

3

HTML and CSS

UNIT SPECIFICS

In this unit, learners will know how to build webpages using HTML (Hypertext Markup Language), a useful tool in web development. Learners will also learn to use reinforcement technology to HTML i.e., CSS (Cascaded Style Sheets). CSS is being widely used in web development for attractive display and formatting of information. The unit describes working of different tags of HTML and properties of CSS for creating user friendly web pages. Adequate knowledge of HTML and CSS from this unit will improve student's Efficiency in creating webpage.

RATIONALE

The World Wide Web is an ocean of information, new information is being added every moment and existing information is being discovered anxiously. In section 1.3, we learned how to search for information efficiently through search queries. Have you wondered how this vast majority of information is organized on WWW? How does the display of information differ on different websites? We will learn the answers to all these questions in this unit.

PRE-REQUISITES

- Basic word processing capabilities with any text editor.
- Internet browsing using web browsers e.g., Mozilla Firefox, Google Chrome, etc.

UNIT OUTCOMES

Learners will be able to:

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.

Table 3.1: Mapping of Unit Outcomes with the Course Outcomes

Unit-3 Outcome	EXPECTED MAPPING WITH COURSE OUTCOMES (1- Weak Correlation; 2- Medium correlation; 3- Strong Correlation)						
	CO-1	CO-2	CO-3	CO-4	CO-5	CO-6	CO-7
U3-O1	3	1	1	2	3	2	2
U3-O2	2	1	1	1	3	2	1
U3-O3	1	1	1	1	3	2	2
U3-O4	1	1	1	1	3	2	1

3.1 HYPER TEXT MARKUP LANGUAGE 4 (HTML4)

HTML is a useful tool for building webpages and displaying them in web browsers. The existence of the World Wide Web (WWW) consists of innumerable webpages that are interconnected. When these webpages take the form of a group, organized for a specific purpose, they are called websites. The contribution of HTML in the creation of the WWW is incomparable. From time to time, many versions of HTML have become popular in the web programming world. HTML4 is a recent version of HTML. HTML4 is a markup language that is easily understood on almost all web browsers at present.

Although the new version of HTML, HTML5 is also becoming popular with its new tags, there is no doubt about the global spread and acceptance of HTML4. Along with text, multimedia, and hyperlink features available in previous versions of HTML, HTML4 supports scripting languages, style sheets, and other important features. HTML4 supports more multimedia options, it enhances HTML with frames, embedding objects, improved support for the right to left and mixed direction text, richer tables, and enhancements to forms, offering improved accessibility for people with disabilities.

In general HTML document comprises of two functionalities:

1. **Hypertext:** It is a 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.
2. **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.

An HTML document is formed with many tags. A tag is a 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 a tag conveys structuring information, then it is known as structural tags like <HTML>, <BODY>, <HEAD> etc. If it is informing web browser about the formatting of content then it is known as a formatting tag like ,
, <HR>, .

In HTML there are two types of tags.

1. **Paired Tags:** Some tags in HTML are used in pairs e.g., tag is used with tag. This tag is used to bold the text in between both of these. Here is called opening tag whereas is termed as companion tag or closing tag. Paired tags are also known as **container tags**.
2. **Singular Tags:** Such type of tags does not require companion tag or closing tags e.g.,
. Singular tags are also known as **non-container tags**.

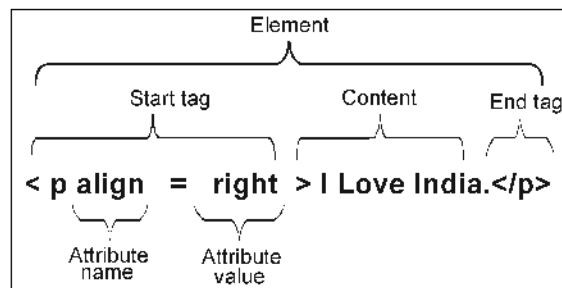


Fig. 3.1: Parts of HTML Container Element

The part of HTML coding from starting tag up to the closing tag is called an **element**. In the case of singular tags, the tag itself is an element and known as an empty element. Every tag has its default behaviour if we want to change it, we may use an **attribute** of that tag. Attributes are defined in opening tags and they control the behaviour of an element. As shown in Fig. 3.1 the default behaviour of

paragraph tag `<p>` is left that is changed to right by assigning right value to attribute name `align`. Fig. 3.1 also depicts the element, start tag, closing tag, attribute name, and its value. Many tags have associated attributes but it is not mandatory for all HTML tags.

3.1.1 Structure of an HTML Document

A general structure of a webpage or HTML document is shown in Fig. 3.2(a). It contains the structural tags and is created in a default text editor of windows i.e., notepad. Any HTML document starts with `<HTML>` tag and contains two elements i.e., an optional *Head* element and mandatory *Body* element. The head element contains additional information about the document like the version of HTML, the title of the webpage, metadata, etc. Information contained in this element is not displayed by the browsers but it is to enable the browser about the document. Web browsers display the content written in the Body element. The BODY tag contains all the text and graphics of the document with all the HTML tags that are used for control and formatting of the page. In the coming pages, we will learn in detail various tags that are used inside the body tag.

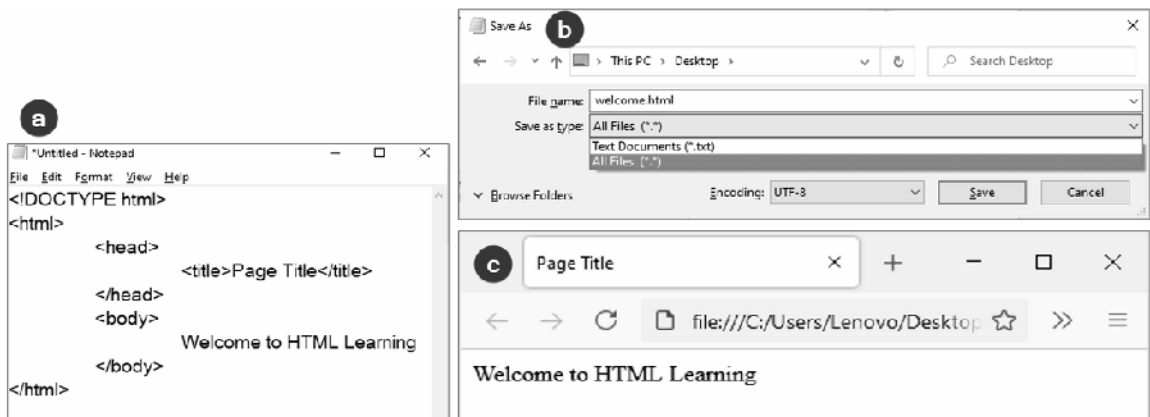


Fig. 3.2: HTML Document (a) General Structure (b) Save as .html (c) Browser Window Output

3.1.2 How to create a Webpage?

An HTML document can be created using any text editor e.g., notepad, notepad++, etc. Along with the normal text editor, WYSIWYG editor (like Dreamweaver) is also popular. In WYSIWYG editors, along with the convenience of writing HTML coding, a preview of how the coding output will look in a web browser is also shown. To learn it practically just follow the below steps.

1. First of all, open any text editor of your choice and type the code shown in Fig. 3.2(a).
2. After creating a text file, we have to save it with .htm or .html extension. To do so, click on the *File* → *save as* option. It will show Save as dialog box as depicted in Fig. 3.2(b). We have to select *All Files (*)* list option from *Save as type*. Now change the name of our file from 'Untitled.txt' to 'welcome.html' and click on the *Save* option.
3. The saved file can be now opened in any web browser using one of the below methods.
 - a. Just browse the file and double-click on the file.
 - b. Press `Ctrl + 'O'` keys and select file.
 - c. Open your browser and 'Drag & Drop' your html/htm file on the browser window.

Now, the HTML document will be displayed in your default web browser (Mozilla Firefox in our case) like a normal webpage, as depicted in Fig. 3.2(c).



TYPE: Use of ICT (Webpage)

Title: HTML Basics

3.1.3 Basic HTML Tags

Tags are the main building blocks of HTML. Using predefined tags HTML conveys to the web browser about content display property i.e., how a particular content has to be displayed. Like `<p></p>` is used to create a paragraph. `` is used to bolden a text.

