8 Internet Services: Addressing, File Transfer, Remote Access

Content

- Networking
- Internet
- TCP Applications
  - File Transfer: FTP
  - Remote Access: Secure Shell
- HTML

NETWORKING

Objectives

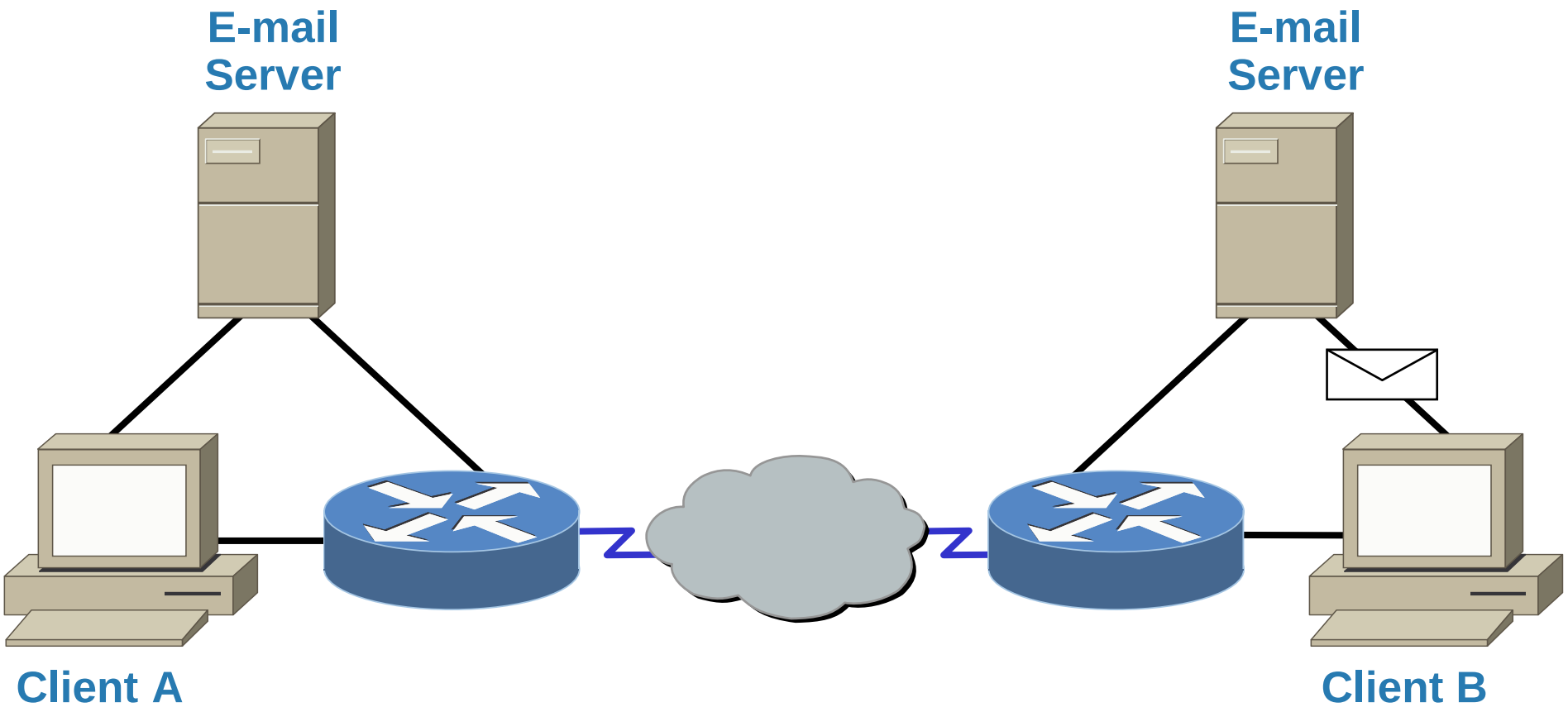
- Define basic networking terms
- Describe some commonly used network applications
- Describe the main purposes and functions of computer networking

