

HTML 1

Introduction to Web Technology



"The Internet is becoming the town square for the global village of tomorrow."

Bill Gates.

Web Technology



The **INTERNET**, sometimes called simply "the Net," is a worldwide global system of interconnected computer networks.

It is also defined as an **Information super Highway**, to access information over the web.

It is a network of networks for the users can share resources and communicate with each other.

Terminologies



HTML – It is said to be **Hyper Text Markup Language** for creating web pages and web applications and it is also called as text formatting language.

Web Pages - A Web Page is a single html document displayed as a single page in a browser and it can be connected to other pages.

Web Sites - A Web site is a collection of several web pages, all connected together and may contain text, images, audio and video and usually present at the same internet address. The first page of a website is called home page.

Static Web Page



A static web page or static website is the basic type of website whose content will be static

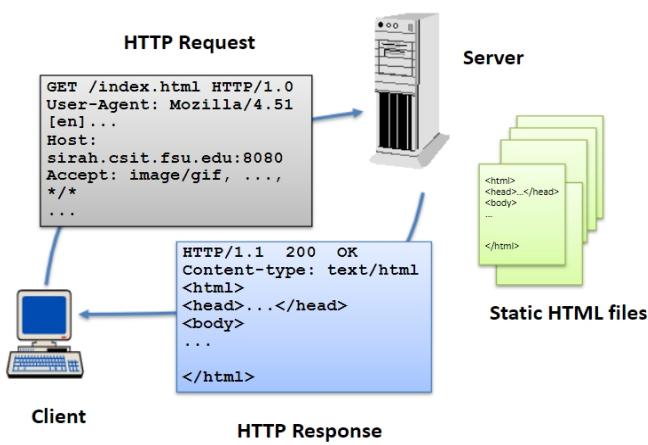
It is the one that is usually written in plain HTML

Pre-built content is the same every time the page is loaded because it sends exactly the same response for every request

The content only changes when someone publishes and updates the file (and sends it to the web server)

Flexibility is the main advantage of static website

Requesting a Static HTML Document



Dynamic Web Page



- Client side scripting generates content at the client computer on the basis of user input. The web browser receives the web page from the server and processes the code within the page to render information to the user.
- In server side scripting, the software runs on the server, processes the code and once completed, the pages are sent to the client.

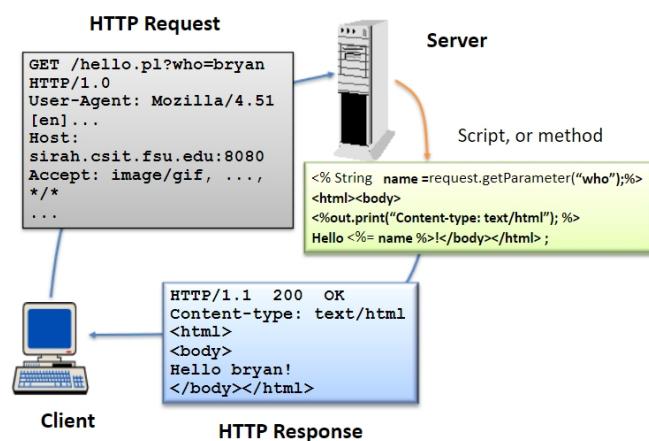
Dynamic website uses client-side scripting or server-side scripting, or both to generate dynamic content.

Dynamic web page is a page whose content changes dynamically. It shows different information at different points of time.

It may generate different HTML for each of the requests.

It accesses content from a database or Content Management System (CMS). When you alter or update the content of the database, the content of the website is also altered or updated.

Dynamic Generation of HTML



HTML



Introduction to HTML



HTML stands for **Hyper Text Markup Language**.

Hyper Text - Refers to the way web pages are linked to each other

Markup - Usage of tags to structure the web page

HTML is used for developing web pages for applications. Web pages are text files containing HTML.

HTML is a normal text surrounded by bracketed *tags* that tell browsers how to display web pages

Pages end with ".htm" or ".html"

HTML Editor – A word processor that has been specialized to make the writing of HTML documents more effortless

HTML Structure

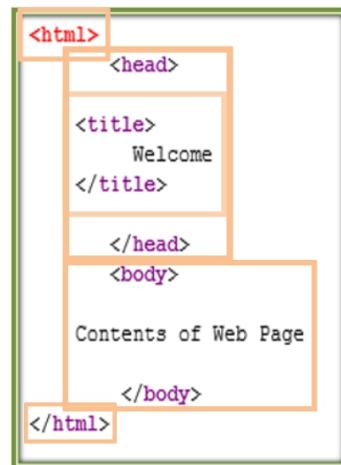


HTML is comprised of "**elements**".

The structure begins with **<html>** and ends with **</html>**

Elements (tags) are nested one inside another.