Table 3.2: Formatting Tags

Tag	Description
<code><CENTER>..</CENTER></code>	To center align any part of the text.
<code><P>..</P></code>	To start a paragraph with new line.
<code>
</code>	Puts a line break in the text. The text appearing after <code>
</code> appears in the next line.
<code>..</code>	To Bold any part of the text.
<code><U>..</U></code>	To <u>Underline</u> any part of the text.
<code><I>..</I></code>	To <i>Italic</i> any part of the text.
<code><BLOCKQUOTE>.. </BLOCKQUOTE></code>	To indent the text from both sides.
<code>..</code>	To set a specific font for any part of text e.g., face, color, size, etc.
<code><Hn>..</Hn></code>	To format headings. Here n is a natural number between 1 to 6.
<code><HR></code>	To draw a Horizontal Rule (horizontal line)
<code><SUP>..</SUP></code>	To superscript any part of the text. E.g., $e=mc^2$ (2 is superscripted)
<code><SUB>..</SUB></code>	To subscript any part of the text. E.g., H_2O (2 is subscripted)

Table 3.3: Attributes of `<P>` and `` Tags

Tag	Attribute	Possible Values of the Attribute
<code><P></code>	ALIGN	LEFT, RIGHT, CENTER, JUSTIFY
<code></code>	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

When we design a webpage, tags can be contained in another tag which is known as the nesting of tags. Using nesting we can apply multiple formatting to a given text e.g., we can format text “Fit India” with bold, italic, and underline formatting via nesting of tags i.e., `<U><I>Fit India</I></U>`. It will show format text in the browser window as ***Fit India***.

```

1 <html>
2   <head>
3     <title>India at the Olympics-Wikipedia</title>
4   </head>
5   <body>
6     <H1>India at Olympics</H1>
7     <HR SIZE=5 NOSHADE>
8     <P><B>India</B> first participated at the Olympic Games in <I>1900</I>,with a lone
9       athlete (Norman Pritchard) winning two medals- both silver- in athletics and became the
10      <U>first Asian nation</U> to win an Olympic medal.
11    </P>
12    <P align=center>The nation first sent a team to the Summer Olympic Games in 1920, and
13      has participated in every Summer Games since then. India has also competed at several
14      Winter Olympic Games beginning in 1964.
15    </P>
16    <FONT FACE="ARIAL" SIZE=3 COLOR="BLUE">Indian athletes have won <B><I><U>35 medals
17      </U></I></B>, all at the Summer Games. For a period of time, India national field
18      hockey team was dominant in Olympic competition, winning eleven medals in twelve
19      Olympics between 1920 and 1980. <BR> The run included 8 gold medals total and six
20      successive gold medals from 1928-1956.
21    </FONT>
22  </body>
23 </html>

```

Fig. 3.3: HTML Code with Formatting Tags in notepad++ Editor

To learn above discussed tags practically we consider Fig. 3.3. The figure includes the coding part of HTML documents having formatting tags of Table 3.2 and attributes mentioned in Table 3.3. For easier code writing and better representation of HTML code, we have typed the above code in a free text and source code editor software i.e., notepad++. The same code can be typed in any text editor.



Fig. 3.4 : The Webpage on Browser Window

The resulting webpage corresponding to the above HTML code is shown in Fig. 3.4. In Fig. 3.3, the body tag starts at line number 5 and contains all the other tags used to display output on the browser window as shown in Fig. 3.4. Source code line number 6 contains heading formatting tag i.e., <H1>. Next at line number 7 horizontal ruling tag i.e., <HR> tag with its attributes (size and noshade) is used to display horizontal line in the browser window. Line 8 starts with paragraph break <P> tag and then bold tag is used to bold **India**. An Italic tag is used to format the year 1900 in italic form. Further

in line 8 (it's a wrap text) underline tag `<U>` is used to underline the first Asian nation. All tags discussed above are used with their companion or end tags.

The next paragraph starts at line number 10 with paragraph tag in association with its attribute `align` and value equals to `center`. The next we encounter tag `` at line number 12 with its attributes, i.e., `Face= "ARIAL" size=3 COLOR='BLUE'`. Further in this line text "35 medals" is formatted as bold plus italic plus underline, hence we get ***35 Medals*** formatted text in the browser window as depicted in Fig. 3.4. The line break tag `
` is used at the end of line number 12.

3.1.4 Page Setting Tags

These tags are used to set the title of the webpage, its background color, and color of text, etc. A page title is a text which is shown on the title bar of the web browser window. In case of a missing title tag in HTML coding, by default, it will show the name of the document. As shown in Fig. 3.4 page title of the webpage is "India at the Olympics-Wikipedia". The 'Title tag is used inside the Head tag, it is depicted in Fig. 3.3, line number 3. Color of page background and text can be set using various attributes of `<BODY>` tag. These attributes are shown in Table 3.4.

Table 3.4: Attributes of `<BODY>` Tag

Attribute	Possible Values of the Attribute
BACKGROUND	Used to display an image in background of webpage
BGCOLOR	Used to specify background color of webpage. Color name can be given in name or RGB Values
TEXT	Used to set the color of the normal text in the document. Color name can be given in name or RGB Values

3.1.5 Listing Tags

HTML provides three ways to specify a list of information. All types of lists must contain one or more list elements. Various listing tags are presented in Table 3.5. The list types are:

1. **Unordered list:** This list starts with `` and ends with ``. Each list item starts with `` and `` is optional to use. It supports to `TYPE` attribute which can be assigned value `FILLROUND` (for a solid round black bullet) or `SQUARE` (for a solid square black bullet) or `DISC` (a hollow round black bullet).
2. **Ordered list:** This list is contained within ` ..` tags. Each list item starts with `` tag and `` tag is optional to use. Attributes of ordered list items are presented in Table 3.6.
3. **Definition lists:** HTML definition lists are used when we require to describe the listed items. The `<DL>` tag defines the description list, the `<DT>` tag defines the term (name), and the `<DD>` tag describes each term:

Table 3.5: Listing Tags

Tag	Description
<code></code>	Used to Define an unordered list
<code></code>	Used to Define an ordered list
<code></code>	Used to Define a list item
<code><DL></code>	Used to Define a description list
<code><DT></code>	Used to Define a term in a description list
<code><DD></code>	Used to Describe each term

To learn HTML lists an example with all listing tags is demonstrated in Fig. 3.5. The coding window depicted in Fig. 3.5(a) shows the HTML code to be written to get output as depicted in Fig. 3.5(b).

We discuss the source code depicted in Fig. 3.5(a). The `` tag in Line number 7 is used to define an ordered list. Items (Hockey, Basketball, and Archery) of this list are given by `` tags as shown in lines number 8 to 10. This list is depicted as a numbered list at beginning of Fig. 3.5(b). Further, line no 13 defines an unordered list with `` tag, and its list items are defined at line numbers 14 to 16. This list is shown as a bulleted list in Fig. 3.5(b). Lastly, a definition list is formed with the `<dl>`, `<dt>` and `<dd>` tags. At the last of the browser window, the definition list is depicted. It defines the terms Hockey and Baseball. (See Fig. 3.5(a), line number 19 to 24)



Fig. 3.5: HTML List an Example (a) Coding Window (b) Browser Window

Table 3.6: Attributes of Ordered List Item

Attribute	Possible Values of the Attribute
TYPE	This attribute controls the numbering scheme. 1: will give counting numbers (1, 2,.....) A: will give uppercase letters (A, B,.....) a: will give lowercase letters (a,b,.....) I: will give uppercase roman numerals (I, II,.....) i: will give lowercase roman numerals (i, ii,.....)
START	Used to change the numbering sequence.
VALUE	Used to change the numbering sequence in the middle of ordered list.

3.1.6 Adding Graphics to HTML

In addition to text formatting and listing, HTML also provides the facility to add graphics and images to a document. Graphic images are added in HTML using `` tag. The `` tag is an empty (singular) tag that contains attributes only, it does not require a closing tag.