WWW Request-Response

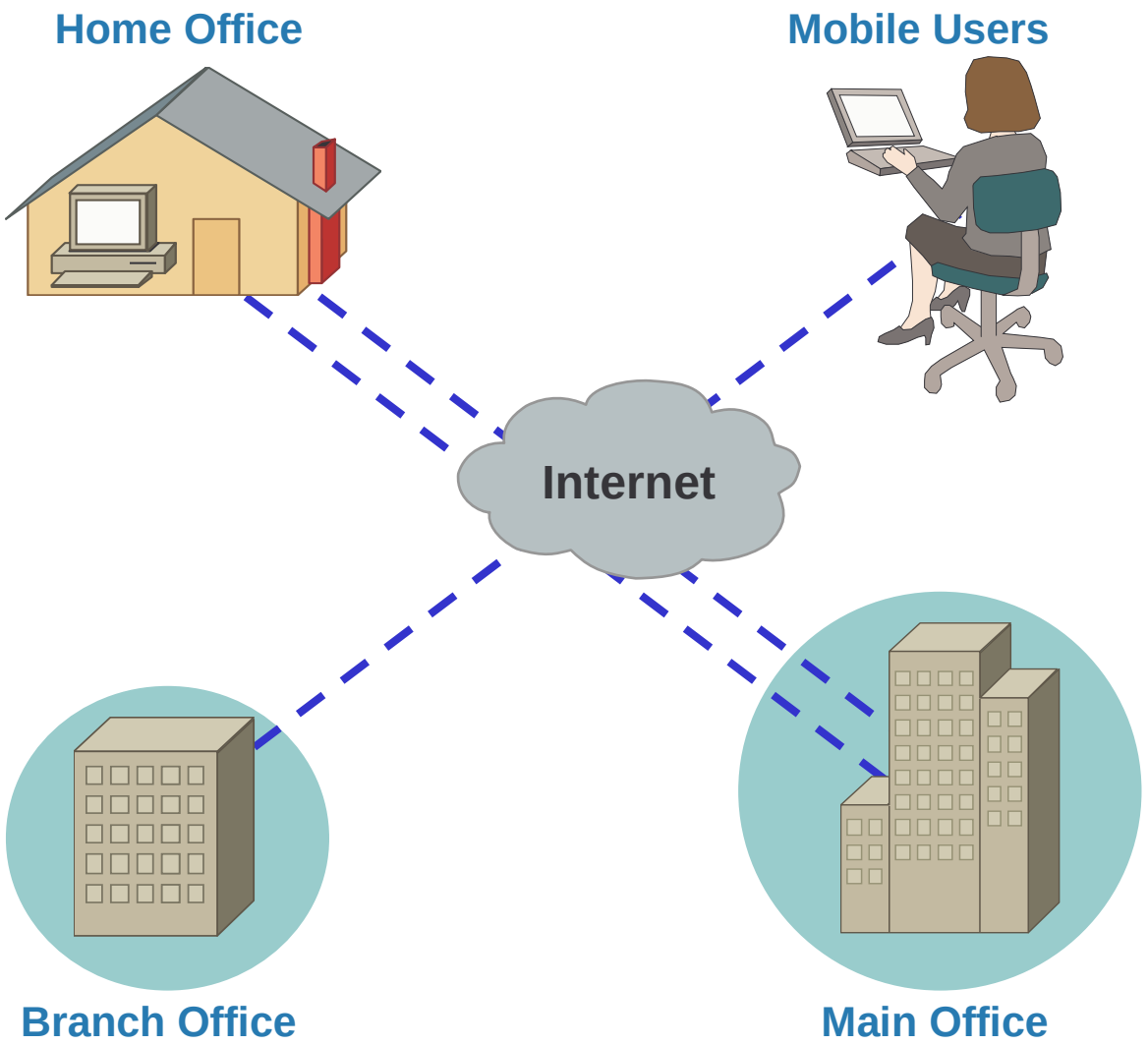
Web Browser

Web Server

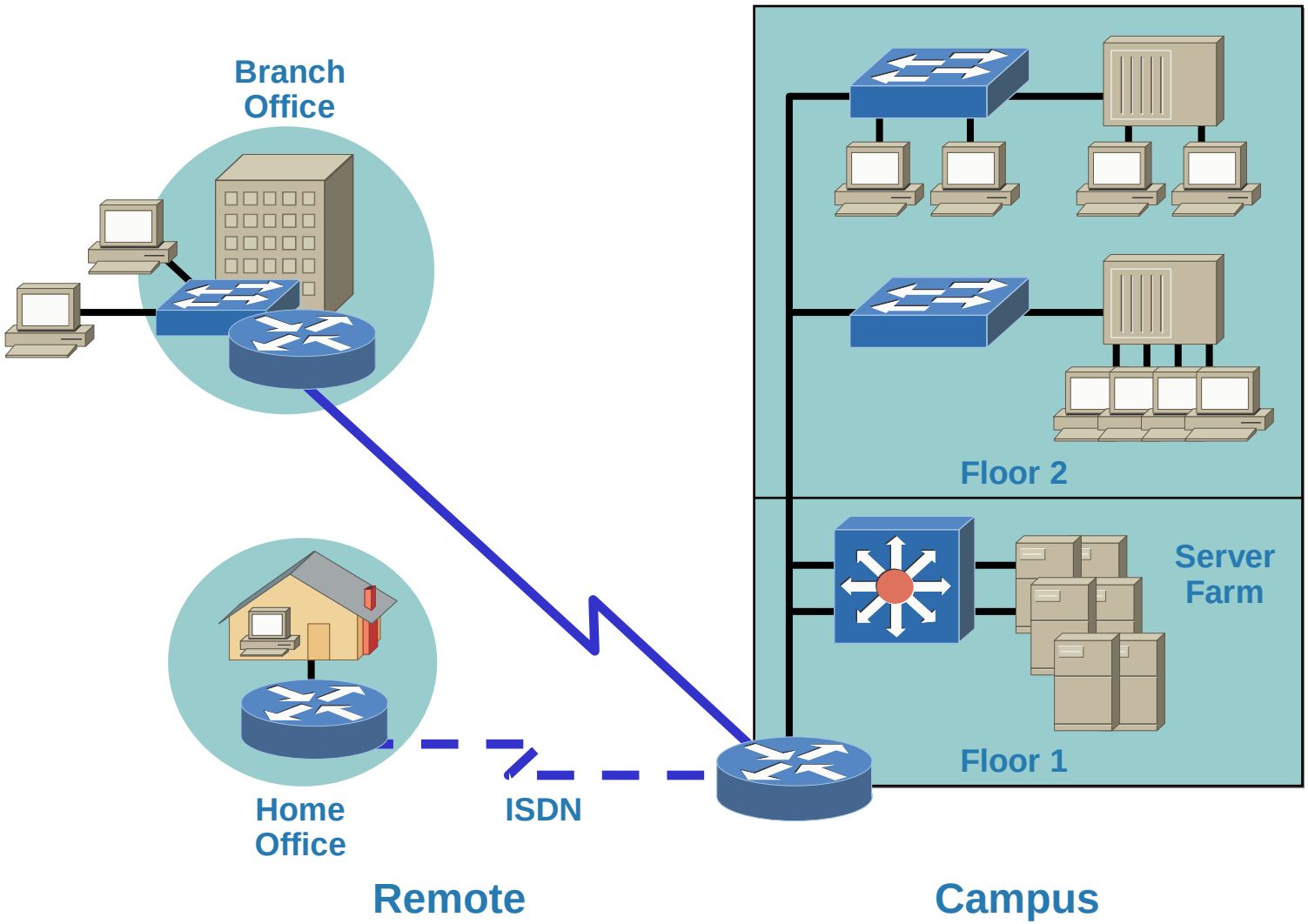
Sending E-Mail



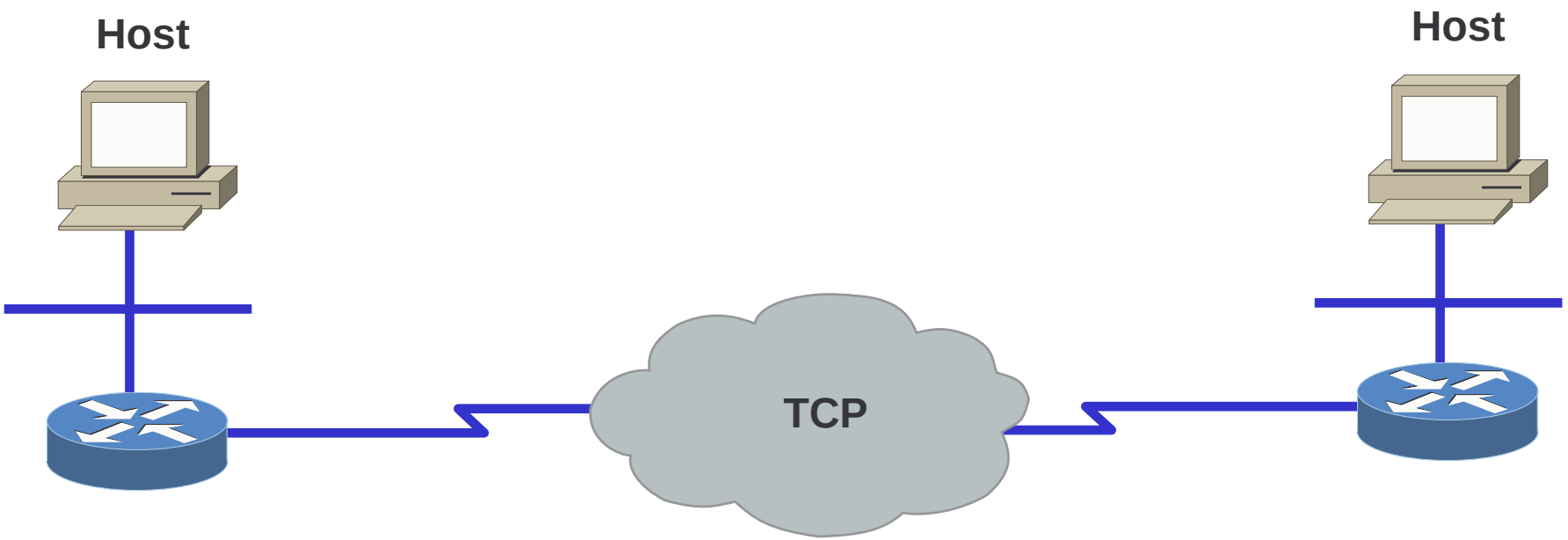
Defining Components of the Network



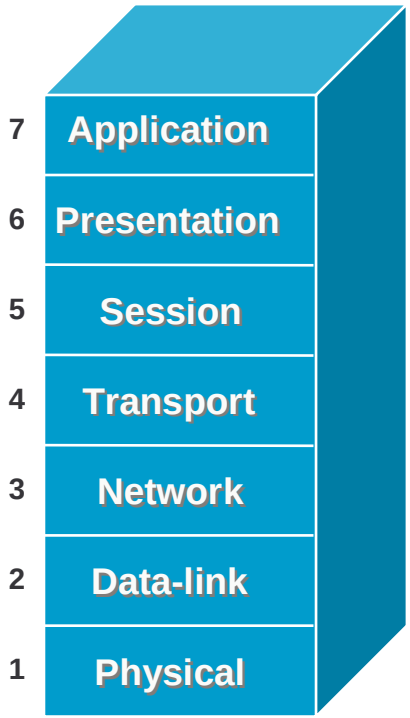
Computer Networks



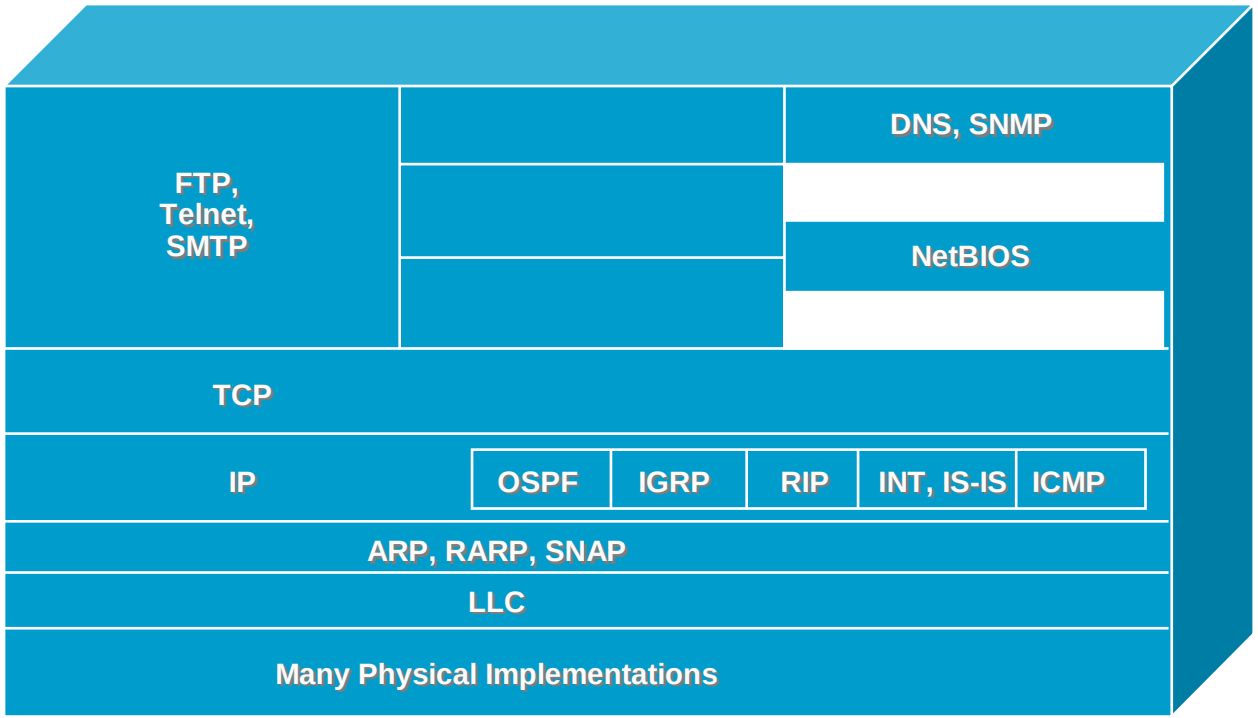
Communications Protocol



TCP/IP Protocol Stack



OSI Reference Model



TCP/IP Protocol Stack

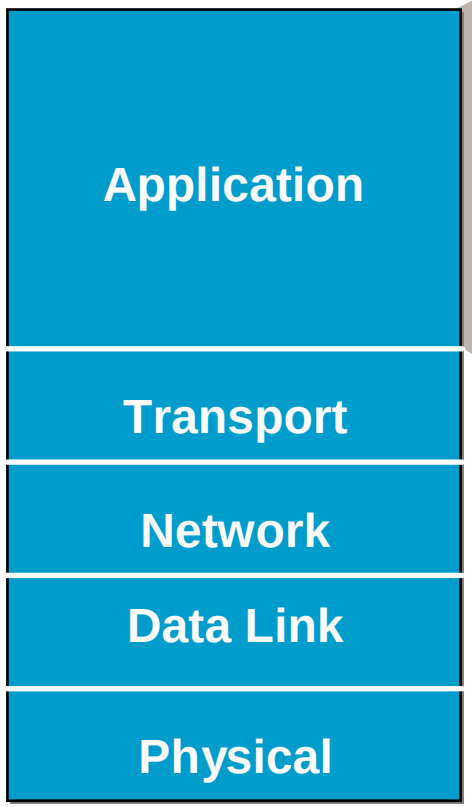
TCP Characteristics

- Connection-Oriented Protocol
- Full-Duplex Operation
- Error Checking
- Sequencing
- Acknowledgments
- Flow Control
- Packet Recovery

UDP Characteristics

- Minimal Service
- Unreliable
- Not-Guaranteed
- Direct Access to Datagrams

Application Layer Overview



- File Transfer
  - TFTP *
  - FTP *
  - NFS
- E-Mail
  - SMTP
- Remote Login
  - Telnet *
  - rlogin *
- Network Management
  - SNMP *
- Name Management
  - DNS*

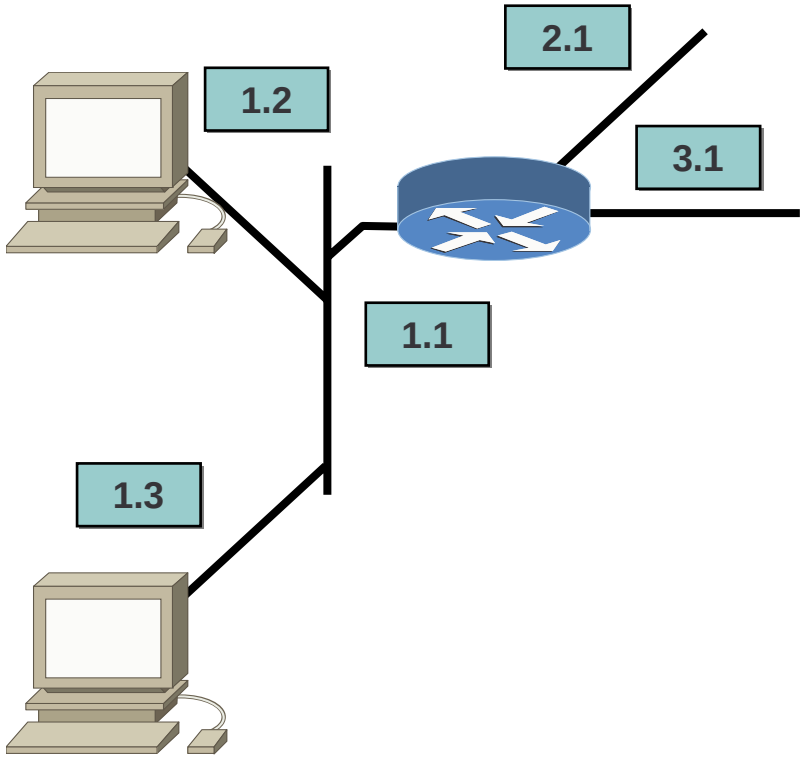
*Used by the router

Summary

- Protocols define a standard set of rules for communicating between devices.
- TCP/IP is a suite of protocols arranged as a stack.
- TCP is a connection-oriented protocol that provides flow control and reliable data delivery services.
- UDP provides minimal, non-guaranteed, transport services.
- The transport layer supports multiple application protocols.

Network and Host Addresses

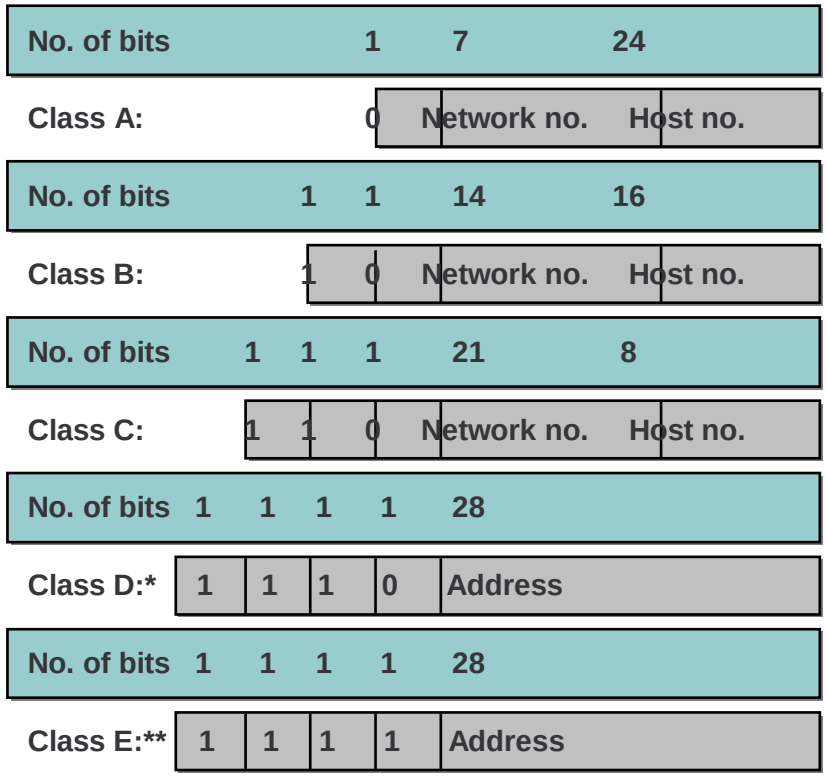
Network	Host
1	1
	2
	3
2	1
3	1



Dotted-Decimal Notation

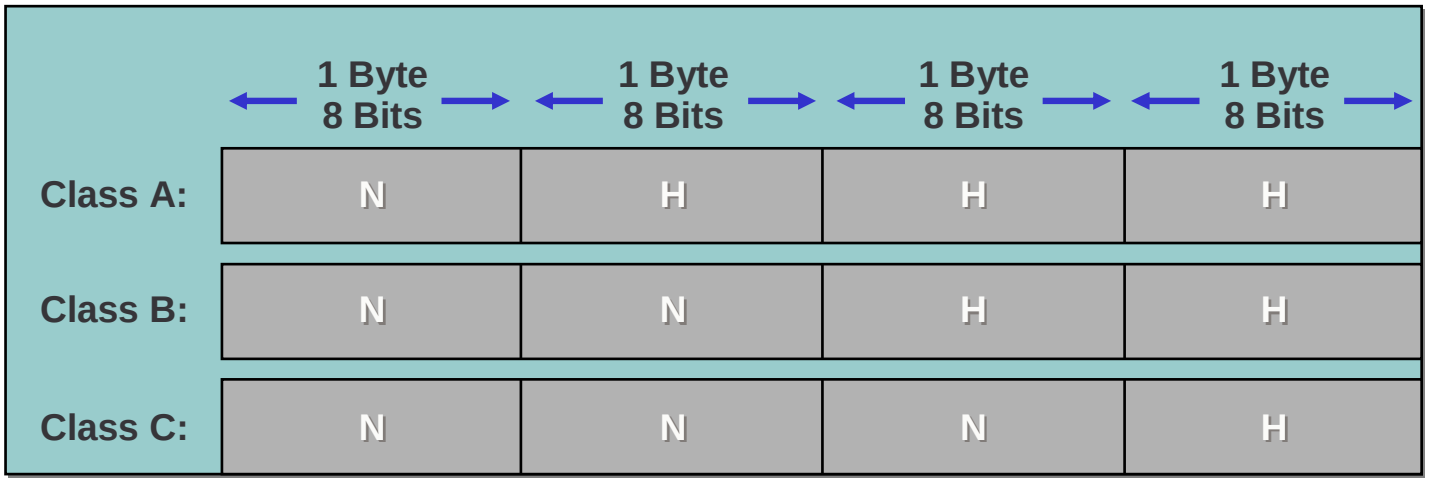
- An IP address is a 32-bit binary number:
  10101100000100001000000000010001
- The 32-bit binary number can be divided into four octets:
  10101100 00010000 10000000 00010001
- Each octet (or byte) can be represented in decimal:
  172 16 128 17
- The address can be written in dotted-decimal notation:
  172.16.128.17

IP Address Classes



- Class D addresses are used for multicast groups. There is no need to allocate octets or bits to separate network and host addresses.
- Class E addresses are reserved for research use only.

