

Introduction to IT Systems

Chapter-3 HTML and CSS

Sisira Kumar Kapat, Lecturer (CA)

Department of Computer Science & Engineering,
UCP Engineering School,
Berhampur, Orissa
(deployed to UGMIT, Rayagada)

Unit Outcomes

- U3-O1: Create webpages on text editors and run them on different web browsers.
- U3-O2: Define various HTML tags, format a webpage, and hyperlink webpages.
- U3-O3: Define the structure of CSS and apply CSS in different ways on HTML documents.
- U3-O4: Apply styles on the webpages with font, text, and background properties.

Contents

- Hyper Text Markup Language 4 (HTML4)
 - Structure of an HTML Document
 - How to create a Webpage?
 - Basic HTML Tags
 - Page Setting Tags
 - Listing Tags
 - Adding Graphics to HTML
 - Working with HTML Tables
 - Linking Webpages
 - HTML Forms
- Cascaded Style Sheets (CSS)
 - Ways to apply CSS to HTML Document
 - CSS Selectors
 - CSS Properties

HTML 4

- Hypertext: it is regular text having the capability within the text to connect or reference other documents (Hyperlinking). It can be stored, read, searched and edited like regular text.
- Markup : It is a system for annotating a document such that it displays intended text in a visually distinguishable manner from other content in the document.

Structure of an HTML Document

- HTML Document is prepared using many tags. There are two types of tags.
 - Paired Tags : has opening and companion (closing) tag.
 - Singular Tags: do not require companion or closing tag.
- Tags are the special word, enclosed within angular brackets '`<`' and '`>`'.
- This tag is a signal to the web browser about the structuring or formatting of content on a webpage.
- If the tag conveys
 - structuring information, then it is known as structural tags.
 - Formatting of content, then it is known as formatting tags.

How to create a webpage?

- HTML document can be created using any text editor like notepad.
- Document starts with `<html>` and closes with `</html>`
- Save the document with `'html'` or `'htm'` extension. Example: `test.html` or `test.htm`
- Open the document using any web browser.

```
<html>  
    <body>  
        hello world.  
    </body>  
</html>
```

Basic HTML Tags

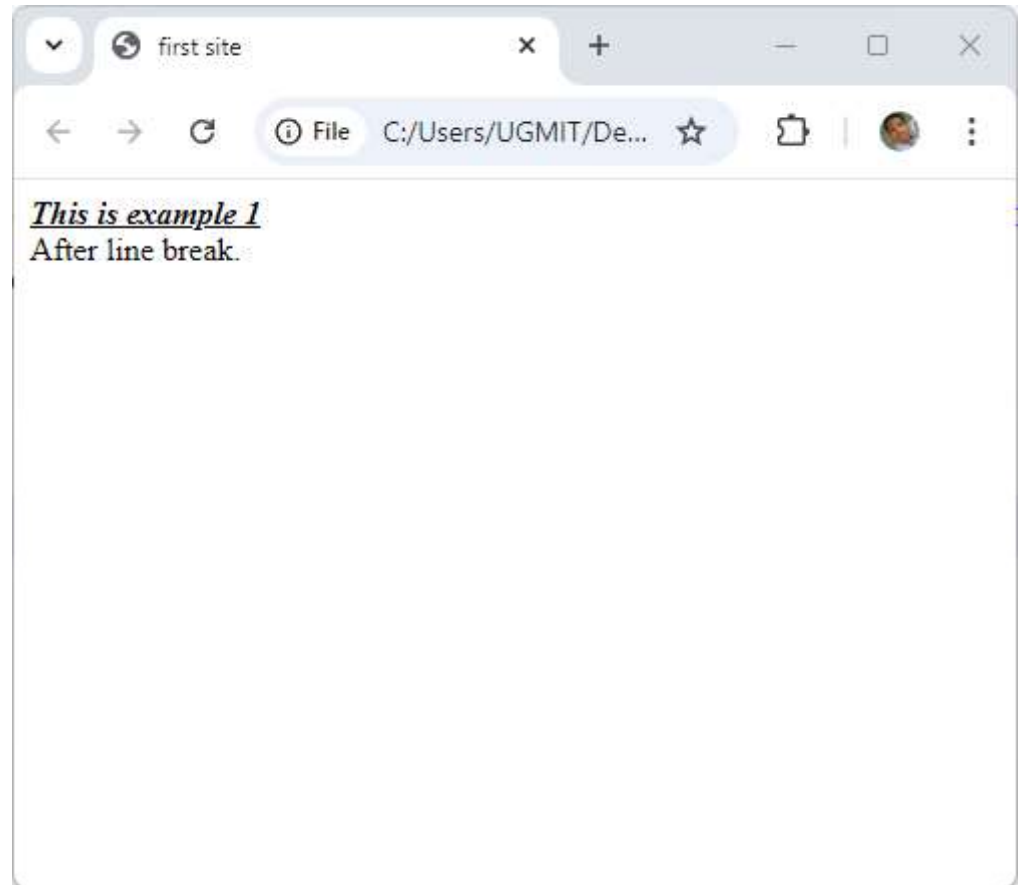
- Main building block of HTML.
- HTML has predefined tags.
- Two types of tags
 - Structuring Tags : ex: <html>, <body>, <head> etc.
 - Formatting Tags : ,
 etc.
- HTML tags are not case sensitive.
- Nesting of tags are possible, where one tag is nested inside another tag.
 - Example : <i><u> welcome </u></i>