Table 3.7: Attributes of Tag

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	Used to specify the size of border, around the image.
WIDTH	Used to specify width of the image in pixels or %
HEIGHT	Used to specify 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

To practice, the tag, type the source code shown in Fig. 3.6 in any text editor and save it with .htm or .html extension. You should use any available image of your choice for your hands-on purpose. Ensure that the image which you are going to include must be present in the same folder, where you saving the HTML code. Now open the webpage in any web browser to see the difference between using tag with no attributes and with given attributes, as shown in Fig. 3.6. The source code is having two tags.

```

<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>

```

Fig. 3.6: Adding Graphics in HTML (Source Code)

The first tag is used to display “swami vivekanand.png” file to our browser followed by given text content. We only supplied the name of the image file with the src attribute. It means the image file is in the same directory where the source code resides. The second tag encounters just after horizontal line i.e., <HR> tag. In addition to the src attribute, the second tag also defined other attributes and assigned value to them. The later tag has customized the image size by assigning width and height values to 300 and 150 pixels respectively. Default alignment type of image is also changed to right and alternate text “swami vivekanand” is defined for the situation that the file is not found or any loading issue. The browser window in Fig. 3.7 shows space between the horizontal line and the second image, it is given by VSPACE=20. Similarly, space between the second image and right border is provided by HSPACE=20. The second image also shows a border around the image which is due to the value 2, assigned to the attribute border.

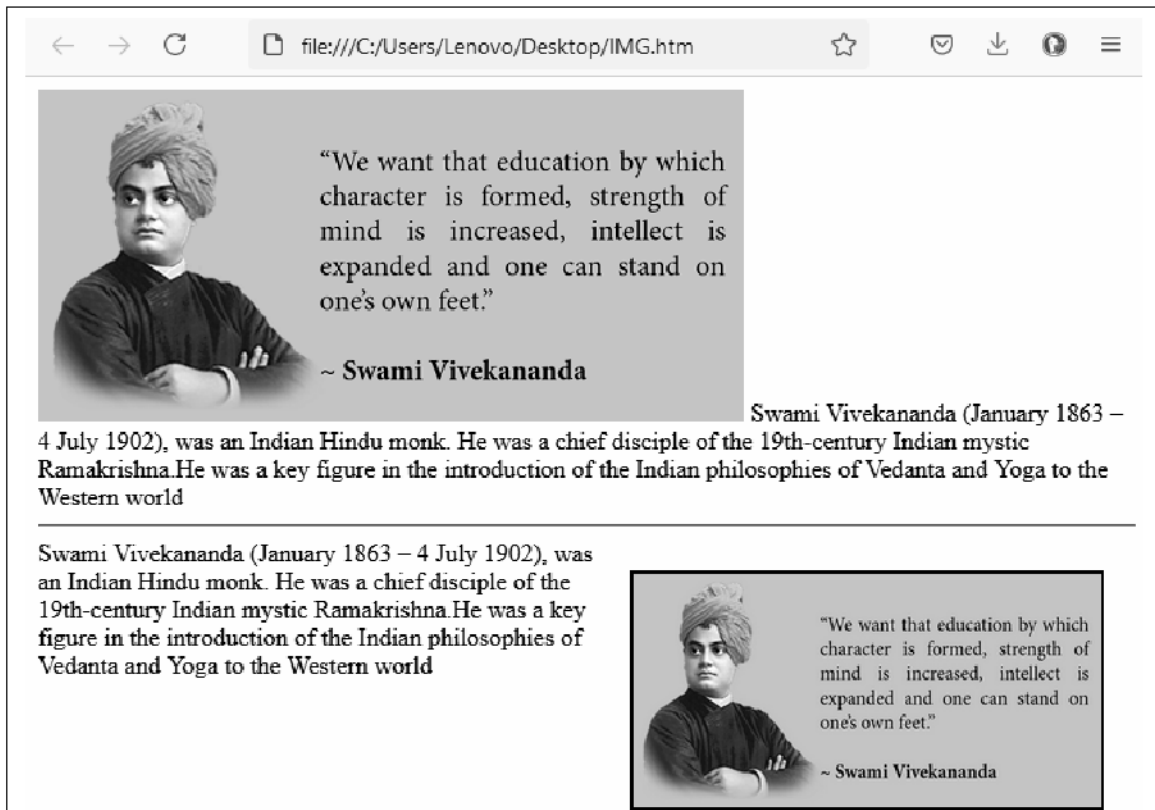


Fig. 3.7: Adding Graphics in HTML (Browser Window)

3.1.7 Working with HTML Tables

To display data in form of a two-dimensional matrix or more precisely, in form of rows and columns, <Table> tag is used. It is a paired tag and ends with </TABLE>. Rows of table are defined between <TR>..</TR> tags whereas columns are defined between <TD>..</TD> tags. HTML tables are strengthened by Header Row. It is a special row that spreads across columns of a table. Header row is defined between <TH>..</TH> tags.

Table 3.8: Attributes of <TABLE> Tags

Attribute	Possible Values of the Attribute
ALIGN	This attribute controls the horizontal alignment. Values: LEFT, CENTER, or RIGHT
VALIGN	Controls the vertical alignment of cell contents. Values: TOP, MIDDLE, or BOTTOM
WIDTH	Used to specify the width in form of pixel values or % of available screen
BORDER	Used to specify the border around the table, table width is given in pixels
CELLPADDING	Used to specify the distance between data and boundaries of the cell.

CELLSPACING	Used to specify the distance between nearby cells.
COLSPAN	Indicates the browser to take up space more than one column. This attribute is used inside <TH> or <TD> tags.
ROWSPAN	Indicates the browser to take up space more than one row. This attribute is used inside <TH> or <TD> tags.

HTML tables have one more important table related tag i.e., <CAPTION>..</CAPTION >. It is used to provide metadata about the table content. The caption for the table can be placed above or below the table structure with the ALIGN attribute set to TOP or BOTTOM.

To practice tables in HTML, an example of a table is demonstrated in Fig. 3.8 to Fig 3.10. Source code for depicted a default table and corresponding browser output is shown in Fig. 3.8(a) and Fig.3.9(a) respectively. Source code illustrates the use of <CAPTION> tag and sets its position to the bottom of the table structure. Use of <TH> tag for a table header, <TR> for table row definition, and <TD> for table data is also presented. Fig 3.8(a) shows the use of basic table tags without specifying attributes (except Align=bottom). The HTML source code in Fig 3.8(b) shows the use of various supported attributes (e.g., BORDER=5 WIDTH=50% align=center cellpadding=5 and cellspacing=2).

<pre> 2 </body> 3 Default Table 4 <HR> 5 <table > 6 <CAPTION ALIGN=BOTTOM> 7 Table 1: Medals in Field Hockey 8 & Shooting</CAPTION> 9 <tr> 10 <th>Sport</th> 11 <th>Gold</th> 12 <th>Silver</th> 13 <th>Bronze</th> 14 <th>Total</th> 15 </tr> 16 <tr> 17 <td>Field hockey</td> 18 <td>8</td> 19 <td>1</td> 20 <td>3</td> 21 <td>12</td></tr> 22 <tr> 23 <td>Shooting</td> 24 <td>1</td> 25 <td>2</td> 26 <td>1</td> 27 <td>4</td> 28 </tr> 29 </table> </pre>	<pre> 3 </body> 4 Table with cellpadding=5 and 5 cellspacing=2 6 <HR> 7 <table BORDER=5 WIDTH=50% align= 8 center cellpadding=5 cellspacing=2> 9 <CAPTION ALIGN=BOTTOM>Table 1: 10 Medals in Field Hockey & Shooting 11 </CAPTION> 12 <tr> 13 <th bgcolor=gray>Sport</th> 14 <th>Gold</th> 15 <th>Silver</th> 16 <th>Bronze</th> 17 <th>Total</th> 18 </tr> 19 <tr> 20 <td>Field hockey</td> 21 <td>8</td> 22 <td>1</td> 23 <td>3</td> 24 <td>12</td></tr> 25 <tr> 26 <td>Shooting</td> 27 <td>1</td> 28 <td>2</td> 29 <td>1</td> 30 <td>4</td> 31 </tr> 32 </table> </pre>
--	--

Fig. 3.8: HTML Table (Source Code) (a) Table with Align Attribute (b) Various Table Tag Attributes

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

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

Fig. 3.9: Browser Output (a) A Default HTML Table (b) Table with Border and Width Attribute

The output of the source code in Fig. 3.8(b) is presented in Fig. 3.10(b). Browser window output in Fig. 3.9(b) and Fig. 3.10(a) is due to the use of different sets of attributes. Fig. 3.10 shows table is presented at the center of the screen due to attribute align=center. Cell number one is having a dark background color, as it is assigned by attribute bgcolor=gray in first <TH> tag of first <TR> tag (see Fig. 3.8(b)).