IP Address Class Components



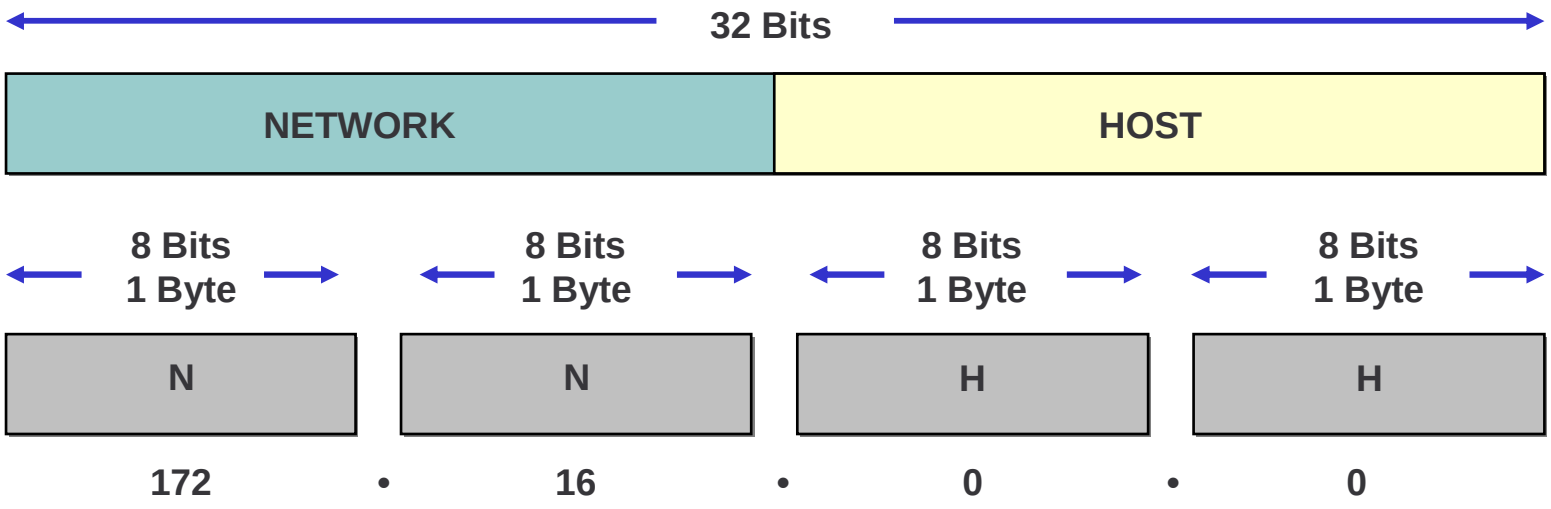
- N = Network number assigned by ARIN
- H = Host number assigned by administrator

IP Address Range

IP Address Class	IP Address Range (First octet decimal value)
Class A	1-126 (00000001-01111110) *
Class B	128-191 (10000000-10111111)
Class C	192-223 (11000000-11011111)
Class D	224-239 (11100000-11101111)
Class E	240-255 (11110000-11111111)
Determine the class based on the decimal value of the first octet.	

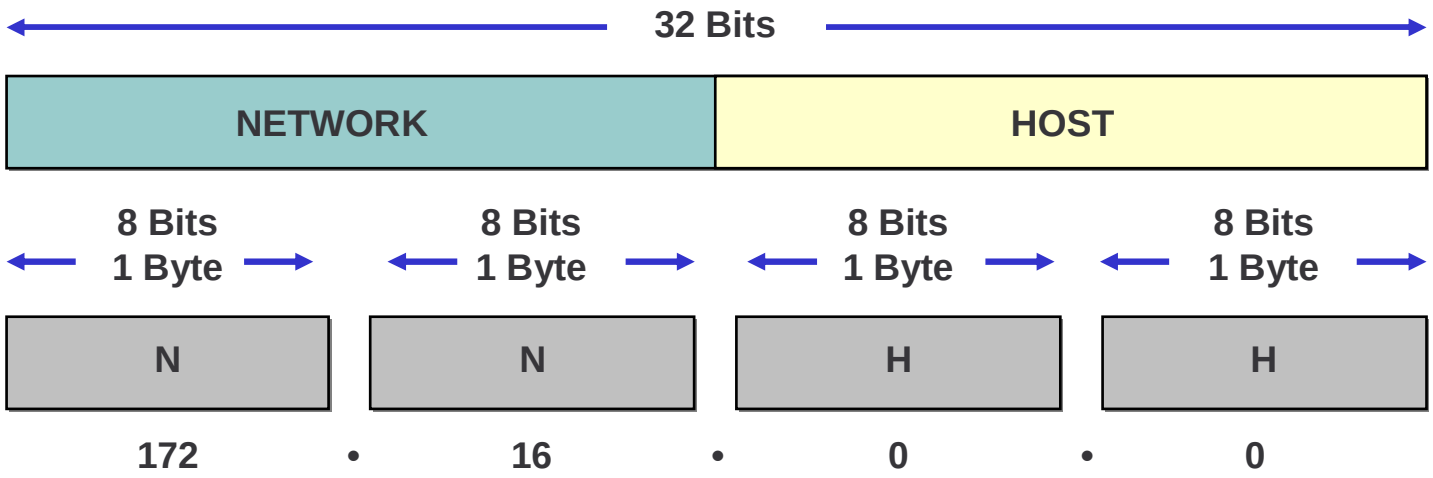
*127 (011111111) is a Class A address reserved for loopback testing and cannot be assigned to a network.

Network Addresses

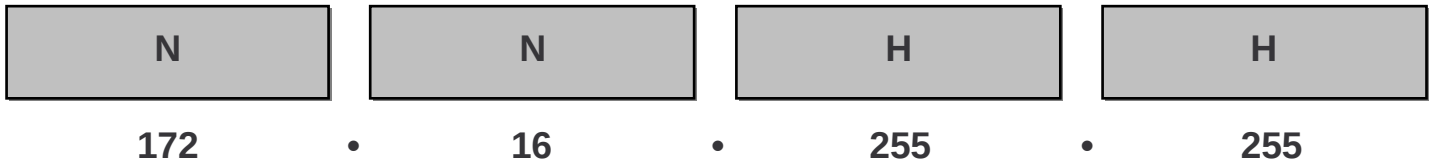


Network Address (host bits = all zeros)

Broadcast Address



Network Address (host bits = all zeros)

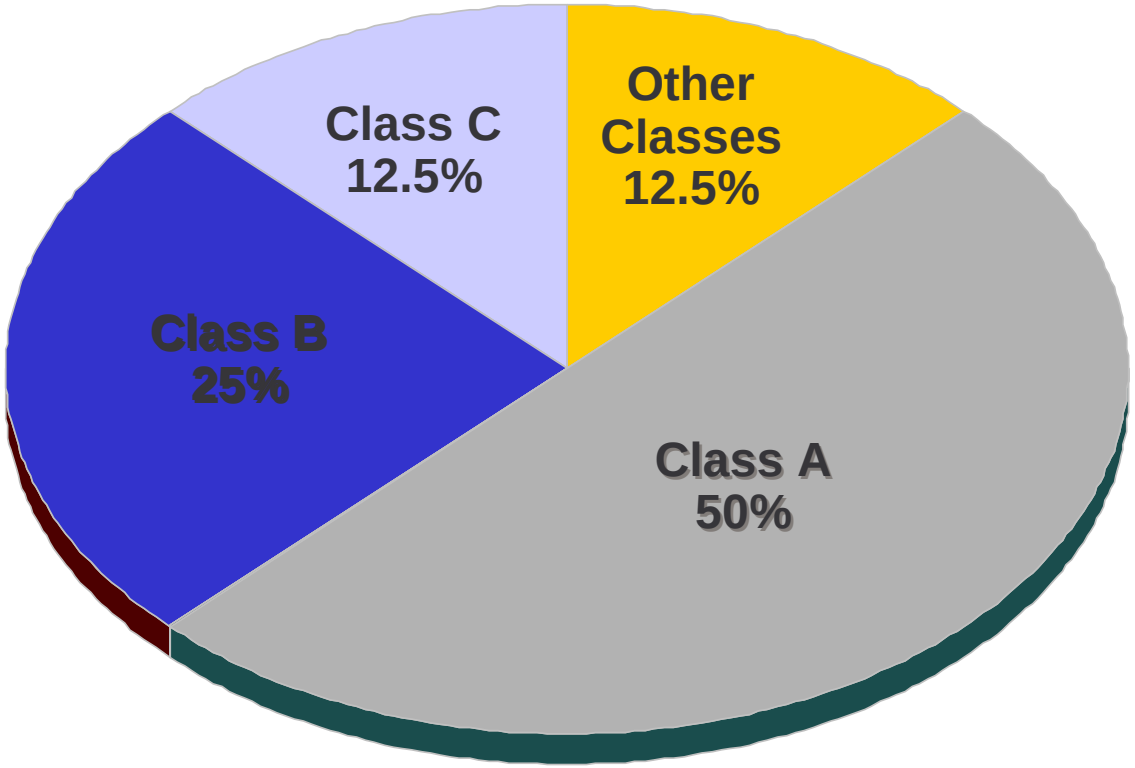


Broadcast Address (host bits = all ones)

Private IP Addresses

Class	RFC 1918 Internal Address Range
A	10.0.0.0 to 10.255.255.255
B	172.16.0.0 to 172.31.255.255
C	192.168.0.0 to 192.168.255.255

IPv4 Address Allocation



►With Class A and B addresses virtually exhausted, Class C addresses (12.5 percent of the total space) are left to assign to new networks.

How can you learn IP Address?

- UNIX

  $ifconfig –a

- Windows

  ipconfig

  ipconfig /release

  ipconfig /renew

  nslookup www.google.com

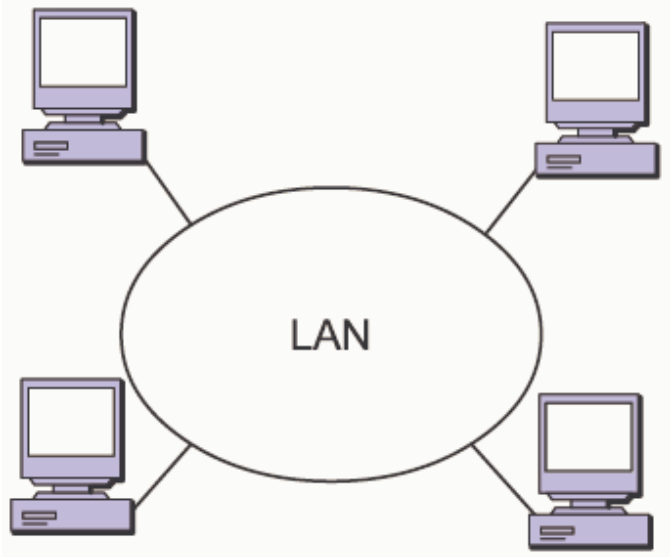
  tracert www.google.com

  ping www.google.com

  ping 127.0.0.1

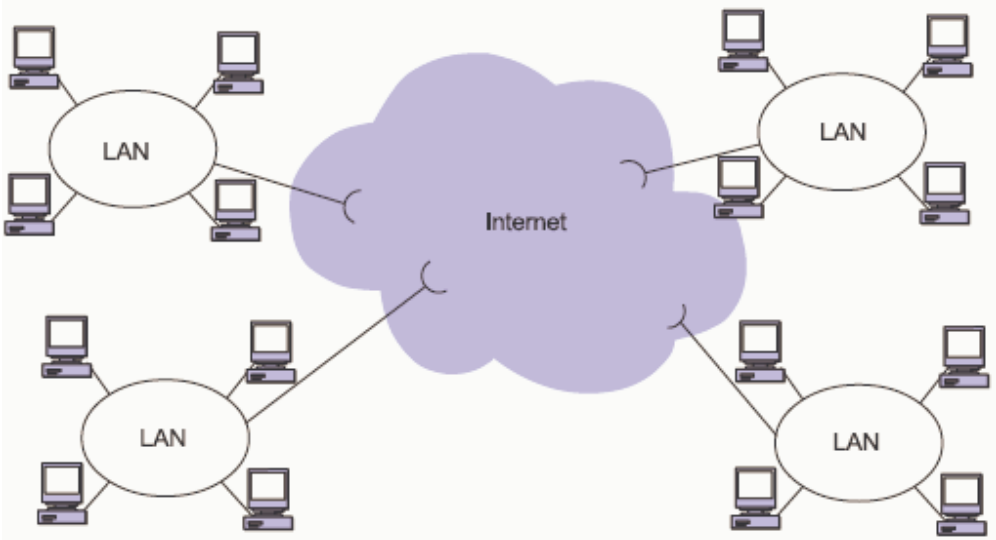
INTERNET

The Internet



In the early days of computer networking, local area networks (LANs) were created to share resources among members of a particular institution. These networks were constrained to short distances.

