

Essentials of Website Design and Development

Session: 1

*Introduction to the
Web and HTML5*



Objectives

- Explain the evolution of HTML
- Explain the page structure used by HTML
- List the drawbacks in HTML 4 XHTML
- List the new features of HTML5
- Explain CSS
- Explain JavaScript
- Explain jQuery
- Explain browser support for HTML5
- Explain the elements constituting an HTML tag
- Describe DOCTYPE declarations
- Explain the basic tags in HTML
- List different data types, attributes, and entities of HTML5
- Describe container and standalone tags
- Explain the role of HTML5 in Mobile devices

Introduction

Hypertext Markup Language was introduced in 1990.

HTML5 was recommended as a standard by W3C in 1997.

HTML5 is the next version and will be the new standard.

Majority of the browsers support HTML5 element and Application Programming Interface (API).

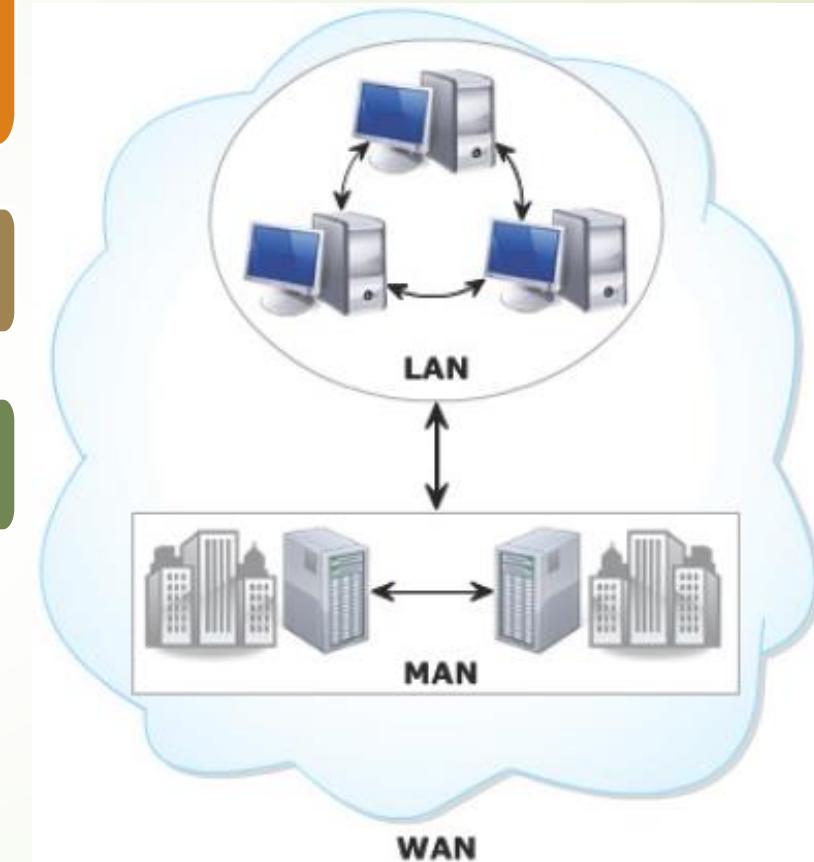
Evolution of Computing 1-2

Computing started by using stand-alone computers to perform different computing operations.

Later organizations began to connect their computers to share data.

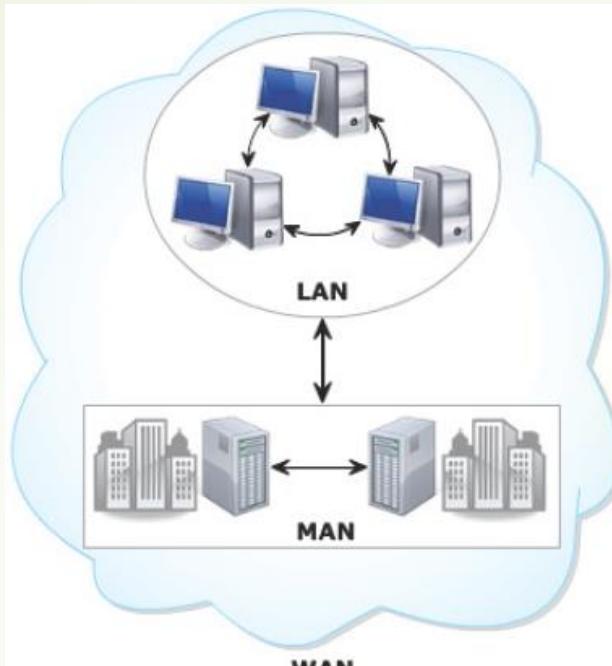
Different types of networks are as follows:

- Local Area Network (LAN)
- Metropolitan Area Network (MAN)
- Wide Area Network (WAN)



Evolution of Computing 2-2

**Network in a
small
geographical
area**



**Network that
covers city**

**Network that
connects LANs and
MANs across the
globe**

Web and Internet 1-2

WAN raised the necessity to share data across the globe rather than within an organization.

This resulted in the evolution of Web also known as World Wide Web (WWW).

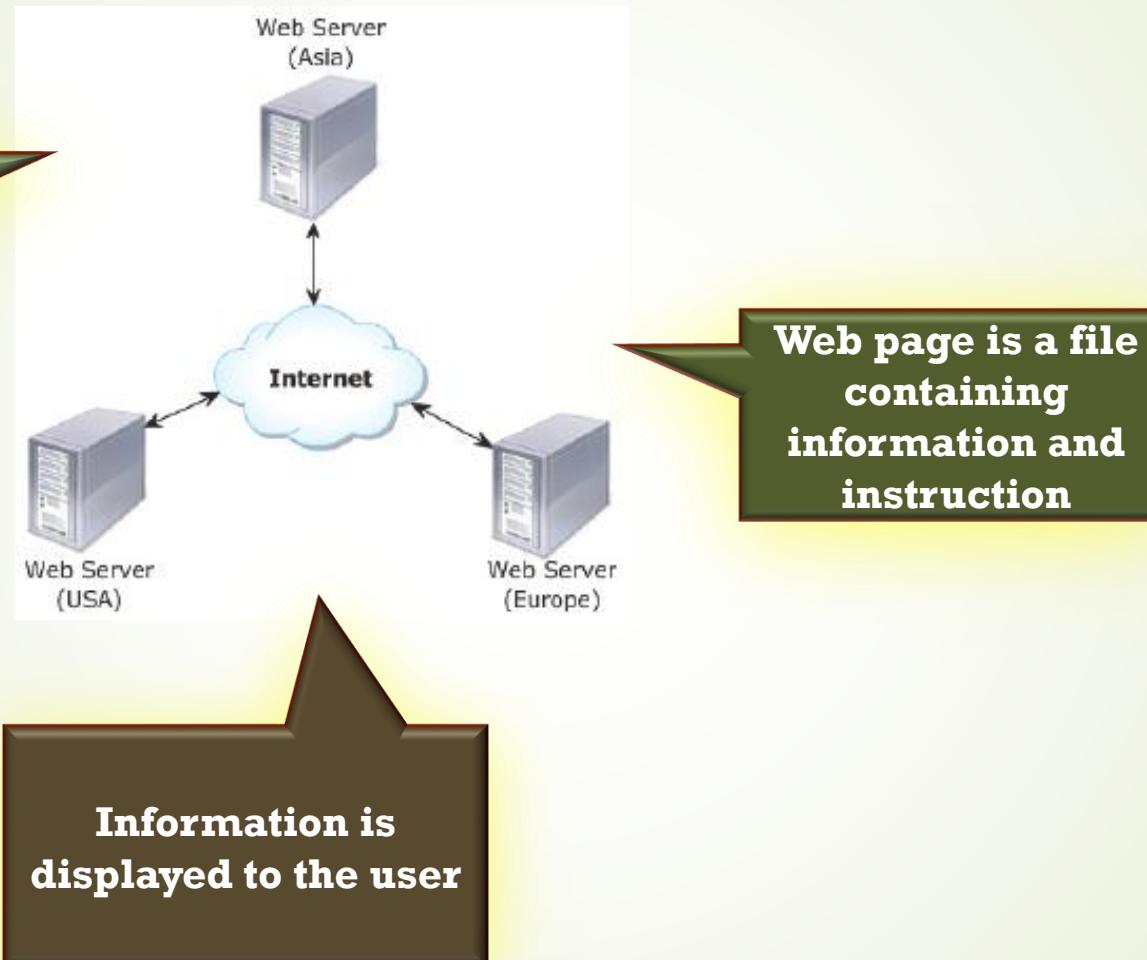
Internet is known as the largest WAN.

Web is a way to access information using Internet.

Multiple computers are connected to each other irrespective of geographical locations.

Web and Internet 2-2

Information is available in the form of Web pages



Web Communication 1-2

Web pages are stored on a Web server to make them available on the Internet for the users.

Web server is a computer with high processing speed and connected to the Internet.

Web server is used to host and display the Web pages on a Web browser.

Web browser displays the Web pages using the HTTP protocol.

HTTP is a protocol that specifies how a Web page will be retrieved from the Web server.

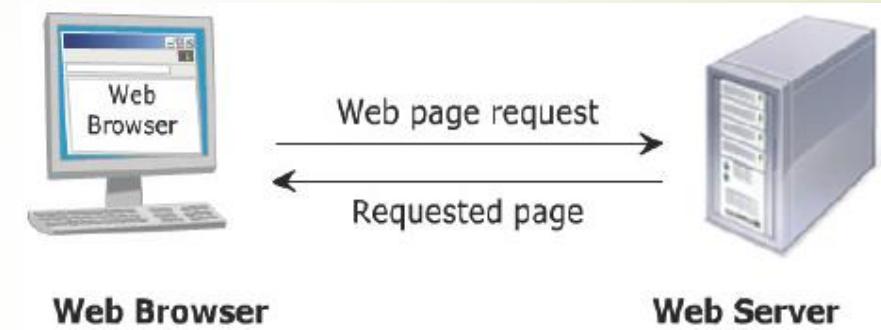
Web Communication 2-2

- Steps to view a Web page in a browser:

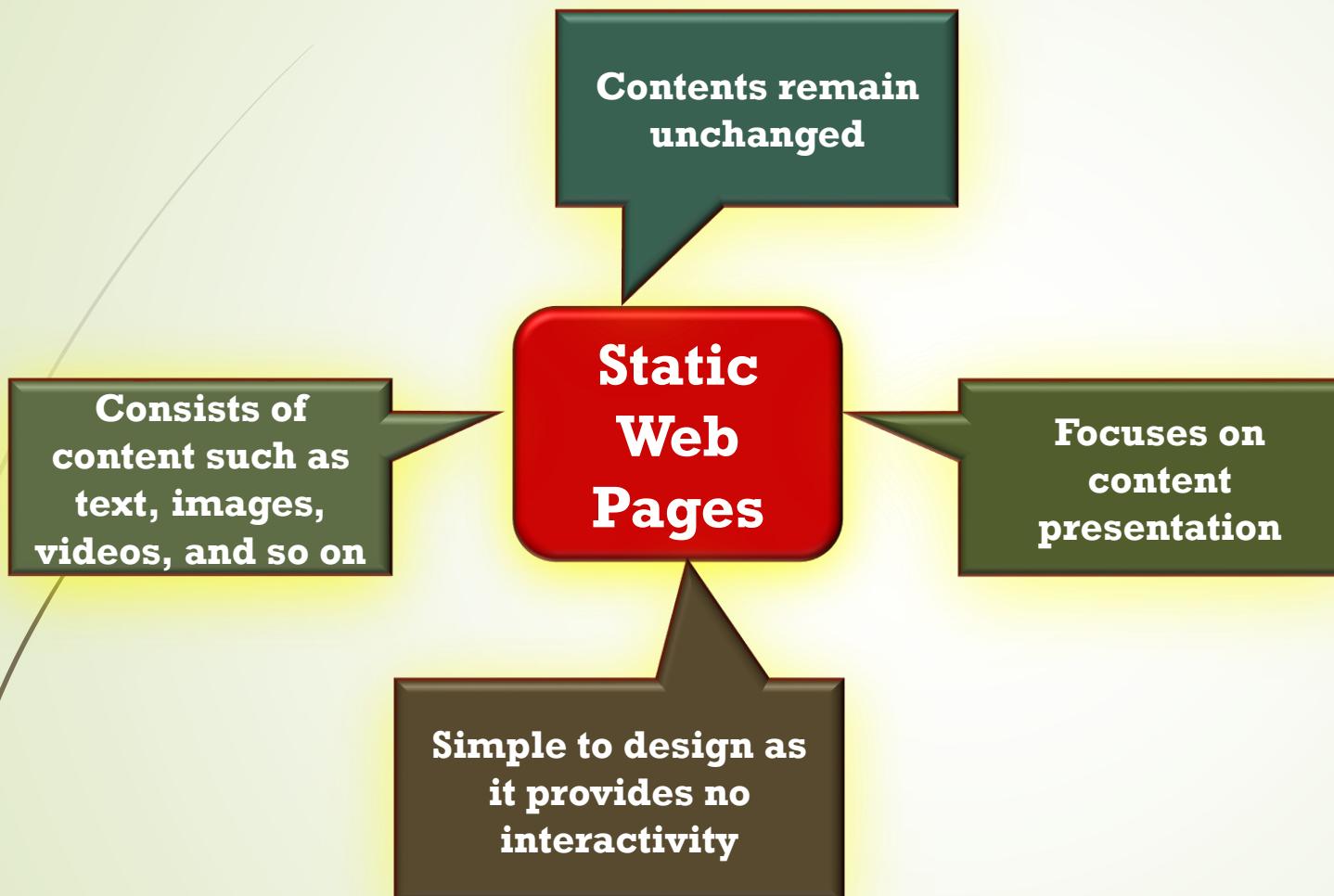
1. User specifies Uniform Resource Locator (URL) of Web page in a browser.

2. The client browser sends URL request to appropriate Web server.

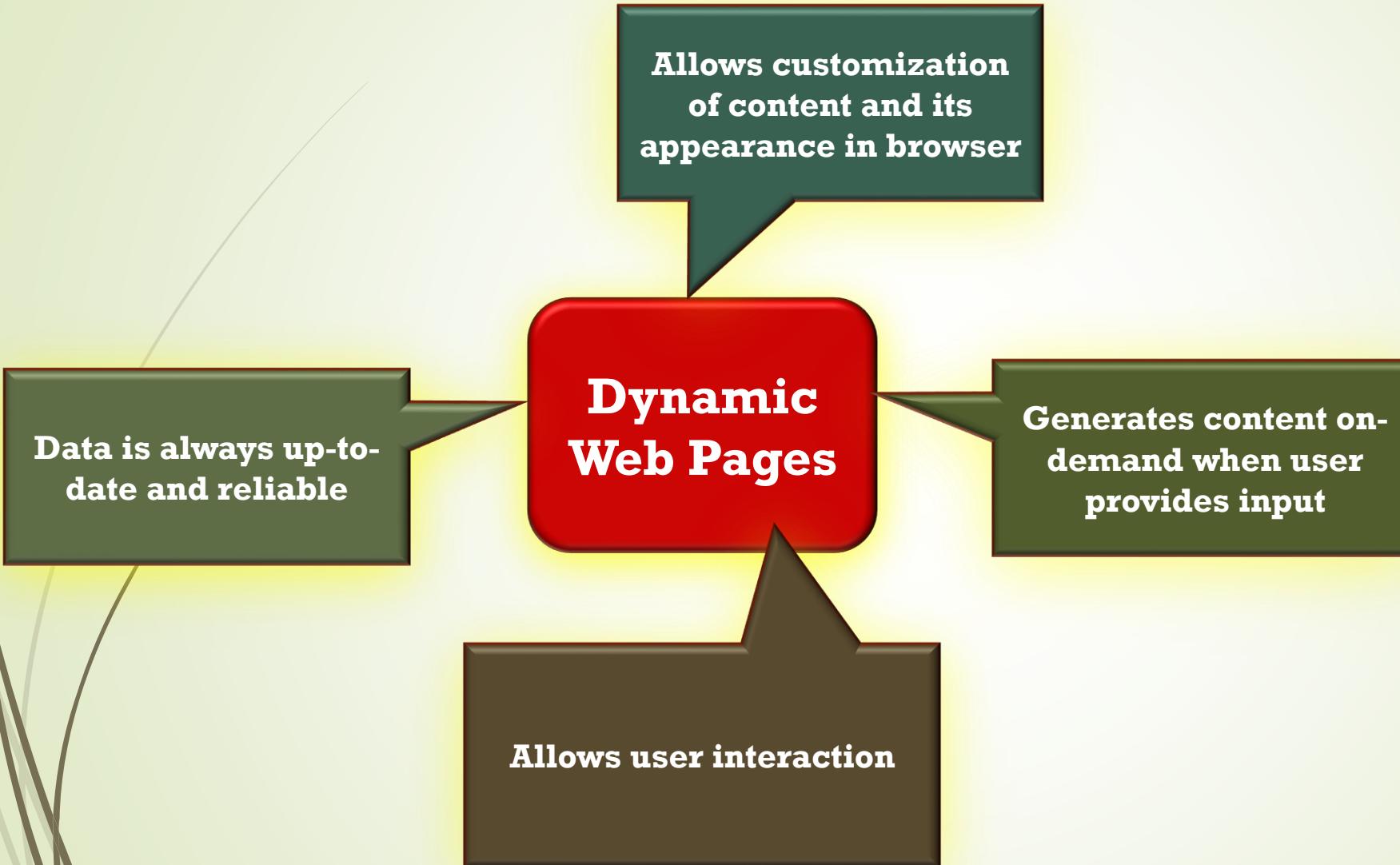
3. Web server processes request and sends Web page as a response to the browser.



Static Web Pages



Dynamic Web Pages



Technologies

- **Technologies used for creating dynamic Websites:**

JavaScript, a scripting language, is used for creating dynamic Web pages.

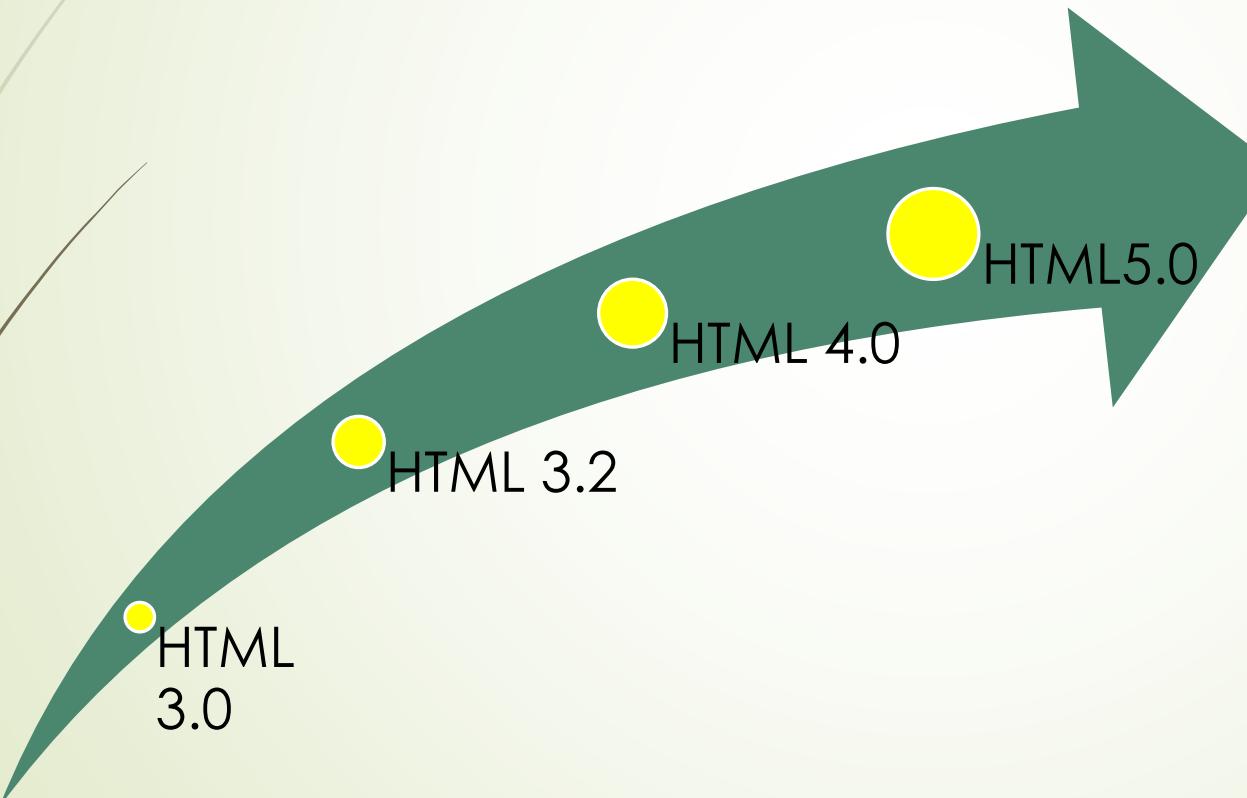
CSS specifies the formatting of a Web page for both static and dynamic Web pages.

Extensible HTML when used with JavaScript, displays the required user-defined data each time the Web page is loaded in the browser.

Dynamic HTML uses JavaScript and CSS to make dynamic Web pages and transform the look and feel of the Web pages.

History 1-2

- HTML has evolved over the years with the introduction of improved set of standards and specifications.



History 2-2

- Basic rules for HTML5 are as follows:

Introduction to new features should be based on HTML, CSS, DOM, and JavaScript.

More markup to be used to replace scripting.