HTML describes structure using two main sections: **<head>** and **<body>**



Basic HTML Tags



<html>

<head>

<title>

<body>

<h1> -- <h6>

<p>

**
**

<hr>

<!-- -->

Basic HTML Tags

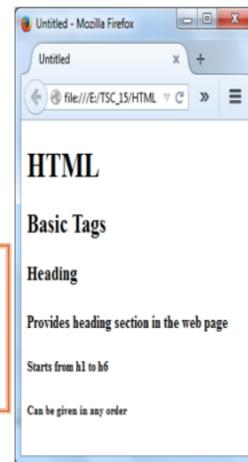


Heading Tag

Used to provide headings in HTML file

Heading tags start from `<h1>` to `<h6>`

```
<html>
<body>
    <h1>HTML</h1>
    <h2>Basic Tags</h2>
    <h3>Heading</h3>
    <h4>Provides heading section in the web page</h4>
    <h5>Starts from h1 to h6</h5>
    <h6>Can be given in any order</h6>
</body>
```



Basic HTML Tags cont ...



Paragraph tag

The `<p>` tag defines a paragraph.

Browsers automatically add **space** before and after each `<p>` element.

Break tag



```
<body>
    <p><h2>Learn HTML</h2> </p>
    <p>The paragraph tags are used to define a <br>block of text as a paragraph</p>
</body>
```

Basic HTML Tags cont ...



Horizontal Rule

The `<HR>` element causes the browser to display a horizontal line (rule) in your document.

```
<html>
<body>
    <p><h2>Learn HTML</h2> </p>
    <p>The paragraph tags are used to define a <br>block of text as a paragraph</p>
    <hr>
    <p>The tag HR gives a horizontal line </p>
</body>
</html>
```



Basic HTML Tags cont ...



<!DOCTYPE>

- Gives instruction to the web browser about the version of HTML used
- Doctype must be the first line of the web page

```
<!DOCTYPE html>
<html>
<body>
    Contents of Web Page
</body>
</html>
```

Represents
HTML5

Basic HTML Tags cont ...



Comments

- Tag used to add information to the html page, which will not be displayed in the browser
- Tag : <!-- -->

```
<!DOCTYPE html>
<html>
<body>
    <!-- body tag contains the details that is to be displayed in the web page -->
    Contents of Web Page
</body>
</html>
```

Will not be
displayed in
browser

HTML5

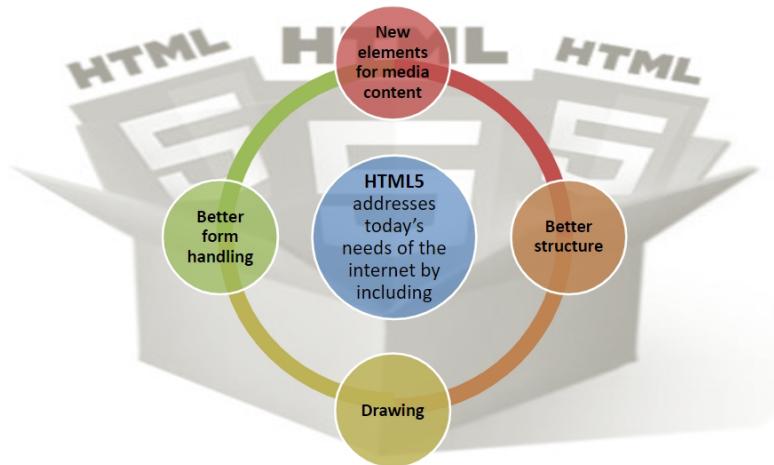


A bit of HTML

A whole sprinkling of JavaScript

A dash of CSS

HTML5 cont ...



HTML5 cont ...



Browser Support

The latest versions of

- Apple Safari
- Google Chrome
- Mozilla Firefox
- Opera

All support many
HTML5 features



The mobile web browsers that come pre-installed
on iPhones, iPads, and Android phones all have
excellent support for HTML5.

New Features



Better support for local offline storage

New form controls like: calendar, date, time, email, url, search, etc.

The canvas element for sketching

The video and audio elements for media playback

- Allows video and audio to be tagged easier as in : <video src=...> and <audio src=...>

New content specific elements

- article, footer, header, navigation, section, etc.

Forms 2.0 and client-side validation

Native browser support for audio and video

Tables

```
<table border="1">
<colgroup>
<col span="2" style="background-color:#31D5D9">
<col style="background-color: #DDDB5F">
</colgroup>
<tr> <caption>Employee Details</caption> </tr>
<thead>
<tr> <th>ID</th>
<th>NAME</th> <th>AGE</th> <th>Address</th></tr>
</thead>
<tbody>
<tr> <td>101</td> <td>Johan</td> <td>20</td> <td rowspan="2">Ganapathy</td>
</tr>
<tr> <td>102</td> <td>Mini</td> <td>19</td> </tr>
<tr> <td>103</td> <td>Ivan</td> <td>23</td> <td>Coimbatore</td> </tr>
</tbody>
<tfoot>
<tr> <td colspan="3">The total Employees</td> <td> 3 </td> </tr>
</tfoot>
</table>
```