The Internet is a Network of Networks



Hypertext Transfer Protocol

- The *Hypertext Transfer Protocol (HTTP)* is similar to FTP because it is a protocol to transfer files from the server to the client.
- HTTP was created in conjunction with the related *Hypertext Markup Language (HTML)* standard.
- There is one fundamental difference between FTP and HTTP: HTTP supports only one request per connection.
- This means that the client connects to the server to retrieve one file and then disconnects. This mechanism allows more users to connect to a given server over a period of time.

HTML

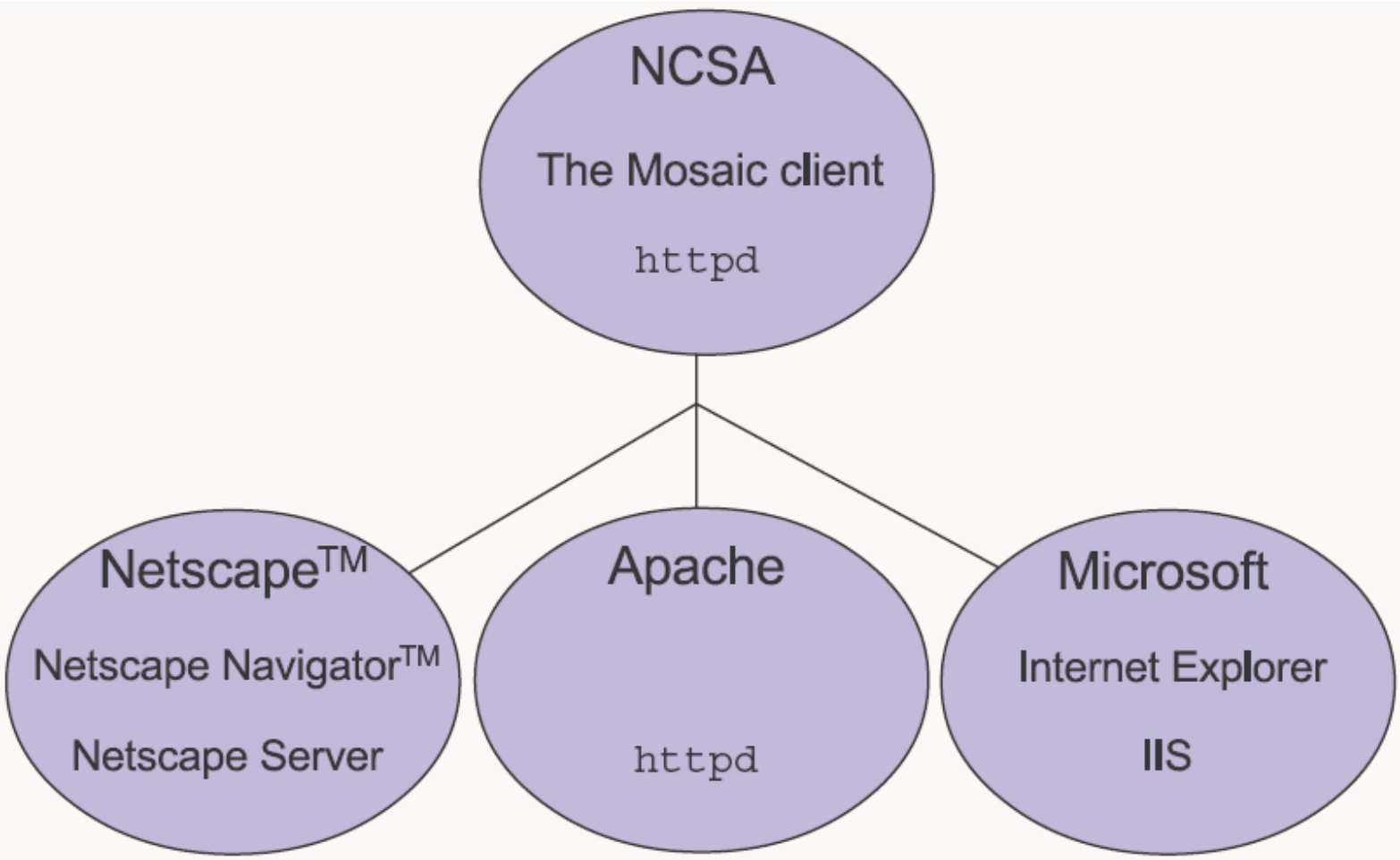
- HTML is a document display language that allows users to link from one document to another.
- HTML also permits images and other media objects to be embedded in an HTML document. The media objects are stored in files on a server.
- HTTP also retrieves these files. HTTP can therefore be used to transmit any file that conforms to the Multipurpose Internet Mail Extensions (MIME) specification.

Web Browsers and Web Servers

- To view an HTML document with rich media content, a graphical user interface (GUI) was built on top of the client-side HTTP. This GUI is called a Web browser.
- The server-side HTTP component is called a Web server.
- Several companies have developed Web browsers and Web servers; some have developed both. The first Web server was a process called httpd; the first widely used browser was Mosaic, created by National Center for Supercomputing Applications (NCSA).

Web Browsers and Web Servers

- Early web servers and browsers



Uniform Resource Locator

- A URL is a canonical name that locates a specific resource on the Internet:

  protocol://username:password@host:port/path/file

- Example:

  http://www.soccer.org:80/league/Spring2001.html

- The path element includes the complete directory structure path to find the file. The port number is used to identify the TCP port that is used by the protocol on the server. If the port number is the standard port for the given protocol, then that number can be ignored in the URL.
- For example, port 80 is the default HTTP port.

HTML

Content

- Creating Basic Documents
- Use HTML to structure a basic Web page by manipulating text and graphics

Overview

- Hypertext Markup Language (HTML) is the foundation of all Web documents, or pages.
- This module will teach you the basic elements and architecture of a web page and how HTML brings it together.
- You will learn to identify tags, view code, create hierarchies, format text and pages, and use styles and style sheets.

Introduction

- It is important to know the elements involved with building Web pages. Upon completion of this lesson, you will be able to:
  - Summarize Web page creation
  - List the elements of HTML
  - Identify HTML tags
  - View and evaluate HTML code in a page

Basics

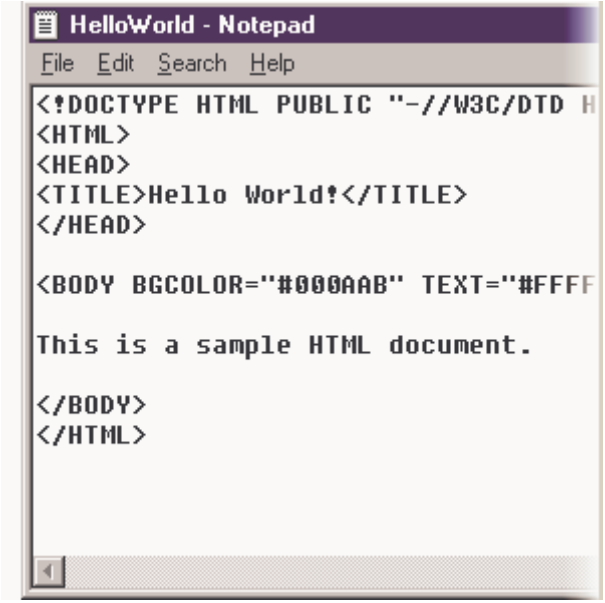
- The pages created with HTML are plain text.
- You can create, edit, or view the HTML code for a Web page in any text editor, such as Windows Notepad, on any computer platform.

Web-Authoring Tools

- Although creating simple Web pages in a text editor is easy, it can become a tedious task.
- Web-authoring tools, such as Microsoft FrontPage Express and Macromedia Dreamweaver, allow you to create HTML Web pages in the same way word documents are created.

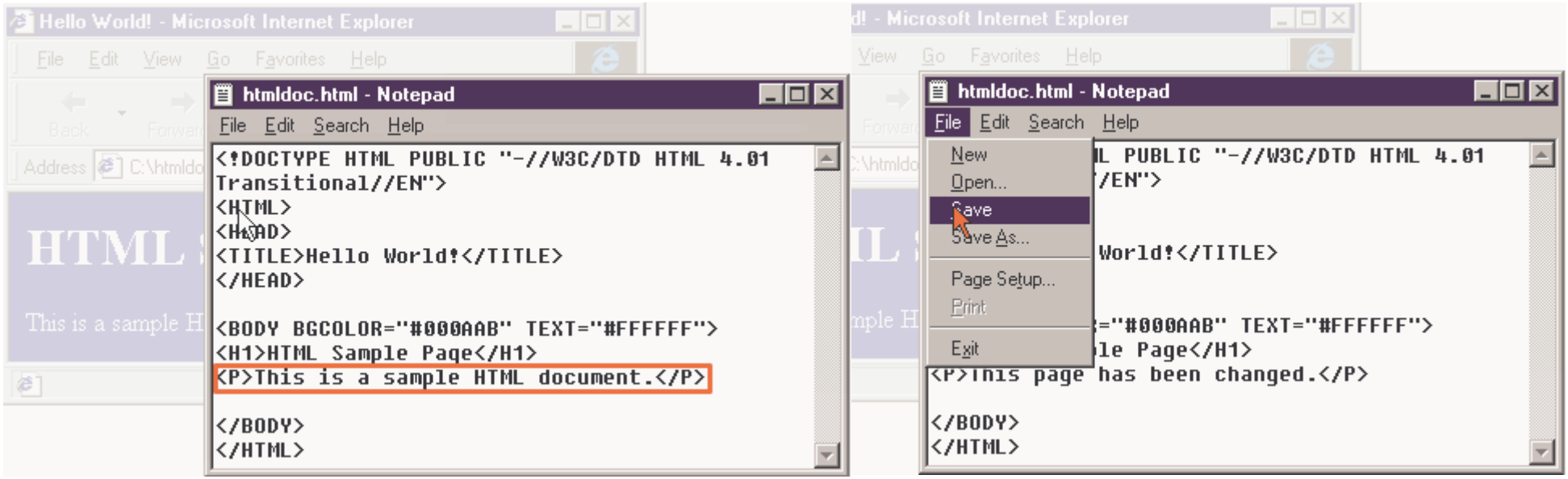
Browsers

- When a Web page is open in a browser, the HTML code that creates the page is not visible.
- Instead, the browser interprets the HTML code and displays the page appropriately on the screen.



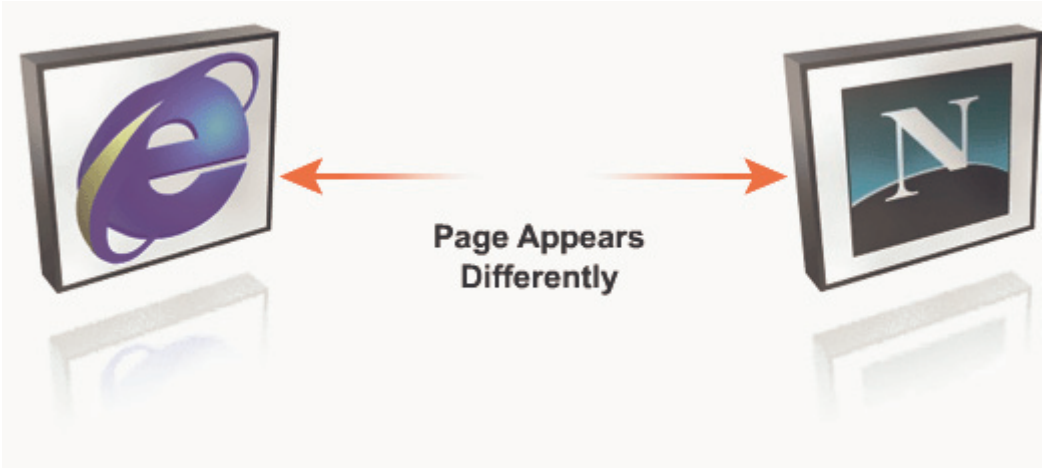
Edit Views

- If you are creating a Web page in a text editor and want to view the file, save your work and open the file in the browser.
- You can then continue to edit, save your work, and view the results, switching between the text editor and the browser to see the effects of the edits.



Browser Limitations

- The original intent of the HTML specification was to allow Web authors to describe the structure of a page without spending time on the look of a page.
- Traditionally, each browser had its own way of interpreting the look of the page, and the page created would appear differently on different browsers.



Accurate Page Descriptions

- HTML can now describe the look of a page accurately.
- More and more descriptive elements are being established in the HTML specification, such as font styles, sizes, colors, and style sheets that can maintain a consistent look throughout a Web site.