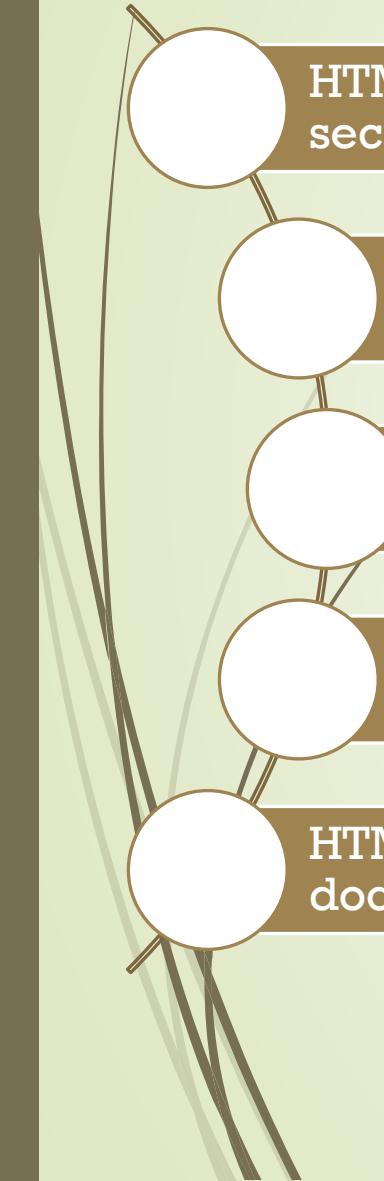
Must be device independent.

Necessity for external plug-in to be reduced.

Better error handling capabilities.

Better visibility to public the development process.

Layout of a Page in HTML5 1-2



HTML5 contains a head section containing the unseen elements and the body section containing the visible elements of the document.

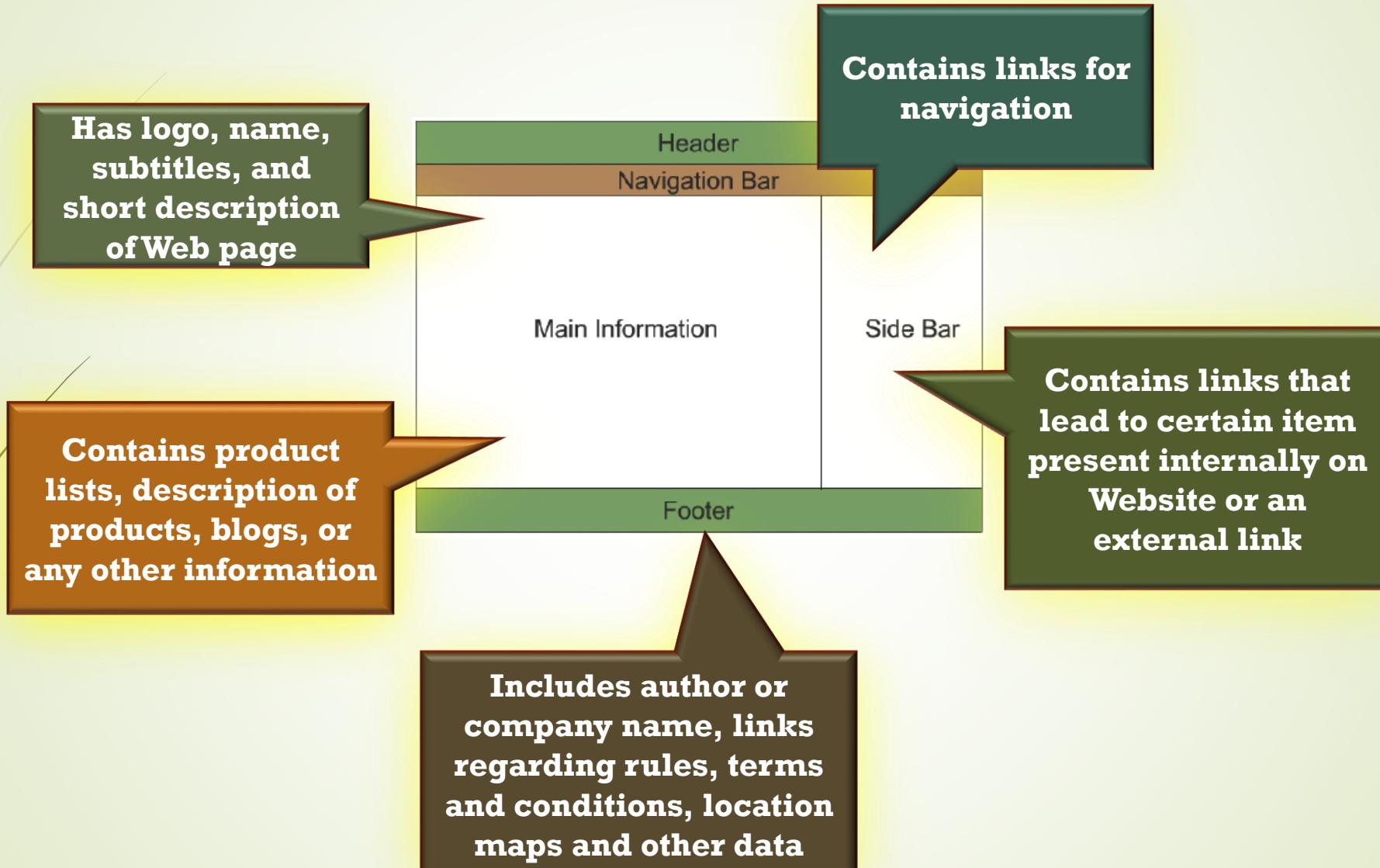
Earlier HTML provided different tags to build and organize the content in the body of the document.

The `<table>` tag was an element often used to present the data in an organized manner.

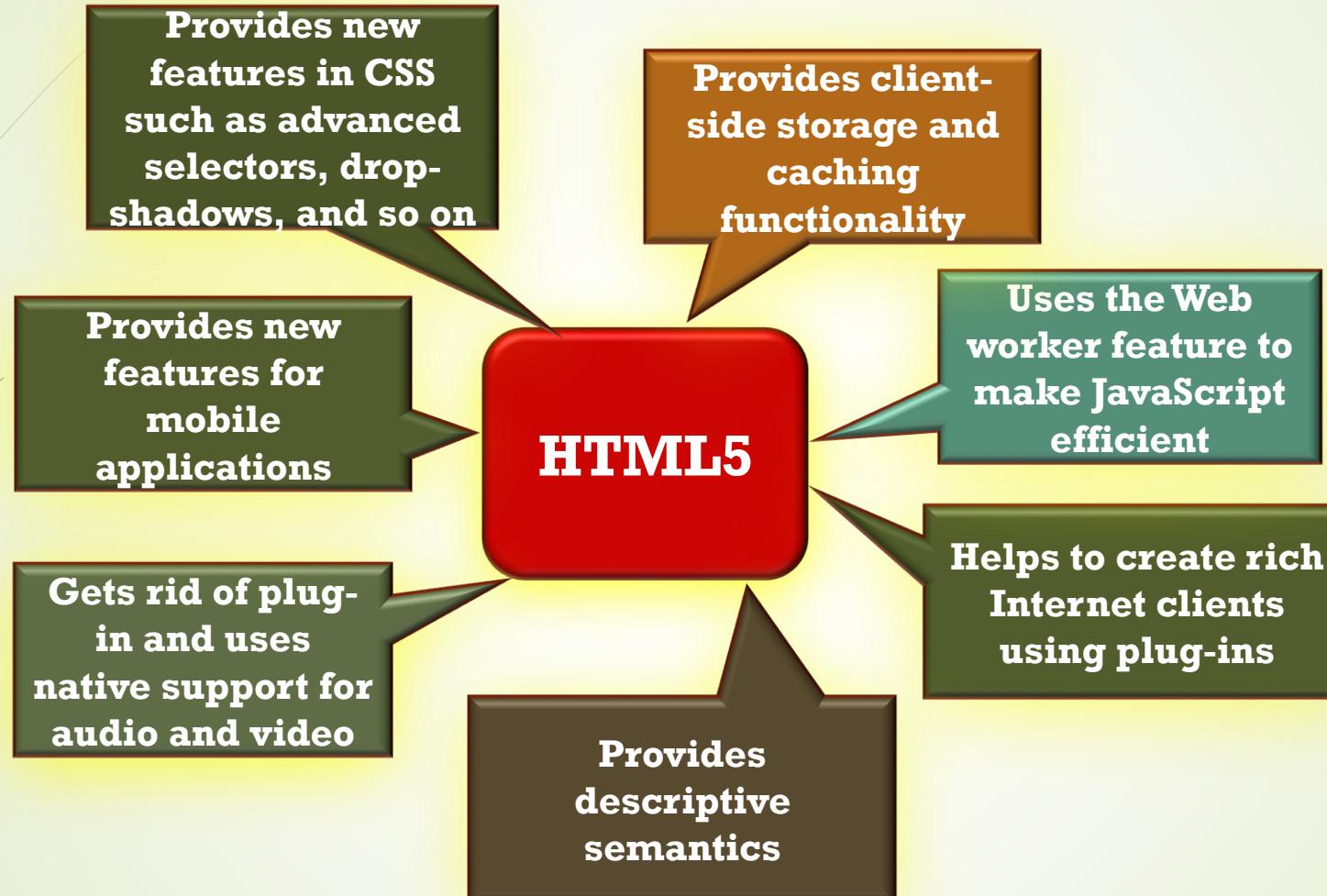
The `<div>` tag was another element used to display contents such as images, links, text, menus, forms, and so on.

HTML5 includes new elements that identify and organize each part of the document body.

Layout of a Page in HTML5 2-2



New and Flexible Approach of HTML5



Working of HTML5

```
graph LR; A[Step 1] --> B[Step 2]; B --> C[Step 3]; C --> D[Step 4]
```

Browser loads the document which includes HTML markup and CSS style

Browser creates an internal model of the document containing HTML elements after page load

Browser loads the JavaScript code which executes after page loads

APIs give access to audio, video, and other required technologies to build the app

New Features of HTML5

Features of HTML5

Web workers API is added to support background process without affecting the main process

Web sockets API provides continuous connection between a server and a client

New form controls

<audio> and <video> element available for media playback

Content specific elements helps to structure the document

Provides local storage support

<canvas> element used for drawing

Cascading Style Sheets (CSS)

Works along with HTML to provide visual styles to document elements.

Is a rule based language that specifies the formatting instructions for content in an HTML document.

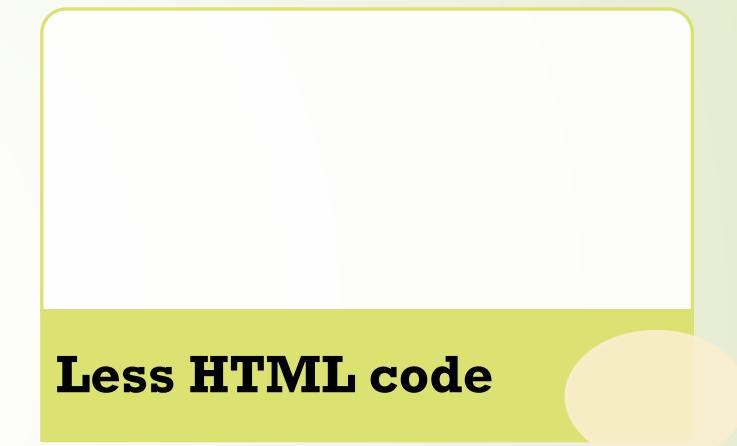
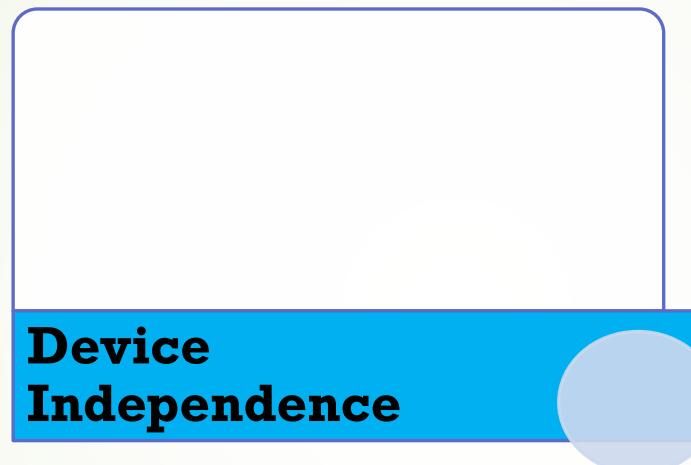
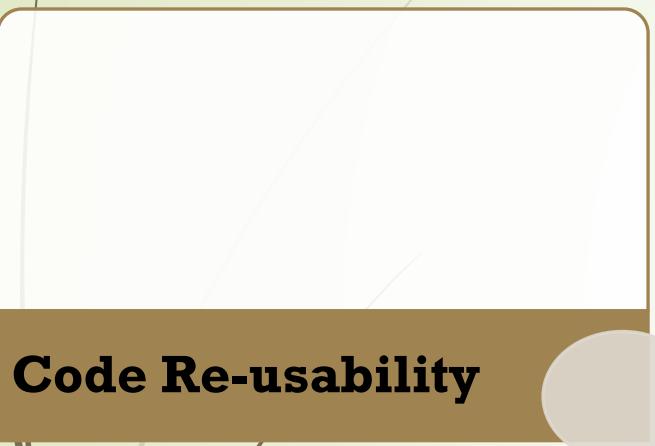
Purpose is to separate content from its formatting.

Can define the layout and formatting of content in a separate file with a .css extension.

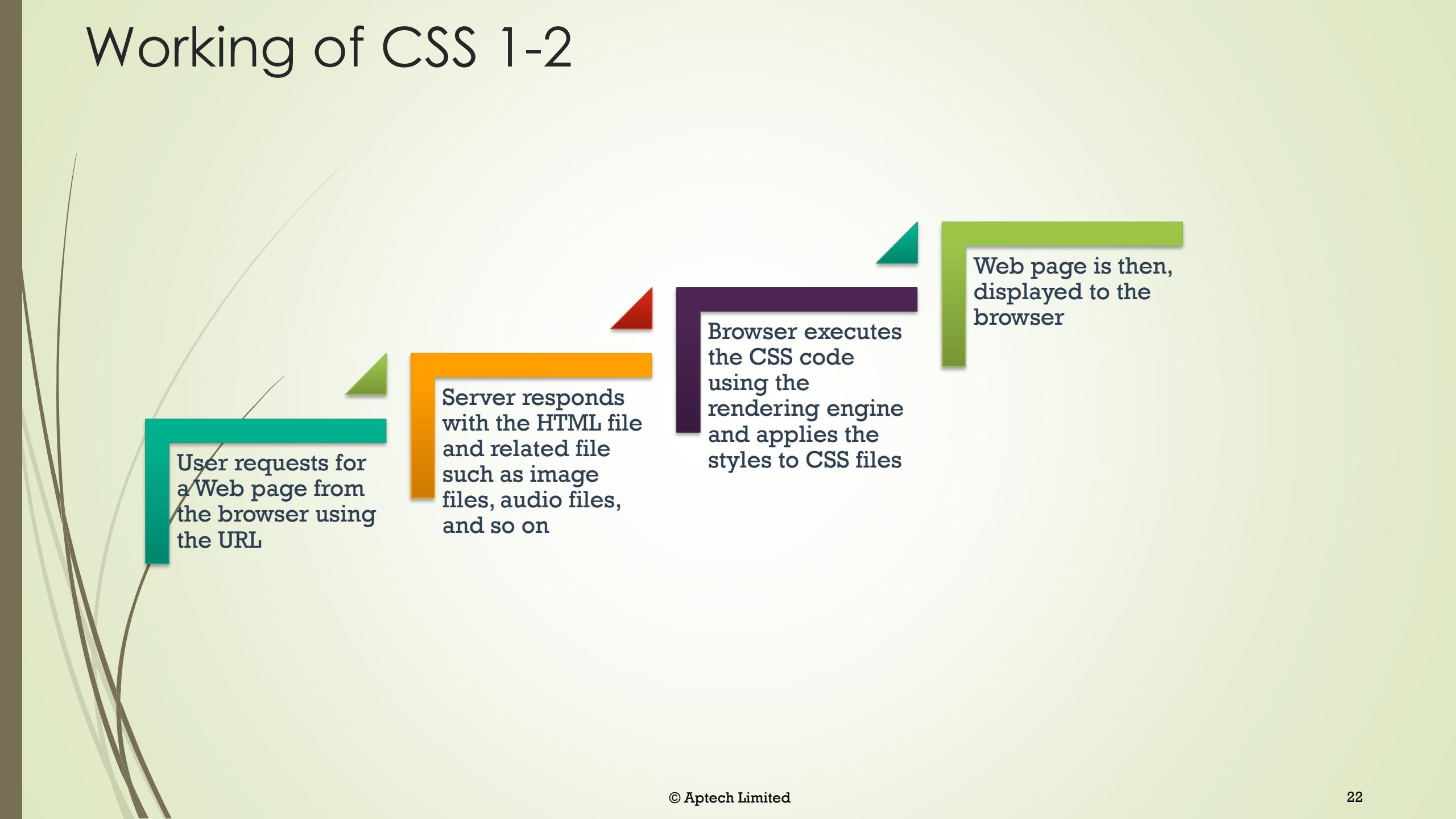
Allows rules from different .css files to be merged or edited.

- This task of combining and matching rules from different files is referred to as **cascading**.

Benefits of CSS



Working of CSS 1-2



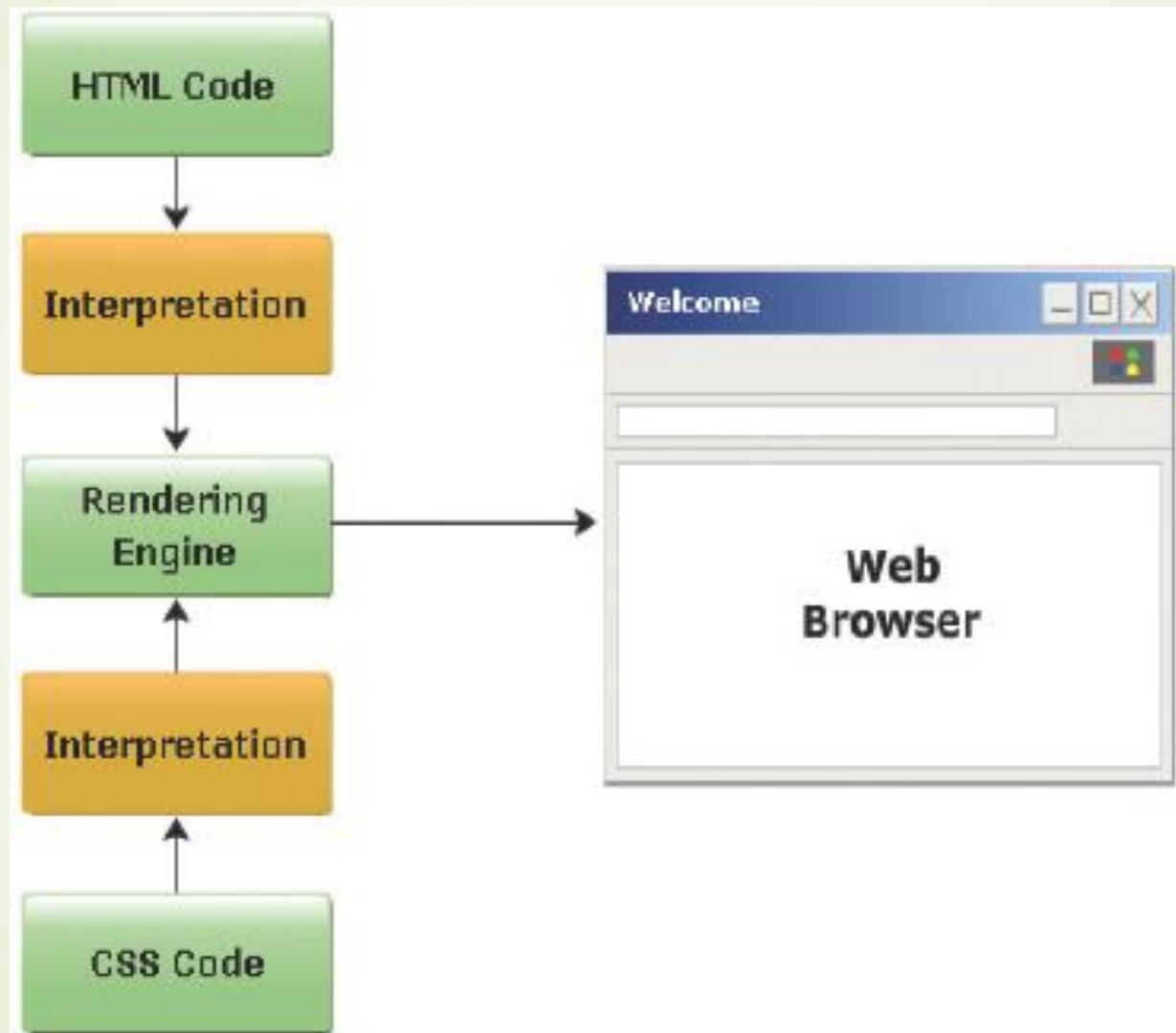
User requests for a Web page from the browser using the URL

Server responds with the HTML file and related file such as image files, audio files, and so on

Browser executes the CSS code using the rendering engine and applies the styles to CSS files

Web page is then, displayed to the browser

Working of CSS 2-2



JavaScript 1-2

Functionality of JavaScript

Allows a user to create 2D drawable surface in your page without using plug-ins.

Use Web Workers to turbo charge the JavaScript code to perform advanced computation.

Accesses any Web service and brings back the data to the application in real time.

Does not require any special plug-ins to play video.

Allows to create own playback controls using JavaScript and HTML.

Uses browser local storage and does not require browser cookies.

Can perform full video processing in the browser.

JavaScript 2-2

Functionality of JavaScript

Helps Web designer to insert code snippets into the HTML page without the necessity for in-depth programming knowledge.

Can be used to execute events on certain user actions.

Can manipulate HTML elements using JavaScript.

Can collect browser information of a Website visitor.

jQuery

Is a JavaScript library supported on multiple browsers.

Simplifies the designing of client-side scripting on HTML pages.

Library is based on modular approach that allows creation of powerful and dynamic Web applications.

Features of jQuery

Easy to understand syntax that helps to navigate the document.

Event handling.