Table with center alignment and bgcolor attribute				
Sport	Gold	Silver	Bronze	Total
Field hockey	8	1	3	12
Shooting	1	2	1	4

Table 1: Medals in Field Hockey & Shooting

Table with cellpadding=5 and cellspacing=2				
Sport	Gold	Silver	Bronze	Total
Field hockey	8	1	3	12
Shooting	1	2	1	4

Table 1: Medals in Field Hockey & Shooting

Fig. 3.10: Browser Output for Table with (a) Align and BGCOLOR Attribute (b) CELLPADDING and CELLSPACING attribute

3.1.8 Linking Webpages

Connecting one HTML document to others is the key reason for the development of the world wide web. This capability of linking several web resources (HTML documents, images, or other multimedia content) is known as hyperlinking. The hyperlinks can be created on a webpage with text or images. The text or image having linking functionality is known as hypertext or hyperlink. The browser displays hyperlinks in a distinguishable manner than normal content as listed below:

- Normally appears in blue color. (We can customize if we require)
- The hypertext/image is underlined.
- On moving the arrow cursor upon a hyperlink, our default arrow mouse cursor will turn into the shape of a little hand.

The HTML anchor tags i.e., <A>.. are used to create hyperlinks. Anything between <A>.. becomes a hyperlink. <A> tag requires to specify the destination URL where we want to navigate on the click at the link. This is done by supplying URI. value to the mandatory HREF attribute. Below is the syntax for creating a hyperlink:

link text



Fig. 3.11: An Anchor Tag Syntax

An example of the anchor tag is depicted in Fig. 3.11 which illustrates that the website *www.aicte-india.org* will be navigated by clicking on the text *Link to website of AICTE*.

Internal Document Reference

In addition to external web resource linking, HTML provides a mechanism to reference information on the same webpage. It is done by naming the locations of a webpage such that these named locations can be referenced when required.

Syntax: ``
`..`

Images as Hyperlinks

Images can also be used for hyperlinks. We need to use `` tag between the `<A>..`.

Syntax: ``

```

1 <html>
2   <head>
3     <title>Education-India</title>
4   </head>
5   <body>
6     <A HREF="#about_aicte"> About AICTE</A> &nbsp;&nbsp;&nbsp;<A
7     HREF="#about_ugc"> About UGC</A><br><HR>
8     <A HREF=https://www.aicte-india.org/><img src=
9     "AICTE_LOGO.jpg" width=90 height=90 align=right alt=
10    "Logo AICTE" ></A>
11    <A HREF=https://www.aicte-india.org/> Link to website
12    of AICTE</A><br><br>
13    <A NAME="about_aicte">All India Council for Technical
14    Education (AICTE) was set up in November 1945 as a
15    national-level Apex Advisory Body to conduct a survey
16    on the facilities available for technical education
17    and to promote development in the country in a
18    coordinated and integrated manner.</A><br>
19    <HR>
20    <A HREF=https://www.ugc.ac.in/></A>
22    <A HREF=https://www.ugc.ac.in/> Link to website of UGC
23    </A><br><br>
24    <A NAME="about_ugc">
25    The University Grants Commission (UGC) came into existence on
26    28th December, 1953 and became a statutory Organization of the
27    Government of India by an Act of Parliament in 1956, for the
28    coordination,determination and maintenance of standards of
29    teaching, examination and research in university education.</A>
30  </body>
31 </html>

```

Fig. 3.12: Linking Webpages (Source Code: Anchor.htm)

Hyperlinking with anchor tag `<A>` is demonstrated in Fig. 3.12 (source code) and Fig. 3.13 (browser window output). The webpage is designed with the intention to clarify different attributes and ways to

use anchor tags. The document is logically divided into three parts each separated by a <HR> tag. The first part shows two hyperlinks that reference a named location on the same webpage. The second part incorporates information pertaining to AICTE, a text hyperlink (About AICTE), and an image hyperlink (Logo Image of AICTE). This can be observed between both horizontal lines in Fig. 3.13(a). Similarly, the third part contains the same tags for information related to UGC.

Line number 6 of source code (see Fig. 3.12) has defined two anchor tags that reference to named location on the same file i.e., Anchor.htm. This fact can be verified by line number 9 and 13 which includes the declaration of named location i.e., “about_aicte” and “about_ugc”. Line number 7 shows the image hyperlink for AICTE’s website whereas line number 8 is a simple text hyperlink for the same. Fig. 3.13 also illustrates that the mouse cursor is turned in little hand which indicates a hyperlink. In Fig 3.13(a) it is referencing to “about_ugc” named location on the same file (as shown in the bottom status bar). Similarly, in Fig 3.13(b) an image hyperlink is referencing the website of UGC.



Fig. 3.13: Anchor Tag (a) Internal Document Reference (b) Image as Hyperlink

3.1.9 HTML Forms

HTML Form is a method to interact with the users. Such interaction can be to take information from the users e.g., registration form, feedback form, etc. HTML forms are composed of various components like text boxes, radio buttons, list boxes, command buttons, and so on. A webpage equipped with form components, takes user choices and submits them to the server for processing via POST or GET method. The syntax is as under:

```
<FORM METHOD = "GET | POST" ACTION = URL>
<INPUT>
<INPUT>
</FORM>
```

Here, Action specifies the URL to which content of the form is submitted whereas Method specifies how to send form data. The form data can be sent as URL variables (with method= “get”) or as HTTP post transaction (with method= “post”). Now, will discuss various form components.

Input Tag

Input tag is used to collect information from the users. The various attributes of the input tag are depicted in Table 3.9. Various input types supported by <INPUT> tags are as under:

Textbox Field: It is used to accept single line input from the user. It is defined as <input type= “Text”>. Along with this the TextBox field accepts value, size, name, maxlength, align and tabindex within the <input> tag.

Table 3.9: Attributes of <INPUT> Tag

Attribute	Possible Values of the Attribute
NAME	Assigns internal name for the field, as a group of characters
SIZE	Define width of the field, value in integer
MAXLENGTH	Define maximum number of characters accepted by the field, value in number
TYPE	takes the value of the field. It can take the value as “text” or “radio” or “checkbox” or “submit”.

Radio Buttons: It is used to accept one option out of various provided options. It is defined as `<input type= “Radio”>`.

Checkboxes: It is used in web forms to select multiple options out of various provided options. It is defined as `<input type= “checkbox”>`.

Command Button: If the value of the type attribute is “Submit” i.e. `<input type= “submit | reset”>`, the form will show a command button. A *submit* button submits a form. A form may contain more than one submit button. A *reset* button resets all controls to their initial values.

Text Area

This form component is used to take multiline input from the user. It is defined between `<TEXTAREA>`..`</TEXTAREA>` tags. Various attributes are presented in Table 3.10. Use of Text Area is shown in Fig. 3.14 for taking Address input from the user.

Table 3.10: Attributes of Text Area Component

Attribute	Possible Values of the Attribute
COLS and ROWS	Defines length of text area (COLS) and number of rows to be visible with text at a time (ROWS), Numbered input allowed
NAME	Internal name of field for programming purpose
TABINDEX	Used to assign order number of activation for control
WRAP	Defines Wrap Text functionality for control. Three possible values: wrap off, virtual and physical.

Drop Down Box

This webform component contains a list of items. Users have to select one out of them. This component is formed in webpage within `<SELECT>` and `<OPTION>` tags. Attributes of this field are presented in Table 3.11. Use of this component is shown in Fig. 3.14 for taking Branch and Year input from user.