Text Limitations

- An author can specify a paragraph of text be defined as one of the six heading levels, but the HTML heading code cannot describe what a heading should look like.
- The Web browser must differentiate each type of heading from the others.

View Testing

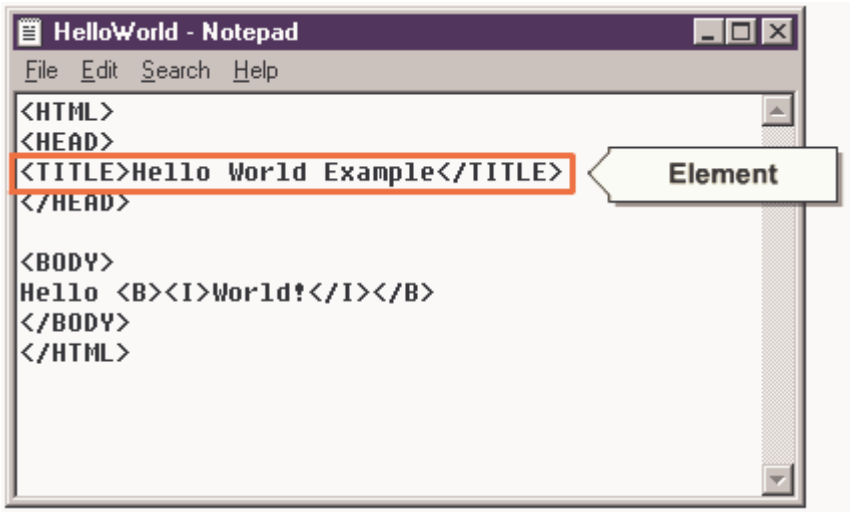
- When a browser differentiates a non-specific message, one browser might display the first-level heading in a large font centered on the page, while another browser might display it in italics and left-aligned on the page.
- As a result, authors test pages in several of the more popular browsers.

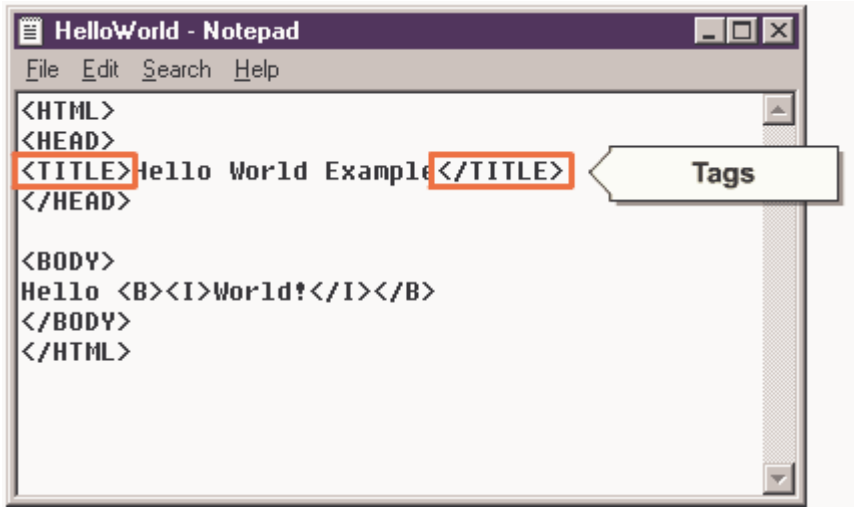
Standard Views

- The browser market has been consolidating and standardizing to eliminate interpretation problems.
- There are few differences in the ways competing browsers display the widely accepted HTML features in a page.
- However, new HTML features become available all the time, and Web authors must decide whether to include a new feature in a page when that feature may not be well interpreted by some browsers.

Elements

- A Web page consists of elements, each of which is defined by an HTML code, or tag.





Tag Architecture

- A tag is always enclosed in angle brackets, and most tags come in pairs, with an opening and a closing tag.
- The closing tag is the same as the opening tag, but starts with a forward slash.
- For example, to define text as a first-level heading in HTML, use the <H1> tag, as shown.


```
<H1> This is a main heading </H1>
```

Browsers

- A browser interprets tags and displays the text within the tags appropriately.
- The tags themselves are not displayed within a browser unless there is a problem with a tag such as if one of the angle brackets was mistakenly left out.
- Most browsers will ignore any codes within angle brackets that they do not recognize.

Attributes

- Some tags have optional or required attributes. An attribute is usually a keyword that takes one of several possible values.
- A value is defined by enclosing it in quotes.
- For example, the heading tag can take an optional alignment attribute.

Uppercase or Lowercase

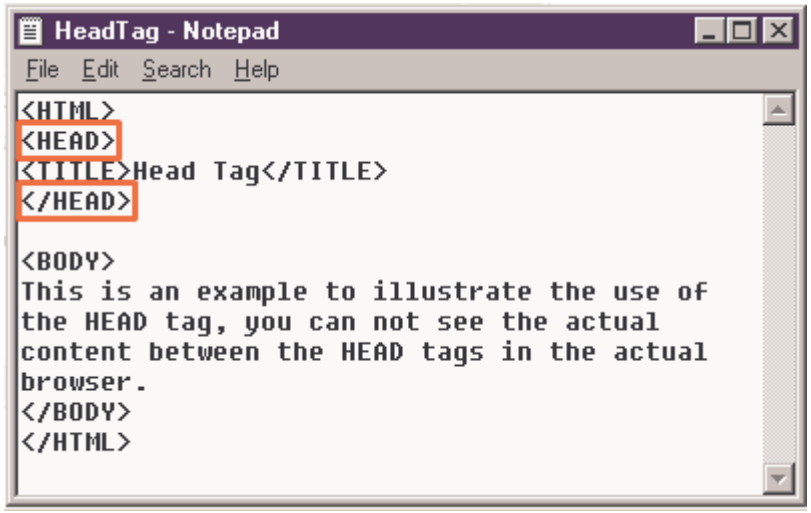
- You can create a tag in either uppercase or lowercase.
- For example, the two tags <H1> and <h1> are equivalent to a browser.

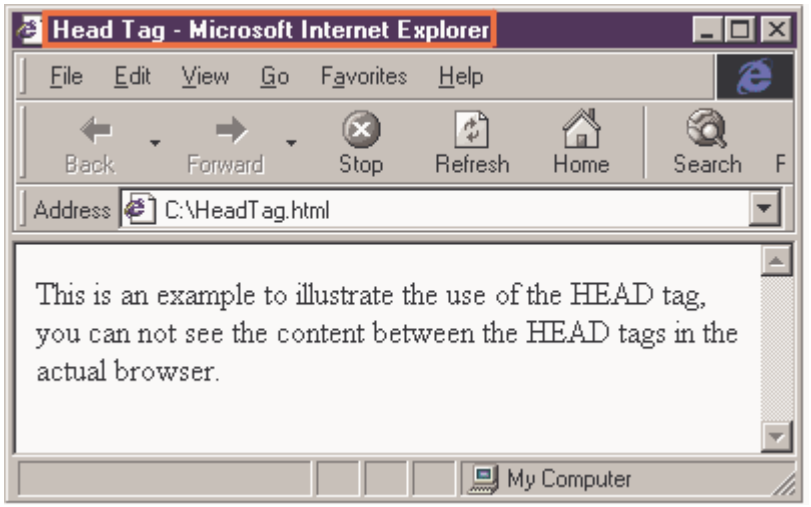
HTML tag

- The <HTML> tag declares that the text that follows defines an HTML Web page that can be viewed in a Web browser.
- The closing </HTML> tag ends the page.

HEAD tag

- The <HEAD> tag defines the header area of a page, which is not displayed within the page itself in the browser.
- The closing </HEAD> tag ends the header area.





TITLE tag

- Title TagThe text between <TITLE> and the closing </TITLE> tag is the title of the Web page and is displayed in the title bar of a browser.
- The title should be descriptive; as it is frequently used by Web indexing and searching programs to name the Web page.
- In Internet Explorer, a page title is the default name used when you save the page as a favorite location.

BODY tag

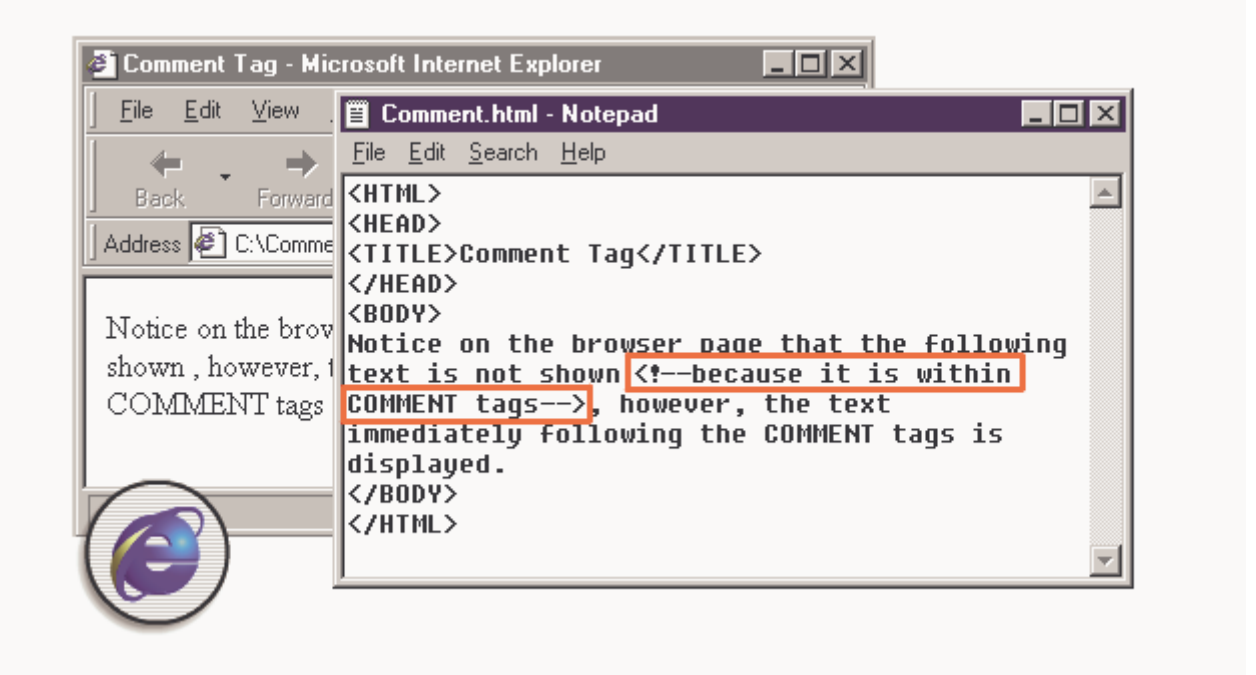
- The <BODY> tag delineates the actual content of the Web page that will be displayed in the browser.
- There are several optional attributes for this tag.
- One of them is BACKGROUND, with which you can specify a background graphical image for the page.

Paragraph tag

- Use the paragraph tag (<P>) to mark the beginning of a new paragraph; the ending tag, </P>, is optional but should be included for clarity during revisions.
- You can include the ALIGN attribute to specify whether the paragraph should be centered or right-aligned in the page.

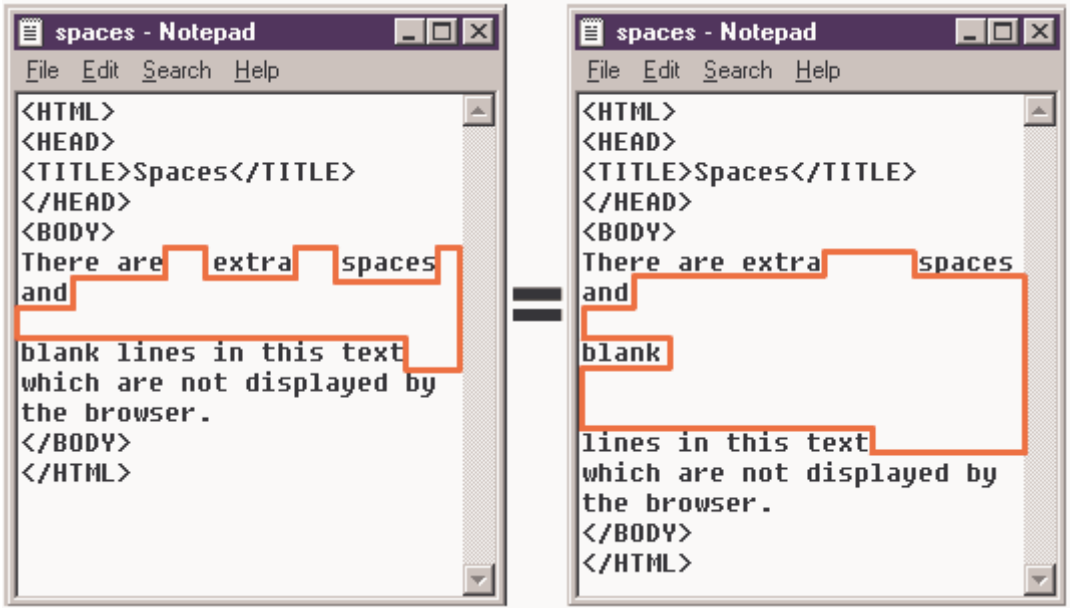
Comment tag

- The Comment tag is not revealed in the browser, but will be advantageous when editing or viewing the HTML code for a page.
- In Internet Explorer, use the <!--> tag to create descriptive comments within the code, which will be ignored by the browser.
- With other browsers, you can use the combination of symbols to create a comment.