Advanced effects and animation.

Develop AJAX-based Web applications.

Elements 1-2

- An element organizes the content in a Web page hierarchically, which forms the basic HTML structure.

It consists of tags, attributes, and content. Tags denote the start and end of an HTML element.

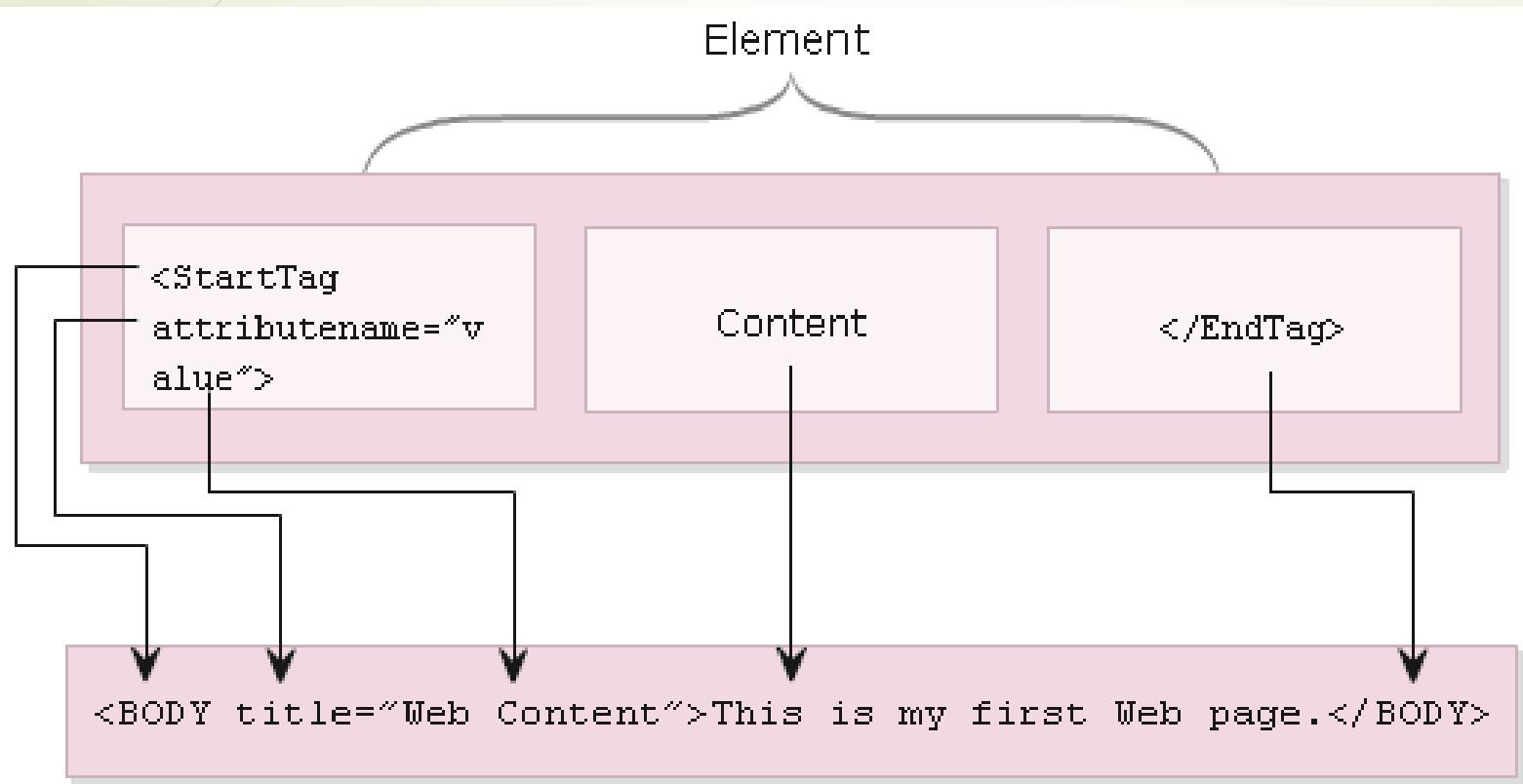
A start tag includes an opening angular bracket (<) followed by the element name, zero or more space separated attributes, and a closing angular bracket (>).

Attributes are name/value pairs that describe the element and content format.

An end tag is written exactly as the start tag, but the forward slash (/) precedes the element name.

Elements 2-2

- Following figure shows an element in HTML tag.



DOCTYPE

- Informs the browser the HTML version number of your document.
- It is the first declaration in the HTML5 document before any other HTML code is written.
- Allows a browser to be more precise in the way it interprets and renders your pages.

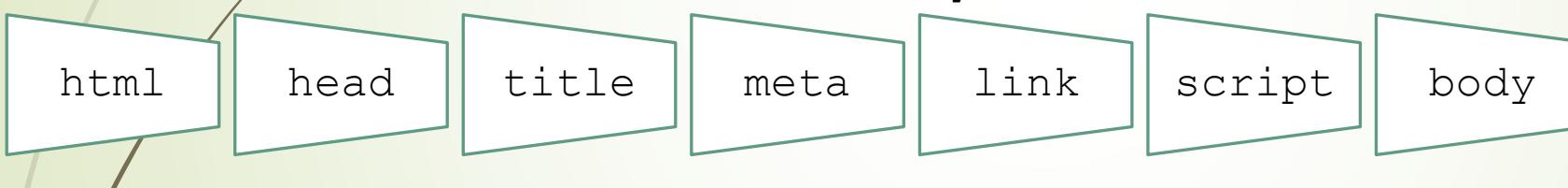
The new HTML5 DOCTYPE is as follows:

```
<!DOCTYPE html>
```

- It is the new syntax of HTML5 as well as for all future versions of HTML.
- This DOCTYPE is compatible with older browsers too.

Basic Tags 1-6

- An HTML document is made up of different elements, tags, and attributes, which specify content and its format.
- HTML is both a structural and presentational markup language.
- Structural markup specifies structure of content, while presentational markup specifies format.
- An HTML page is saved with .html extension.
- Basic structure of an HTML document mainly consists of seven basic elements:



➤ HTML

- The `html` element is the root element that marks the beginning of an HTML document.
- It contains start and end tag in the form of `<html>` and `</html>` respectively.
- It is the largest container element as it contains various other elements.

Basic Tags 2-6

➤ HEAD

- The **head** element provides information about the Web page such as keywords and language used.
- Keywords are important terms existing in a Web page used by the search engines to identify the Web page with respect to search criterion.

➤ TITLE

- The **title** element allows you to specify title of the Web page under **<title>** and **</title>** tags.
- The title is displayed on the title bar of the Web browser. The title element is included within the head element.

Basic Tags 3-6

➤ META

- The meta tag is used for displaying information about the data.
- In HTML5, the content meta tag which was used for specifying the charset or character encoding has been simplified.
- The new <meta> tag is as follows:
`<meta charset="utf-8" />`
- UTF-8 is the most commonly used character coding that supports many alphabets.
- There are several other attributes associated with the meta tag that can be used to declare general information about the page.
- This information is not displayed in the browser.
- Meta tags provide search engines, browsers, and Web services with the information that is required to preview or acquire a summary of the relevant data of your document.

Basic Tags 4-6

➤ LINK

- The `<link>` tag is used to define the association between a document and an external resource.
- It is used to link style sheets. Its `type` attribute is used to specify the type of link such as '`text/css`' which points out to a style sheet.

```
<link type="text/css" rel="stylesheet" href="first.css">
```

- The `type` attribute is not included in HTML5.
- The reason is that CSS has been declared as default and standard style for HTML5. So, the new link is as follows:

```
<link rel="stylesheet" href="first.css">
```

Basic Tags 5-6

➤ **SCRIPT**

- With HTML5, JavaScript is now the standard and default scripting language.
- The type attribute tag can be removed from the script tags.
- The new script tag is as follows:

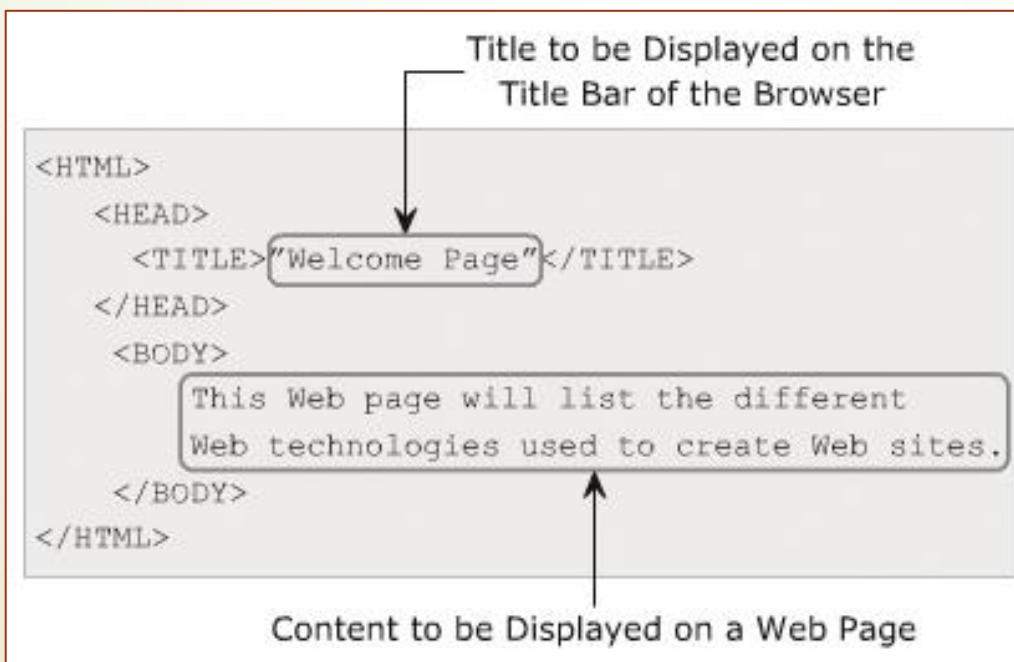
Following example shows use of the script tag:

```
<!DOCTYPE html>
<html>
  <head>
    <meta charset="UTF-8">
    <title>HTML Webinar</title>
    <link rel="stylesheet" href="first.css">
      <script src="first.js"></script>
    </head>
  </html>
```

Basic Tags 6-6

➤ BODY

- The **body** element enables you to add content on the Web page specified under the `<body>` and `</body>` tags.
- Content can include text, hyperlinks, and images. You can display the content using various formatting options such as alignment, color, and background.
- Following figure shows the basic HTML elements:



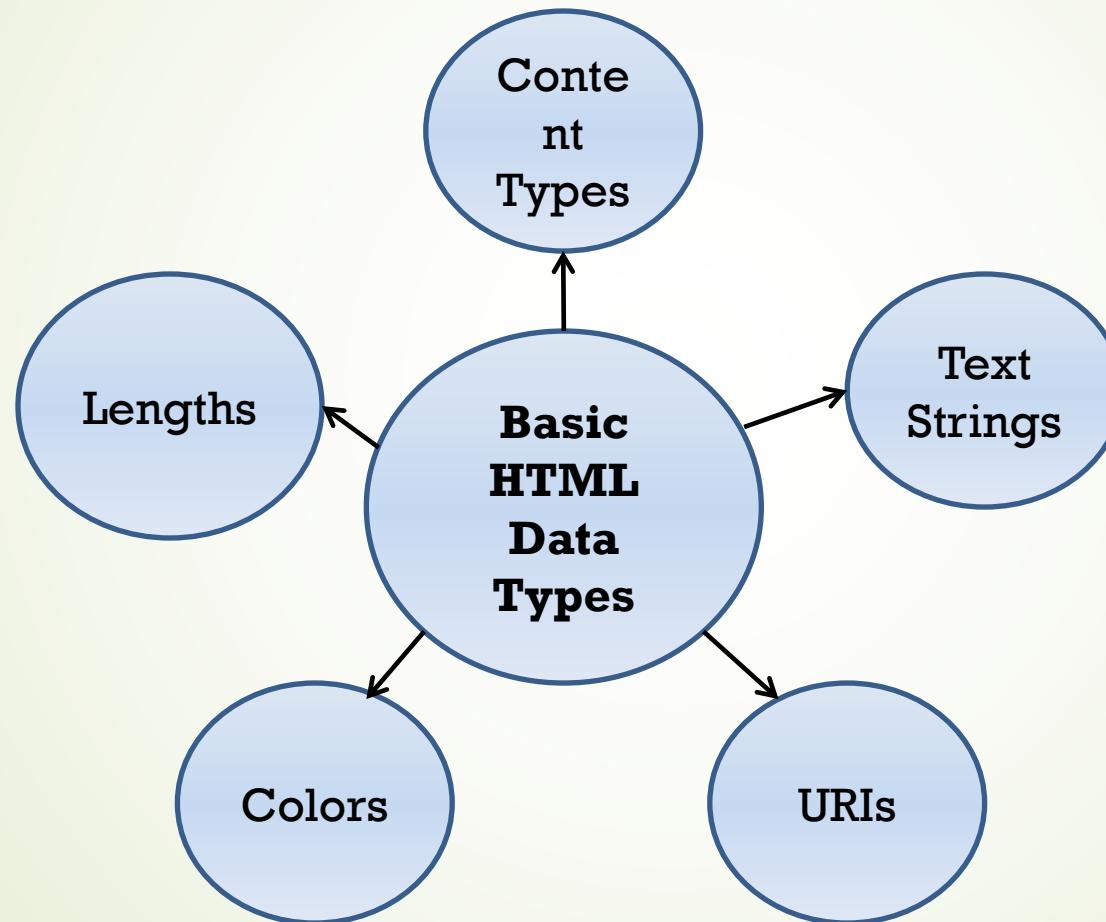
Data Types 1-2

- A data type specifies type of value assigned to attributes and type of content that is to be displayed on the Web page.
- Data types help in identifying type of formatting such as color and length of data.
- Following table describes different types of content:

Data Type	Description
Text Strings	Specifies textual content, which is readable by the user.
Uniform Resource Identifiers (URIs)	Specifies the location of Web pages or network files.
Colors	Specifies the color to be applied to the content on the Web page.
Lengths	Specifies the spacing among HTML elements. Length values can be in Pixels, Length, or MultiLength. Pixels refer to the smallest dot on the screen.
Content Types	Specifies the type of content to be displayed on a Web page. Content types include 'text/html' for displaying text, 'image/gif' for displaying image of a .gif format, 'video/mpg' for displaying a video file of .mpg format.

Data Types 2-2

- Following figure shows different data types:



Attributes

- HTML attributes help to provide some meaning and context to the elements.
- Following table describes some of the global attributes used in HTML5 elements.

Attribute	Description
class	Specifies class names for an element.
contextmenu	Specifies the context menu for an element.
dir	Specifies the direction of the text present for the content.
draggable	Specifies the draggable function of an element.
dropzone	Specifies whether the data when dragged is copied, moved, or linked, when dropped.
style	Specifies the inline CSS style for an element.
title	Specifies additional information about the element.

HTML Entities

- Entities are special characters that are reserved in HTML.
- These entities can be displayed on a HTML5 Website using the following syntax:

Syntax:

&entity_name; or &#entity_number;

- Following table shows some of the commonly used HTML entities:

Output	Description	Entity Name	Entity Number
	non-breaking space	 	
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
€	euro	€	€
©	copyright	©	©

Container and Standalone Tags

There are two types of HTML elements namely, container and standalone elements.

A container element includes the start tag, contents, sub-elements, and end tag.

All the basic HTML elements are container elements.

A standalone element consists of the start tag and attributes followed by the end tag as /> without any content.

HTML5 and Mobile Devices

HTML5 helps to create better and richer mobile applications by using APIs that support advanced Web application features for mobile browsers.

New age smartphones with Apple iOS and Google Android as operating systems support HTML5 compliant browsers.

HTML5 tries to integrate all the features to deploy mobile applications that would be compatible in all the platforms.

HTML5 provides features such as drag-and-drop functionality, video embedding in an application, and even offline capabilities.

As HTML5 is compatible with most mobile operating systems, upto 30% of the cost for development for different operating systems is saved.

Also, there is a reduced dependency in third-party components, thus reducing the licensing costs.

All the required components will be readily available through the browser in HTML5.

Benefits of HTML5 for Mobile Development

HTML5 has included APIs, hence additional plug-ins are not required for mobile browsers.

Mobile development is easier as knowledge of only HTML5, CSS, and JavaScript is majorly required.

There is a rising growth of HTML5 for mobile applications due to its enhanced compatibility.

HTML5 is compatible with most operating system platforms.

The HTML5 based mobile applications can run on browsers of Android, iOS, Blackberry, Windows Phone, and other mobile operating systems.

The development cost for creating applications in HTML5 is low.

Applications based on location and maps will have greater support in HTML5.

Third-party programs are not required in HTML5.

Summary 1-2

- ❖ HTML5 is cooperative project between World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).
- ❖ New features of HTML5 would include tags such as <canvas>, <article>, <nav>, <header>, <footer>, <section>, <audio>, <video> and so on.
- ❖ Some of the technologies used for creating dynamic Websites JavaScript, CSS, XHTML, and DHTML.
- ❖ A Cascading Style Sheet (CSS) is a rule based language, which specifies the formatting instructions for the content specified in an HTML page.
- ❖ JavaScript is a scripting language that allows you to build dynamic Web pages by ensuring maximum user interactivity.
- ❖ jQuery is a JavaScript library that simplifies the design of client-side scripting on HTML pages.

Summary 2-2

- ❖ An element organizes the content in a Web page hierarchically, which forms the basic HTML structure.
- ❖ The DOCTYPE tells the browser the type of your document.
- ❖ A data type specifies the type of value assigned to the attributes and the type of content that is to be displayed on the Web page.
- ❖ Entities are special characters that are reserved in HTML.
- ❖ A container element includes the start tag, contents, sub-elements, and the end tag.
- ❖ A standalone element consists of the start tag and attributes followed by the end tag as /> without any content.
- ❖ HTML5 provides features such as drag-and-drop functionality, video embedding in an application, and even offline capabilities for mobile devices.

Essentials of Website Design and Development

Session: 02

*Formatting Text and
Using Hyperlinks
and Anchors*



Objectives

- Explain the Heading tag
- Explain different tags related to formatting
- Explain monospaced font, preformatted text, and block quotation
- Describe different types of lists
- Explain the procedure to change the background color and image
- Describe hyperlinks
- Explain absolute and relative paths
- Explain how to hyperlink to a Web page and e-mail address
- Explain how to hyperlink to anchors and other content

Introduction

Text content of Web page forms an important part of a Website.

Text must be attractive, easy to read, and should be short and crisp.

Text formatting options such as bold, italics, superscript, subscript, and so on must be applied to attract the user attention.

Background color and image of the Web page can be specified using HTML.

Headings 1-2

Heading elements define headings for contents such as text and images.

Specifies the hierarchical structure of a Web page by grouping the contents.

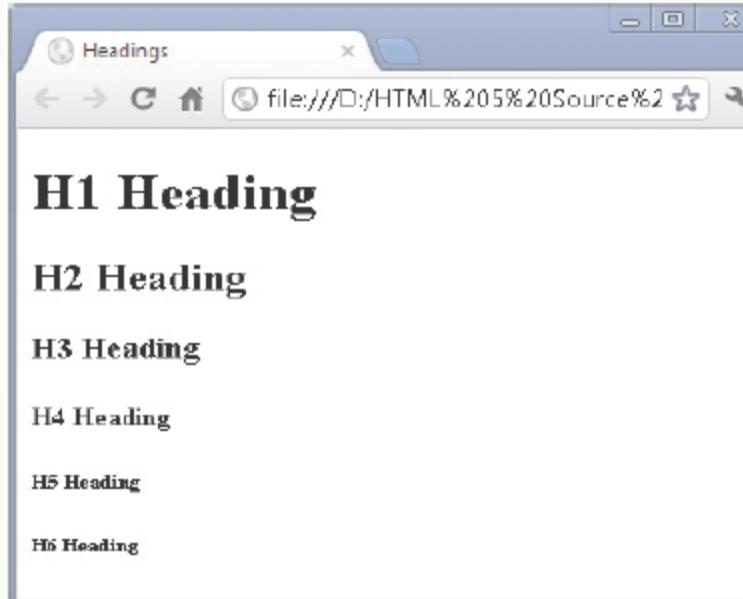
HTML defines six levels of headings ranging from H1 to H6.