Table 3.11: Attributes of Drop Down Box Component

Attribute	Possible Values of the Attribute
NAME	Internal name of the field for programming purpose
SIZE	Defines number of items visible when user opens the drop down list
MULTIPLE	When configured allows user to select multiple items
VALUE	Defines the actual value to be transferred when an item is selected

Fig. 3.14: Web Form and Components

3.2 CASCADED STYLE SHEETS (CSS)

CSS is a stylesheet language used to style the content of a webpage. CSS is the acronym for Cascading Style Sheets. The key concept behind the CSS is to separate the content and formatting information from the webpages. Thus, HTML should include content only whereas CSS files will store the styling and formatting information. CSS explains how HTML elements will be displayed on the webpage other than web browser default settings. It eliminates redundant work by defining style information once and reusing it at many places. A CSS can control the layout of multiple webpages at once. With the help of CSS, webpages load faster and become more presentable. CSS is easy to maintain and provides extended styles to HTML. Presently CSS version 3 is being used.

It is not that there are only advantages to using CSS, there are some issues associated with it too. CSS faces the problem with browser compatibility. Sometimes a webpage presented on a web browser may look very different on other web browsers.

3.2.1 Ways to Apply CSS to an HTML document

There are three ways:

1. **Inline (the attribute style):** In this way, CSS is applied directly with the style attribute. Thus, it is like specifying an attribute to an HTML tag.

Example: To change background color of a webpage to blue, inline CSS can be applied in body tag with style attribute as: `<body style="background-color: #0000FF" >` (see Table 3.13(a))

2. **Internal (the tag style):** In this way CSS is applied in the tag style. Style rule is defined between `<style>..</style>` tag in the `<HEAD>` tag of HTML document (see Table 3.13(b))

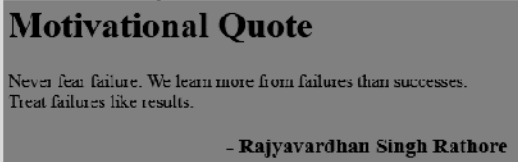
Table 3.13: Ways to Apply CSS to an HTML Document (a) Inline (b) Internal

<pre><html> <head> </head> <body style="background-color: #00FF00;"> <p>The background is green.</p> </body> </html></pre>	<pre><html> <head> <style type="text/css" > h3 {background-color: #0000FF; color: #FFFFFF } </style> </head> <body> <h3> The background is blue and font color is white. </h3></body></pre>
--	---

- External CSS:** In this method, a separate CSS file (external) is linked to an HTML code file. HTML webpage must include a reference to the external style sheet file inside the <LINK> element, inside the <HEAD> section. Table 3.14 shows the linking of the HTML content file (external.html) to the style sheet file (mystyle.css). The file mystyle.css contains a rule to format the background color of the body tag to grey (#808080). Hence the output with grey background is shown in the browser output of Table 3.14.

An external style sheet can be written in any simple text editor and must be saved with a .css extension. The separate .css file holds all the formatting rules which can be applied to multiple webpages parallelly. Each rule begins with a selector, which states that wherever this selector is used on a webpage, the new formatting described in the ruleset will apply.

Table 3.14: Apply an External CSS to an HTML Document

<p>File: external.html</p> <pre><html><head> <link rel="stylesheet" type="text/css" href="mystyle.css" /></head> <body> <h1>Motivational Quote</h1> Never fear failure. We learn more from failures than successes. Treat failures like results.<h3 align=right>- Rajyavardhan Singh Rathore</h3> </body></html></pre>	<p>File: mystyle.css</p> <pre>body { background-color: #808080; }</pre> <p>Browser Output</p> 
---	--

Every ruleset has at least one declaration, enclosed within curly brackets. The declaration consists of:

Property: This refers to characteristics (like size, color) whose associated value defines how the browser is supposed to display the element.

Colon: The colon symbol (:) is segregate property and value.

Value: This is the value of the CSS declaration.

Semicolon: The semicolon symbol (;) marks the end of the declaration. We can specify multiple rules on the same selector. Fig. 3.15 shows the declaration of multiple rules for <h1> selector. The rule set has customized the <h1> tag. As a result of this ruleset, the color of the content related to all the <h1> tags of the webpage will be red and the font size will be 14 pixels.

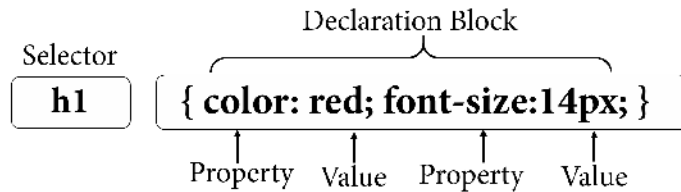


Fig. 3.15: CSS Syntax (Selector, Property, and Values)

Table 3.15: Class Selector in CSS

<p>(a) File: class_selector.html</p> <pre> 1 <html><head> 2 <link rel="stylesheet" type="text/css" 3 href="mystyle1.css" /></head> 4 <body> 5 <h1 id="Sports">Sports and Fitness</h1> 6 <p class="fitness">The word "sport" comes from the Old French desport meaning "leisure"</p> <h3 class="fitness">a sport should have an element of competition</h3> </body> </html> </pre>	<p>(b) File: mystyle1.css</p> <pre>.fitness{color:white; background-color:green}</pre> <p>(c) Browser Output</p> <p>Sports and Fitness</p> <p>The word "sport" comes from the Old French desport meaning "leisure"</p> <p>a sport should have an element of competition</p>
---	--

3.2.2 CSS Selectors

Selectors are used to finding the HTML elements that are to be styled. There are three types of selectors available in CSS namely element selector, class selector, and id selector.

1. **Element selector:** It is used to style all instances of a specific element in a webpage. It is done by choosing an element by its tag name and then style is applied to that element. Fig. 3.15 is an example of an element selector.

Table 3.16: ID Selector in CSS

<p>(a) File: id_selector.html</p> <pre> 1 <html><head> 2 <link rel="stylesheet" type="text/css" 3 href="mystyle2.css" /></head> 4 <body> 5 <h4 id="boxing"> People used to say that boxing is for men and not for women and I thought I will show them some day. I promised myself and I proved myself.
-Mary Kom</h4> 6 <h4 id="shooting"> Practice is a talent. Perseverance is a talent. Hard work is a talent.
- Abhinav Bhindra</h4> 7 </body> 8 </html> </pre>	<p>(b) File: mystyle2.css</p> <pre>#shooting{color:blue; font-size:18px;}</pre> <p>(c) Browser Output</p> <p>People used to say that boxing is for men and not for women and I thought I will show them some day. I promised myself and I proved myself. Mary Kom</p> <p>Practice is a talent. Perseverance is a talent. Hard work is a talent. - Abhinav Bindra</p>
---	--

2. **Class Selector:** It is used to apply the same style to all elements belonging to a specific (defined) class e.g., we applied the mystyle1.css (color:white; background-color:green) style to various elements on the webpage with class= “fitness”. (See Table 3.15)
3. **ID Selector:** It is used to apply a style to a specific element in a document which can be selected by its ID e.g., we applied the mystyle2.css (color:blue; font-size:18px;) style to all the <h4> elements having ID as “shooting”. Table 3.16(a) shows the use of CSS with id selector. Line 5 and 6 define <h4> elements with id name as boxing and shooting respectively. Table 3.16(b) shows the code of mystyle2.css which has one ruleset for “shooting” ID. Table 3.16(c) shows the browser output when the HTML document is opened in the web browser.

3.2.3 CSS Properties

The strength of cascading style sheets resides in the long list of its powerful properties and associated values. The use of CSS properties enables web browsers to render an aesthetically rich webpage in minimal time. CSS uses hundreds of property-value pairs to enrich web development and granular control over web elements. The most commonly used properties with examples are presented here from Table 3.17 to Table 3.19. To learn these properties practically, learners are instructed to follow any of the below methods.

Text Editor and Web Browser Method (the ultimate way)

1. Create a webpage (say content.html) with various HTML elements like different heading levels, paragraphs, lists, tables, images, etc. Thus, this content.html file will be used for our hands-on purpose.
2. Create a separate style.css file in any text editor and include the code (one code at a time) shown in the third columns of Table 3.17 to Table 3.19.
3. Apply the ruleset of this style.css file to the content.html file using “External CSS method” as we did previously (see Table.3.14)
4. Open content.html in the browser window and observe the change in the output due to the newly applied CSS rule.
5. Follow steps 2 to 4 for each example of the below Tables.