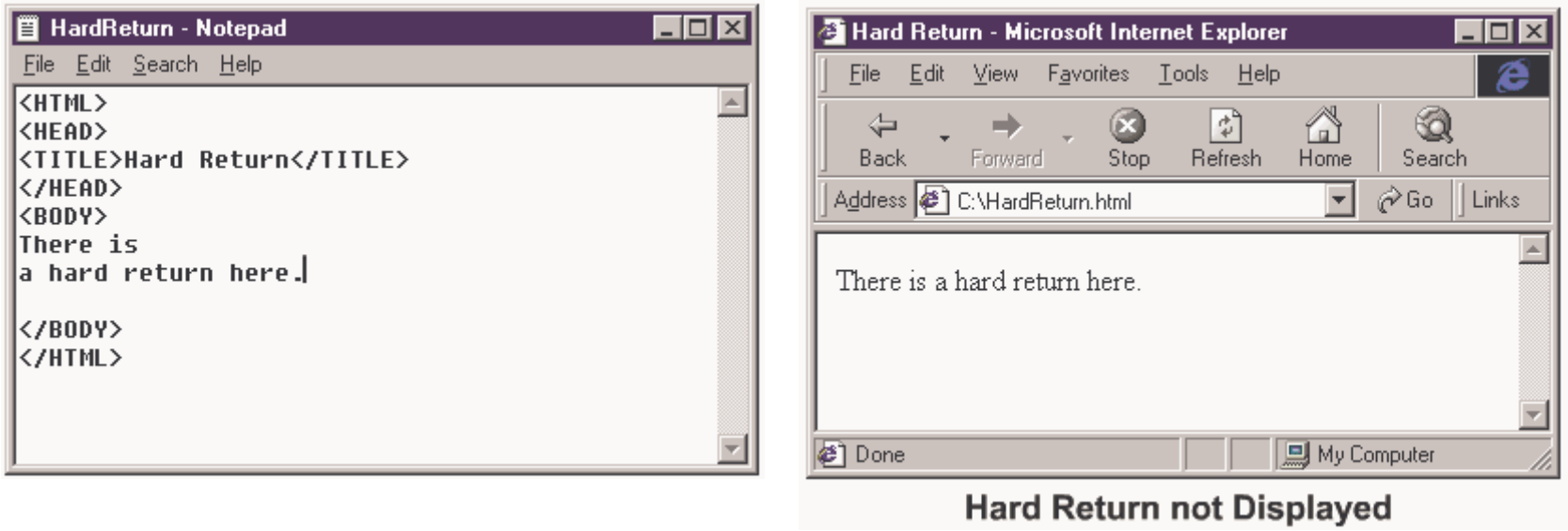
Spaces

- You can include extra spaces and blank lines in HTML code to make the code easier to read and interpret.
- When a browser opens a Web page, it ignores multiple spaces within the code and displays them as a single space.



Hard Return

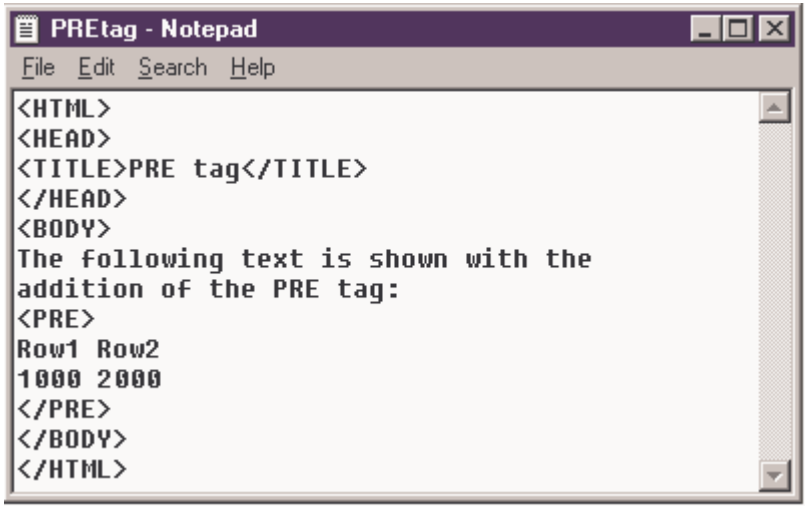
- HTML code ignores all hard returns within the code: for example, an Enter at the end of a text line you are editing in Notepad will not be displayed in the user's browser.

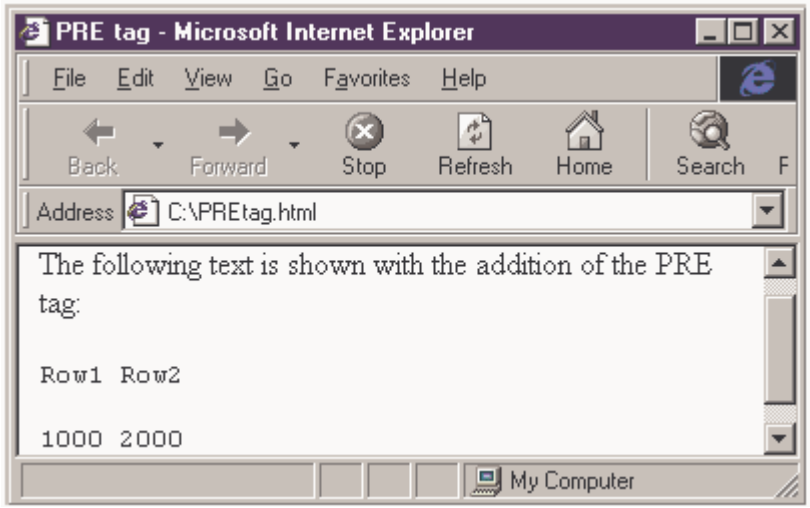


Hard Return not Displayed

Preformatted tag

- In the preformatted tag <PRE>, spaces and hard returns in the HTML code do display.
- It instructs a browser to display the text in a mono-spaced font that allows you to align text precisely, such as you would when showing a program listing.





Information

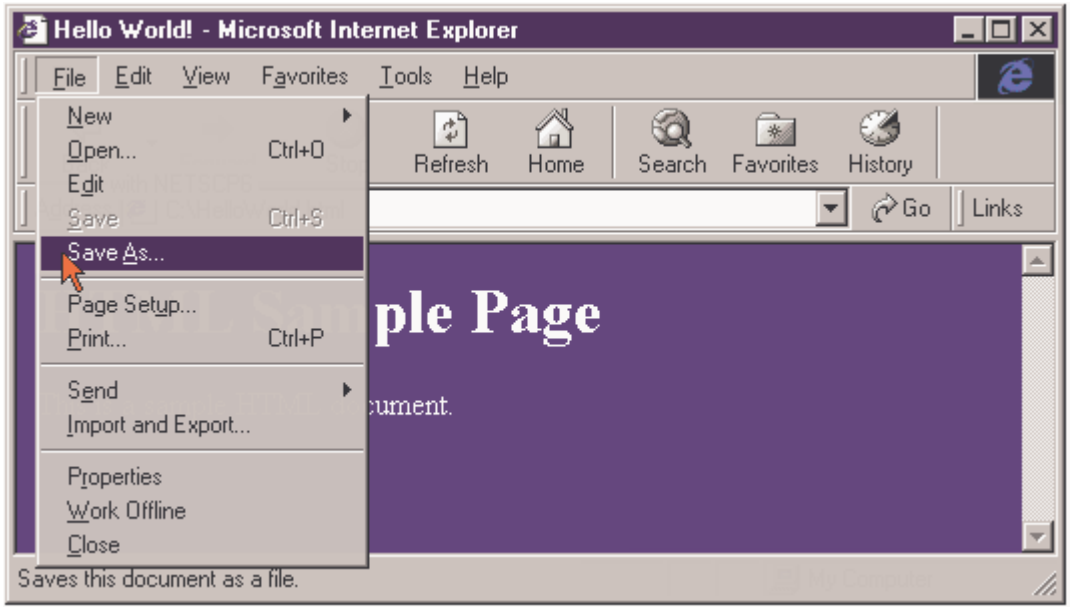
- For additional documentation on tags used in HTML http://werbach.com/barebones/barebones.html

Underlying Code

- Most Web pages are built from the same text-based HTML language, so when viewing an interesting page in a browser, take a look at the underlying code.

Save as View

- To view a page's code, click **View** > **Source** in Internet Explorer or **View** > **Page Source** in Navigator to display the current page's HTML code within Notepad.



Evolving Language

- HTML is constantly evolving.
- Web authors may include new and improved tags within Web pages to produce new effects.
- But browser software may not recognize those HTML features.
- W3C at the MIT defines and establishes new versions of HTML to help with this problem.
- Unofficially, leaders such as Microsoft and Netscape, regularly invent their own extensions to official HTML which eventually may be included in the official HTML specification.

Structuring Web Pages

- When developing a Web page, you must determine a structure for your text and images using HTML that best suites your organization.
- Upon completion of this lesson, you will be able to:
  - Add structure
  - Divide sections
  - Create hierarchies
  - Format text and pages
  - Use styles and style sheets

Adding Structure

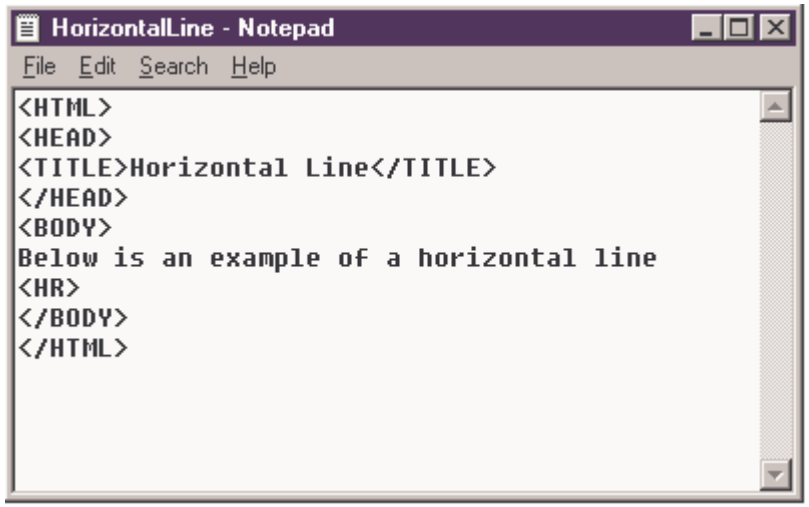
- Adding structure will benefit any Web page you create.
- To add basic structure to a page, add paragraphs and spaces to text.
- To create a paragraph, enclose text within the paragraph tags (<P> and </P>).
- Your browser will insert some extra space between paragraphs, so in some instances, you will not want to use the <P> tag.

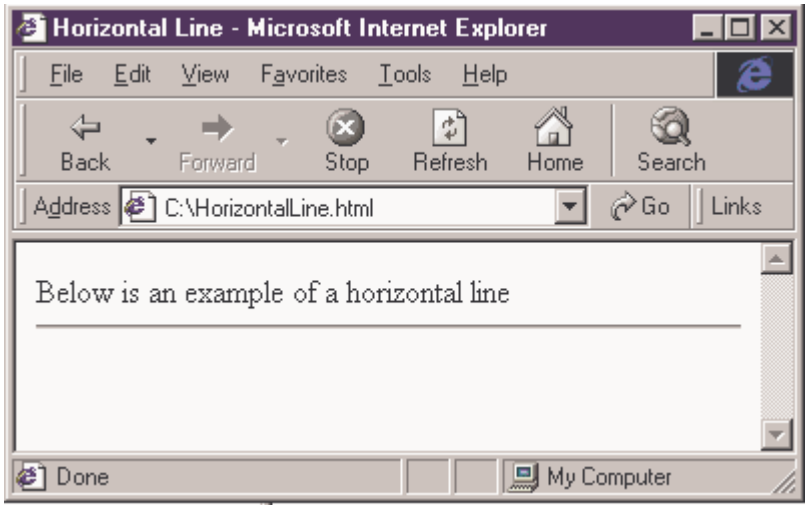
Line Break tag

- You may not want extra space between each line of the address.
- To avoid this, use the line-break tag, <BR>.
- This break tells the browser to wrap the text that follows onto a new line without inserting any extra space between the lines.

