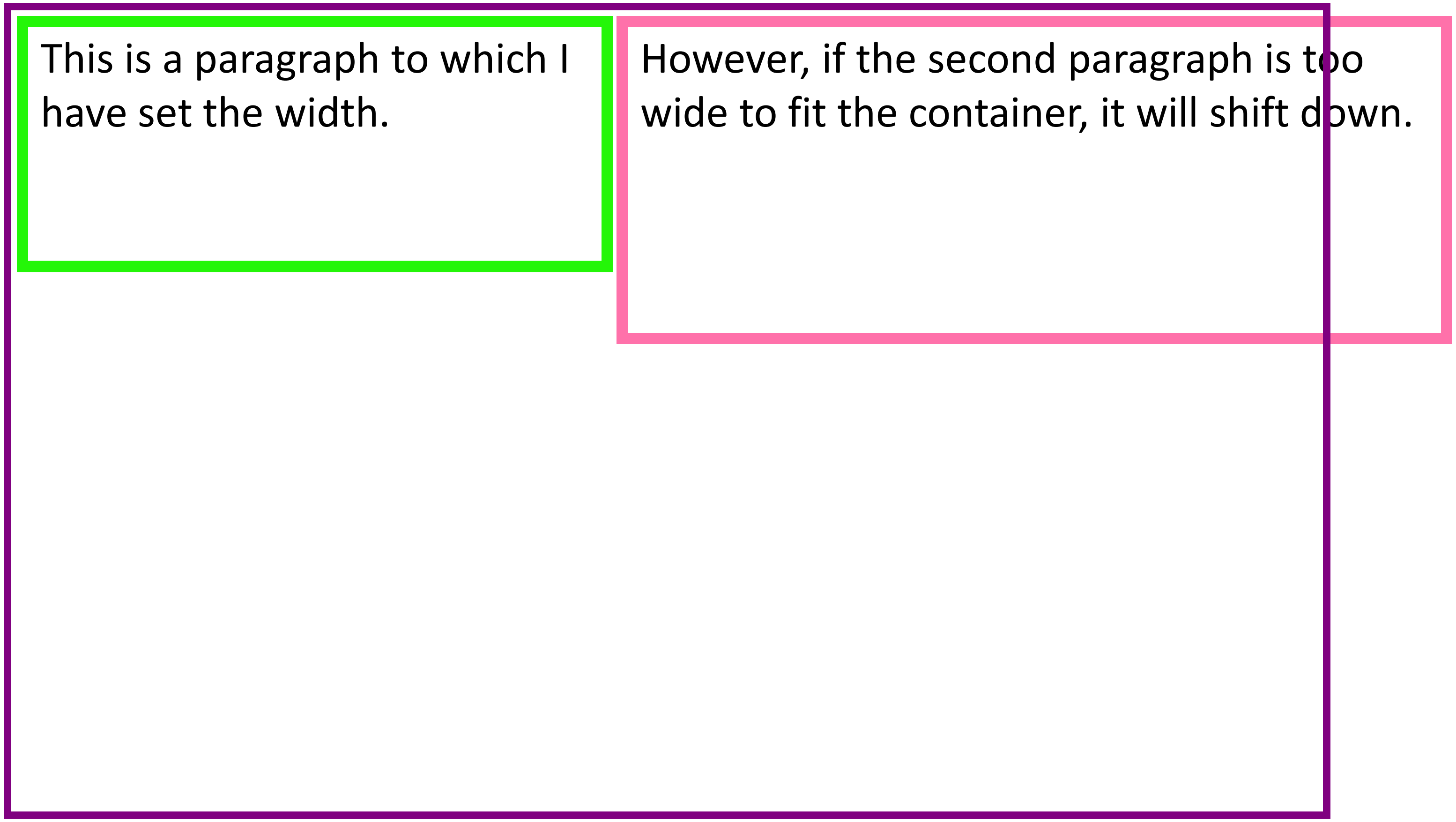
The yellow box is the container (more on this)



This is a paragraph to which I have set the width.

If the next paragraph fits next to it on the right, it will line up.