Formatting Tags

Tag	Description
<CENTER>..</CENTER>	To center align any part of the text.
<P>..</P>	To start a paragraph with new line.
 	Puts a line break in the text. The text appearing after appears in the next line.
..	To Bold any part of the text.
<U>..</U>	To <u>Underline</u> any part of the text.
<I>..</I>	To <i>Italic</i> any part of the text.
<BLOCKQUOTE>.. </BLOCKQUOTE>	To indent the text from both sides.
..	To set a specific font for any part of text e.g., face, color, size, etc.
<Hn>..</Hn>	To format headings. Here n is a natural number between 1 to 6.
<HR>	To draw a Horizontal Rule (horizontal line)
^{..}	To superscript any part of the text. E.g., $e=mc^2$ (2 is superscripted)
_{..}	To subscript any part of the text. E.g., H ₂ O (2 is subscripted)

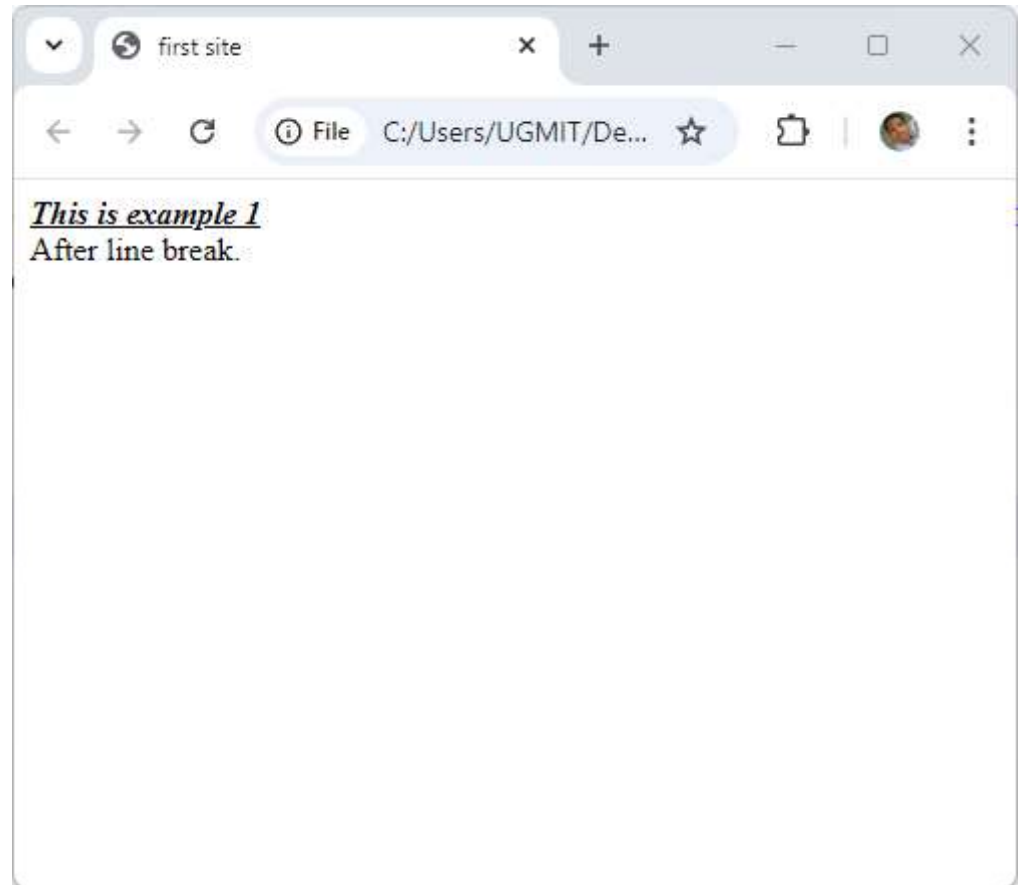
Example 1

```
<html>
  <head>
    <title>
      first site
    </title>
  </head>
  <body>
    <b>
      <i>
        <u>
          This is example 1
        </u>
      </i>
    </b><br>
    After line break.
  </body>
</html>
```



