HTML5

BASICS

HTML is a language used for creating web pages. HTML stands for Hyper Text Markup Language. A markup language uses tags to identify content.

The structure of an HTML document is like that of a sandwich, containing opening and closing tags, and everything in between them.

<html> Tag

The whole program is surrounded by the tags <html> (opening tag) and </html> (closing tag). Everything must be written inside these tags.

<head> Tag

The head of an HTML file contains all the non-visual elements that help to make the page work

<body> Tag

The head tag is followed by the body tag. All visual-structural elements, such as headings, paragraphs, lists, images, links, etc., are contained within the body tag.

Basic Structure of an HTML file

```
<html>

    <head>
    .....................................
    </head>

    <body>
    .....................................
    </body>

</html>
```

HTML files are text files. Hence, you can use any text editor to create your web page. HTML files should have the extension *.html*

<title> Tag

This tag is used for adding a title on the tab describing the web page. It should be placed in the head section.

The title element is important since it describes the page and is used by search engines.

<p> Tag

We use the <p> tag to create a paragraph of text.

eg: <p> This is a paragraph </p>

 Tag

We use the <br> tag (also called the single line break) to add a single line of space.
 is an empty HTML element. It has no end tag.

Text Formatting

There are several tags for different types of text formatting. The most important ones are given below:

 bold text
<big> big text </big>
<i> italic text <i/>
<small> small text </small>
 strong text
_{sub-scripted text}
^{super-scripted text}
<ins> inserted text </ins>
<del> deleted text </del>
 emphasized text

Browsers display <strong> as <b> and <em> as <i>. However, the meanings of these tags differ. <b> and <i> define bold and italic respectively whereas <strong> and <em> indicate that the text is important.

HTML Headings

HTML includes six levels of headings, which are ranked according to importance. These are **\<h1>**, **\<h2>**, **\<h3>**, **\<h4>**, **\<h5>**, and **\<h6>**.

Search engines use headings to index the web page structure and content. Hence, it is not recommended that you use headings just to make the text big or bold.

\<hr/> Tag

To create a horizontal line, use \<hr/> tag.

Comments

Comments are written inside \<!-- and -->for documentation. Comments are not displayed in the browser.

eg: \<!-- This is a comment -->

HTML Elements

HTML documents are made up of HTML elements. An HTML element is written using an opening tag and a closing tag, and with the content in between. HTML documents consist of nested HTML elements.

Attributes

Attributes provide additional information about an element or a tag, while also modifying them. Most attributes have a value (the value modifies the attribute). Attributes are always specified in the opening tag.

eg: <p align = "center" >
         This text is aligned to the center </p>

      <hr width = "50%" align = "left" />

Note: The measurement units used for height and width attributes are % and pixel(px).

<img> Tag

The <img> tag is used to insert an image. It contains only attributes and doesn't have a closing tag. The URL of the image can be defined using the **src** attribute.

eg:

In case the image cannot be displayed, the **alt** attribute specifies an alternate text that describes the image in words.

eg:

Images can be resized using **width** and **height** attributes.

By default, an image has no borders. Use the **border** attribute within the image tag to create a border around the image.

eg:

<a> Tag

In HTML, links are defined using the <a> tag. Use the **href** attribute to define the destination address of the link.

eg: Ashwin Joy

Clicking on *Ashwin Joy* will redirect you to his GitHub account.

The **target** attribute specifies where to open the linked document. Giving a '**_blank**' value to your attribute will open the link in a new tab.

eg: Ashwin Joy

Lists

An ordered list starts with the <ol> tag and each list item is defined by <li> tag. The list will be automatically marked with ordered numbers.

An unordered list starts with the <ul> tag. The list items will be marked with bullets.

eg. of ordered list:

```
<ol>
    <li> Red </li>
    <li> Blue </li>
    <li> Green </li>
</ol>
```

Output:

1. Red
2. Blue
3. Green

eg. of unordered list:

```
<ul>
    <li> Red </li>
    <li> Blue </li>
    <li> Green </li>
</ul>
```

Output:

- Red
- Blue
- Green

Tables

Tables are defined using the <table> tag. They are divided into table rows using the <tr> tag. Table rows are further divided into table data(columns) using the <td> tag.