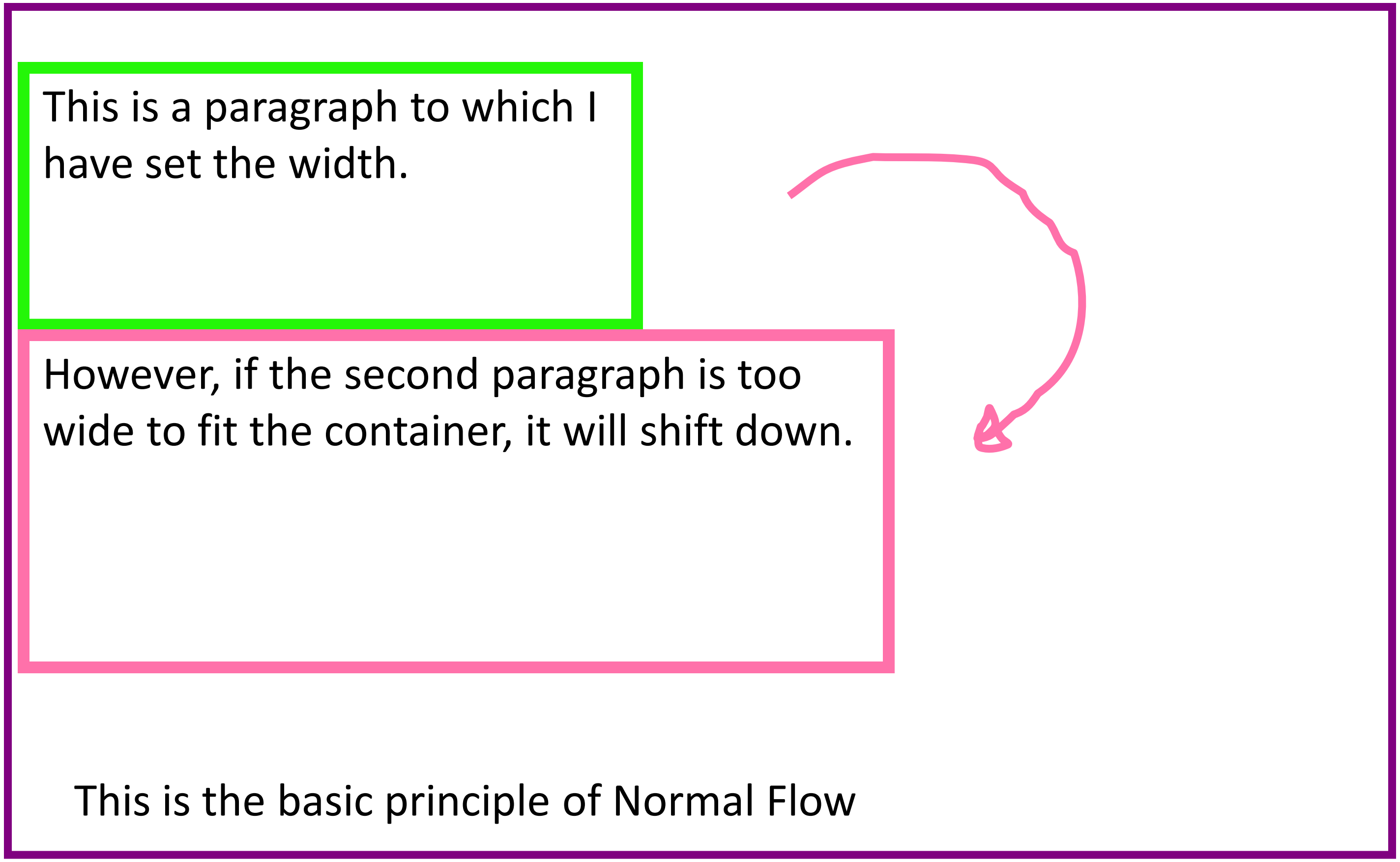
Normal Flow



This is a paragraph to which I have set the width.

However, if the second paragraph is too wide to fit the container, it will shift down.