Example 2

```
<html>
  <head>
    <title>
      first site
    </title>
  </head>
  <body>
    <b>
      <i>
        <u>
          This is example 1
        </u>
      </i>
    </b><br>
    After line break.
  </body>
</html>
```



Attributes

- Attributes are used with the tags to properly format the webpage.
- Each attribute are associated with a value.
- Example:

Tag	Attribute	Possible Values of the Attribute
<P>	ALIGN	LEFT, RIGHT, CENTER, JUSTIFY
	FACE	Any valid font name
	SIZE	Any integer from 1 to 7
	COLOR	Any valid color name or color code e.g., RED or #FF0000

Page Setting Tags

- Set the title of the webpage, background color, text color etc.
- To set the title of the webpage, <title> tag is used. Generally <title> tag is nested inside <head> tag.
 - example: <head> <title> welcome</title></head>
- Attributes of body tags are listed below those are required for page setting.


Attribute	Possible Values of the Attribute
Background	To display an image in the background of the webpage.
Bgcolor	To specify a background color of webpage. Color name can be given in nave or RCB values.
Text	To set the color of the normal text in the document. Color name can be given in nave or RCB values.

Listing Tags

Name	Tab	attributes	Value of attribute
Unordered List	... 	Type	Fillround (for a solid round black bullet)
			Square (for a solid square black bullet)
Ordered list	... 	Start	Any number (to list 1,2,3...)
		Type	1, A, a, I, i (specify the kind of marker to use)
		Reversed	To get a reverse list
Definition List	<dl>....</dl>		
Define term	<dt>...</dt>		
Description	<dd>...</dd>		

Example : use of listing tags

```
<h4>Sports: Ordered list</h4>
<ol>
  <li> Hockey</li>
  <li> Baseball</li>
  <li> Archery</li>
</ol>
<h4>Sports: Unordered list</h4>
<ul>
  <li> Hockey</li>
  <li> Baseball</li>
  <li> Archery</li>
</ul>
<h4> Sports : Definitions Lists </h4>
<dl>
  <dt>Hockey:</dt>
  <dd>- is a sport in which two teams
play against each other by trying to
manoeuvre a ball or a puck into the
opponent's goal using a hockey stick.
</dd>
  <dt>Baseball:</dt>
  <dd>- is a bat-and-ball game played
between two opposing teams who take
turns batting and fielding. </dd>
</dl>
```



Sports-Wikipedia

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Sports: Ordered list

1. Hockey
2. Baseball
3. Archery

Sports: Unordered list

- Hockey
- Baseball
- Archery

Sports : Definitions Lists

Hockey:

- is a sport in which two teams play against each other by trying to manoeuvre a ball or a puck into the opponent's goal using a hockey stick.