The <th> tag can be used to define table headings.

eg:

```
<table>
   <tr>
      <th> Name </th>
      <th> Age </th>
   </tr>
   <tr>
      <td> Ashwin </td>
      <td> 23 </td>
   </tr>
   <tr>
      <td> Ashish </td>
      <td> 17 </td>
   </tr>
</table>
```

Output:

Name	Age
Ashwin	23
Ashish	17

A border can be added using the border attribute.

eg: < table border = "2" >

A table can span (merge) two or more columns using colspan attribute. To make a cell span more than one row, use the rowspan attribute.

eg:

```
<table>
    <tr>
        <td> Red </td>
        <td> Blue</td>
        <td> Green </td>
    </tr>

    <tr>
        <td> Yellow </td>
        <td colspan="2"> Orange </td>
    </tr>
</table>
```

Output:

Red	Blue	Green
Yellow	Orange	

To change the position of a table, use the **align** attribute. To specify a background color to table cells, use the **bgcolor** attribute. The **cellspacing** and **cellpadding** attributes can be used to manage the cells.

Block vs Inline Elements

Block level elements start from a new line.

eg: <h1>, <li>, <ol>, <ul>, <table>, <div>, etc.

Inline elements are normally displayed without line breaks.

eg: <a>, <img>, <span>, etc.

<div> Tag & <span> Tag

The <div> (block level) and <span> (inline level) are elements that are often used as containers for other HTML elements.

These elements can be very useful to style a particular section of content when they are used together with some CSS styling.

Forms

HTML forms are used to collect information from the user. Forms are defined using the <form> element, with its opening and closing tags.
eg:

```
<form>
    Name: <input type="text"> <br>
    Email: <input type="text"> <br>
    <button> Submit </button>
</form>
```

Use the **action** attribute to point to a web page that will load after the user submits the form.
eg: <form action = "https://pythonistaplanet.com">
    </form>

The **method** attribute specifies the HTTP method (GET or POST) to be used when forms are submitted. When you use GET, the form data will be visible in the page address.

Use POST if the form is updating data, or includes sensitive information (like passwords). POST offers better security because the submitted data is not visible in the page address.
    eg: <form action="https://pythonistaplanet.com" method = "POST">
    </form>

The **name** attribute specifies a name for an element. To take in user input, you need the corresponding form elements such as text fields.
eg:
    <form>
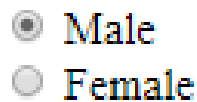   <input type="text" name="username"/>
        <input type="password" name="password"/>
    </form>

The <input> element has many variations, depending on the type attribute. It can be a text, password, radio, URL, submit, etc.

If we change the input type to "**radio**" , it allows the user to select only one of a number of choices.

eg:

<input type="radio" name= "gender" value="male"/> Male
<input type="radio" name= "gender" value="female"/> Female

Output: ○ Male
         ○ Female

The type "**checkbox**" allows the users to select more than one option.

The submit button submits a form to its action attribute.
eg: <input type="submit" value="Submit"/>

After the form is submitted, the data should be processed on the server using a programming language such as PHP.

The **<textarea>** element can be used to support multiple lines of input. This is mostly used for the address field. The **cols** and **rows** attributes can be used for specifying the number of rows and columns needed, respectively.

eg:
```
<textarea name= "address" cols="5" rows="10">
</textarea>
```

Drop-down

The <select> and <options> elements can be used for creating something like a drop-down menu.

eg:

```
<label>Choose Your Favorite Player</label>
<select id="players">
<option value="Messi"> Messi </option>
<option value="Ronaldo"> Ronaldo </option>
<option value="Neymar"> Neymar </option>
</select>
```

The <label> tag is used for adding text labels.

HTML Colors

HTML colors are expressed as hexadecimal values (0,1,2,3,4,5,6,7,8,9,A,B,C,D,E,F). Colors are displayed in combinations of red, green, and blue (RGB).

eg: #FF0000 (Red)
      #00FF00   (Green)
      #0000FF   (Blue)
      #FFFFFF   (White)
      #000000   (Black)

Hex values are written using the # symbol, foloowed by either three or six hex characters.

<!DOCTYPE HTML>

This element is used at the beginning of every HTML document to help the browsers identify your website as an HTML file.

<html lang ="en">

The lang attribute is used to help the browsers identify what default language to load it in.

Embedding YouTube videos

If you want to embed a YouTube video, go to that particular video on YouTube and click on Share -> Embed and copy the

embed code (A code starting with the <iframe> tag). Paste that code on the HTML file, where you want want display the video.

This HTML basics guide is a resource from Pythonista Planet.

For more helpful tutorials on programming, go to https://pythonistaplanet.com