Normal Flow



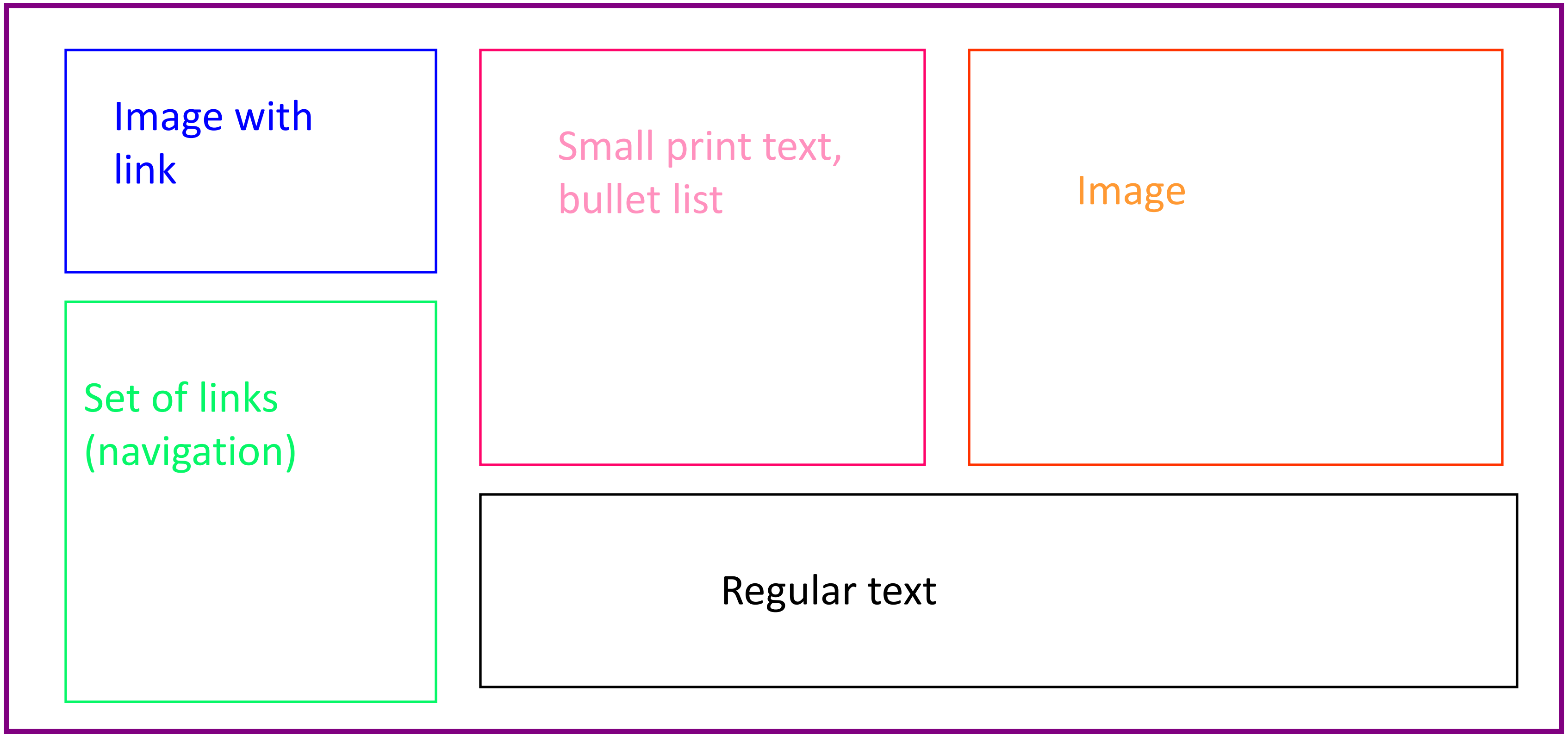
This is a paragraph to which I have set the width.

However, if the second paragraph is too wide to fit the container, it will shift down.