Baseball:

- is a bat-and-ball game played between two opposing teams who take turns batting and fielding.

Adding Graphics to HTML

- `` tag helps to insert an image into the page.
- Possible attributes of `` tag is presented below.

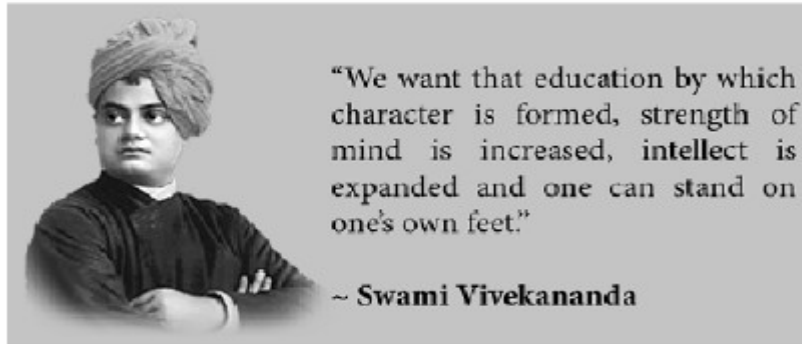
Attribute	Possible Values of the Attribute
Align	This attribute controls the alignment of text following the image. Values: TOP, MIDDLE, BOTTOM, LEFT, CENTER, RIGHT
Border	Specifies the size of border around the image
Width	Specifies the width of the image in pixels or %
Height	Specifies the height of the image in pixels or %
Hspace	Indicates horizontal space between the table and surrounding text
Vspace	Indicates vertical space between the table and surrounding text
Alt	It is alternative text to be displayed when image not found or loaded
Src	Location and name of source image file is given by this attribute

Example : use of tag

```
<body>
   Swami Vivekananda (January 1863 - 4 July 1902), was
  an Indian Hindu monk. He was a chief disciple of the 19th-century Indian mystic
  Ramakrishna.He was a key figure in the introduction of the Indian philosophies of
  Vedanta and Yoga to the Western world
  <HR>

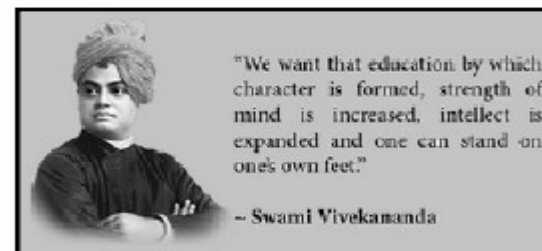
   Swami Vivekananda (January 1863 - 4 July 1902), was an
  Indian Hindu monk. He was a chief disciple of the 19th-century Indian mystic
  Ramakrishna.He was a key figure in the introduction of the Indian philosophies of
  Vedanta and Yoga to the Western world
</body>
```

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Swami Vivekananda (January 1863 - 4 July 1902), was an Indian Hindu monk. He was a chief disciple of the 19th-century Indian mystic Ramakrishna.He was a key figure in the introduction of the Indian philosophies of Vedanta and Yoga to the Western world

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Tables in HTML

- To display data in form of rows and columns
 - `<table>` tag is used
 - Paired tag
- Rows are defined using `<tr>....</tr>`
- Columns are defined using `<td>... </td>`
- Strengthened by using header row `<th>...</th>`
- Table name or other metadata is provided using `<caption>... </caption>`
 - Can be placed above or below the table using 'align', set to TOP or BOTTOM

Attributes of <table> tag

Attribute	Possible Values of the Attribute
Align	Controls the horizontal alignment Values: LEFT, RIGHT, CENTER
Valign	Controls the vertical alignment of cell contents. Values: TOP, MIDDLE, BOTTOM
Width	Specify the width in form of pixel or % of available screen
Height	Specify the height in form of pixel or % of available screen
Border	Specify the border around the table in form of pixel
CELLPADDING	Specify the distance between data and boundaries of the cell.
CELLSPACING	Specify the distance between nearby cells.
COLSPAN	Merge the specified number of columns. Used inside <th> or <td>
Rowspan	Merge the specified number of rows. Used inside <th> or <td>