- **H1 is the top level heading and is displayed with largest font size.**
- **H6 is the lowest-level heading and is displayed with smallest font size.**

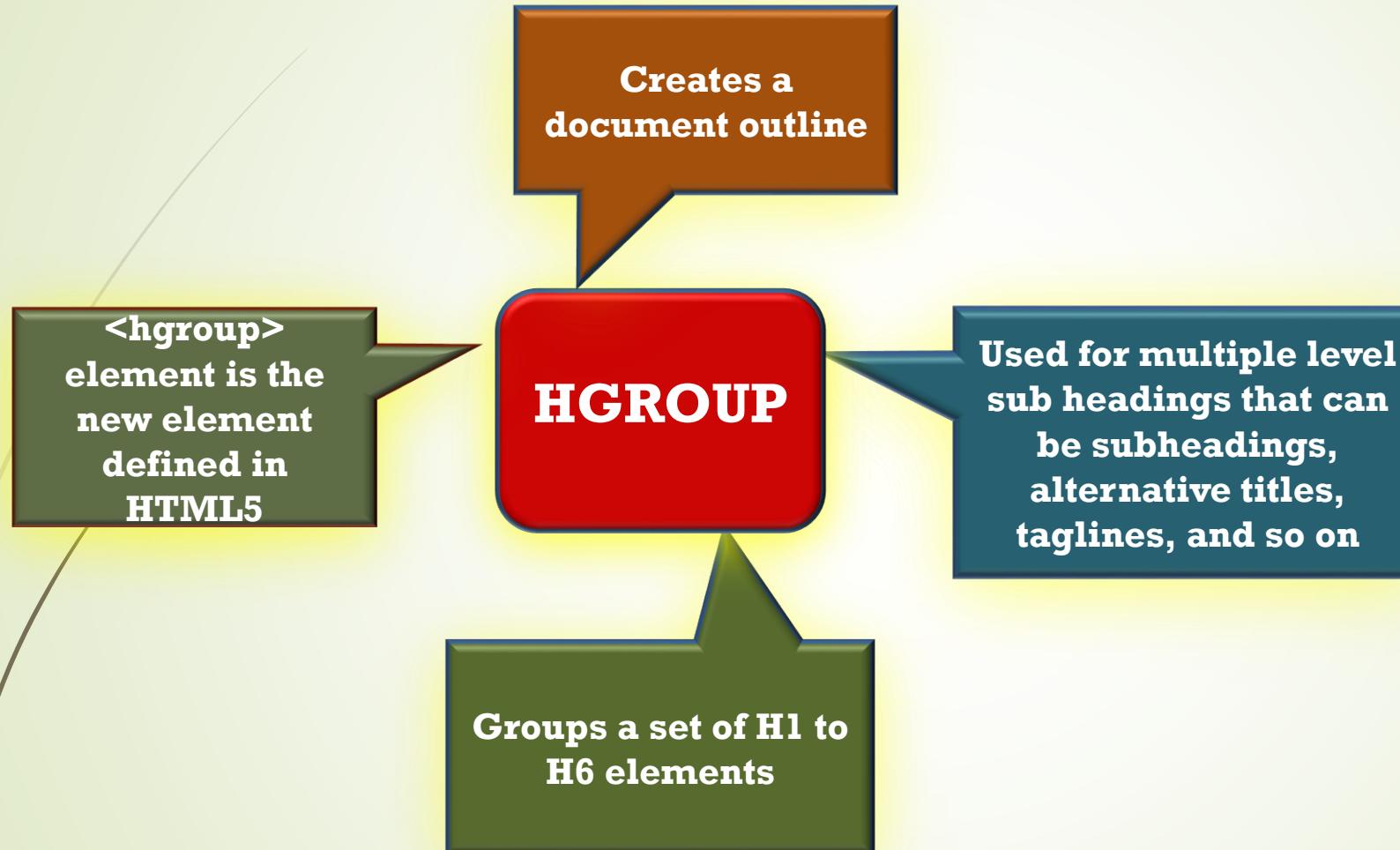
Headings 2-2

- Following Code Snippet demonstrates how to specify the six levels of heading in an HTML page:

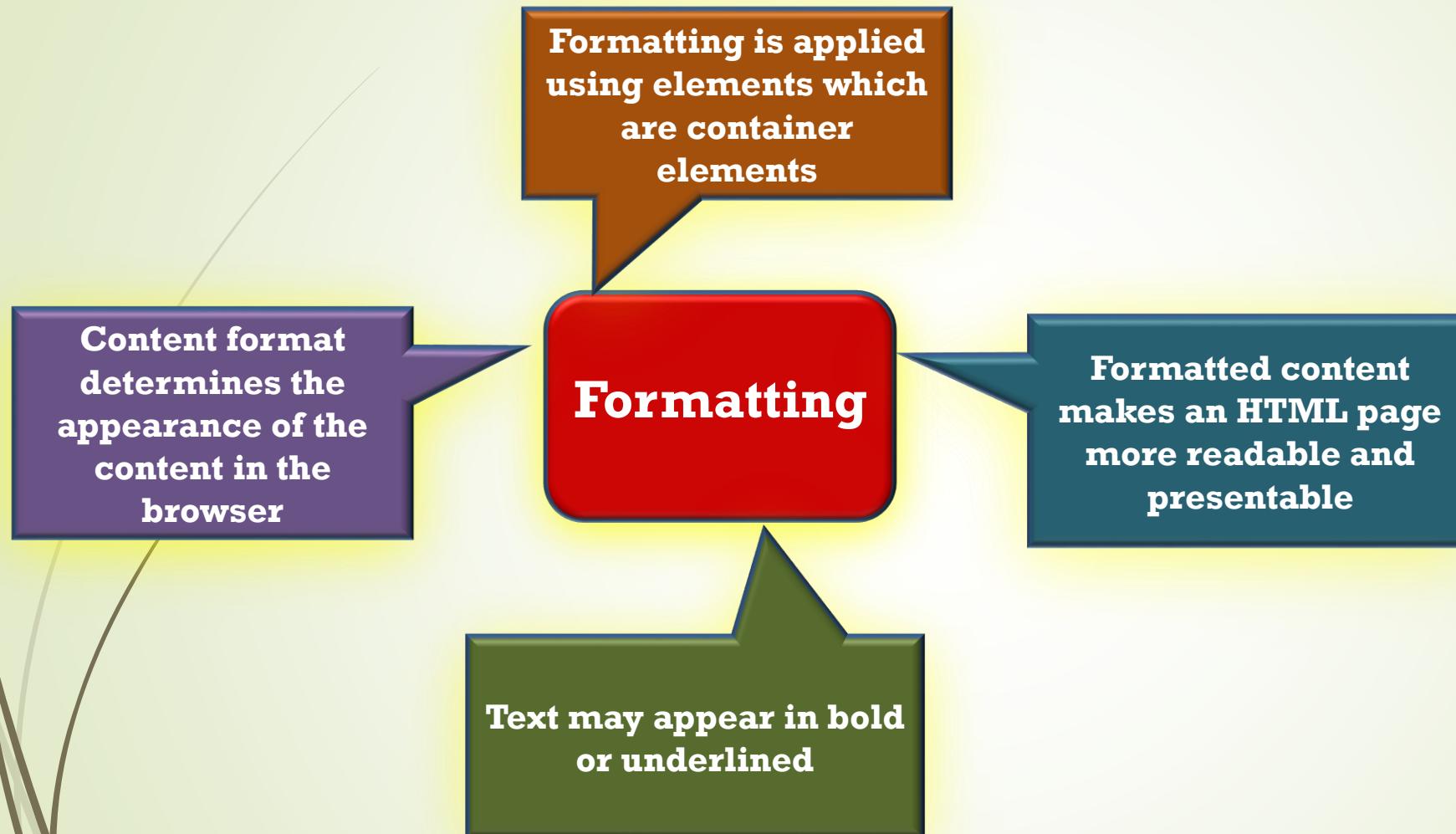
```
<!DOCTYPE html>
<html>
  <head>
    <title>Headings</title>
  </head>
  <body>
    <h1>H1 Heading</h1>
    <h2>H2 Heading</h2>
    <h3>H3 Heading</h3>
    <h4>H4 Heading</h4>
    <h5>H5 Heading</h5>
    <h6>H6 Heading</h6>
  </body>
</html>
```



HGROUP



Formatting 1-5



Formatting 2-5

- Commonly used formatting elements are as follows:

B element displays text in bold and is enclosed between **** and **** tags.

I element displays text in italics and is enclosed between *<i>* and *</i>* tags.

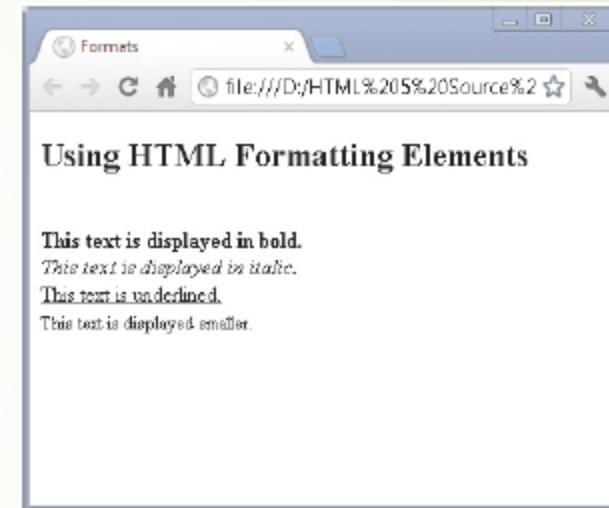
SMALL element makes the text appear smaller in browser and is enclosed between <small> and </small> tags.

U element underlines a text and is enclosed between <u> and </u> tags.

Formatting 3-5

- Following Code Snippet demonstrates the use of basic formatting elements:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Formats</title>
  </head>
  <body>
    <h2>Using HTML Formatting Elements</h2><br>
    <b>This text is displayed in bold.</b><br>
    <i>This text is displayed in italic.</i><br>
    <u>This text is underlined.</u><br>
    <small>This text is displayed smaller.</small>
  </body>
</html>
```



Formatting 4-5

- Some more formatting elements are as follows:

DEL element encloses deleted text and is placed between `` and `` tags.

INS element encloses inserted text and is placed between `<ins>` and `</ins>` tags.

STRONG element emphasizes the text and is placed between `` and `` tags.

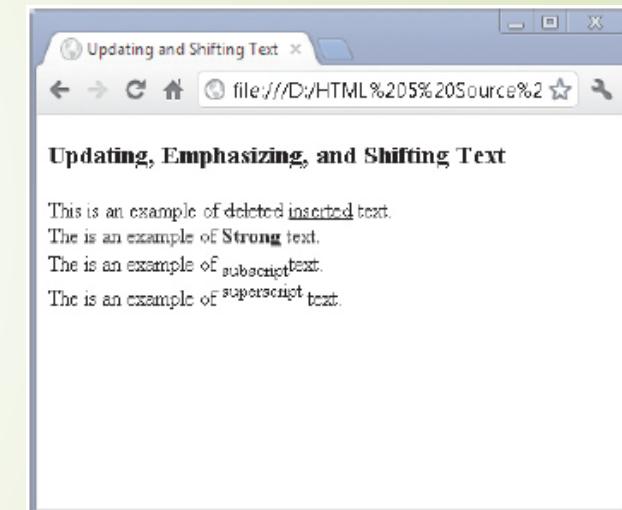
SUB element displays a text as subscript and is enclosed between `_{` and `}` tags.

SUP element displays a text as superscript and is enclosed between `^{` and `}` tags.

Formatting 5-5

- Following Code Snippet demonstrates the use of other formatting elements:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Updating and Shifting Text</title>
  </head>
  <body>
    <h3>Updating, Emphasizing, and Shifting Text</h3>
    This is an example of <del>deleted</del> <ins>inserted
</ins> text.<br/>
    The is an example of <strong>Strong</strong> text.<br/>
    The is an example of <sub>subscript</sub>text.<br/>
    The is an example of <sup>superscript</sup> text.<br/>
  </body>
</html>
```



Monospaced and Preformatted Text 1-2

Monospaced font allows the same amount of horizontal space between fonts irrespective of font size, shape, and type.

Monospaced fonts are used for programming code snippets, instruction texts, and ASCII characters.

`<pre>` tag is used for preformatted text content.

`<pre>` tag applies a fixed-font width to the text content.

`<pre>` tag allows you to copy-paste the content along with the formatting from the source.

Monospaced and Preformatted Text 2-2

- Following table lists some of the predefined tags and their description:

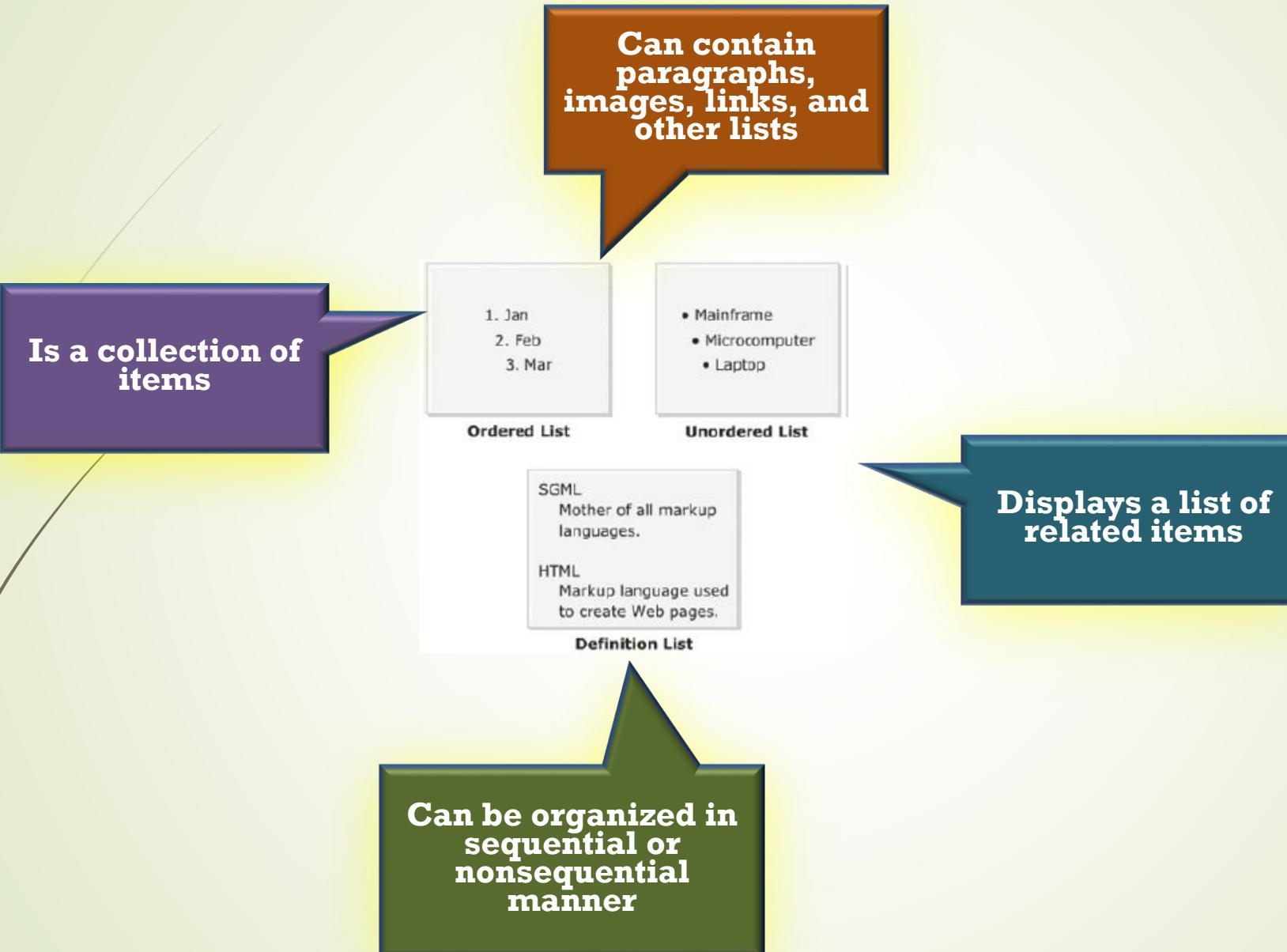
Tag	Description
	Used for emphasized text
<dfn>	Used for definition term
<code>	Used for computer code
<samp>	Used for sample output from a computer program
<cite>	Used for citation

Formatting a Block Quotation

- To define a long quotation or block quotation, `<blockquote>` tags are used.
- `<blockquote>` tag indents the quotation in browsers.
- Following Code Snippet demonstrates the use of `<blockquote>` tags:

```
<blockquote>  
"When one door closes, another opens; but we often look so long and so  
regretfully upon the closed door that we do not see the one which has opened  
for us." -Alexander Graham Bell  
</blockquote>
```

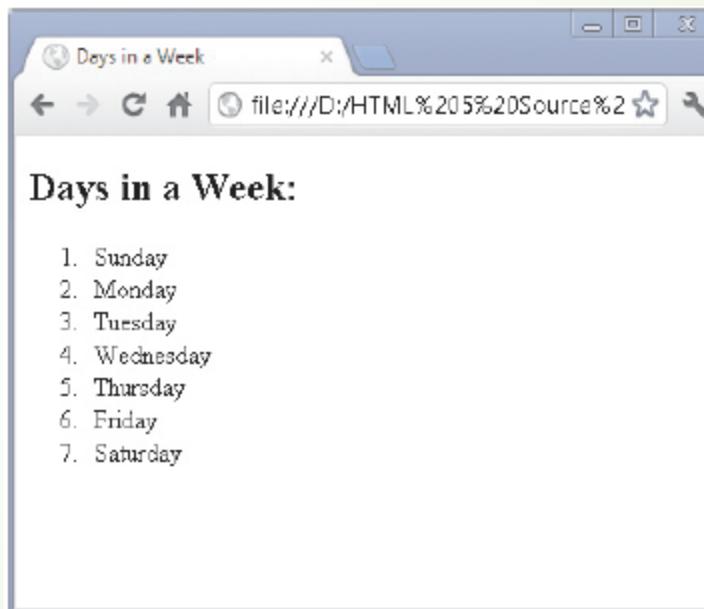
Lists



Ordered Lists 1-2

- List is displayed using a numbered or alphabetic bullet
- Two elements used for creating an ordered list are as follows:
 - OL – Creates an ordered list
 - LI – Specifies an item and it is a sub-element of the OL element
- Following Code Snippet demonstrates the use of ol and li tags:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Days in a Week</title>
  </head>
  <body>
    <h2>Days in a Week:</h2>
    <ol>
      <li>Sunday</li>
      <li>Monday</li>
      <li>Tuesday</li>
      <li>Wednesday</li>
      <li>Thursday</li>
      <li>Friday</li>
      <li>Saturday</li>
    </ol>
  </body>
</html>
```



Ordered Lists 2-2

- Following table lists some of different numbering styles and their description:

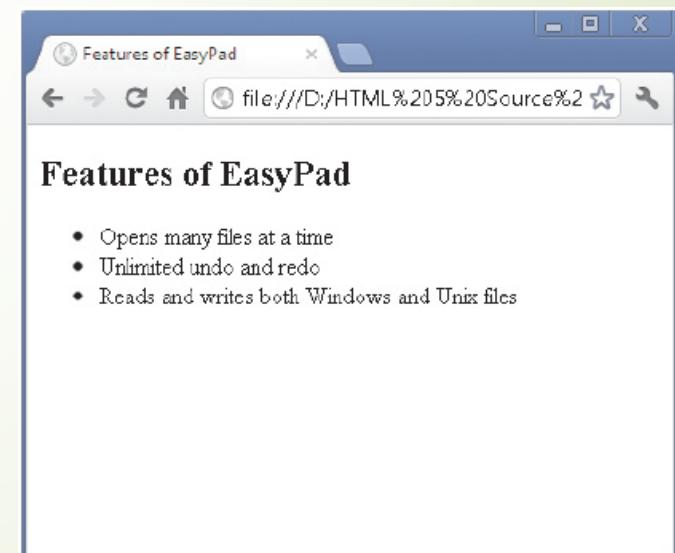
Property's Value	Example
decimal	1, 2, 3...
lower-alpha	a, b, c...
upper-alpha	A, B, C...
lower-roman	i, ii, iii...
upper-roman	I, II, III...

- list-style-type property is used to specify a numbering style for the ordered list.
- It is the property of the style attribute, which is specified with the tags.

Unordered Lists 1-3

- Items are arranged in random order
- Two elements used for creating an unordered list are as follows:
 - UL – Creates an unordered list
 - LI – Specifies an item and it is a sub-element of the OL element
- Following Code Snippet demonstrates the use of UL and LI tag.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Features of EasyPad</title>
  </head>
  <body>
    <h2>Features of EasyPad</h2>
    <ul>
      <li>Opens many files at a time</li>
      <li>Unlimited undo and redo</li>
      <li>Reads and writes both
          Windows and Unix files</li>
    </ul>
  </body>
</html>
```



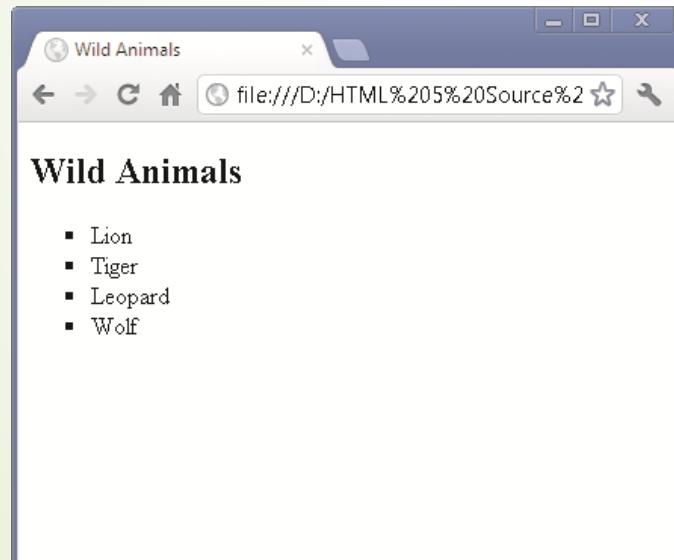
Unordered Lists 2-3

- The `list-style-type` property specifies the type of bullet to be applied to an unordered list.
- There are three types of bullets defined for the unordered lists:
 - Disc
 - Square
 - Circle
- The default value is disc, which is applied to the unordered list, even if the `list-style-type` property is not specified.
- Following Code Snippet demonstrates how to apply the square bullet to an unordered list.

```
<!DOCTYPE html>
<html>
<head>
<title>Wild Animals</title>
</head>
<body>
<h2>Wild Animals</h2>
<ul style="list-style-type:square">
<li>Lion</li>
<li>Tiger</li>
<li>Leopard</li>
<li>Wolf</li>
</ul>
</body>
</html>
```

Unordered Lists 3-3

- The `list-style-type` property of the `style` attribute is set to **square**.
- Hence, the unordered list of wild animals will be displayed using the square bullet as shown in the figure.



Definition List 1-4

- Refers to a collection of terms with their corresponding descriptions
- Contains the terms along with their descriptions
- Appears with the term indented on the left followed by description on the right or on next line
- Elements required to create a definition list are as follows:

DL – Is a container element that consists of DT and DD sub elements. Specifies that the definition list will be created using these elements.

DT – Specifies the term to be defined or described.

DD – Specifies the definition or description of the term.