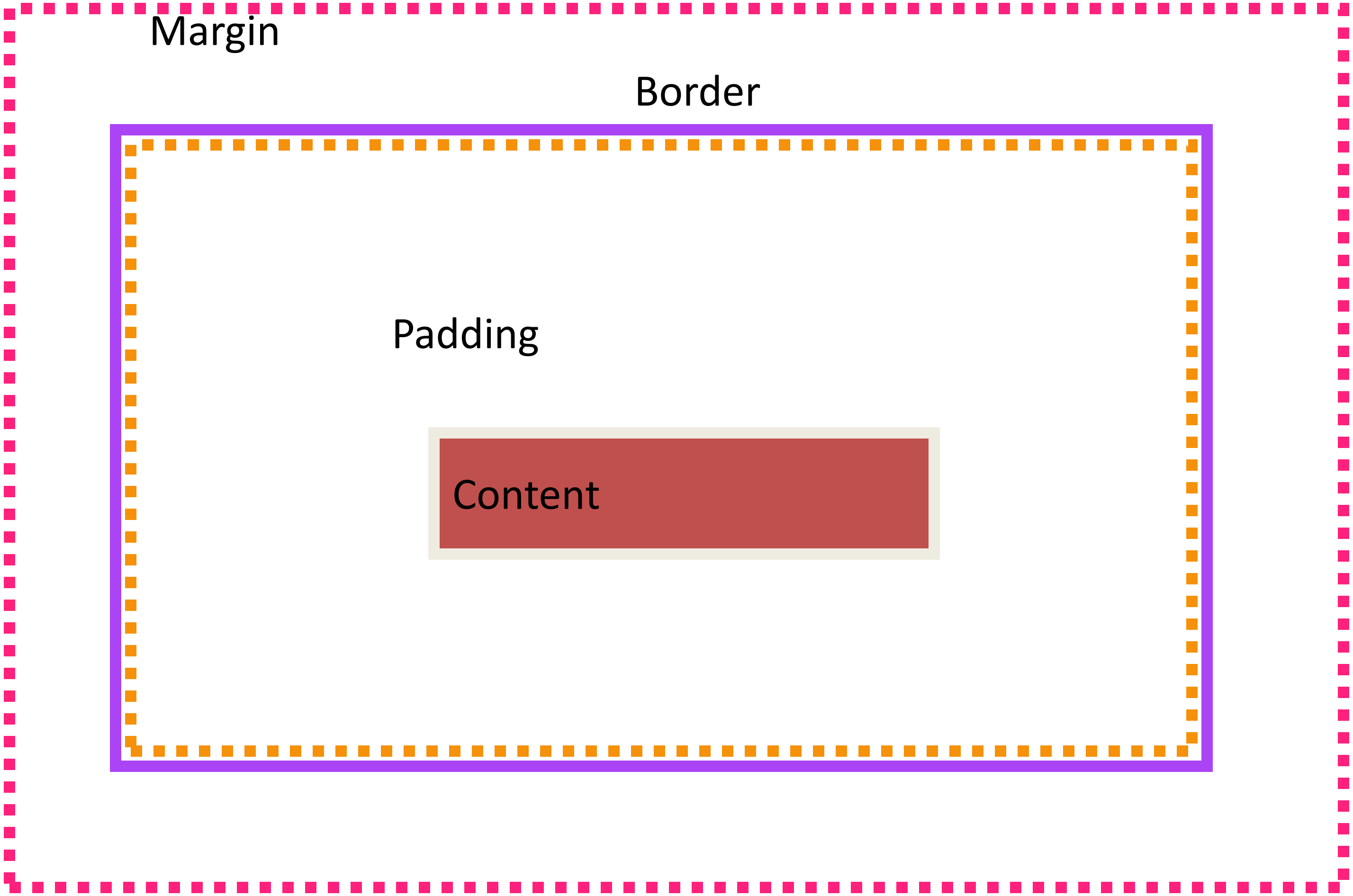
This is the basic principle of Normal Flow

Box Model

All of the items in your webpage generate invisible “boxes” – you have to figure out how all of those boxes will fit into your page, like a puzzle.