Example: use of <table> tag

```
<body>
Default Table
<HR>
<table >
<CAPTION ALIGN=BOTTOM>
Table 1: Medals in Field Hockey
& Shooting</CAPTION>
  <tr>
    <th>Sport</th>
    <th>Gold</th>
    <th>Silver</th>
    <th>Bronze</th>
    <th>Total</th>
  </tr>
  <tr>
    <td>Field hockey</td>
    <td>8</td>
    <td>1</td>
    <td>3</td>
    <td>12</td></tr>
  <tr>
    <td>Shooting</td>
    <td>1</td>
    <td>2</td>
    <td>1</td>
    <td>4</td>
  </tr>
</table>
```

Default Table

Sport	Gold	Silver	Bronze	Total
Field hockey	8	1	3	12
Shooting	1	2	1	4

Table 1: Medals in Field Hockey & Shooting

```
3 <body>
4 Table with cellpadding=5 and
  cellspacing=2
5 <HR>
6 <table BORDER=5 WIDTH=50% align=
  center cellpadding=5 cellspacing=2>
7 <CAPTION ALIGN=BOTTOM>Table 1:
  Medals in Field Hockey & Shooting
  </CAPTION>
8 <tr>
9 <th bgcolor=gray>Sport</th>
10 <th>Gold</th>
11 <th>silver</th>
12 <th>Bronze</th>
13 <th>Total</th>
14 </tr>
15 <tr>
16 <td>Field hockey</td>
17 <td>8</td>
18 <td>1</td>
19 <td>3</td>
20 <td>12</td></tr>
21 <tr>
22 <td>Shooting</td>
23 <td>1</td>
24 <td>2</td>
25 <td>1</td>
26 <td>4</td>
27 </tr>
28 </table>
```

Table with border=5 and width=50%

Sport	Gold	Silver	Bronze	Total
Field hockey	8	1	3	12
Shooting	1	2	1	4

Table 1: Medals in Field Hockey & Shooting

Linking Webpages

- Linking several web resources : hyperlink
 - Normally appears in blue color. (customizable)
 - Hypertext/image is underlined.
 - On moving the arrow cursor to the hyperlink, the default arrow will turn into little hand.
 - HTML anchor tag `<a>...` is used
- The text or image having linking functionality is known as hypertext or hyperlink.

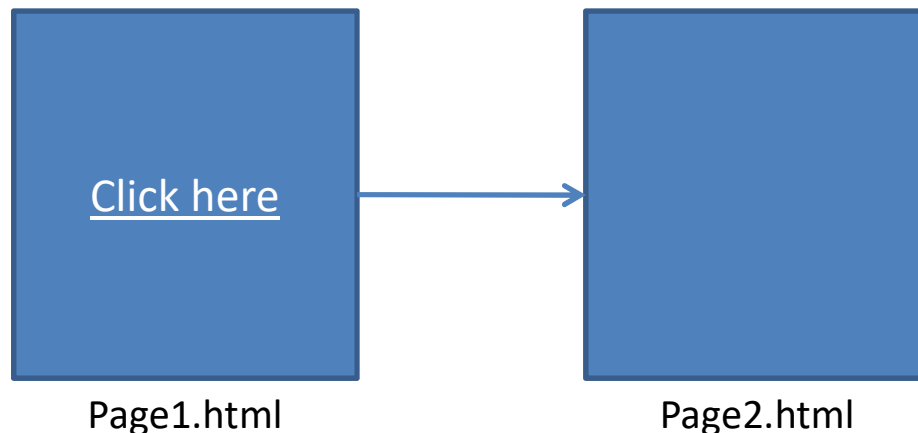


Internal Document Reference

- Hyperlink
 - External resource
 - Internal document reference
- External hyperlink:
 - Syntax: `...`
 - Example: `about`
- Internal hyperlink:
 - Syntax
 - for link: `...`
 - for location: `....`
 - Example:
 - For link: `about`
 - For location: `about`

External hyperlink

- To create a link from page1.html to page2.html, the line of code is,
- In page1.html, you should write,
`click here`
- In 'page1.html', you will see a link "click here".
- If the user click on the link, you will automatically go to 'page2.html'.