Definition List 2-4

- Steps to create a definition list are as follows:

1. Specify the DL element to indicate that you want to create a definition list.

2. Use the DT element to specify the term such as Common Noun.

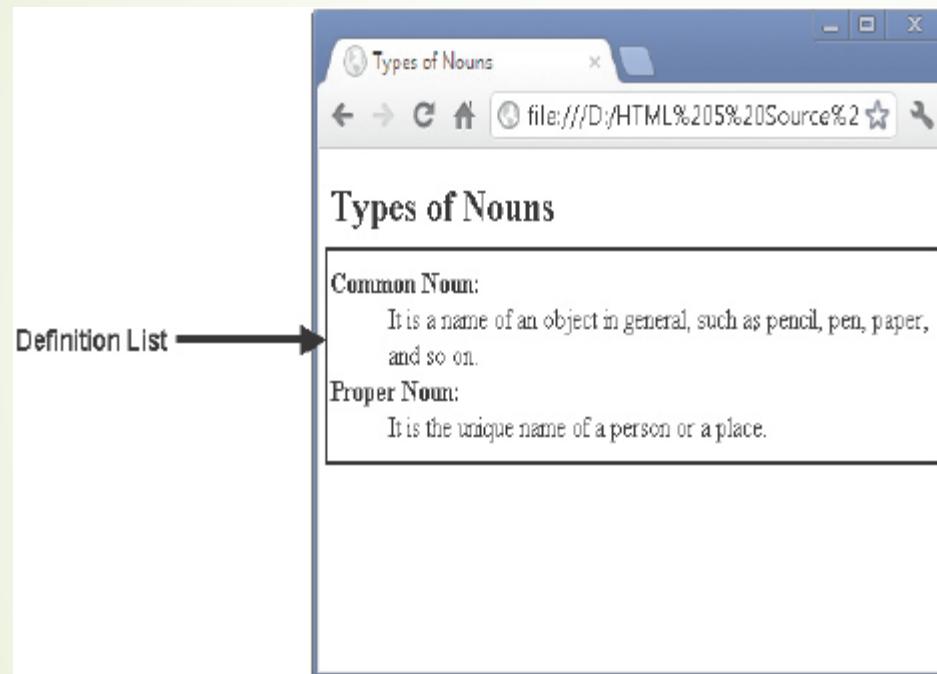
3. Use the DD element to specify the description of the term.

Definition List 3-4

- Following Code Snippet demonstrates the way to create a definition list.

```
<!DOCTYPE html>
<html>
  <head>
    <title>Types of Nouns</title>
  </head>
  <body>
    <h2>Types of Nouns</h2>
    <dl>
      <dt><b>Common Noun:</b></dt>
      <dd>It is a name of an object in general, such as
pencil, pen, paper, and so on.</dd>
      <dt><b>Proper Noun:</b></dt>
      <dd>It is the unique name of a person or a place.
    </dd>
  </dl>
  </body>
</html>
```

Definition List 4-4



Background and Foreground Colors 1-2

Background properties specify the background color and image for the Web pages.

Background property is a shorthand property that specifies all the background properties in just one declaration.

bgcolor attribute specifies the background color of a document.

- **Syntax for bgcolor is:**

```
<body bgcolor="color_name|hex_number|rgb_number">
```

where,

color_name - Specifies the background color with a color name (such as "red")

hex_number - Specifies the background color with a hex code (such as "#ff0000")

rgb_number - Specifies the background color with an rgb code (such as "rgb(255,0,0)")

Background and Foreground Colors 2-2

Another way to specify a background color for a Web page is by using the `style="background-color: color"` attribute.

This attribute must be added to the style attribute of the `<body>` tag.

The foreground color can be specified by using the `style="color: color"` attribute.

- Example demonstrating the specification of background and foreground color is:

```
<body style="background-color: navy; color: yellow">
```

Background Image File

Background Image

Inserts an image
as the
background on a
Web page

Choose an image that
blends well and looks
like a single image
even after tiling

Choose images
with lighter
shades

Background images are
not recommended as the
color may hide the text

Hyperlinks 1-2

- A hyperlink is referred to as a link, linking to another Web page, or to a section in the same Web page.
- The `A` (anchor) element is used to create a hyperlink.
- One can specify a text or an image as a hyperlink.
- When mouse is moved over such content, the cursor changes into a hand with its index finger pointing towards the content.
- This means that clicking the link will take the user to the respective link.
- To specify the linked page section or linked Web page, attributes of the `A` element has to be used.
- Following table lists the attributes of the `A` element:

Attribute	Description
<code>href</code>	Specifies the URL of the Web page to be linked or the value of the <code>name</code> attribute.
<code>hreflang</code>	Indicates the language of the destination URL.
<code>name</code>	Specifies the section of the Web page, which is to be linked.

Example:



Hyperlinks 2-2

- The `<a>` tag is used to provide a hyperlink.
- This contains `href` attribute that would contain the link to a URL or path of a Web page.
- An example of a `href` attribute code is as follows:
``
- The description and reference text that will serve as a hyperlink must be provided before closing the `<a>` tag by using ``.
- An example of a hyperlink along with its output is as follows:

```
<html>
  <head>
  </head>
  <body>
    <a href="http://www.contoso.com/">
      Click to view the Contoso Website</a>
    </body>
  </html>
```

Output:



Target Attribute

- The target attribute of the A element specifies location where the linked Web page will open when a link is clicked.
- One can assign values to the target attribute.
- Following table lists some of the values of the target attribute:

Value	Description
_blank	Loads the target URL in a new blank window.
_self	Loads the target URL in the same window as that of the current Web page.
_top	Loads the target URL in the complete area of window.

Absolute and Relative Paths 1-2

- Absolute paths are links that contain the complete address to get to a Web page.
- Absolute paths are the best way to link to a Website.
- The syntax of an absolute path is as follows:

Syntax:

```
<a href="http://www.contoso.com/pages/about-
us/aboutus_aboutcontoso.html">Contoso Website</a>
```

- Relative paths are links that are provided when the files of a Web page are in the same folder as the page displaying the link.
- The syntax of a relative path is as follows:

Syntax:

```
<a href="aboutus_aboutcontoso.html"> Contoso Website</a>
```

Absolute and Relative Paths 2-2

- To link to the files present in the subfolder, you must provide the path to the subfolder.
- For example, if the file `aboutus_aboutcontoso.html` is in a subfolder named `about-us` then, the syntax is as follows:

Syntax:

```
<a href="about-us/aboutus_aboutcontoso.html">Contoso Website</a>
```

- Files that are present in folders that are one level up can also be linked using a relative path. The syntax to link to a file one level up is as follows:

Syntax:

```
<a href="../aboutus_aboutcontoso.html">Contoso Website </a>
```

Hyperlink to an E-mail Address

- Hyperlinks can be applied to e-mail addresses in the same way as they can be given for Web pages.
- Various tasks can be performed when a hyperlink is given to an e-mail, such as starting default e-mail client, creating a new message, adding the subject line, and so on.
- To add an e-mail to a hyperlink, the href attribute must be used and followed by mailto:email address.
- Following code snippet shows the way to hyperlink an e-mail address:

```
<a href="mailto:customercare@contoso.com">Customer Care</a>
```

- To automatically add a subject line in the new e-mail message, the ?subject= attribute must be inserted after the e-mail address.
- Following code snippet shows the way to add a subject line to a hyperlinked e-mail address:

```
<a href="mailto:customercare@contoso.com?subject=E-mail to  
Customer Care">Customer Care</a>
```

Hyperlink to Other Content Types

- Hyperlinks can also be used to link other files and documents.
- Some commonly linked file types on Web pages using hyperlinks are zipped files (**.zip**), executable files (**.exe**), documents (**.doc**), PDF reader files (**.pdf**), and so on.
- Hyperlinks can also be used to link to graphical **.jpg** and **.gif** files.
- To specify a file instead of the Web page, the name of the file must be provided in the **<a>** tag as shown in the following code snippet:

```
<a href="Compressed.zip">Click to download the compressed zip  
file </a>
```

Summary

- ❖ The heading elements define headings for contents such as text and images.
- ❖ The `<hgroup>` element is used to group titles and their subtitles.
- ❖ Monospaced fonts are used for programming code scripts, instruction texts, and ASCII characters.
- ❖ The `<pre>` tag is used to apply preformatted text content to a Web page.
- ❖ To define a long quotation or block quotation, the `<blockquote>` tag can be used.
- ❖ A list is a collection of items, which might be organized in a sequential or nonsequential manner. HTML supports three types of lists namely, ordered, unordered, and definition.
- ❖ HTML provides background properties that specify the background color and image for the Web pages.
- ❖ A hyperlink is referred to as a link. It refers to linking to another Web page or to a section in the same Web page.
- ❖ The `A` (anchor) element is used to create a hyperlink.
- ❖ The target attribute of the `A` element specifies the location where the linked Web page will open when a link is clicked.
- ❖ Absolute paths are links that contain the complete address to get to a Web page.
- ❖ Relative paths are links that are provided when the files of a Web page are in the same folder as the page displaying the link.
- ❖ To add an e-mail to a hyperlink, the `href=` attribute must be followed by `mailto:email address`.
- ❖ Hyperlinks can also be used to link to files and documents such as zipped files (`.zip`), executable files (`.exe`), documents (`.doc`), PDF reader files (`.pdf`), and so on.

Essentials of Website Design and Development

Session: 03

Introduction to CSS3



Objectives

- Identify the new functions of CSS3
- Explain different types of selectors
- Explain nested tags
- Define Classes and IDs for applying styles
- Explain the process to apply styles to hyperlink

Introduction

Cascading Style Sheet (CSS) is a style sheet language.

It informs the browser how to present a document.

It uses a markup language for describing the presentation semantics of a document.

It defines how HTML elements are to be displayed.

Cascading Style Sheet 3 (CSS3)

Used for adding style such as fonts, colors, and spacing to Web documents.

Has multiple levels and profiles.

Updates each level of CSS from the earlier version, by adding new features.

Denotes version as CSS1, CSS2, CSS3, and CSS4 where the numbers are different for each version or level.

Is divided into multiple documents called 'modules' and each of these modules have new capabilities or extends the features present in CSS2.

Started drafting of CSS3 when publication of the original CSS2 recommendation was released.

Modules 1-4

- As CSS3 is available as modules and is still evolving, there are many modules having different stability and status.
- Only three modules are released as recommendations and they are as follows:

CSS Color Level 3

CSS Namespaces

Selectors Level 3

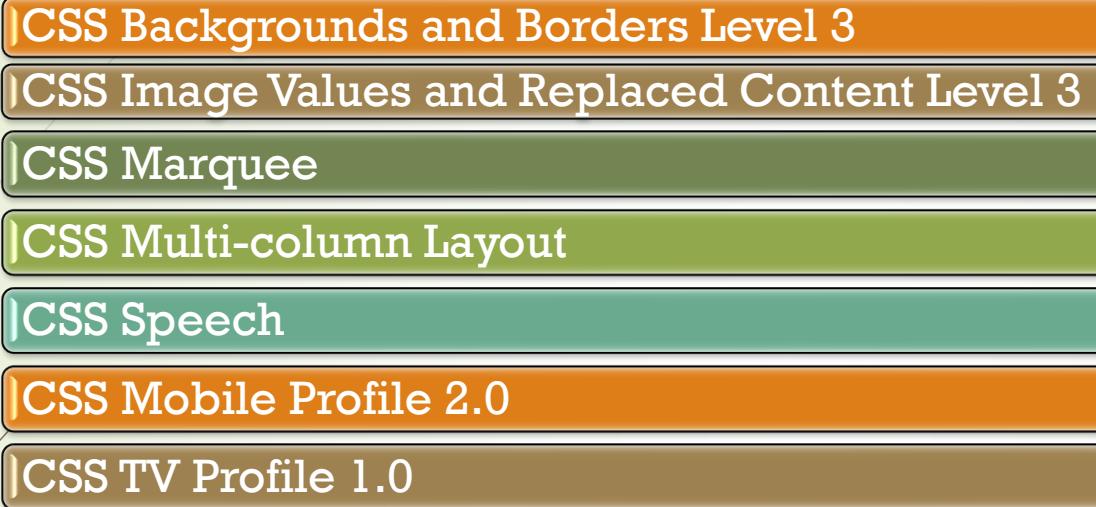
- Modules that are stable and in recommendation stage are as follows:

Media Queries

CSS Style Attributes

Modules 2-4

- Modules that are in testing phase and in recommendation stage are as follows:



- Modules that are in refining phase and in working draft stage are as follows:

CSS
Transforms

CSS
Transitions

CSS Values
and Units
Level 3

CSS Print
Profile

Modules 3-4

- Modules that are in revising phase and in working draft and recommendation stage are as follows:

CSS Animations

CSS Flexible Box Layout

CSS Fonts Level 3

CSS Paged Media Level 3

CSS Text Level 3

CSS Basic User Interface Level 3

CSS Writing Modes Level 3

- Some of the following modules are in exploring phase and in working draft stage:

CSS Cascading and Inheritance Level 3

CSS Conditional Rules Level 3

CSS Grid Layout

CSS Line Grid

Modules 4-4

- Modules that are in rewriting phase and in working draft stage are as follows:

CSS Line Layout Level 3

CSS Ruby

CSS Syntax Level 3

- Modules that are in abandoned phase and in working draft stage are as follows:

Behavioral Extensions to CSS

CSS Hyperlink Presentation

CSS Syntax 1-2

Syntax of CSS consists of three parts namely, **selector**, **property**, and **value**.

Selector

- Is an HTML element for which you want to specify the style or the formatting instruction.

Property of a selected element

- Is a CSS property that specifies the type of the style to be applied to the selector.

Value

- Refers to the value of the CSS property and a CSS property can have multiple values. Property and the value for a selector are separated with a colon (:). They are enclosed within the curly brackets ({}) that is known as the declaration block.

CSS Syntax 2-2

- Various combinations available to specify rules for HTML elements are as follows:

You can specify multiple selectors for a single property by grouping the selectors. To group the selectors, the selectors are separated by commas followed by a declaration block of properties and values.

You can specify multiple property-value pairs for a selector, which are separated by a semicolon (;) within the declaration block.

You can specify properties for multiple selectors. Here, the comma-separated selectors are followed with multiple property-value pairs.

Length Measurement Units 1-4

CSS uses various units of measurements for specifying size of the font, width, and height of margins, and so on.

These units measure the horizontal and vertical length of the content.

CSS supports two types of length measurement units namely, relative and absolute.

Length Measurement Units 2-4

Relative length specifies the length units related to other length property that are calculated in comparison to a current value.

- Following table lists some of the relative length units:

Relative Length	Description
em	Specifies the font size (height) of a particular font. The em unit is relative to the value of the font-size property of the selector.
ex	Specifies the 'x-height' of a particular font. The 'x-height' value is approximately half the font size or the height of the lowercase letter 'x'.
px	Specifies the size in pixels, which is relative to the screen of the device.

Length Measurement Units 3-4

Absolute lengths are specified when the Web page designer is aware of the physical properties of the output device and are specific and fixed values.

- Following table lists some of the absolute length units:

Relative Length	Description
in	Specifies the size in inches, where 1 inch = 2.54 centimeters
cm	Specifies the size in centimeters
mm	Specifies the size in millimeters
pt	Specifies the size in points, where 1 point = 1/72th of an inch
pc	Specifies the size in picas, where 1 pica = 12 points

Length Measurement Units 4-4

Percentage allows specifying the length of the content, which is relative to another value.

- Shows use of percentage in defining the style:

```
H1
{
    font-size: 120%;
    line-height: 200%;
}
```

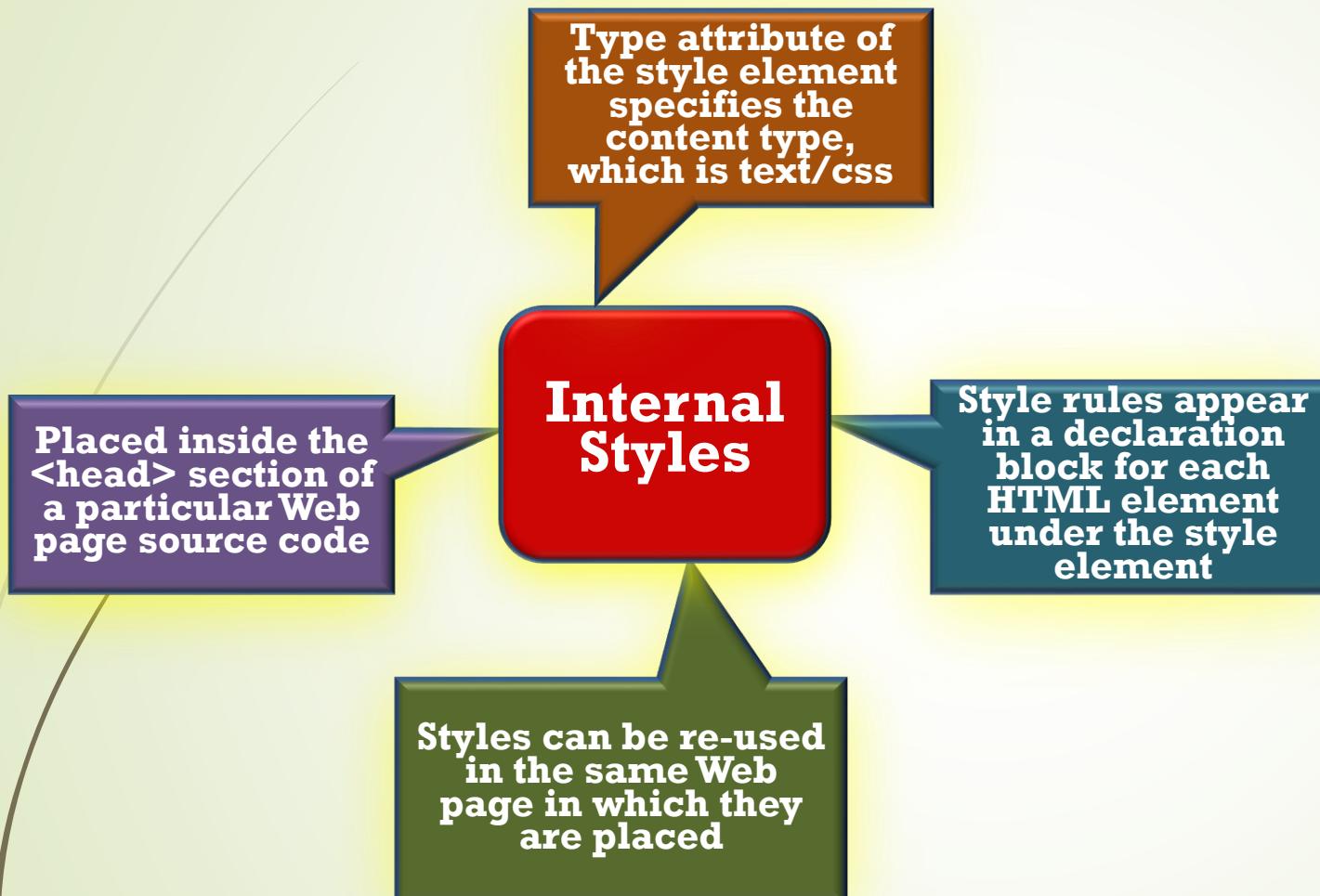
Types of Style Sheets

Three types of style sheets namely, inline, internal or embedded, and external style sheets.

An inline style sheet uses the style attribute within an HTML element to specify the style for HTML elements.

An internal style sheet is also included within the HTML document and is defined using the style element.