Table 3.17: CSS Font Properties

Property	Description	Example
font-family	Used to customize type of font to be shown on webpage	h1 {font-family: Courier, Prestige, monospace;} p {font-family: arial, comic sans-serif, “Times New Roman”;}
font-size	Used to control the size of font Values: pixels, point etc.	h1 {font-size: 20px;} p {font-size: 14pt;}
font-style	Used to control the style of font Values: normal, italic or oblique	h2 {font-family: “Times New Roman”, serif; font-style: italic;}
font-variant	Used to control the variant of font	h1 {font-variant: small-caps;} h2 {font-variant: normal;}
font-weight	Used to control the boldness of font	p {font-family: arial, verdana, sans-serif; font-weight: normal;}

Table 3.18: CSS Text Properties

Property	Description	Example
letter-spacing	Used to customize space between each letter in a section of text	h1 {letter-spacing: 6px;} p {letter-spacing: 3px;}
text-align	Used to control the alignment of a section of text Values: left, right, or center	td {text-align: center;}
text-decoration	Used to control the look of text Values: underline, overline, line-through	h1 {text-decoration: underline;}
text-indent	Used to control the indentation of first line in text	p {text-indent: 60px;}
text-transform	Used to change case of text Values: capitalize, uppercase or lowercase	li {text-transform: uppercase;}

Table 3.19: CSS Color/Background Properties

Property	Description	Example
color	Used to control color of text Values: By name, Hexadecimal, RGB values	h1 {color: #0000FF;} or h1 {color:blue;}
background-attachment	Controls the scrolling of the background	td {text-align: center;}
background-color	Used to control background's color	p {background-color: #FFCC60;}
background-image	Used to set image of background	h2 {background-image: url("tile.jpeg");}
background-repeat	Allows background image repetition patterns. Values: repeat-x, repeat-y, repeat, no-repeat	h2 {background-image: url("tile.jpeg"); background-repeat: repeat; }

Combining Properties: All the different properties can be combined in one single property. For example, to apply different properties for <p> tag following code can be used:

```
p { font-style: italic;
    font-weight: bold;
    font-size: 40px;
    font-family: arial, sans-serif; text-align: center;
    letter-spacing: 3px;
    text-transform: capitalize;
    color: white;
    background-color: IndianRed; }
```

W3Schools Online Code Editor (the exciting way)

Learners can take benefit of the mighty online code editor of W3Schools. Users can edit their HTML & CSS source code, and view the output in their browser window. The editor can be accessed with the given URL-<https://www.w3schools.com/tryit/>. Learners can also take leverage of code examples available at the above given website; below QR codes also refers to some of the code examples for CSS properties.



TYPE: Webpage & Online Code Editor **Title:** CSS Basics and Tutorial



TYPE: Online Code Editor **Title:** CSS Background Color and Font Family



TYPE: Online Code Editor **Title:** CSS Text Formatting & Background

3.3 MAKING BASIC PERSONAL WEBPAGE

In our previous sections (3.1 & 3.2) we have acquired the programming skills required to build webpages with HTML4 and CSS. As building material alone is not enough to build a house, we primarily require good planning according to our needs. Similarly, in the development of a webpage(s), we should also pay attention to many questions like-

1. What is the purpose of creating the webpage?
2. Where will the web page be hosted?
3. What technology (frontend and backend) will it be built with?
4. Will it be a static webpage or dynamic one?
5. What will be the content to be shown?
6. What will be the priority and layout of the content to be shown?
7. Who will be the target audience for our webpage?

Along with these basic questions, we also have to look at some other aspects which are related to giving effective visibility to the webpage.

- The webpage design should be mobile-friendly, responsive, and fast loading.
- Proper use of CSS will apply themes, fonts, and color styles on the page elements to display webpage lucrative and having a better understanding.
- Enrich the content with icons, emojis, and infographics for effective communication of information.
- JavaScript can also be used for dynamic content representation and lucrative menu designs.

In Lab section of this book, we will create a personal web page considering all the above facts.

SUMMARY

1. HTML is a language to build webpages.
2. In HTML there are two types of tags: paired tags and singular tags.
3. An HTML document starts with <HTML> tag and contains an optional Head element and mandatory Body element.
4. HTML documents can be created with simple text editor e.g., notepad, notepad++ etc. with .htm/.html extension.
5. HTML tags are classified as structural and formatting tags.
6. HTML uses attributes to redefine the default behaviour of its tags.
7. HTML supports three types of lists i.e., unordered list, ordered list, and definition list.
8. tag is used for adding graphic/images in HTML.

9. Anchor tags; <A>.. is used to create hyperlink either on text or image.
10. Form tags are used to collect information from users.
11. CSS is a stylesheet language used to make webpages more attractive(stylish).
12. There are three common ways to apply CSS to an HTML document: 1. Inline (the attribute style) 2. Internal (the tag style) and 3. External CSS
13. CSS supports various selectors namely, element selector, class selector, and ID Selector.
14. The most commonly used CSS properties are Font Properties, Text Properties, and Color/ Background Properties.

EXERCISES

A. Objective Questions

- Q1. HTML stands for,
- | | |
|-------------------------------|--|
| A. High Text Machine Language | B. Hypertext and links Markup Language |
| C. Hyper Text Markup Language | D. None of these |
- Q2. What is the correct order of HTML tags for making a webpage?
- | | |
|----------------------------|----------------------------|
| A. head, title, html, body | B. html, body, title, head |
| C. html, head, title, body | D. html, head, title, body |
- Q3. The HTML tags are -
- | | |
|-----------------------|------------------|
| A. case-sensitive | B. in upper case |
| C. not case sensitive | D. in lowercase |
- Q4. How we can insert an image to HTML?
- | | |
|-----------------------------|----------------------------|
| A. | B. |
| C. | D. |
- Q5. Which attribute is used to set the color of normal text for the Webpage?
- | | |
|----------|--------------|
| A. color | B. bgcolor |
| C. text | D. fontcolor |
- Q6. What text is used to create a hyperlink in HTML?
- | | |
|------------|------------------|
| A. <HYPER> | B. <A> |
| C. <LINK> | D. None of these |
- Q7. The correct place in the HTML document to reference an external style sheet is -
- | | |
|-----------------------|-------------------------------|
| A. In <body> section | B. In <head>section |
| C. Above the document | D. At the end of the document |
- Q8. CSS is acronym, stands for:
- | | |
|---------------------------|-----------------------------|
| A. Cascaded style sheets | B. Color style sheets |
| C. Cascading style sheets | D. Cascading style software |
- Q9. Syntax to apply an external style sheet:
- | |
|--|
| A. <style href = myfirst.css type= "stylesheet" > |
| B. <style src = "myfirst.css" > |
| C. <stylesheet>myfirst.css</stylesheet> |
| D. <link rel="stylesheet" type="text/css" href=" myfirst.css"> |

- Q10. Correct CSS syntax is
- A. `body {color:black}` B. `body;color=black`
 C. `{body;color=black(body)}` D. `{body;color:black}`
- Q11. Which property is used to change the background color?
- A. `color:` B. `background-color:`
 C. `bgcolor:` D. None of the above
- Q12. How to change the text color of an element?
- A. `text-color=` B. `text-color:`
 C. `color:` D. `fgcolor:`
- Q13. What is the correct CSS syntax to bold all `<p>` elements?
- A. `<p style="text-size:bold">` B. `p { font-weight:bold; }`
 C. `<p style="font-size:bold">` D. `p {text-size:bold}`
- Q14. How can you capitalize every word in text in the CSS?
- A. `text-transform:capitalize` B. `text-transform:uppercase`
 C. You can't do that with CSS D. None of the above
- Q15. How would you select the element whose id is "main"?
- A. `#main` B. `Main`
 C. `.main` D. `*main`

B. Subjective Questions

- Q1. What is HTML? Explain the structure of an HTML document with an example.
- Q2. Create an HTML document with text formatting as shown below:

ARISE! AWAKE! STOP NOT UNTIL THE GOAL IS REACHED

ARISE! AWAKE! STOP NOT UNTIL THE GOAL IS REACHED

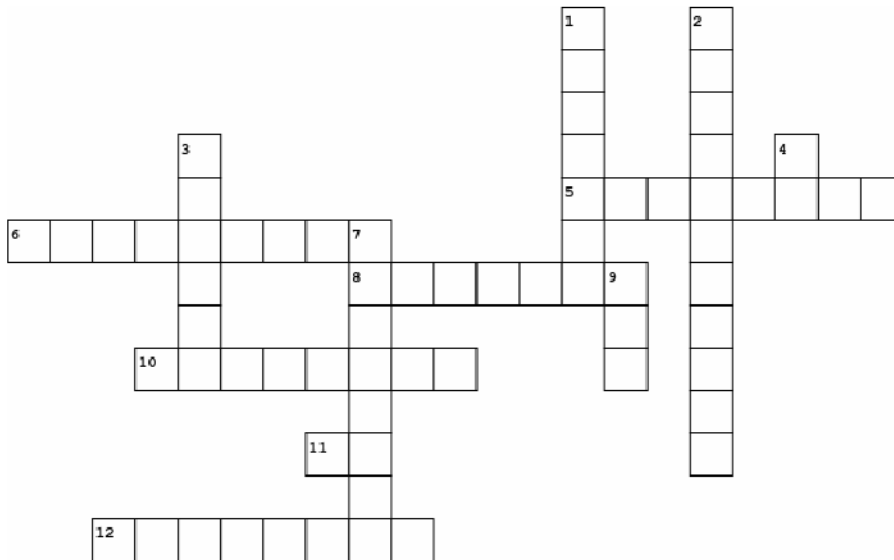
~ Swami Vivekanand

Narendra's first introduction to Ramakrishna occurred in a literature class at General Assembly's Institution when he heard Professor William Hastie lecturing on William Wordsworth's poem, *The Excursion*. While explaining the word "*trance*" in the poem, Hastie suggested that his students visit *Ramakrishna of Dakshineswar* to understand the true meaning of trance.

- Q3. Create an HTML document to create a list of subjects being taught in your institute. Assuming there are two branches namely Computer, Mechanical. The list should look like as:
1. Computer
 - a. First Year
 - i Subject 1
 - ii Subject 2
 - iii Subject N
 - b. Second Year
 - c. Third Year
 2. Mechanical

- Q4. Create a webpage as depicted in Fig. 3.7 (with another available picture). In addition, set the background color of webpage to “#ff6600” and text color to “White”.
- Q5. Create a webpage with hyperlinks to connect webpages created in Q. No 2 to 4. The webpage should also contain text/images hyperlink and reference some named locations on the same page.
- Q6. Create an HTML form to take feedback from a customer of an eCommerce website.
- Q7. Explain the difference between class selectors and ID selectors with an example.
- Q8. Create a CSS with the following rules:
 - a. Set the text color for the page to “#ff6600”, and the text color for <h1> to “IndianRed”.
 - b. Set “sample.gif” as the background image of the page.
 - c. Set the font family for the page to “Courier New”, and the font family for <h1> to “Verdana”.

C. Crossword



Across		Down	
5.	refers to characteristics to display an element on the browser	1.	is an attribute that indicates the browser to take up space more than one column
6.	is a text that also contains linking information	2.	an attribute used to specify the distance between data and boundaries of the cell
8.	the portion of html documents from starting tag up to the corresponding closing tag is known as	3.	name of a browser
10.	is used to finding the HTML elements that are to be styled	4.	a tag to draw a horizontal line in an HTML document
11.	a tag to insert a new line in an HTML document	7.	is a form component used to take multiple line input from the user
12.	a tag without a companion tag is known as	9.	is a special word enclosed within angular brackets

ANSWERS

A. Objective Questions

Q.N.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Option	C	D	C	D	C	B	B	A	D	A	B	C	B	B	A

B. Hints for Subjective Questions

A1. HTML stands for Hypertext Markup Language; it is used to make a Webpages for web browsers. An HTML document starts with <HTML> tag and contains an optional Head element and mandatory Body element. The structure is discussed in Fig.2(a).

A2.

```
<body >
  <center>
    <h2>ARISE! AWAKE! STOP NOT UNTIL THE GOAL IS REACHED</h2>
    <h3>ARISE! AWAKE! STOP NOT UNTIL THE GOAL IS REACHED</h3>
  </center>
  <i><II3 ALIGN=right>~ Swami Vivekanand</II3></i><hr>
  <P>Narendra's first introduction to Ramakrishna occurred in a literature class at General Assembly's
  Institution when he heard Professor William Hastie lecturing on William Wordsworth's poem,
  <b>The Excursion. </b> While explaining the word <i>"trance"</i> in the poem, Hastie suggested
  that his students visit <u><b><i>Ramakrishna of Dakshineswar</i></b></u> to understand the true
  meaning of trance. </p>
</body>
```

A3.

```
<body>
  <h4>Branches and Subjects</h4>
  <ol>
    <li>Computer
      <ol type=a>
        <li>First Year</li>
        <ol type=i>
          <li>SUB1</li>
          <li>SUB2</li>
        </ol>
        <li>Second Year</li>
      </ol>
    </li>
    <li>Mechanical</li>
  </ol>
</body>
```

A4. In addition to Fig. 3.6, include attribute bgcolor=#ff6600 and text=white for Body tag.

A5. Use <A>.. tag as discussed in Fig. 3.12.

A6. Create an HTML form as discussed in Fig 3.14

A7. The class selector is used to apply the same style to all elements belonging to a defined class. ID Selector is used to applying a style to a specific element in a document that can be selected by its ID. (see Table 3.15 & Table 3.16)

A8.

```
<head><style>
body{ font-family: "Courier New"; color: #ff6600; background-image: url("sample.gif");}
h1 { font-family: Verdana; color: IndianRed; }
</style></head>
<body>
<h1>This is a Heading</h1>
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
</body>
```

C. Crossword

Across: 5-property, 6-hypertext, 8-element, 10-selector, 11Ivan Bayross, br, 12-singular

Down: 1-colspan, 2-cellpadding, 3-chrome, 4-hr, 7-textarea, 9-tag

KNOW MORE

1. Demonstrate to the students the use of different editors. Like notepad, notepad++, to create HTML documents.
2. Creating a webpage in ubuntu or any other Linux distribution is also worthwhile.
3. Teachers should encourage students to write clean HTML codes which can be run on different platforms and browsers. To make them equipped, try to check your code on any online HTML validation services. The W3C Markup Validation Service is one such service to validate our code by giving the URI of our HTML document, uploading a document, or directly pasting code on a given text area. Refer to <https://validator.w3.org/>
4. A useful WYSIWYG online HTML code editor URL: <https://wordhtml.com/>
5. Mozilla developer network has developed a user-friendly CSS reference to find all standard CSS properties and other programming constructs. You may visit below URL: <https://developer.mozilla.org/en-US/docs/Web/CSS/Reference>.

Applications

Some definite applications of HTML and CSS, is web application, web site or portal development. It also envisages its application in different real-life domains such as digital advertising, E-Commerce, publishing, multi-player online gaming site, backend services such as messaging, blogging, bulletin board, forums, collaboration, real-time monitoring services and real-time data updation.

Case Study: Design a web site for your college/ or Subject tutorial

First step involved in the web site development is content collection and organization. In the development phase teacher and students should discuss the content to be added to the site. List out the college specific services or features to be included in website, and for each feature, design menus and submenu options. Prepare content for each web page under a menu, along with set of images or picture gallery.

PRACTICALS

Experiment 3.1: Hyper Text Markup Language

Practical Statement

Practice HTML commands, try them with various values, make your own Webpage.

Practical Significance

HTML is a markup language used for creating web pages and web applications. Nowadays that online services are expanding for daily essential services as well, by taking advantage of this, we can also create online solutions for our needs and domain. The process of creating web pages will also make internet surfing and searching easier. As HTML programming is a fundamental skill for web development it is significant to be versed with it.