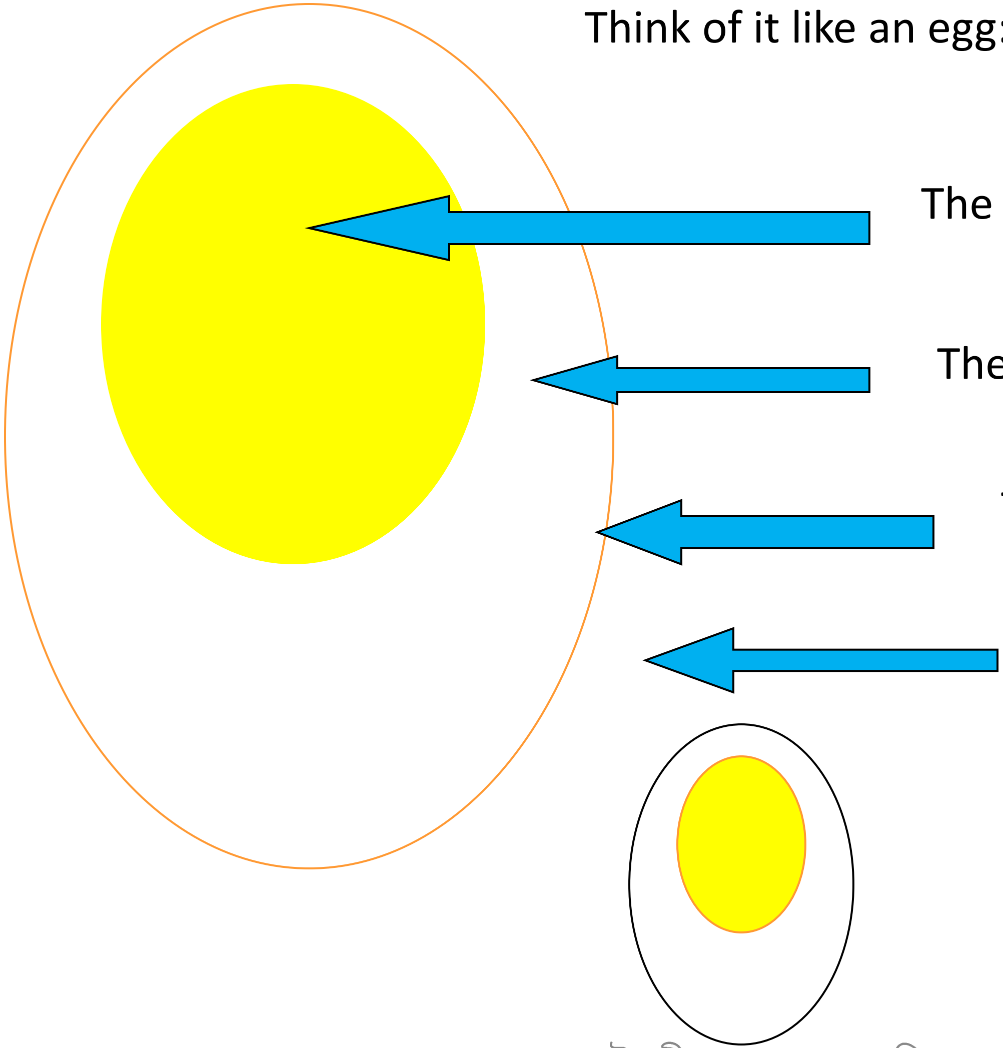


Box Model



Box Model

Think of it like an egg:



The yolk is the content

The albumen is the padding

The shell is the border

The margin is how far the egg is from anything else (another tiny egg, perhaps)

Margin and Padding

```
styleX {
  margin: 10px 10px 10px 10px;
  padding: 5px 5px 5px 5px; }
```

OR

```
styleX {
  margin: 10px;
  padding: 10px; }
```

OR

```
styleX {
  margin: 10px 15px;  padding: 5px 10px; }
```

TRBL

top – right – bottom - left

Shorthand:

Just one number = all 4 sides

Two numbers = top/bottom, left/right

Interrupt the Flow

- **Absolute**
- **Relative**
- **Float**

When you want to do fancier layout, you can position “boxes” or “containers.” By doing this, you interrupt the normal (top to bottom, left to right) flow. You can do this in three ways; Float, Absolute, and Relative.

CSS Position: Float

HTML

```
<div>

<p> This is the normal…</p>

<p class=“float”>This text is
floated right.</p>

</div>
```

This is the normal flow of a document; from top to bottom, left to right. When the floated text is added, it moves to the top right corner of the containing element, in this case the <div>. Normal text flows around the floated text.

This text is floated right.