Internal/Embedded Styles 1-2



Internal/Embedded Styles 2-2

- The Code Snippet demonstrates how to specify internal style.

```
<head>
  <meta charset="utf-8">
  <title>Sample HTML5 Structure</title>
  <style>
    h1, h2 {
      margin:0px;
      font-size:1.5em;
    }
    footer{
      background-color:#999;
      text-align:center;
    }
  </style>
</head>
```

Inline Styles

Inline Styles

Are placed directly inside an HTML element

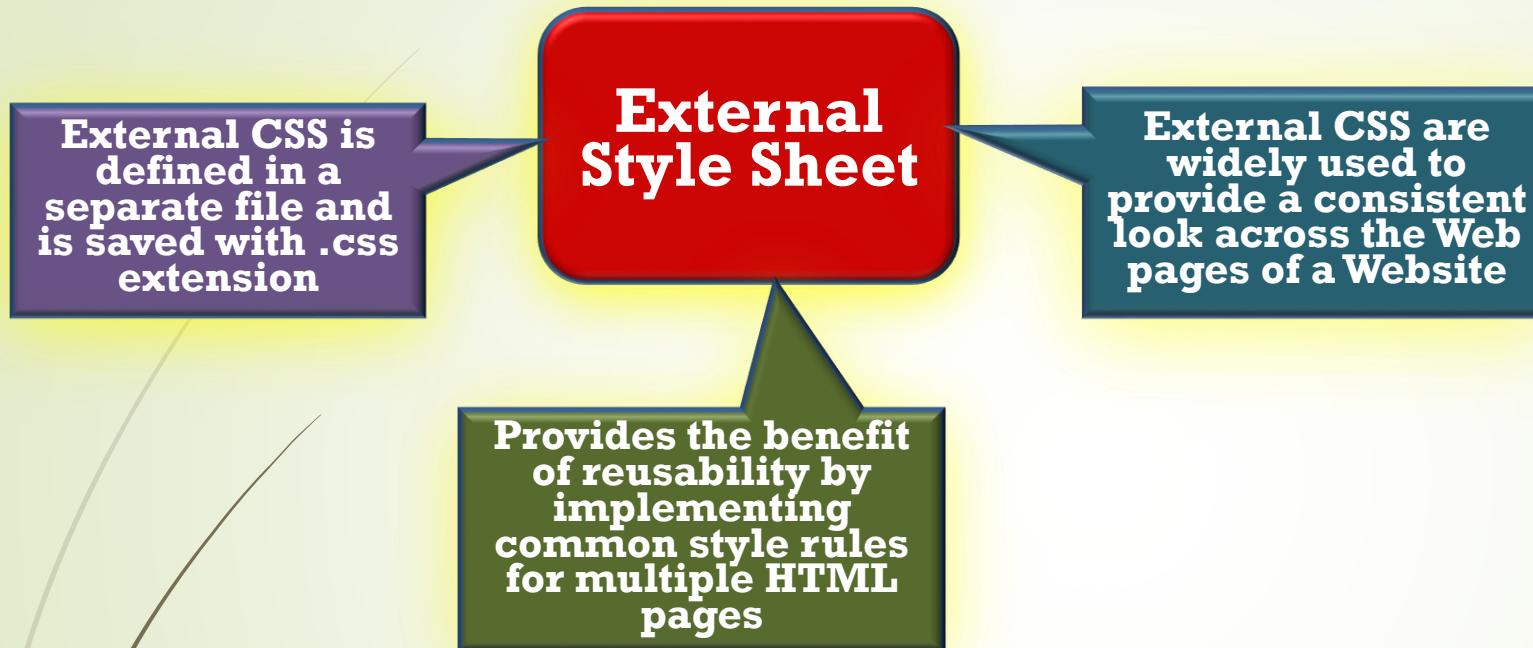
Cannot be reused at any point of time in a Web page

Web designer cannot use the style builder to create an inline style

- The Code Snippet demonstrates the use of inline style.

```
<p style="font-size: 14px; color: purple;"></p>
```

External Style Sheet 1-2



- The Code Snippet demonstrates the use of external CSS.

```
BODY {  
background-color: gray;  
font-family: arial;  
font-style: italic;  
}
```

External Style Sheet 2-2

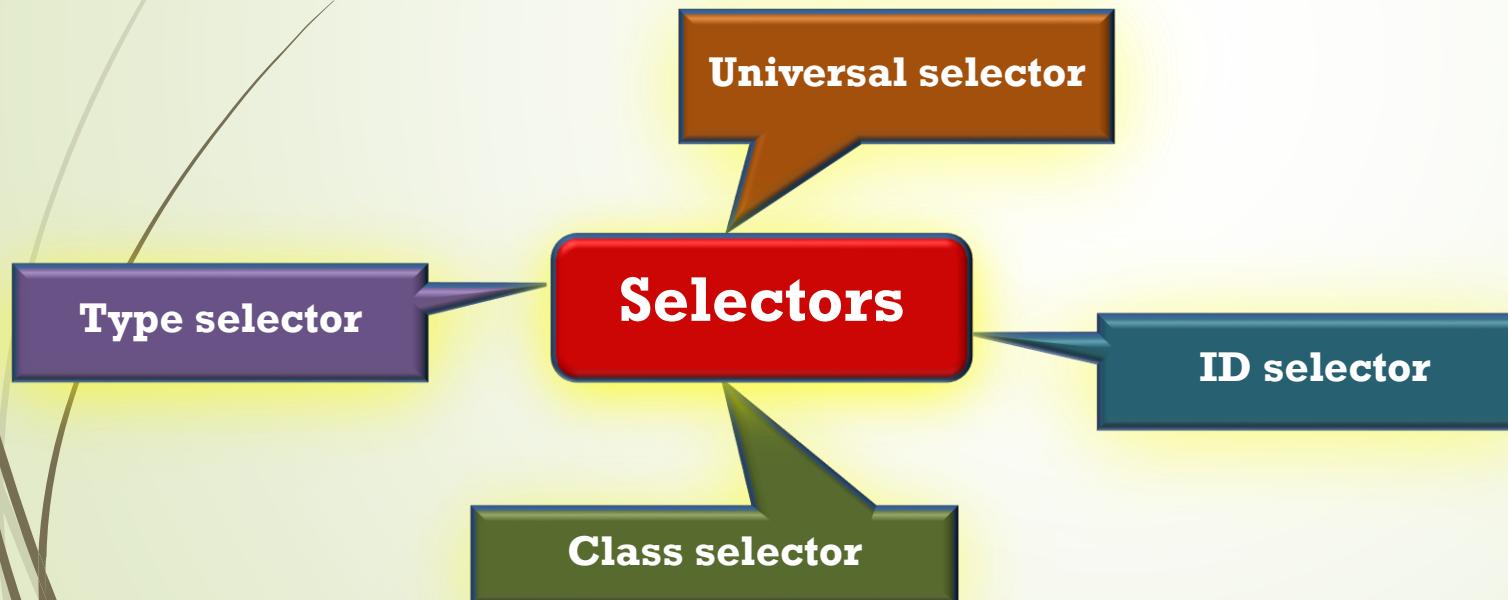
- Code Snippet shows an example of HTML code using an external CSS style sheet demonstrated earlier.

```
<!DOCTYPE html>
<html>
  <head>
    <LINK rel="stylesheet" type="text/css" href="body.css"/>
    <title>Webex e-Server</title>
  </head>
  <body>
    This is the fastest Web server..!!
  </body>
</html>
```

Selectors

Selectors refer to the HTML elements with the styles that the users want to apply to them.

Four different types of CSS selectors are as follows:



Type Selector

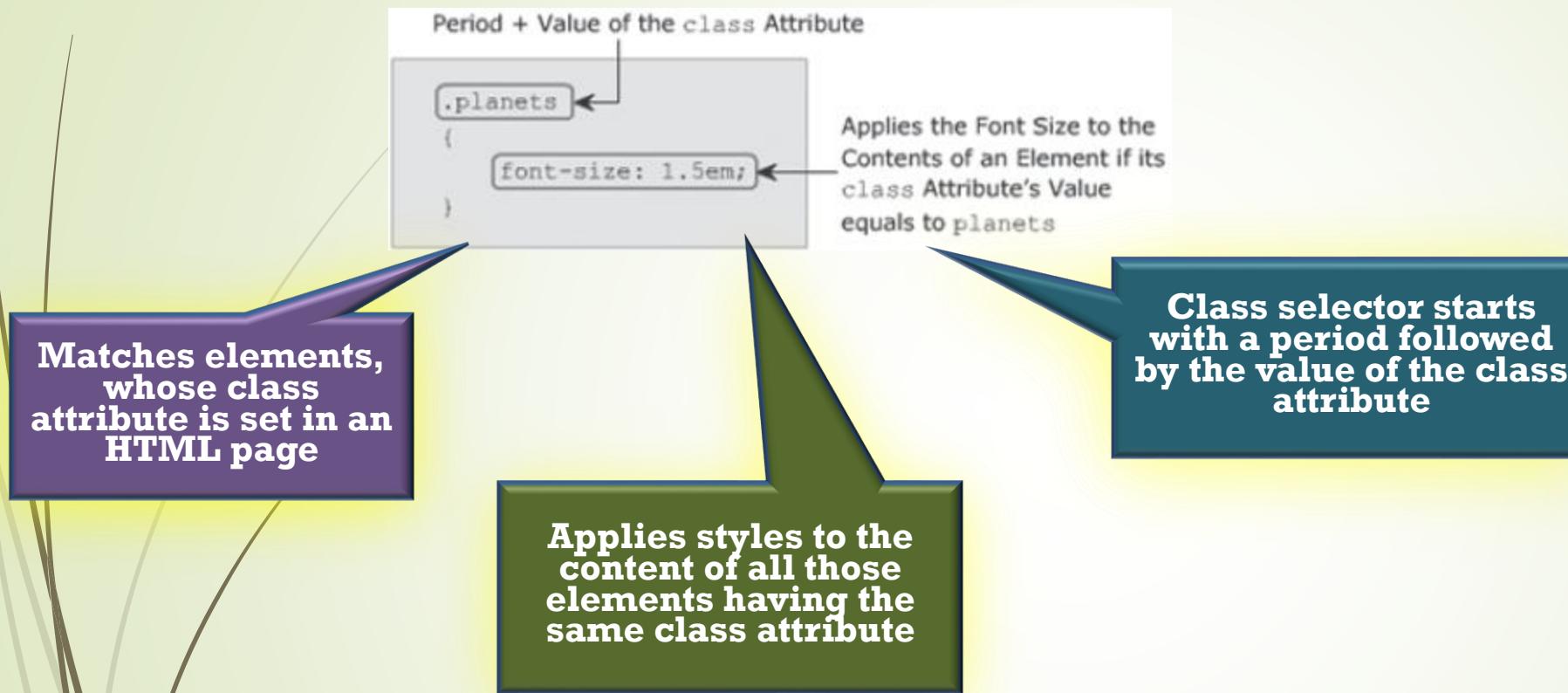
Specifies the element name along with the styles to be applied to that element

```
Type Selector  
H3 {  
    font-family: "Courier New";  
    font-style: italic;  
}
```

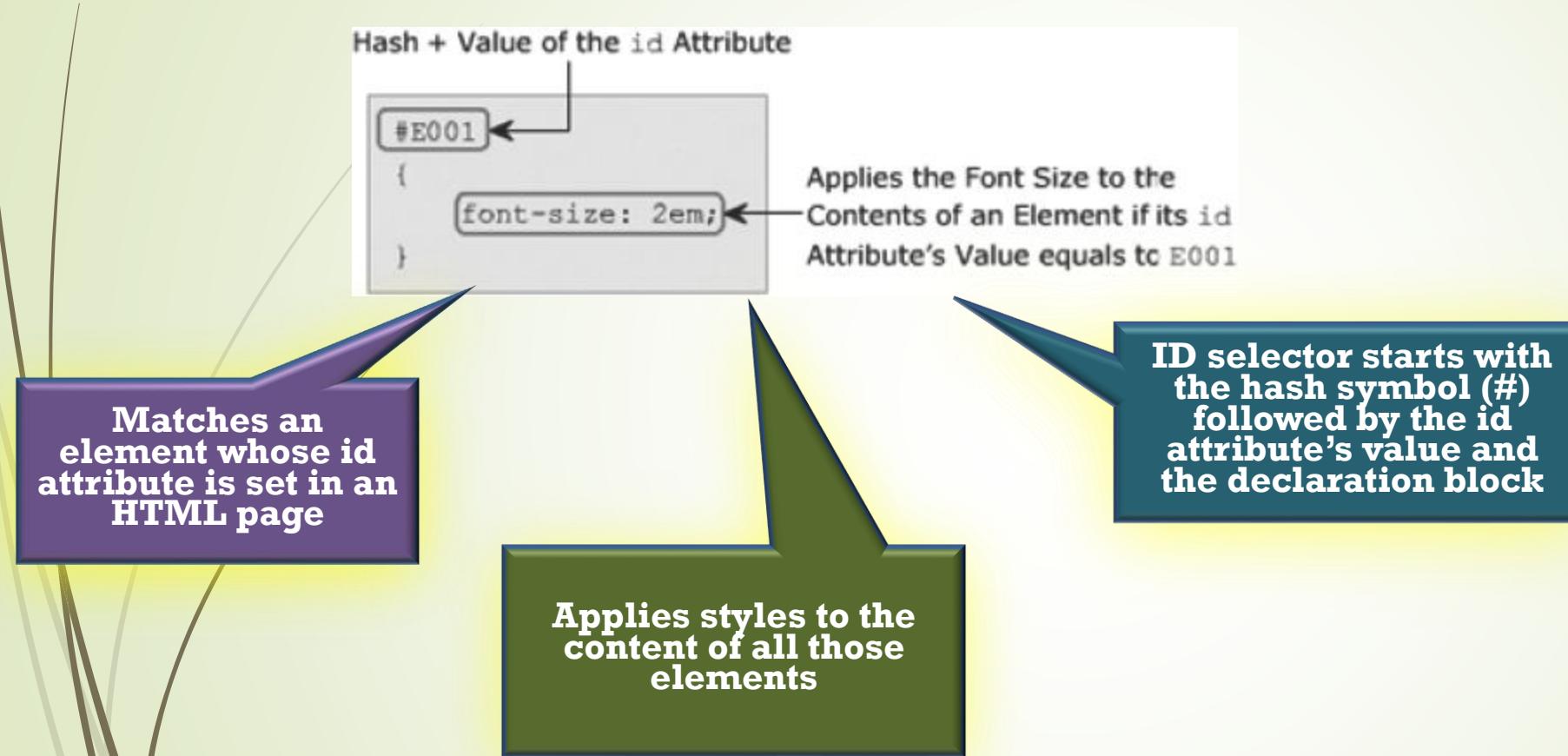
Styles are specified only once for an HTML element and are applied to all the occurrences of that elements

Results in application of the specified styles to all the occurrence of that element in a Web page

Class Selector



ID Selector



Universal Selector

```
* {  
    font-family: Verdana, Calibri, sans-serif;  
}
```

Can be applied to
all elements in the
document

Applies the specified
styles to the content of
all the elements

Represented by an
asterisk (*) sign

Generic Cascading Order 1-2

- W3C has defined some rules for applying styles to an HTML element. These rules are:

Gather all the styles that are to be applied to an element.

Sort the declarations by the source and type of style sheet. The source specifies the origin from where the styles are rendered.

Highest priority is given to the external style sheet defined by an author. The next priority is of the reader, which can be a software that reads the content, and the last priority is of the browser.

Sort the declarations by the priority of a selector, where the ID selector has the highest priority.

Sort the declaration according to the specified order.

Generic Cascading Order 2-2

	Source	Browser	Reader	Author
CSS Type	External	Internal	Inline	
Selector	Type	Class	ID	

The table illustrates the generic cascading order of CSS rules. The columns represent different sources and types of styles, while the rows represent the specificity of the selectors used.

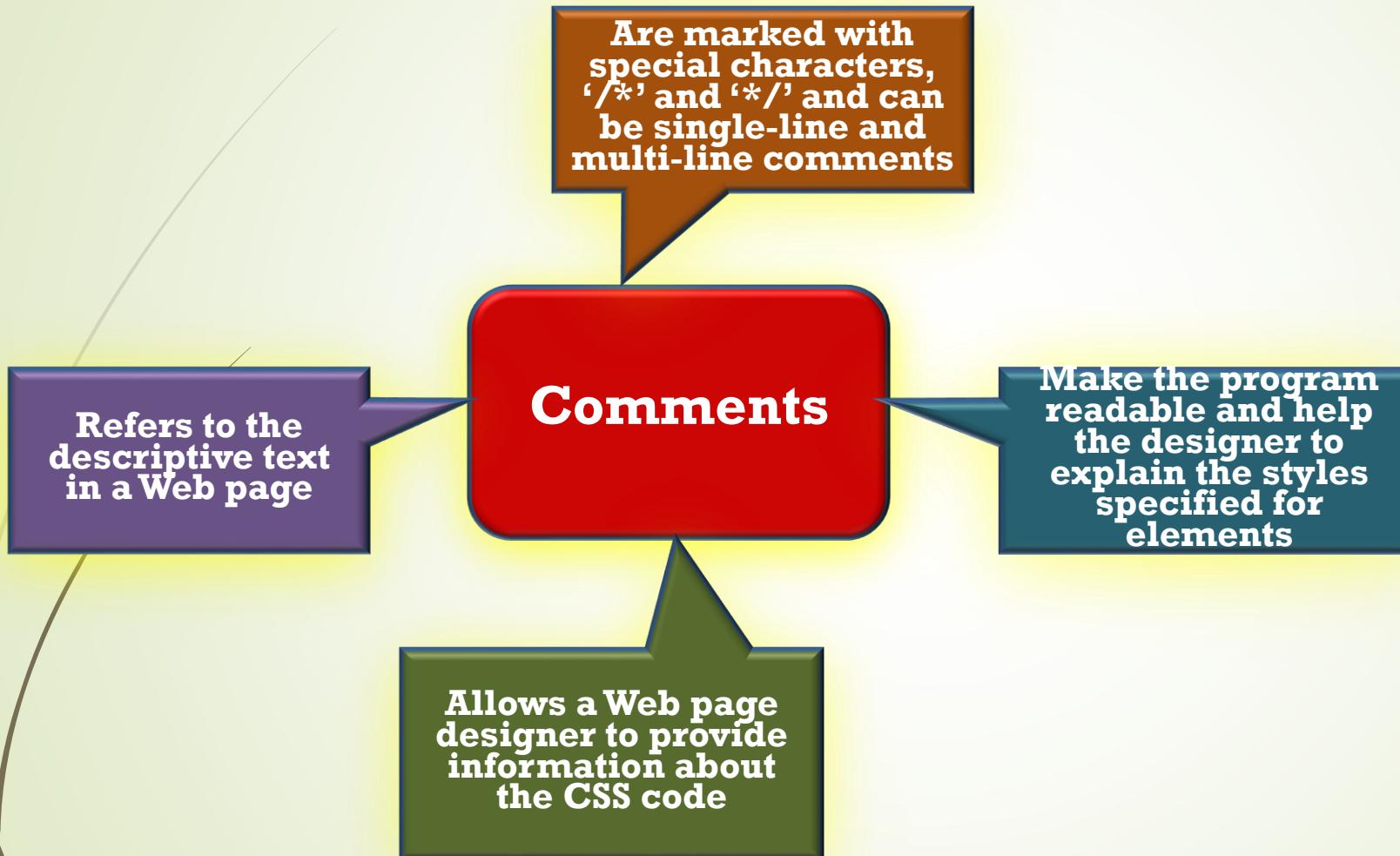
The columns are ordered from lowest priority to highest priority:

- Source (Author, Reader, Browser, Source)
- CSS Type (Inline, Internal, External, CSS Type)
- Selector (ID, Class, Type, Selector)

The rows are ordered from highest priority to lowest priority:

- Source (Author, Reader, Browser, Source)
- CSS Type (Inline, Internal, External, CSS Type)
- Selector (ID, Class, Type, Selector)

Comments



Pseudo Classes 1-4

Sometimes, unknowingly, the same Web page is opened that you have already visited.

You might feel the necessity for a mechanism that could differentiate the already visited links from the remaining ones.

This is possible by using pseudo classes.

Pseudo classes allow the users to apply different styles to the elements such as buttons, hyperlinks, and so on.

- Syntax for declaring Pseudo classes are as follows:

```
selector_name:state_name {property: value}
```

Pseudo Classes 2-4

- Following table lists different states of an element:

State	Description
active	Defines a different style to an element that is activated by the user.
hover	Defines a different style to an element when the mouse pointer is moved over it.
link	Defines a different style to an unvisited hyperlink.
visited	Defines a different style to the visited hyperlink.

Pseudo Classes 3-4

- Following table lists the selector name and its descriptions:

Selector Name	Description
:link	Is used for selecting all unvisited links
:active	Is used for selecting the active link
:hover	Is used for selecting links on mouse over
:visited	Is used for selecting all visited links
:focus	Is used for selecting the input element which has focus
:first-letter	Is used for selecting the first letter of every <p> element
:first-line	Is used for selecting the first line of every <p> element
:first-child	Is used for selecting every <p> elements that is the first child of its parent
:before	Is used for inserting content before every <p> element
:after	Is used for inserting content after every <p> element

Pseudo Classes 4-4

- Pseudo classes specify the styles to be applied on an element depending on its state.
- In CSS3, a selector can contain multiple pseudo-classes.
- These pseudo-classes should not be mutually exclusive.
- Code snippets demonstrates the use of CSS code specifying different styles for the visited links, unvisited links, and for the links when the mouse hovers over it.

```
a:link {  
color: white;  
background-color: black;  
border: 2px solid white;  
}  
  
a:visited {  
color: white;  
background-color: brown;  
border: 2px solid white;  
}  
  
a:hover {  
color: black;  
background-color: white;  
border: 2px solid black;  
}
```

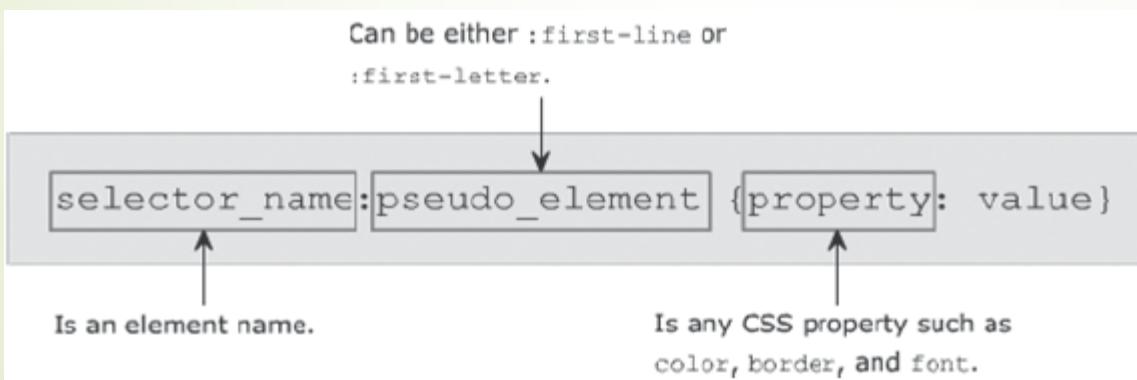
Specifies the styles
for an unvisited link

Specifies the styles
for a visited link

Specifies the styles
when a mouse hovers
over it

Purpose of Pseudo Elements

- Consider a scenario where you are designing a Website that explains the important technical terms.
- While defining such terms, you might feel the necessity to emphasize more on the first letter by applying different styles.
- Pseudo elements provide you with a flexibility to apply styles to a specific part of the content such as a first letter or first line.
- Pseudo element adds some special effects to HTML elements such as `<p>`, `<body>`, and so on.
- Syntax for declaring pseudo elements is:



Pseudo Elements

The `:first-line` pseudo element allows you to apply styles to the first line.

- The Code Snippet declares the style that will be applied to the first line in the paragraph.

```
p:first-line  
{  
font-family: "Tahoma";  
font-weight: bolder;  
background-color: #FFFFCC;  
}
```

Specifies the styles to
be applied to the first
line of the paragraph
content

The `:first-letter` pseudo element allows you to apply styles to the first letter.

- The Code Snippet declares the style that will be applied to the first letter in the paragraph.

```
p:first-letter  
{  
font-family: "fantasy";  
font-size: xx-large;  
font-weight: bold;  
}
```

Specifies the styles to
be applied to the first
letter of the
paragraph content

Styles to Hyperlink

CSS can be used to change the appearance and behavior of hyperlinks.