Relevant Theory

Introduction to HTML, structure of an HTML document, process to create a webpage, various HTML tags, use of graphics and tables, hyperlinking of web resources, and HTML web forms are explained in unit 3, section 3.1.

Practical Outcomes (PrO)

The learners will be able to:

- PrO1: create a webpage with basic formatting tags, graphics, and table.
- PrO2: create a personal webpage with various formatting, listing, hyperlinking and graphics tags.

Practical Setup (Work Situation)

We will write HTML programs for two scenarios mentioned in practical outcomes.

Scenario 1: Create a webpage having HTML table to display the department wise list of faculties.

Scenario 2: Create a personal webpage to show your basic details, objective, work experiences, skills, and social media handles. Webpage should have the use of basic formatting tags, ordered and unordered lists, graphics, text, and image hyperlinks.

Resources Required

1. A computer system i.e., PC/Laptop.
2. A normal text editor software i.e., notepad, notepad++, etc.
3. An installed web browser software i.e., Mozilla Firefox, Google Chrome, Microsoft Edge, etc.

Precautions

Always write clean HTML code (the code with proper end tags, spacing, nesting & which follow standards) that can run on different platforms and browsers.

Suggested Procedure

Follow these steps to create and run an HTML webpage.

1. Open any text editor of your choice. and type the source code of your HTML program (source code for both scenarios are mentioned in Table 3.20).
2. Now we have to save this file with a .htm or .html extension. To do so, click on the Files → “save as” option. It will show Save as dialog box (refer to unit 3, Fig. 3.2(b)). We have to select the “All Files (*)” list option from Save as type.
3. Now change the name of the current file from ‘Untitled.txt’ to ‘myWebpage.html’ and click on the Save option. The icon of the current file will change to your default browser’s icon.
4. The saved file can be now opened in any web browser using one of the below methods.
 - a. Just browse the file and double-click on the file, it will be opened in the default browser.
 - b. Open your browser, press Ctrl + ‘O’ keys, and select file by browsing its location.
 - c. Open your browser and ‘Drag & Drop’ your html/htm file on the browser window.

Table 3.20: Source Code and Output for Scenario 1

```
<html>
<head> Dept_Wise Faculties</head>
<body> <table style="background-color: khaki;" border="2" width="510">
<tr><td style="text-align: center;" colspan="4" width="510">
<p style="text-align: center;"><b>Computer Department</b></p></td></tr>
<tr><td style="text-align: center;" width="47"><p>S.No</p></td>
<td style="text-align: center;" width="85"><p>Photo</p></td>
<td style="text-align: center;" width="198"><p>Faculty Name & Designation</p>
</td><td style="text-align: center;" width="180"><p>Contact Information</p></td></tr>
<tr><td style="text-align: center;" width="47"><p>1.</p></td>
<td style="text-align: center;" width="85">&nbsp;</td>
<td style="text-align: center;" width="198">
<p>Dr. L. C. Bishnoi, HOD</p></td>
<td style="text-align: center;" width="180">
<p>LC.bishnoi@rajasthan.gov.in</p><p>https://www.lcbishnoi.in/</p></td></tr>
<tr><td style="text-align: center;" width="47"><p>.</p>
</td><td style="text-align: center;" width="85"><p>.</p></td>
<td style="text-align: center;" width="198"><p>.</p></td>
<td style="text-align: center;" width="180"><p>.</p>
</td></tr>
<tr><td style="text-align: center;" colspan="4" width="510">
<p style="text-align: center;"><b>Mechanical Department</b></p></td></tr>
<tr><td style="text-align: center;" width="47"><p>1</p></td>
<td style="text-align: center;" width="85">&nbsp;</td>
```

```

<td style="text-align: center;" width="198"><p>Er. Sanjay Sharma, HOD</p></td>
<td style="text-align: center;" width="180"><p>sanjay.jns1970@gmail.com</p></td></tr>
</table>
</body>
</html>

```

Output Scenerio 1:


Computer Department			
S.No	Photo	Faculty Name & Designation	Contact Information
1.		Dr. L. C. Bishnoi, HOD	LC.bishnoi@rajasthan.gov.in https://www.lcbishnoi.in/
..
Mechanical Department			
1		Er. Sanjay Sharma, HOD	sanjay.jns1970@gmail.com

Table 3.21: Source Code and Output for Scenario 2

```

<html>
<head> <title>My Demo Webpage</title>
</head>
<body >
<br>
<h1>Prashant Joshi</h1>
<h1 style="background-color:IndianRed;color:white;">Objective</h1>
<p>I am Prashant Joshi. A teacher, an engineer thus a solution provider to society. I want to promote Digital India Mission keeping <b><i>"Good Governance by E-Governance"</i></b> as my objective. <u>E-Learning</u> is another facet of my passion and profession to make this society better.</p>
<h2>Indispensible Skills</h2>
<ul>
<li>Widnows Programming</li> <li>Computer Troubleshooting</li>
<li>Cybersecurity & Threal Hunting</li> <li>Website development</li> </ul>
<h2 >Previous Work Experience</h2>
<p>I have had a illustrious career in a variety of trades. Here are some highlights:</p>
<ol> <li>Worked as a Website Developer at <i>ePragya Software Ltd </i>-<u>2008-2009</u></li>
<li>Performed cutting-edge web design at <i>Pan India Con. Pvt. Ltd </i>- <u>2010-2013</u></li>
<li>Joined DRDO India Involved in<i> Chandrayaan Project</i> <u>2014-2015</u></li>
</ol><hr>
<i>Get connected on <a href="www.epragya.in" target="_blank"> www.epragya.in</a> or Follow me

```

on below social media handles</i>

```
<p align=center> <a href="https://www.youtube.com/c/ePragya" target="_blank">
</a>
<a href="https://www.facebook.com/ErPrashantJoshi/" target="_blank">
</a>
<a href="https://twitter.com/PrashantJoshi1" target="_blank">
 </a></p>
</body>
</html>
```

Output Scenario 2:



Observations

Table 3.22: HTML Tags and Attribute used in Both Scenarios

Sr. No	Scenario	Name of HTML Tag	Attribute	Description
1.				

Practical Related Questions

1. How we can change the color of the table border?
2. What is the use of “rowspan” and “colspan”?
3. What types of hyperlinks can be created in HTML programs?

Suggested Learning Resources

- [1] I. Bayross, *Web enabled commercial applications development using ... HTML, DHTML, Javascript, Perl CGI [with CD]*, 3rd ed. New Delhi: BPB Publication, 2005.
- [2] W3Schools, “HTML Tutorial,” *W3schools.com*, 2019. www.w3schools.com/html/default.asp.

Suggested Assessment Scheme

Performance Indicators		Weightage	Marks Awarded
Process Related: Marks* (..... %)			
1.	Explanation of practical components i.e., section 1.2 to 1.7	10	
2.	Clean source code, and step-by-step explanation.	25	
3.	Viva voce	15	
Process Related: Marks* (.....%)			
4.	Source code & It's output	25	
5.	Preparation of observation tables	15	
6.	Explanation of observation tables & interpretation made	10	
Total		100%	

* Marks and percentage weightage for product and process assessment will be decided by the teacher.

Name of the Student:.....			Signature of Teacher with date
Marks Awarded			
Process Related	Product Related	Total	

REFERENCES AND SUGGESTED READINGS

- [1] *Information and Computer Technology*, 1st ed. Delhi, India: CBSE.
- [2] NCERT, *Information and communication technology : Textbook for class IX*. New Delhi: National Council of Educational Research And Training, 2019.
- [3] “QR Codes Content,” *digital.nios.ac.in*. <http://digital.nios.ac.in/topic.php?id=330en24> (accessed Aug. 19, 2021).
- [4] I. Bayross, *Web enabled commercial applications development using... HTML, DHTML, Javascript, Perl CGI [with CD]*, 3rd ed. New Delhi: BPB Publication, 2005.
- [5] W3Schools, “HTML Tutorial,” *W3schools.com*, 2019. www.w3schools.com/html/default.asp
- [6] W3Schools, “CSS Tutorial,” *W3schools.com*, 2019. www.w3schools.com/css/default.asp.