CSS

```
.float {float:right;}
```

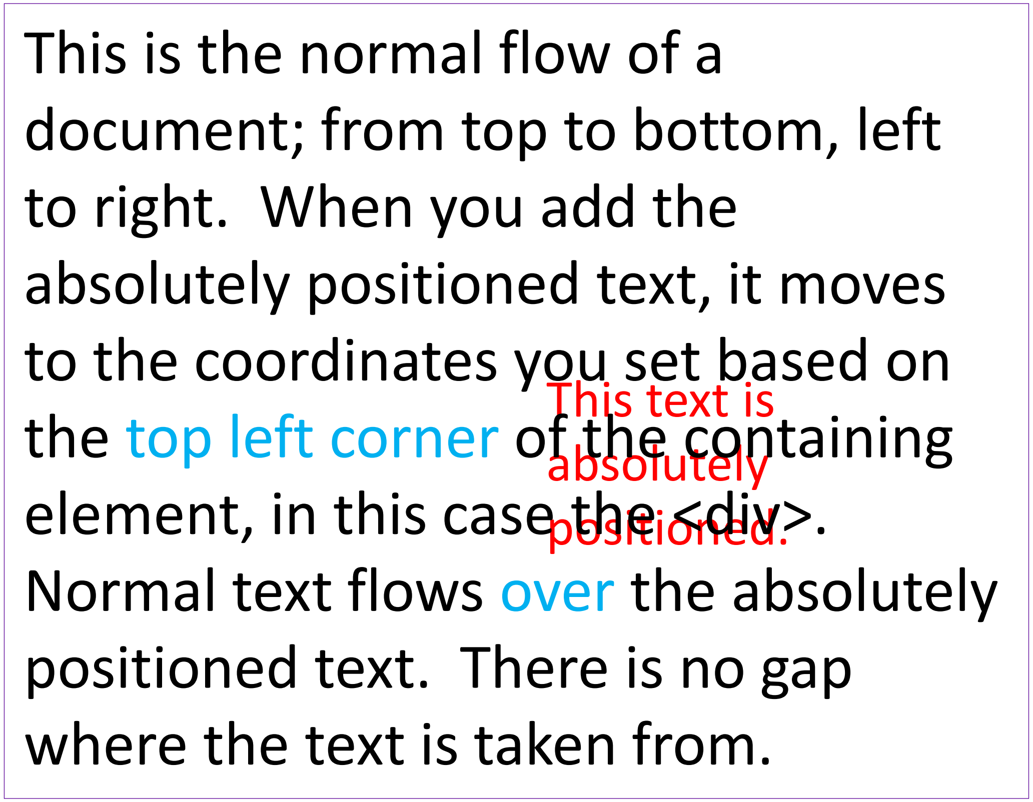
CSS Position: Absolute

HTML

```
<div>

<p> This is the normal… <span
class=“abs”> This text is
absolutely
positioned.</span>…top to
bottom… </p>

</div>
```

CSS

```
.abs {position: absolute;
            top: 40px;
            left: 80;}
```



This is the normal flow of a document; from top to bottom, left to right. When you add the absolutely positioned text, it moves to the coordinates you set based on the top left corner of the containing element, in this case the <div>. Normal text flows over the absolutely positioned text. There is no gap where the text is taken from.

This text is absolutely positioned.

This text is relatively positioned.

CSS Position: Relative

HTML

```
<div>

<p> This is the normal…
<span class="“rel”"> This text is
relatively positioned. </span>
… from top to bottom…</p>

</div>
```