There are two other ways to assign hyperlink styles namely, div specific, and Link specific.

A div specific hyperlink styles can be created and assigned to a specific div and will have all the hyperlinks present within the div to follow the specified rules.

Class specific hyperlink styles generally uses a class than an id. A point to note that an id can only be used once on a page whereas a class can be used multiple times as required.

Summary

- ❖ CSS is a mechanism for adding style such as fonts, colors, and spacing to Web documents. CSS has multiple levels and profiles.
- ❖ The general syntax of CSS consists of three parts namely, selector, property, and value.
- ❖ Selectors refer to the HTML elements with the styles that are applied to them and they can be Type, Class, ID, or Universal selectors.
- ❖ A comment refers to the descriptive text that allows a Web page designer to provide information about the CSS code.
- ❖ Pseudo classes allow the users to apply different styles to the elements such as buttons, hyperlinks, and so on.
- ❖ Pseudo elements allow the developer to apply styles to a specific part of a content such as first letter or first line.
- ❖ A hyperlink style can be assigned either through DIV or through link class.

Essentials of Website Design and Development

Session: 4

Formatting Using Style Sheets



Objectives

- List and explain text and font styles
- Describe inline spans
- Explain paragraph indentation and application of border
- Explain horizontal paragraph alignment
- Explain vertical spacing within a paragraph
- Describe selector specificity and pseudo selectors
- Explain box model
- Illustrate the use of positioning and float property

Introduction

In modern Web designing, style sheets allow various styles for formatting menus, texts, borders, or paragraphs.



The slide displays three examples of web design:

- The McBride Company**: A dark-themed homepage featuring a large, central, multi-layered blue hexagon graphic. The word "Think" is positioned above it, "Brand" is below it, and "Design" is to its right. The logo "The McBride Company" is at the top left, and "News & Press" is at the bottom center.
- STUDIO RM**: A studio production page for "STEVE MACKAY". It features a black and white photograph of a person in a suit. Below the photo, the text "STUDIO RM", "POST PRODUCTION", "FOR", and "STEVE MACKAY" are visible.
- Cope**: A digital agency homepage. The header includes the word "cope" in lowercase. The main content area has a yellow background with the text "UNDERSTAND | KNOW | BE YOUR CUSTOMER – COPE DIGITAL AGENCY" and a "DROP US A LINE" button. To the right, there's a photograph of colorful dumbbells and a sidebar with the text "WE BUILD AMAZING WEBSITES" and "LET US DO THE HEAVY LIFTING".

Text Properties

Property	Description
color	Specifies the color of the text.
text-align	Specifies the horizontal alignment of text in an element.
text-decoration	Specifies the decoration of the text in an element.
text-indent	Specifies the indentation of first line of text in an element in length or %.
text-transform	Specifies the casing of text in an element.
word-spacing	Increases or decreases the space between words.

Font Properties

Property	Description
font-family	Specifies the font and generic family or a specific family name such as 'Serif' or 'Times New Roman'.
font-size	Specifies the size of the font and can have an absolute or relative value.
font-style	Specifies the style of the font.
font-variant	Specifies whether the text should be displayed in small-caps.

Text Styles 1-3

text-align Property

Property	Description
left	Aligns the text to the left of the Web page.
right	Aligns the text to the right of the Web page.
center	Aligns the text in the middle of the Web page.
justify	Justifies the text on both sides of the Web page.

text-indent Property

Value	Description
length	Specifies fixed indentation. The default value is 0.
%	Specifies an indentation as a percentage of the width of the parent element. The parent element is the element within which the selector element is defined.

text-transform Property

Value	Description
none	Specifies that the text will be displayed with the same casing as written within the element.
capitalize	Specifies that the first letter of each word will be capitalized.
uppercase	Specifies only uppercase letters.
lowercase	Specifies only lowercase letters.

Text Styles 2-3

```
<!DOCTYPE HTML>
<html>
<head>
<link rel="stylesheet" type="text/css" href="TextProperties.css"/>
<title>Client</title>
</head>
<body>
<h2>Client Contact Information</h2>
<div>
<h4>Dynamic Solutions</h4>
<p>Tel Number - 445 558 7744</p>
<p>Fax Number - 703 740 6539</p>
</div>
</body>
</html>
```

Client Contact Information
DYNAMIC SOLUTIONS
TEL NUMBER - 445 558 7744
FAX NUMBER - 703 740 6539

Output

Text Styles 3-3

text-decoration Property

Value	Description
none	Displays normal text without any formatting.
underline	Displays a line under the text.
overline	Displays a line over the text.
line-through	Displays a line through the text.
blink	Flashes the text.

word-spacing Property

Value	Description
normal	Specifies normal spacing between words and it is the default value.
length	Specifies fixed space between words.

```
<!DOCTYPE HTML>
<html>
<head>
<link rel="stylesheet" type="text/css"
 href="ParaProperties.css"/>
<title>Solar System</title>
</head>
<body>
<h3>Nine Planets</h3>
<div>
<p>Mercury, Venus, Earth, Mars,
 Jupiter, Saturn, Uranus, Neptune,
 Pluto</p>
</body>
</html>
```

Output

Nine Planets

Mercury, Venus, Earth, Mars, Jupiter, Saturn,
Uranus, Neptune, Pluto

Inline Span 1-2

Attribute	Value	Description
class	classname	Specifies the text direction for the content in an element.
dir	rtl ltr	Specifies the text direction for the content in an element.
id	id	Specifies a unique id for an element.
lang	language_code	Specifies a language code for the content in an element.
style	style_definition	Specifies an inline style for an element.
title	text	Specifies extra information about an element.
xml:lang	language_code	Specifies a language code for the content in an element, in XHTML documents.

Different Attributes and Values Used in Tag

Inline Span 2-2

```
<p>My mother has <span style="color: lightblue">light blue</span>  
eyes.</p>
```

Or

```
<span class="eyesonly">light blue</span>
```

My mother has **blue** eyes.

Output

Indenting Paragraph 1-3

- Indenting sets off the text from its normal position, either to the left or to the right.
- Three types of indentation: First line indent, Padding, and Margin.

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>Font Gallery</title>
  <style>
    p {text-indent: 150px}
  </style>
  </head>
  <body>
    <p>The font styles properties allow you to specify the font for the text. They allow you to change different font attributes of the text such as font, size, and style of the text. The browser must support the font specified by the font properties. Otherwise, it will display the default font, which is dependent on the browser.
    </p>
  </body>
</html>
```

Indenting Paragraph 2-3

```
<!DOCTYPE HTML>
<html>
  <head>
    <title>Font Gallery</title>
  <style>
    p {padding: 20px }
  </style>
  </head>
<body>
<p>
  The font styles properties allow you to specify the font for the text. They allow you to change different font attributes of the text such as font, size, and style of the text. The browser must support the font specified by the font properties. Otherwise, it will display the default font, which is dependent on the browser.
</p>
</body>
</html>
```

Padding

The font styles properties allow you to specify the font for the text. They allow you to change different font attributes of the text such as font, size, and style of the text. The browser must support the font specified by the font properties. Otherwise, it will display the default font, which is dependent on the browser.

Output of Padding Property

Indenting Paragraph 3-3

Inline style

```
<p style="margin: 20px">
```

Internal CSS

```
p {margin: 20px}
```

margin

The font styles properties allow you to specify the font for the text. They allow you to change different font attributes of the text such as font, size, and style of the text. The browser must support the font specified by the font properties. Otherwise, it will display the default font, which is dependent on the browser.

Margin Property

Border Style 1-3

border-style Properties	Description
border-left-style	Sets an element's left border.
border-right-style	Sets an element's right border.
border-top-style	Sets an element's top border.
border-bottom-style	Sets an element's bottom border.

border-style Properties

Value	Description
dashed	Specifies a dashed border.
dotted	Specifies a dotted border.
double	Specifies two borders.
groove	Specifies a 3D grooved border.
inset	Specifies a 3D inset border.
outset	Specifies a 3D outset border.
ridge	Specifies a ridged border.
solid	Specifies a solid border.

Values of the border-style Properties

Border Style 2-3

```
<!DOCTYPE HTML>
<html>
<head>
<link rel="stylesheet" type="text/css" href="Styles.css"/>
<title>MagnaSoftwares</title>
</head>
<body>
<div id="heading">
<h2>Welcome to MagnaSoftwares</h2>
</div>
</body>
</html>
```



**Output of border-style
Properties**

Border Style 3-3

CSS code for shorthand border-style properties.

```
<!DOCTYPE HTML>
<html>
<head>
<link rel="stylesheet" type="text/css" href="Styles1.css"/>
<title>Corpse - World's Largest Flower</title>
</head>
<body>
<figure></figure>
<h2>World's Largest Flower </h2>
<p>Corpse flower is the world's
largest flower.<br/> Its diameter is
about a meter. .<br/>
It grows in openings in rainforests on limestone hills of
Sumatra, Indonesia.</ p>
</body>
</html>
```



World's Largest Flower

Corpse flower is the world's largest flower.
Its diameter is about a meter. .
It grows in openings in rainforests on limestone hills of Sumatra, Indonesia.

Output of Shorthand border-style Properties

Border Color 1-2

border-color Properties

Property	Description
border-bottom-color	Specifies color for the bottom border.
border-left-color	Specifies color for the left border.
border-right-color	Specifies color for the right border.
border-top-color	Specifies color for the top border.

Values of border-color Properties

Value	Description
color	Specifies color to be applied to the border by using either the RGB or hexadecimal value, or the color name itself.
transparent	Specifies that the border is transparent.

Border Color 2-2

```
<!DOCTYPE HTML>
<html>
<head>
<link rel="stylesheet" type="text/css"
href="StylesNew.css"/>
<title>HealthCare</title>
</head>
<body>
<div class="tips">
<h2>Five Essential Health Tips</h2>
<ol>
<li>Quit Smoking</li>
<li>Reduce stress</li>
<li>Protect Yourself from Pollution</li>
<li>Avoid Excessive Drinking</li>
<li>Exercise Regularly</li>
</ol>
</div>
</body>
</html>
```

Five Essential Health Tips

1. Quit Smoking
2. Reduce stress
3. Protect Yourself from Pollution
4. Avoid Excessive Drinking
5. Exercise Regularly

Output

Border Width 1-3

Values of border-width Properties

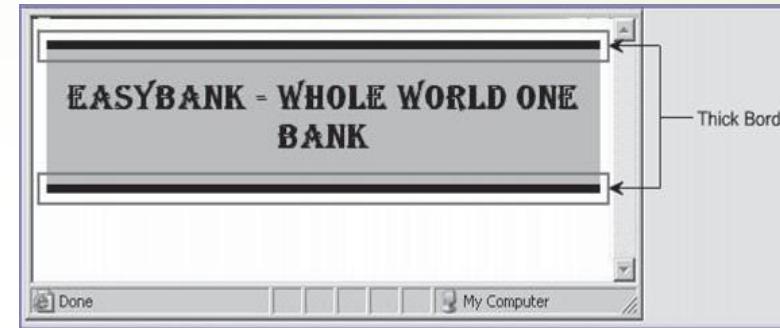
Property	Description
border-bottom-width	Specifies width of the bottom border.
border-left-width	Specifies width of the left border.
border-right-width	Specifies width of the right border.
border-top-width	Specifies width of the top border.

border-width Properties

Value	Description
medium	Specifies a medium border.
length	Accepts an explicit value that specifies the thickness of border.
thick	Displays a thick border.
thin	Specifies a thin border.

Border Width 2-3

```
.banner
{
text-align:center
;
background:#C0C0C0;
border-style:solid;
border-left-style: none;
border-right-style:
none;
border-top-width:
thick;
border-bottom-width: thick;
font-family:
fantasy;
}
```

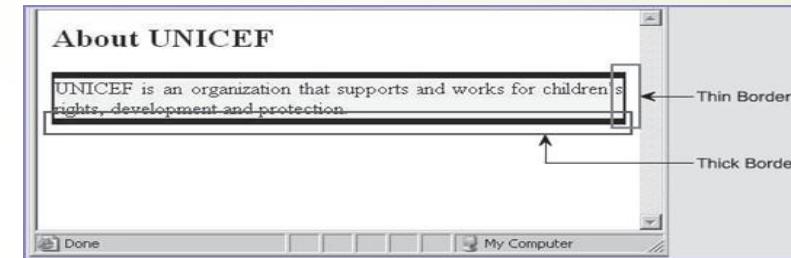


Output of border-width Properties

Border Width 3-3

Shorthand property: border-width

```
.aboutus
{
background-
color:
#FFFFCC;
text-align:
justify;
border-style:
solid;
border-width: thick thin thick thin;
}
```



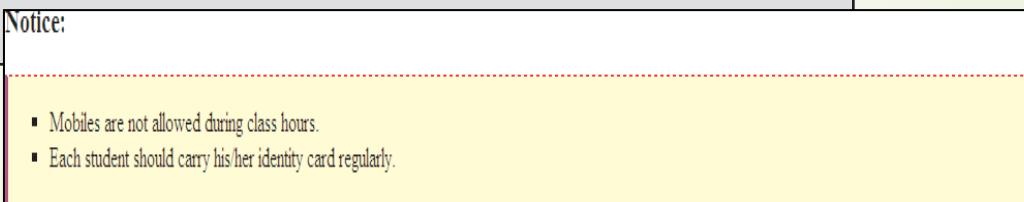
**Output of Shorthand Code of
border-width Properties**

Shorthand Border 1-2

Value	Description
border-bottom	Specifies width, style, and color for the bottom border.
border-left	Specifies width, style, and color for the left border.
border-right	Specifies width, style, and color for the right border.
border-top	Specifies width, style, and color for the top border.

Shorthand Border Properties

```
.impnote
{
background-color: #FFFFCC;
border-top: dashed thin #FF0000; border-bottom:
ridge thick #0000FF; border-right: dotted thin
#FF8040; border-left: inset medium #FF00FF;
}
ul{
list-style: square;
}
```



Output of Border Properties

Shorthand Border 2-2

```
<!DOCTYPE HTML>
<html>
<head>
<title>Flower Gallery</title>
<style>
.flower{
border:solid thin #FF0000;
}
</style>
</head>
<body>
<h2>Flower Gallery</h2>
<table>
<tr>
<td></td>
<td valign="top"><h1>Lilac is a species of flowering plants in the olives family. They are shrubs that range from 2 to 10m in height.</h1>
</td>
</tr>
<tr>
<td></td>
<td valign="top"><h1>Sunflower is a flowering plant whose stem can grow as high as 3m.</h1>
</td>
</tr>
</table>
</body>
</html>
```

Horizontal Alignment

Value	Description
left	Aligns the text to the left.
right	Aligns the text to the right.
center	Centers the text.
justify	Aligns text to both left and right margins by adding space between words (such as in newspapers and magazines).
inherit	Specifies that the value of the text-align property should be inherited from the parent element.

Values of text-align Properties

Vertical Alignment

Value	Description
normal	A normal line height. This is default.
number	A number that will be multiplied with the current font size to set the line height.
length	A fixed line height in px, pt, cm, and so on.
%	A line height in percent of the current font size.
inherit	Specifies that the value of the line-height property should be inherited from the parent element.

Values of line-height Properties

Selector Specificity 1-2

- Selector specificity is the priority given to a selector on which style declarations will be applied.
 - ▶ There is a specificity hierarchy for selectors.
 - ▶ Four categories define the specificity level of a selector: Inline styles, IDs, Classes, attributes, and pseudo-classes, and Elements and pseudo-elements

Selector

```
p {color: yellow}
```

Selector Specificity 2-2

Rules	Example Code Snippet	Rules	Example Code Snippet
<p>If the rule is written twice, the lower rule will be applied.</p>	<pre><!DOCTYPE html> <html> <head> <style> h1 {background-color: red;} h1 {background-color: yellow;} </style> </head> <body><h1>This is my line.</h1> </body> </html></pre>	<p>Contextual selectors are more specific than a single element selector.</p>	<p>CSS file: <code>#content h1 {background-color: blue;}</code> HTML file: <code><style> #content h1 {background-color: red;}</style></code></p>
<p>ID selectors have a higher specificity than attribute selectors.</p>	<pre><!DOCTYPE html> <html> <head> <style> div#a {background-color: yellow;} #a {background-color: blue;} div[id=a] {background-color: red;} </style> </head> <body><div id="a">This is my line.</div> </body> </html></pre>	<p>A class selector is given preference to element selectors.</p>	<pre><!DOCTYPE html> <html> <head> <style> .intro {background-color: blue;} h1 {background-color: red;} </style> </head> <body> <h1 class="intro">This is my line.</h1> </body> </html></pre>

Pseudo Selectors

Pseudo-Class Selectors	Example Code Snippet	Output
:hover	<pre><!DOCTYPE html> <html> <head> <style> div { background-color: green; color: white; padding: 25px; text-align: center; } div:hover { background-color: blue; } </style> </head> <body> <div>Place the mouse over here to change the color.</div> </body> </html></pre>	<p>(Before Mouse Over)</p> <p>Place the mouse over here to change the color.</p> <p>(After Mouse Over)</p> <p>Place the mouse over here to change the color.</p>
:before	<pre>#para{ font-size: 18px; } #para::before{ content: "- BEFORE -"; background-color: green; } #para::after{ content: "- AFTER -"; background-color: green;</pre>	<p>- BEFORE first paragraph AFTER -</p>

CSS Combinators

A combinator indicates the relationship between selectors.

```
/  
<html>  
<head>  
<style> div + p {  
background-color: gray;  
}  
</style>  
</head>  
<body>  
<h2>Example of Adjacent Sibling Selector</h2>  
<div>  
<p>This is the first line.</p>  
<p>This is the second line.</p>  
</div>  
<p>This is the third line.</p>  
<p>This is the fourth line.</p>  
<div>  
<p>This is the fifth line.</p>  
<p>This is the sixth line.</p>  
</div>  
<p>This is the seventh line.</p>  
<p>This is the eighth line.</p>  
</body>  
</html>
```

Example of Adjacent Sibling Selector

This is the first line.

This is the second line.

This is the third line.

This is the fourth line.

This is the fifth line.

This is the sixth line.

This is the seventh line.

This is the eighth line.

Output of Using Adjacent Sibling Selector

Box Model

- Box model refers to the design and layout of HTML element.
- Includes margins, borders, padding, and content of the element.

```
<!DOCTYPE html>
<html>
<head>
<style> div {
width: 100px;
border: 5px solid red;
padding: 10px; margin: 0;
}
</style>
</head>
<body>
<div>Hi! Check the padding and border</div>
</body>
</html>
```



Output of Code Snippet



Output After Changing Padding Value

Positioning

- Use the position property to define the positioning method for an element.
- Syntax: position: static|absolute|fixed|relative|sticky

This line uses the static position.

This is the second line. When no position is specified, static becomes the default position.

Static

This is the closest parent element.

This is the relative position.

absolute

Home News Contact

The menu bar above uses the fixed position

Scrolling will not affect the bar.

Scroll down to check

This is line 1.

This is line 2.

This is line 3.

Fixed

Float

Use the float property to position and format content.