Internal hyperlink

- To link different sections in the same page, internal hyperlink is useful.
- To create the link,
`sec1`
`sec2`
`sec3`
- To create different sections,
` Sec1`
.....
` Sec1`
.....
` Sec1`
.....



HTML Forms

- Composed of various components
 - Text box
 - Radio button
 - Check box
 - Dropdown list etc.
- Tags (form components) associated to HTML Forms
 - `<input>` tag
 - `<textarea>` tag
 - `<select>` and `<option>`

<input> tag

- Collects information from the user.
- Input types supported by <input> tag are,
 - Text :
 - “text” value of <input> tag creates a text box.
 - Usually accept a single line input
 - Syntax: <input type=“text”>
 - Radio :
 - “radio” value of <input> tag creates a radio button.
 - Usually accept one option from various provided options
 - Syntax: <input type=“radio”>
 - Checkbox :
 - “checkbox” value of <input> tag creates checkbox.
 - Accept multiple options out of various provided options.
 - Syntax : <input type=“checkbox”>
 - Command buttons
 - “Submit” and “reset” buttons can be created
 - Syntax: <input type=“submit”> or <input type=“reset”>

Text box using <input> tag

- Usually text box will have the following other attributes jointly.
- Example:

<input type=text name=tname size=5 maxlength=10>

Attribute	Value	
Type	Text	To create a text box
Name	Any name	Assign an internal name for the field
Size	A number	Defines the width of the field.
Maxlength	A number	Maximum no. of characters the textbox can accept.

Text area

- `<textarea>` tag creates a larger field than text box.
- Accepts multiline input.

Attribute	Value	
COLS	A number	Length of text area.
ROWS	A number	Maximum number of rows in the text area.
NAME	Any name	Assign an internal name for the field
TABINDEX	A number	Assigns order number of activation for control
WRAP	Wrap off, Virtual, Physical	Defines wrap text functionality for control.

Drop Down Box

- A list of items will be drop down, and the user select one out of them.
- `<SELECT>` and `<OPTION>` tags are used.

Attribute	Value	
NAME	Any name	Assign an internal name for the field
SIZE	A number	Max number of items visible at once
MULTIPLE	-	Allows the user to select multiple items.
VALUE	Any value	Value to be transferred.

CSS (Cascade Style Sheet)

- Three types
 - Inline (the attribute style)
 - Internal (the tag style)
 - External (external file)

Inline CSS

- CSS is applied directly with the style attribute.
- Example:

`<body style="background-color:#00ff00;">`

Selector

Property Value
Declaration

Selector

- Selector
 - Element : p, h1, h2, body etc.
 - Id : #para1, #sec1 etc.
 - Class : .center, .style1 etc.
 - Universal : *
 - Grouping : h1, h2, p {.....}

Internal CSS

- CSS is applied using `<style>...</style>` tag under `<head>` tag.

- Example:

```
<head>
```

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

```
    h3{background-color:#0000ff; color:#ffffff}
```

```
  </style>
```

```
</head>
```


External CSS

- A separate file is created with '.css' extension.
- The file is referenced in the HTML document inside <head> section using <link> tag.
- Example:

```
<head>
```

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

```
</head>
```

example

```
Body{
  background-color:red;
}
H1{
  color:white;
  text-align:center;
  border:2px solid tomato;
}
P{
  font-family:verdana;
  font-size:20px;
}
```

Color Code

- `rgb(255, 99, 71)` : (red, green, blue)
- `#ff6347` : (RGB hex color code)
- `hsl(9, 100%, 64%)` : (hue, saturation, lightness)
- `rgba(255, 99, 71, 0.5)` : (RGB with Alpha)
- `hsla(9, 100%, 64%, 0.5)` : (HSL with Alpha)

- Colors:
 - Tomato
 - Orange
 - Gray
 - DodgerBlue
 - MediumSeaGreen etc.