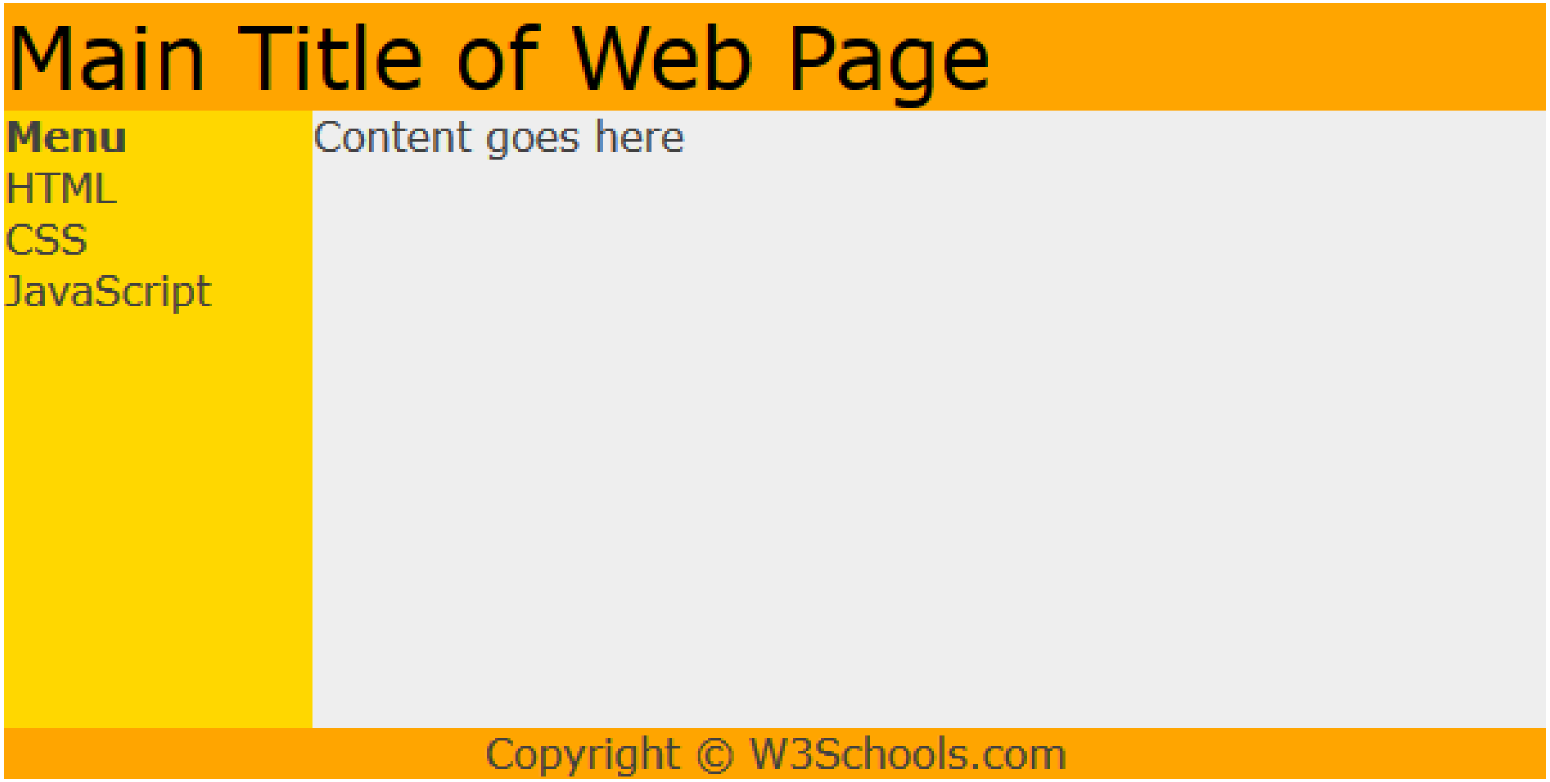
CSS

```
.rel {position: relative;
        top: -50px;
        left: -150px}
```

This is the normal flow of a document; from top to bottom, left to right. When you add the relatively positioned text, it moves to the coordinates you set based on the top left corner of the containing element, in this case the <div>. Normal text flows as normal, but a gap is left where the relative text used to be, and the text overlaps with the newly positioned relative text if they are in the same area.

```
<!DOCTYPE html>
    <html>
    <body>

    <div id="container" style="width:500px">

    <div id="header" style="background-color:#FFA500;">
    <h1 style="margin-bottom:0;">Main Title of Web Page</h1></div>

    <div id="menu" style="background-
    color:#FFD700;height:200px;width:100px;float:left;">
    <b>Menu</b><br>
    HTML<br>
    CSS<br>
    JavaScript</div>
```

```
<div id="content" style="background-
   color:#EEEEEE;height:200px;width:400px;float:left;">
   Content goes here</div>

   <div id="footer" style="background-
   color:#FFA500;clear:both;text-align:center;">
   Copyright © W3Schools.com</div>

   </div>

   </body>
   </html>
```