```
<!DOCTYPE html>
<html>
<head>
<style>
img
{
  float: left;
}
</style>
</head>
<body>
<p>
The two types of pollination are: self-pollination and cross-
pollina- tion. Self-pollination happens when the pollen from the
anther is deposit- ed on the stigma of the same flower, or
another flower on the same plant. Cross-pollination is the
transfer of pollen from the anther of one flower to the stigma
of another flower on a different individual of the same spe-
cies.</p>
</body>
</html>
```



The two types of pollination are: self-pollination and cross-pollination. Self-pollination happens when the pollen from the anther is deposited on the stigma of the same flower, or another flower on the same plant. Cross-pollination is the transfer of pollen from the anther of one flower to the stigma of another flower on a different individual of the same species.

Output

Summary

- ❖ The text styles specify and control the appearance of the text in a Web page.
- ❖ Indenting is the process of offsetting text from its normal position, either to the left or to the right.
- ❖ CSS border properties specify the style, color, and width of the border.
- ❖ The border-color property accepts different color values that determine different shades of color to be applied to borders.
- ❖ Values of different border properties determine the type of effect to be applied to the borders.
- ❖ In CSS, the text-align property is used for horizontal alignment of text in an element.
- ❖ In CSS, the line-height property is used for vertical alignment of text in an element.
- ❖ Selector specificity can be used to prioritize a selector on which style declarations will be applied.
- ❖ A pseudo-class selector defines a particular state of an element.
- ❖ A combinator indicates the relationship between selectors.
- ❖ It is important to know about box model so that elements are displayed well in all browsers with respect to height and width.
- ❖ The position property can be used to position and format content.

Essentials of Website Design and Development

Session: 5

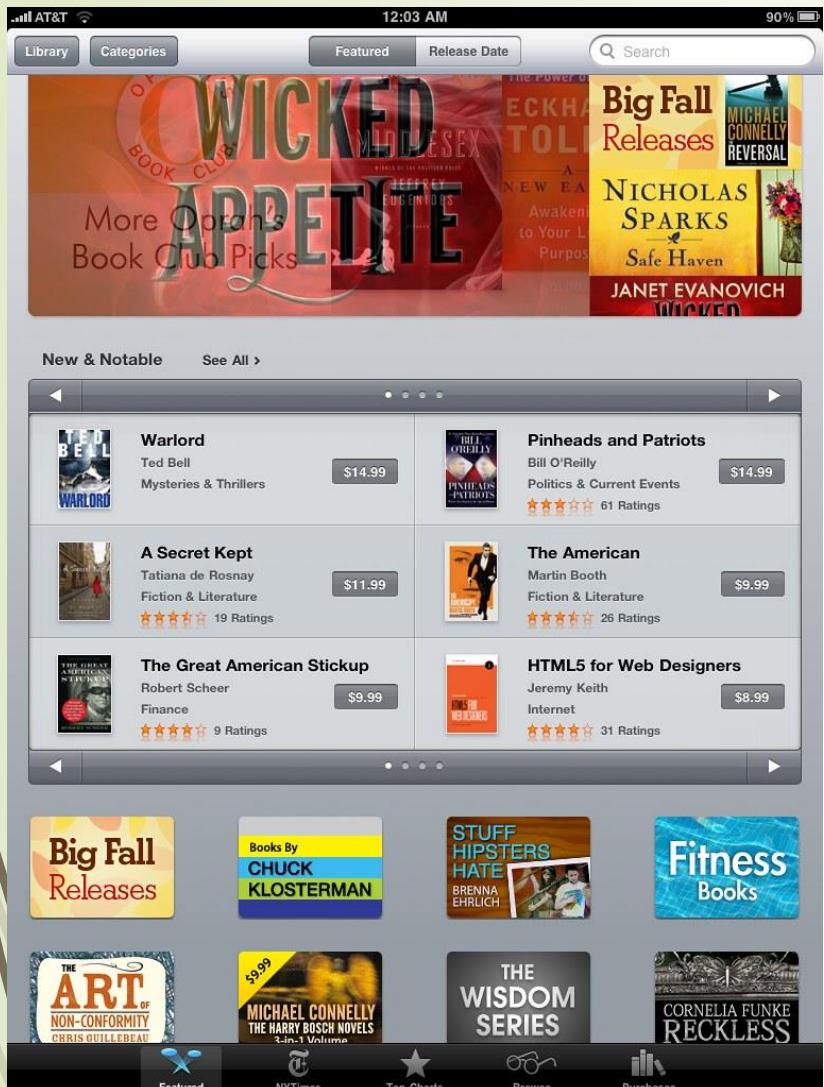
HTML Layout, Forms, and Elements



Objectives

- Explain HTML5 semantic tags
- Explain HTML5 semantic tag layouts
- Explain the usage of navigation bar
- Describe a text-based and graphical navigation bar
- Explain image mapping
- Explain divisions in HTML5
- Describe HTML5 forms
- Explain the working of new input types in HTML5
- Explain the new Form attributes
- Explain the new Form elements
- Define hidden fields

Introduction



HTML5 provides:

- Semantic markup for easy understanding.
- New features to make Web forms a lot easier to write.
- Hidden element feature for better security.

HTML5 Semantic Tags

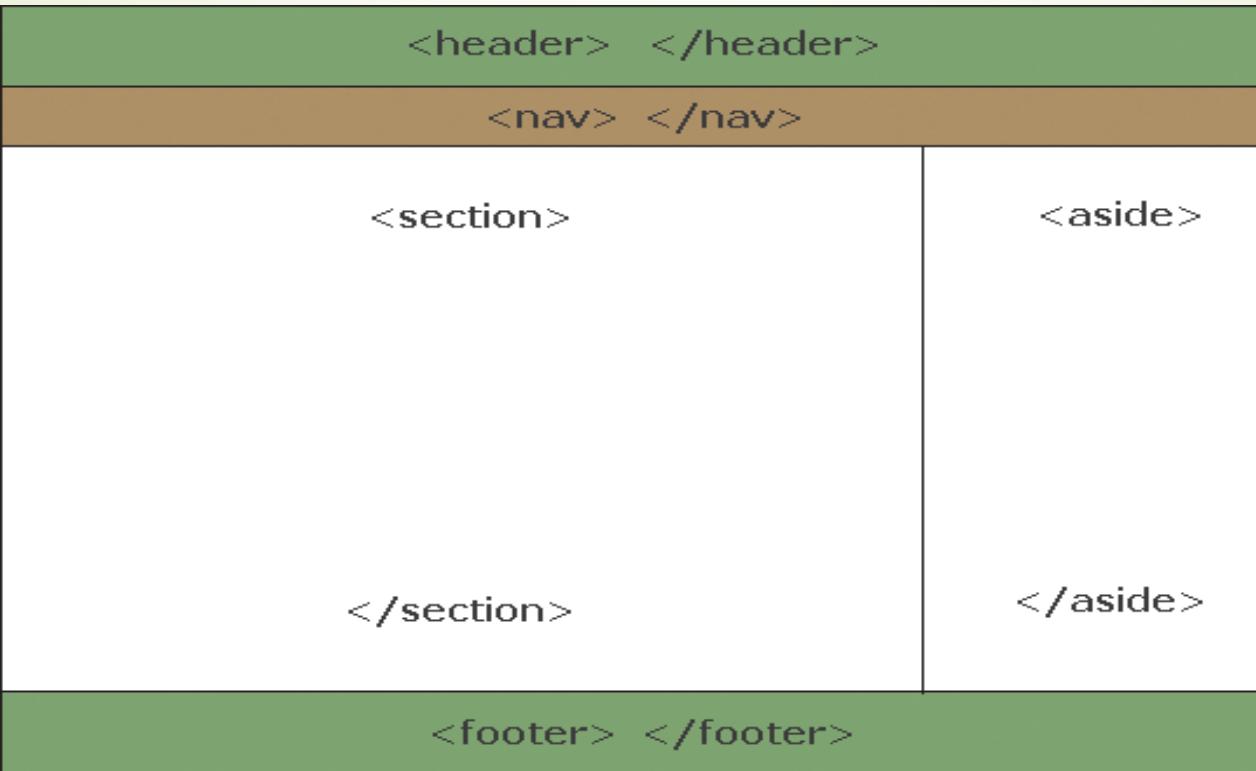
Structural Semantic Tags

- Are block level elements
- Structure pages

Text-level Semantic Tags

- Inline elements
- Makes text more expressive

Structural Semantic Tags



HTML5 Semantic Tags

Tag	Description
Section	The section element represents a section of a Web document. It is used for grouping related content and is different from other content groups present on the Web page. It is similar to a div tag though section element has more semantic meaning. In other words, section element is more meaningful as the content inside the section tags should be related.
Header	The header element represents the header of a Web page. It can be used either at the top of the document or at the top of a section. Though most of the Websites currently uses a single header at the top of the page called masthead, but a Web developer can have multiple headers in a single HTML5 document. This element is used as a container containing a group of introductory content or a set of navigational links.
Footer	The footer is similar to the header and can be present as the footer either for the document or for the section. There can be multiple footer elements in an HTML5 document. A footer element has information about the Web document. The typical contents which are placed in footer include Authors information, Copyright information, and Text-based navigation bar. Any metadata for the section can also be included in a footer tag.
Aside	The aside element is used for representing the content that is related to the main text of the document. It aligns itself as a sidebar. As compared with other structural tags its importance is not related with its position within a document, but rather its relationship with the content. It is not mandatory to have an aside element aligned to the right or left of a Web page. It can be at the top, the bottom, or even in the middle of a Web page.
Nav	The nav element represents a section of a Web page that contains navigation links/menus to other Web pages or to other parts within the Web page. In other words, it allows the user to navigate through the Web page and site. This section is created for major navigational information such as a navigation bar for the entire site or for a subsection menu.
Article	The article element represents a section of content that is independent of a Web page or site content. It is self-contained and stands on its own. The possible sources for the article tag could be Blog post, News story, Comment, Review, and Forum post.

Text-level Semantic Tags

Tag	Description
Mark	<p>The <mark> tag is used for defining marked or highlighted text because of its relevance to the context. For example, a mark tag can be used for highlighting words in a Web page that a visitor searched for.</p>
Time	<p>The <time> tag is used for defining either the time, or a date in the Gregorian calendar. It is used optionally with a time and a time-zone offset. This element can be used to encode dates and times in a machine-readable format. For example, a Web user can add birthday reminders or scheduled events to the user's calendar and enable the search engines to produce better search results.</p> <p>Attributes and value of <time> tag are as follows:</p> <ul style="list-style-type: none">datetime: Provides the date/time given by the element's contentpubdate: It is used for specifying publication date and time of the document
Meter	<p>The <meter> tag displays markup or scalar measurement within a defined range. Absolute scalar values, such as height or weight, are not represented automatically by the meter tag. For this, the user must specify the height and weight within the known range of values. It is also used for displaying fractional value.</p>
Progress	<p>The <progress> tag can be used with JavaScript to display the progress of a task.</p>

Navigation Bar

Text-based

[Home](#) | [News](#) | [Contact](#) | [About](#)

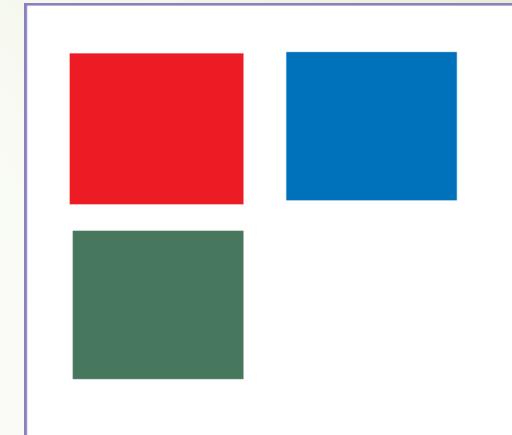
This is a Text-based Navigation Bar

Divisions

- Division is represented by the `<div>` tag.
- It defines a division or a section in an HTML document.
- The `<div>` tag is:
 - Used as a container for HTML elements. This can be styled with CSS or manipulated with JavaScript.
 - Styled by using the class or id attribute.
- It can hold any content.

Divisions

```
.lCard{ width: 100px;  
height:100px;  
background-color:blue; padding:  
6px; position:fixed; left:450px;  
top:100px;  
}  
.rCard{  
width: 100px; background-  
color:red; padding: 7px;  
position:relative; top:93px;  
left:300px;  
}  
.bCard{ width: 100px;  
height:100px;  
background-color:green; padding:  
6px; position:absolute;  
left:310px; bottom:320px;  
}
```



Output of Division Positioning

Introduction to HTML5 Forms 1-3

- An HTML form is used to collect user input.
- The user input is usually sent to a server for processing.
- The <form> element creates an HTML form for user input.



Enter Your Name:

Enter Your Age:

Are You an Employed Person:

Yes

No

Submit

A decorative graphic on the left side of the slide features several overlapping curved lines in shades of brown and beige.

Introduction to HTML5 Forms 2-3

Type	Description
<input type="text">	Used for a single-line text input field
<input type="radio">	Used for a radio button
<input type="checkbox">	Used for a check box
<input type="submit">	Used for a submit button
<input type="button">	Used for a clickable button

Common Input Types in HTML5

Introduction to HTML5 Forms 3-3

```
<!DOCTYPE html>
<html>
<head>
<title>FormDemo</title>
</head>
<body>
<form method="get" action="test.html">
<label>Enter Your Name:</label><br/>
<input type="text" value="" id="name" /><br/>
<label>Enter Your Age:</label><br/>
<input type="text" value="" id="age" /><br/>
<label>Are You an Employed Person:</label><br/>
<input type="radio" value="Yes" id="Yes" />
<label for="Yes">Yes</label><br/>
<input type="radio" value="No" id="No" />
<label for="No">No</label><br/>
<br/>
<input type="submit" value="Submit"/>
</form>
</body>
</html>
```

Enter Your Name:

Enter Your Age:

Are You an Employed Person:

Yes

No

Submit

Output Showing HTML Form

New Features in HTML5 Forms

New form elements

New input types

New attributes

CSS3 styling
techniques

Forms API

Browser-based
validation

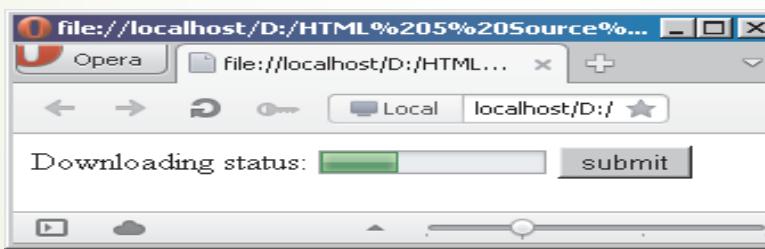
New Form Elements 1-2

Element	Description
progress	Represents the completion progress of a task on the page
meter	Represents a scale of known range
datalist	Represents a set of options used with list attribute to make a drop-down control
output	Represents the result of a calculation

New Elements in HTML5

New Form Elements 2-2

```
<label> Downloading status: </label>
<progress value="35" max="100" >
</progress>
<input type="submit" value="submit"/>
```



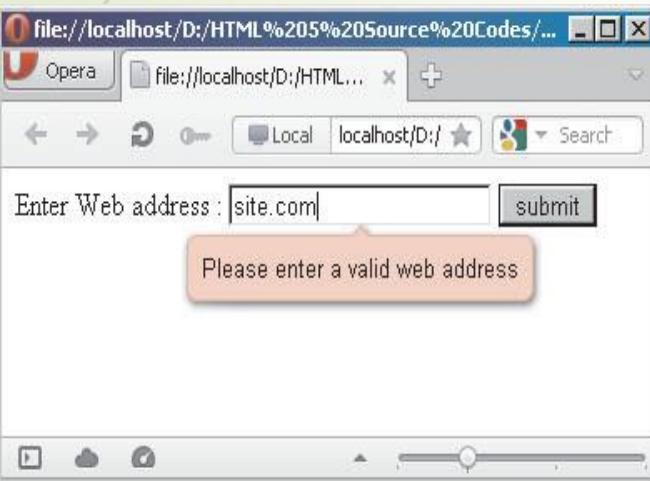
Progress Element

New Input Types 1-2

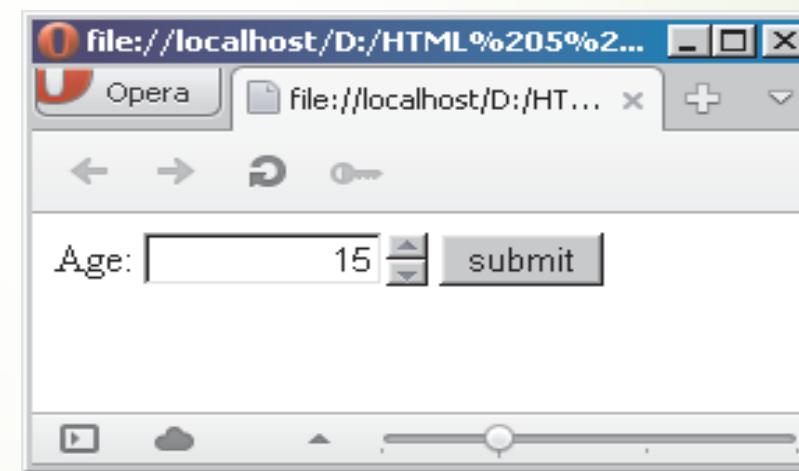
Type	Description
email	Represents one or more e-mail addresses
search	Represents search elements
url	Represents a Web address
tel	Represents telephone numbers
number	Represents a numeric value in the input field
range	Represents a numeric value to be selected from a range of numbers
date	Represents a calendar which is shown at each click upon the field
week	Represents date in year-week format
month	Represents a value with year-month format
time	Represents a value in hours and minutes format
datetime	Represents a full date and time input field with a time zone
color	Represents a predefined interface for selecting color

New Input Types 2-2

```
<label for="url">Enter your Web page address:</label>
<input type="url" value="" id="urlname" name="urltext"
       maxlength="255" />
<input type="submit" value="submit"/>
```



Error Message for Incorrect URL



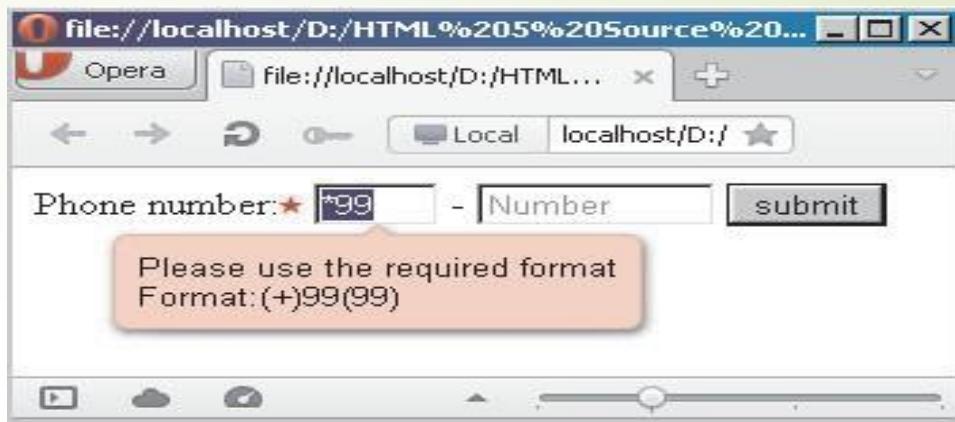
Number Input Type

New Form Attributes 1-2

Type	Description
placeholder	Represents a hint that help users to enter the correct data in the field
required	A Boolean attribute that validates the entry in the field
multiple	A Boolean attribute that allows multiple values to be entered in the field
autofocus	Focuses the input element on page load
pattern	Represents a regular expression for validating the field's value
form	Allows the elements to reference the form by including the form name

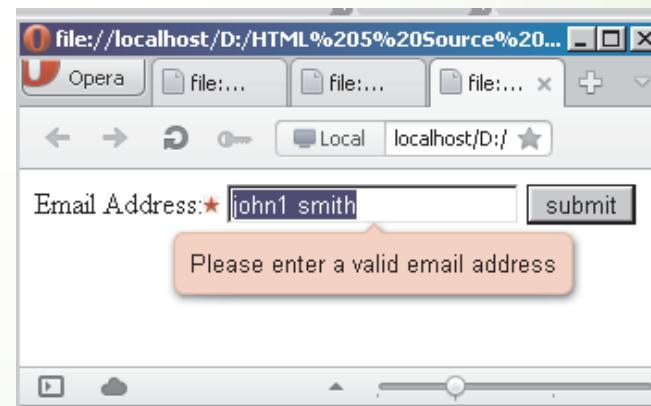
New Form Attributes 2-2

```
<label>Phone number:</label>  
<input type="tel" value="" size="4" maxlength="5" tabindex="11" required="true" placeholder="Code" pattern="[+0-9]{1,4}" title="Format: (+) 99 (99)"/>  
<label>-</label>  
  
<input type="tel" value="" size="10" maxlength="12" tabindex="13" required="true" placeholder="Number" pattern="[0-9]{8,}" title="Minimum 8 numbers"/>
```



The screenshot shows an Opera browser window with a form containing two phone number inputs. The first input has a value of "99" and a tooltip message "Please use the required format Format:(+99(99))". The second input is empty. A "submit" button is visible at the bottom right.

Message of Pattern Attribute



The screenshot shows an Opera browser window with a form containing one email address input with the value "john1 smith". A tooltip message "Please enter a valid email address" is displayed below the input field. A "submit" button is visible at the bottom right.

Validation of Multiple E-mail Address

Browser-based Validation and CSS Styling Techniques

- New attributes such as `required` and `pattern` can be used with the `input` elements to perform validation.
- Web developers do not have to write separate JavaScript code for client-side validation.
- Input field with `required` attribute can be styled using CSS.
 - **This makes it easier for user to navigate and complete the form.**

Forms API

Events and Methods	Description
setCustomValidity (message)	Sets the custom error message that is displayed when the form is submitted by the user
checkValidity()	Checks the validity of the e-mail address entered by the user
oninvalid	Allows script to run only when the element is invalid
onforminput	Allows script to run when the form gets an input from the user
onformchange	Represents a regular expression for validating the field's value
form	Allows script to run when the form changes

Hidden Elements 1-3

- Hidden Elements remain out of the sight of user when filling out a form.
- The fields can have a default value.
- The information in hidden fields is processed by the server after the form is submitted.
- Common uses are as follows:
 - **To track edited content**
 - **To improve Website security**

Hidden Elements 2-3

```
<><div class="container">
<form>
    <div class="input-group">
        <label for="title">Post title:</label>
        <input type="text" id="title" name="title" value="My latest trip to
            Bulgaria">
    </div>
    <div class="input-group">
        <label for="content">Post content:</label>
        <textarea id="content" name="content" cols="60" rows="5">
            Hope You enjoy it!
        </textarea>
    </div >
    <div class="input-group">
        <button type="submit">Update post</button>
    </div>
    <input type="hidden" id="postId" name="postId" value="23678">
</form>
</div>
```

Hidden Elements 3-3

```
/
.container{
  display:
    flex;
    justify-content: center;
    align-items: center;
  height: 100vh;
}
.container form{
  padding: 50px;
  border-radius:
    2px;
  border: 1px solid black;
}
.input-group{
  margin-bottom: 10px;
  display: flex;
}
input ,
  textarea{
    flex: 6;
}
label{
  line-height: 2;
  flex: 2;
}
textarea{
  height: 60px;
}
```

title=My+latest+trip+to+Bulgaria+post&content=+Hope+You+enjoy+it
0D%0A++++&postId=23678

Data Sent to Server

Data Attributes

- A data attribute helps store custom data on an HTML element.
- It can be called using JavaScript.
- Syntax: <element data-<attribute_name>="value">

Summary

- ❖ HTML5 has introduced two types of semantic tags. They are namely, text-level and structural.
 - ❖ Some of the structural semantic tags include section, header, footer, and so on.
 - ❖ Text-level semantic tags include mark, time, meter, and progress.
 - ❖ Text-based navigation bars are created as stand-alone navigation bars that are not associated with icons. Text-based navigation bar is easy to create and can be displayed in any Web browsers.
 - ❖ Graphical navigation bar is better than text-based navigation as it gives a visual appeal to the visiting users.
 - ❖ Div can be used when there is no other semantically appropriate element left that suits the purpose in a Web page development.
 - ❖ HTML5 introduces new form elements such as new input types, new attributes, browser-based validation, CSS3 styling techniques, and forms API.
 - ❖ HTML5 provides new input types that are data-specific user interface elements such as email, URL, number, range, date, tel, and color.
 - ❖ The new form elements introduced in HTML5 are namely, datalist, progress, meter, and output.
 - ❖ In HTML5, one can use the submit input type for form submission.
 - ❖ Hidden elements remain out of the sight of user and can be used to transmit sensitive information to the server.
 - ❖ A data attribute helps store custom data or extra information on an HTML element.