Section Divisions

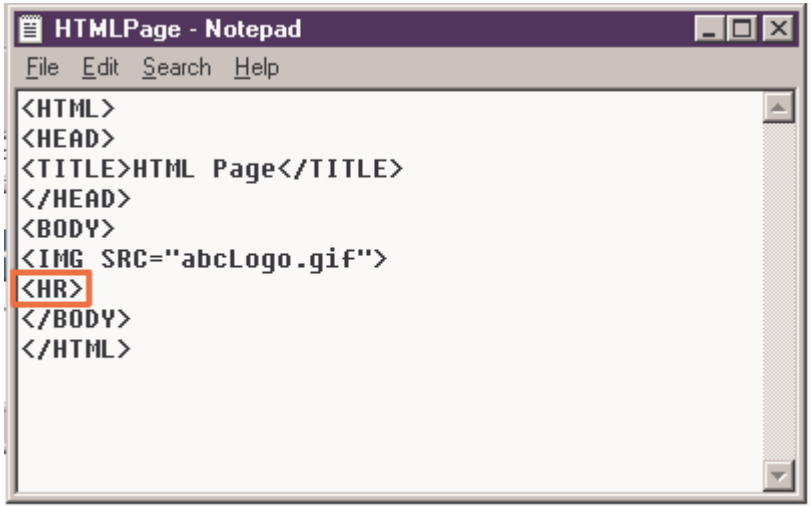
- A simple and effective way to separate sections within a Web page is to insert a horizontal line, which is also called a horizontal rule.
- By default, the line stretches from one side of the page to the other.

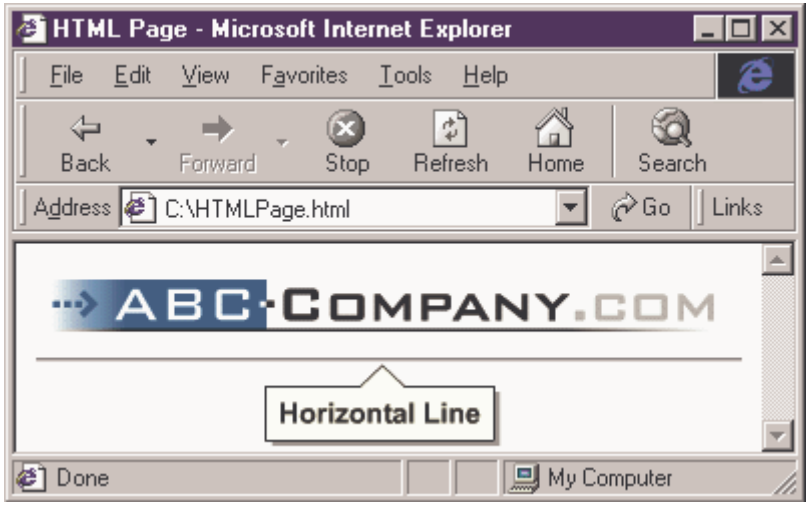




Structure Separations

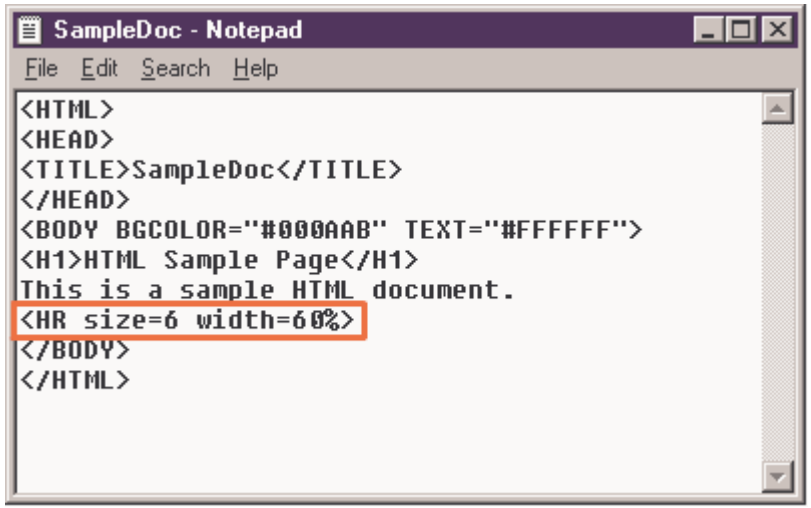
- If your page has a banner across the top with a company name, you can insert a horizontal line beneath it.
- This separates it from the table of contents showing links to pages, beneath which you can insert another line, followed by the main body of the page.
- At the bottom of the page, you can have another line that shows important page identifiers.

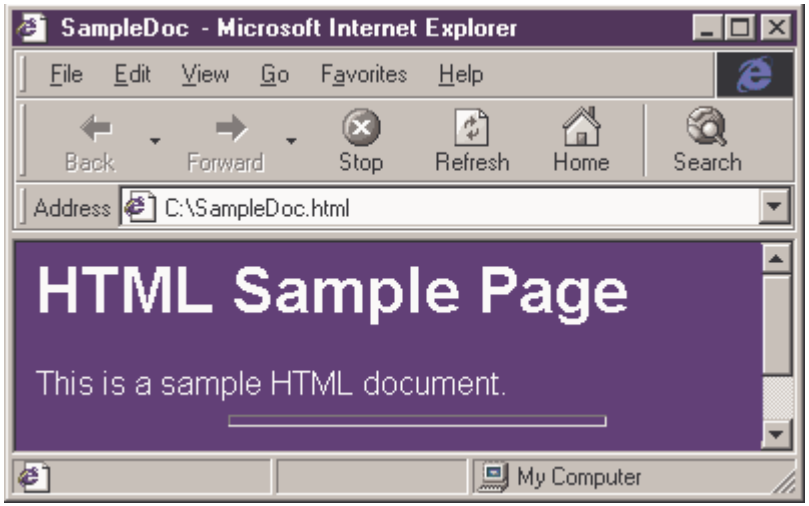




HR tag

- The <HR> tag takes several optional attributes. For example, you can specify the line's thickness and how much of the browser's window it should span (as a percentage or in pixels).
- The line thickness default is one or two pixels in most browsers.





Creating Headings

- A common way to add structure to a Web page is through the use of headings.
- A Web page can have a maximum of six levels of headings, the HTML codes for which are conveniently named <H1>, <H2>, <H3>, etc.
- No style is inherent in the headings — different Web browsers might interpret the look of a heading in slightly different ways.
- Structurally, however, all browsers will display headings so low-level headings look subordinate to a higher-level heading.

Heading Formats

- In a browser, a first-level heading is displayed in a larger, bolder font than a lower-level heading.
- You can use HTML headings in any order, but it is recommended to use them in an outline format.
- The first-level heading, <H1>, is the highest level, and the sixth level, <H6>, is the lowest or most subordinate.

Paragraphs

- Paragraphs are defined with the <p> tag.

```
<p>This is a paragraph</p>

<p>This is another paragraph</p>
```

- HTML automatically adds an extra blank line before and after a paragraph.

Line Breaks

- The <br> tag is used when you want to end a line, but don't want to start a new paragraph.
- The <br> tag forces a line break wherever you place it.

```
<p>This <br> is a para<br>graph with
line breaks</p>
```

- The <br> tag is an empty tag.
- It has no closing tag.

Comments in HTML

- The comment tag is used to insert a comment in the HTML source code. A comment will be ignored by the browser. You can use comments to explain your code, which can help you when you edit the source code at a later date.

```
<!-- This is a comment -->
```

- Note that you need an exclamation point after the opening bracket, but not before the closing bracket.

Text Formatting Tags

Tag	Description
<b>	Defines bold text
<big>	Defines big text
	Defines emphasized text
<i>	Defines italic text
<small>	Defines small text
	Defines strong text
<sub>	Defines subscripted text
<sup>	Defines superscripted text
<ins>	Defines inserted text
<del>	Defines deleted text
<s>	Deprecated. Use <del> instead
<strike>	Deprecated. Use <del> instead
<u>	Deprecated. Use styles instead

"Computer Output" Tags

Tag	Description
<code>	Defines computer code text
<kbd>	Defines keyboard text
<samp>	Defines sample computer code
<tt>	Defines teletype text
<var>	Defines a variable
<pre>	Defines preformatted text
<listing>	Deprecated. Use <pre> instead
<plaintext>	Deprecated. Use <pre> instead
<xmp>	Deprecated. Use <pre> instead

Citations, Quotations, and Definition Tags

Tag	Description
<*abbr*>	Defines an abbreviation
<*acronym*>	Defines an acronym
<*address*>	Defines an address element
<*bdo*>	Defines the text direction
<*blockquote*>	Defines a long quotation
<*q*>	Defines a short quotation
<*cite*>	Defines a citation
<*dfn*>	Defines a definition term

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 (;).
- To display a less than sign in an HTML document we must write: **<** or **<**
- 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.

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 ** ** character entity.

The Most Common Character Entities:

Result	Description	Entity Name	Entity Number
	non-breaking space		
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
"	quotation mark	"	"
'	apostrophe	'	'

Some Other Commonly Used Character Entities

Result	Description	Entity Name	Entity Number
¢	cent	¢	¢
£	pound	£	£
¥	yen	¥	¥
§	section	§	§
©	copyright	©	©
®	registered trademark	®	®
×	multiplication	×	×
÷	division	÷	÷

The Anchor Tag and the *href* Attribute

- HTML uses the <a> (anchor) tag to create a link to another document.
- An anchor can point to any resource on the Web: an HTML page, an image, a sound file, a movie, etc.
- The syntax of creating an anchor:

```
<a href="url">Text to be displayed</a>
```

- The <a> tag is used to create an anchor to link from, the href attribute is used to address the document to link to, and the words between the open and close of the anchor tag will be displayed as a hyperlink.

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="http://www.itu.edu.tr" target="_blank">
  Visit ITU!
</a>
```

The Anchor Tag and the Name Attribute

- The name attribute is used to create a named anchor. When using named anchors we can create links that can jump directly into a specific section on a page, instead of letting the user scroll around to find what he/she is looking for.
- Below is the syntax of a named anchor:

  Text to be displayed
- The name attribute is used to create a named anchor. The name of the anchor can be any text you care to use.
- The line below defines a named anchor:
- Useful Tips Section

The Anchor Tag and the Name Attribute

- You should notice that a named anchor is not displayed in a special way.
- To link directly to the "tips" section, add a # sign and the name of the anchor to the end of a URL, like this:

```
<a href="http://www.itu.edu.tr/index.html#kayit">
Kayıtla İlgili Bilgiler
</a>
```

- A hyperlink to the Useful Tips Section from WITHIN the file “index.htm" will look like this:

```
<a href="#tips">Jump to the Useful Tips Section</a>
```

Frames

- With frames, you can display more than one HTML document in the same browser window.
- Each HTML document is called a frame, and each frame is independent of the others.
- The disadvantages of using frames are:
  - The web developer must keep track of more HTML documents
  - It is difficult to print the entire page

The Frameset Tag

- The <**frameset**> tag defines how to divide the window into frames
- Each frameset defines a set of rows or columns
- The values of the rows/columns indicate the amount of screen area each row/column will occupy

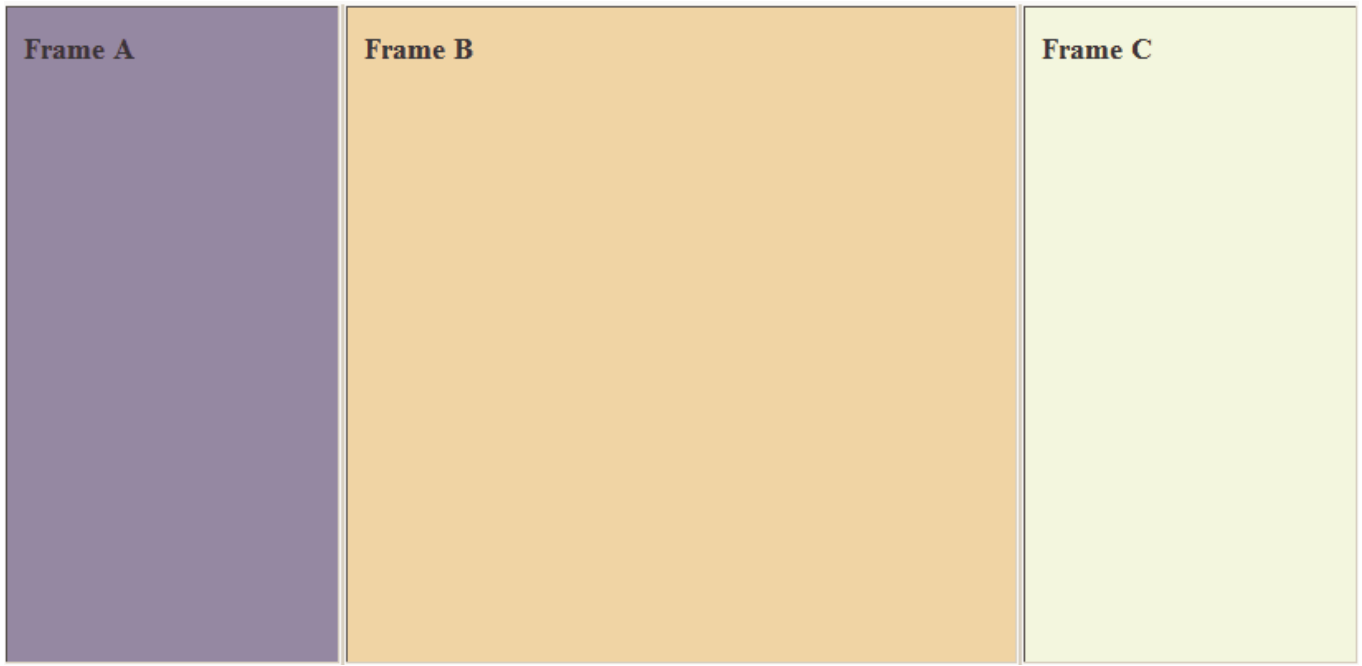
The Frameset Tag

- The <frame> tag defines what HTML document to put into each frame
- In the example below we have a frameset with two columns.
- The first column is set to 25% of the width of the browser window. The second column is set to 75% of the width of the browser window. The HTML document "frame_a.htm" is put into the first column, and the HTML document "frame_b.htm" is put into the second column:

```
<frameset cols="25%,75%">
    <frame src="frame_a.htm">
    <frame src="frame_b.htm">
</frameset>
```

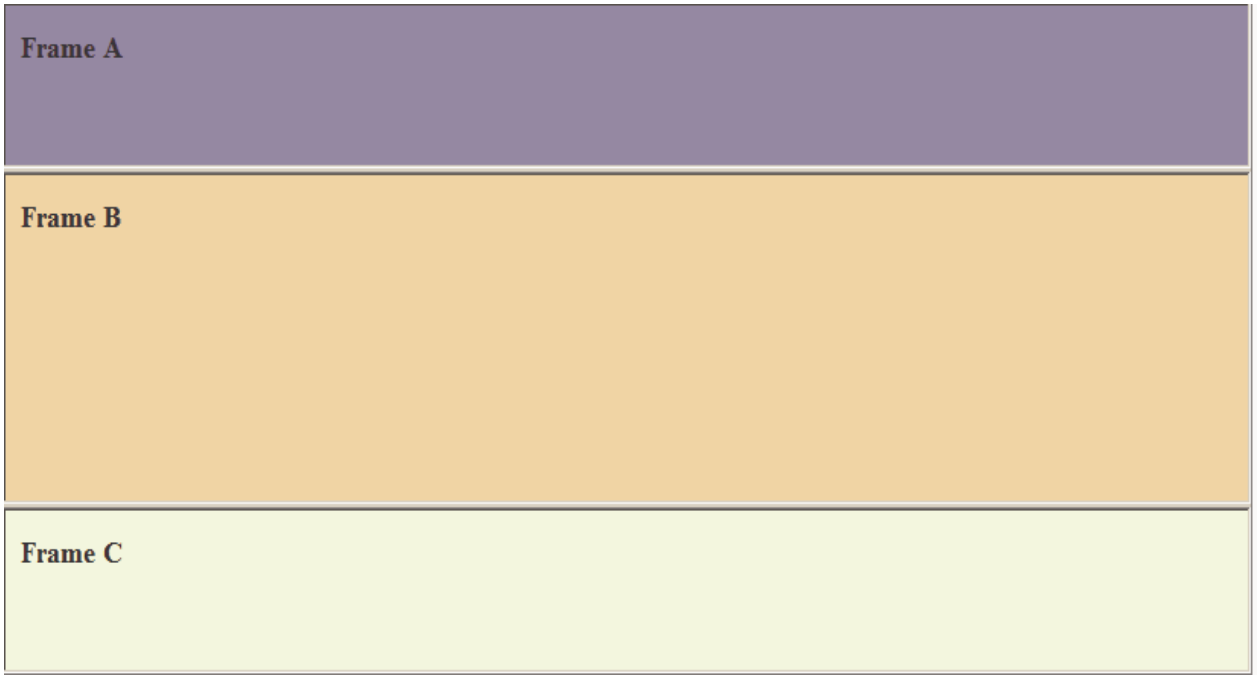
Vertical frameset

```
<html>
<frameset cols="25%,50%,25%">
  <frame src="frame_a.htm">
  <frame src="frame_b.htm">
  <frame src="frame_c.htm">
</frameset>
</html>
```



Horizontal frameset

```
<html>
<frameset rows="25%,50%,25%">
  <frame src="frame_a.htm">
  <frame src="frame_b.htm">
  <frame src="frame_c.htm">
</frameset>
</html>
```



Tables

- Tables are defined with the <**table**> tag.
- A table is divided into rows (with the <**tr**> tag), and each row is divided into data cells (with the <**td**> tag).
- The letters **td** stands for "table data," which is the content of a data cell.
- A data cell can contain text, images, lists, paragraphs, forms, horizontal rules, tables, etc.

Example

```
<table border="1">
<tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
<td>row 2, cell 2</td>
</tr>
</table>
```

row 1, cell 1	row 1, cell 2
row 2, cell 1	row 2, cell 2

Tables and the Border Attribute

- If you do not specify a border attribute the table will be displayed without any borders. Sometimes this can be useful, but most of the time, you want the borders to show.
- To display a table with borders, you will have to use the border attribute:

```
<table border="5">
<tr>
<td>Row 1, cell 1</td>
<td>Row 1, cell 2</td>
</tr>
</table>
```

Headings in a Table

- Headings in a table are defined with the <th> tag.

```
<table border="1">
<tr>
<th>Heading</th>
<th>Another Heading</th>
</tr>
<tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
<td>row 2, cell 2</td>
</tr>
</table>
```

Heading	Another Heading
row 1, cell 1	row 1, cell 2
row 2, cell 1	row 2, cell 2

Empty Cells in a Table

- Table cells with no content are not displayed very well in most browsers.

```
<table border="1">
<tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
<td></td>
</tr>
</table>
```

row 1, cell 1	row 1, cell 2
row 2, cell 1	

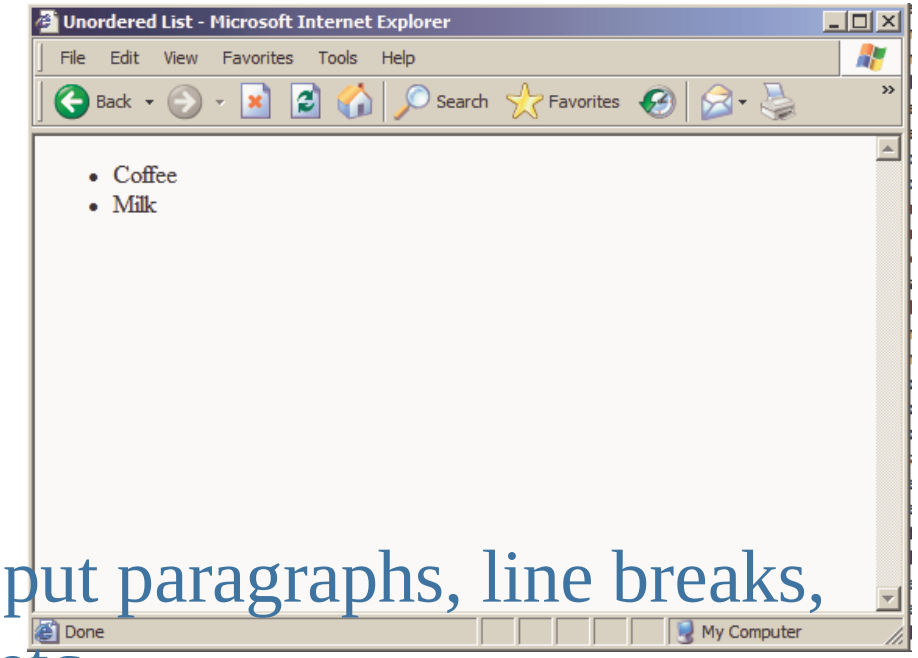
Table Tags

Tag	Description
<table>	Defines a table
<th>	Defines a table header
<tr>	Defines a table row
<td>	Defines a table cell
<caption>	Defines a table caption
<colgroup>	Defines groups of table columns
<col>	Defines the attribute values for one or more columns in a table
<thead>	Defines a table head
<tbody>	Defines a table body
<tfoot>	Defines a table footer

Unordered Lists

- An unordered list is a list of items. The list items are marked with bullets (typically small black circles).
- An unordered list starts with the <ul> tag. Each list item starts with the <li> tag.

```
<ul>
<li>Coffee</li>
<li>Milk</li>
</ul>
```

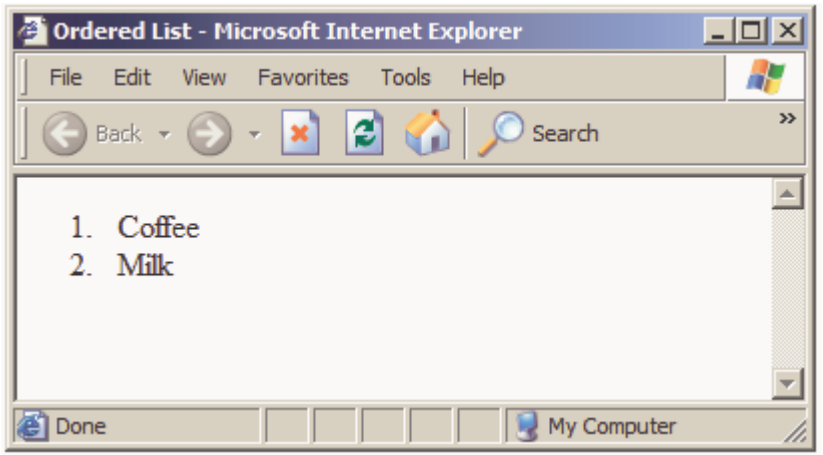


- Inside a list item you can put paragraphs, line breaks, images, links, other lists, etc.

Ordered Lists

- An ordered list is also a list of items. The list items are marked with numbers.
- An ordered list starts with the <ol> tag. Each list item starts with the <li> tag.

```
<ol>
<li>Coffee</li>
<li>Milk</li>
</ol>
```



Definition Lists

- A definition list is not a list of items. This is a list of terms and explanation of the terms.
- A definition list starts with the <dl> tag. Each definition-list term starts with the <dt> tag.
- Each definition-list definition starts with the <dd> tag.

```
<dl>
<dt>Coffee</dt>
<dd>Black hot drink</dd>
<dt>Milk</dt>
<dd>White cold drink</dd>
</dl>
```

List Tags

Tag	Description
	Defines an ordered list
	Defines an unordered list
	Defines a list item
<dl>	Defines a definition list
<dt>	Defines a definition term
<dd>	Defines a definition description
<dir>	Deprecated. Use instead
<menu>	Deprecated. Use instead

The Image Tag and the **src** Attribute

- In HTML, images are defined with the <img> tag.
- The <img> tag is empty, which means that it contains attributes only and it has no closing tag
- To display an image on a page, you need to use the src attribute
- **src** stands for "source"
- The value of the **src** attribute is the URL of the image you want to display on your page
- The syntax of defining an image:

```
<img src="url">
```

The Alt Attribute

- The alt attribute is used to define an "alternate text" for an image.
- The value of the alt attribute is an author-defined text

```
<img src="boat.gif" alt="Big Boat">
```

- The "alt" attribute tells the reader what he or she is missing on a page if the browser can't load images. The browser will then display the alternate text instead of the image.
- It is a good practice to include the "alt" attribute for each image on a page, to improve the display and usefulness of your document for people who have text-only browsers.

Backgrounds

- The <body> tag has two attributes where you can specify backgrounds. The background can be a color or an image.
- The **bgcolor** attribute specifies a background-color for an HTML page.
- The value of this attribute can be a hexadecimal number, an RGB value, or a color name

```
<body bgcolor="#000000">
<body bgcolor="rgb(0,0,0)">
<body bgcolor="black">
```

- The lines above all set the background-color to black

Background

- The background attribute specifies a background-image for an HTML page.
- The value of this attribute is the URL of the image you want to use.
- If the image is smaller than the browser window, the image will repeat itself until it fills the entire browser window

```
<body background="clouds.gif">
<body
  background="http://www.cs.itu.edu.tr/bg.gif">
```

Useful Tips

- The bgcolor, background, and the text attributes in the <body> tag are deprecated in the latest versions of HTML (HTML 4 and XHTML).
- The World Wide Web Consortium (W3C) has removed these attributes from its recommendations.
- Style sheets (CSS) should be used instead (to define the layout and display properties of HTML elements).

Color Values

- Colors are defined using a hexadecimal notation for the combination of Red, Green, and Blue color values (RGB).
- The lowest value that can be given to one light source is 0 (#00). The highest value is 255 (#FF).

Color	Color HEX	Color RGB
	#000000	rgb(0,0,0)
	#FF0000	rgb(255,0,0)
	#00FF00	rgb(0,255,0)
	#0000FF	rgb(0,0,255)
	#FFFF00	rgb(255,255,0)
	#00FFFF	rgb(0,255,255)
	#FF00FF	rgb(255,0,255)
	#C0C0C0	rgb(192,192,192)
	#FFFFFF	rgb(255,255,255)

Color Names

- A collection of color names is supported by most browsers.
- Only 16 color names are supported by the W3C HTML 4.0 standard (aqua, black, blue, fuchsia, gray, green, lime, maroon, navy, olive, purple, red, silver, teal, white, and yellow).
- For all other colors you should use the Color HEX value.

16 Million Different Colors

- The combination of Red, Green and Blue values from 0 to 255 gives a total of more than 16 million different colors to play with (256 x 256 x 256).
- Most modern monitors are capable of displaying at least 16384 different colors.
- If you look at the color table (next slide), you will see the result of varying the red light from 0 to 255, while keeping the green and blue light at zero

Red