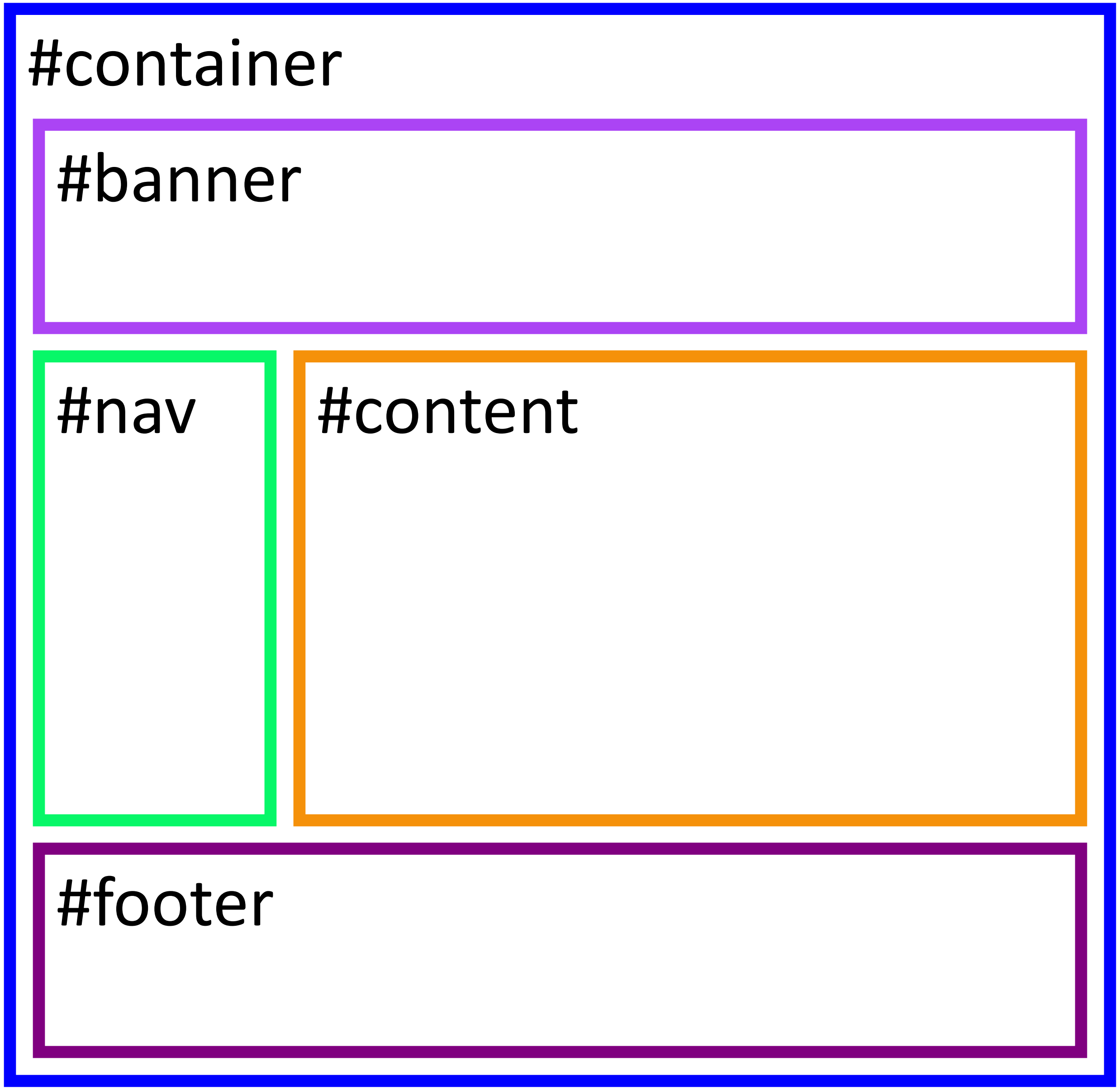


Main Title of Web Page

Menu
HTML
CSS
JavaScript

Content goes here

Copyright © W3Schools.com



#container

#banner

#nav

#content

#footer

Thank you