Employee Details

ID	NAME	AGE	Address
101	Johan	20	Ganapathy
102	Mini	19	
103	Ivan	23	Coimbatore
The total Employees			3

HTML List Tags



Creates an ordered or unordered list for the contents of the web page

Ordered list

- Tag for defining the list item :
- Attribute : type
 - 1 -- numbered with number
 - A -- numbered with Capital case alphabets
 - a -- numbered with smaller case alphabets
 - I -- numbered with upper case roman letters
 - i -- numbered with lower case roman letters

Example for List Tags



```
<html>
<body>
  basic Tags
    <ol type="1">
      <li>paragraph</li>
      <li>heading</li>
      <li>line break</li>
      <li>horizontal break</li>
    </ol>
  formatting tags
    <ul style="list-style-type: square">
      <li>bold</li>
      <li>strong</li>
      <li>del</li>
      <li>code</li>
    </ul>
</body>
</html>
```

basic Tags

1. paragraph
2. heading
3. line break
4. horizontal break

formatting tags

- bold
- strong
- del
- code

Unordered list :

- list-style-type:disc -bullets (default)
- list-style-type:circle- circles
- list-style-type:square-squares
- list-style-type:none – nothing will appear

Links



Hyperlink helps in navigation from one page to another web page or from one part of the page to the other part of the web page

<a> - anchor tag

- The hyperlink can be a text or image which is clickable

Attributes

- href: Defines the destination location
- Target : Defines where the targeted page must be opened

```
<body>
<a href="paragraph.html">Click Here</a>
</body>
```

Links – Target Attribute



Target Value	Description
_blank	Opens the linked page in a new window or tab
_self	Opens the linked page in the same frame from where it was clicked (default)
_parent	Opens the linked page in the parent frame
_top	Opens the linked page in the full body of the window
framename	Opens the linked page in a named frame

Internal links

- Links can also be created inside large documents to simplify navigation.

HTML5 Image Tag



- Defines an image in HTML page
- Attributes
 - src – URL of the image
 - alt -- alternate text that is displayed, if the image is not displayed in the webpage
 - height – height of the image
 - width – width of the image

```
<html>
<body>
  
</body>
</html>
```

Image map is a map with clickable area
The <map> tag is used to define a client-side image-map.



Semantic Tags



A semantic element clearly describes its meaning to both the browser and the developer.

semantic elements: <form>, <table>, and <article>

non-semantic elements: <div> and

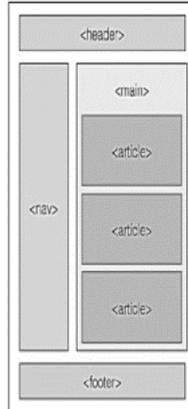
The <div> tag defines a division or a section in an HTML document.

HTML5 offers a set of new tags that provide the ability to mark up the sections of a document more descriptively than you could in HTML.

HTML 4.01



HTML 5



Why use Semantic tags for a web page?



A semantically meaningful tag is way more powerful than a generic one

The browser can know which area of your site is the header or the footer.

The semantic elements are also used by search engines.

- It is easy to imagine Yahoo! giving lower weightage to content in footer elements, or extra weightage to content in the header.

Site navigable for people with disabilities.

- People with learning difficulties might instruct their browser to always put the articles before the navigation

Useful for code maintenance

New Semantic Elements



<article>
It groups links to other pages or to parts of the current page.

Specifies a header for a document or section

<header>
<h1>My website rocks !!!</h1> </header>
<div id="content">
Content of Article
</div>

It represents a self-contained composition in a document, page, etc.

<nav>
It defines a section that is tangentially related to the content around it.

 Home Page
Update Profile
Feedback

<aside>
</div>
<footer></footer>
Copyright 2012 Teknoturf Info Services Pvt., Ltd., </footer>

It is referred to the footer of a web page.

HTML 2

HTML Forms



HTML forms enable web applications to collect information from users.

Used to interact between a user and a web site or an application.

To build a form, the following HTML elements are used

```
<form>  
<label>  
<input>  
<textarea>  
<button>
```

Form – Elements



Example

HTML forms always start with a `<form>` tag

Form tag has the following attributes

```
<form name="registration" action="registered.html" method="post"  
autocomplete="on" novalidate="novalidate">  
</form>
```

Attribute	Description
Action	Specifies the destination on submission
Method	Specifies the HTML method to be used on sending the form Get : the data is sent along the URL Post : the data is sent via the message body
autocomplete	Specifies whether a form should have autocomplete on or off
novalidate	Specifies that the form should not be validated when submitted

Form-Input Elements



Form element contains

- <input>
- <textarea>
- <button>
- <select>
- <option>
- <optgroup>
- <fieldset>
- <label>

PERSONAL INFO

Email Address: office@company.com

Password: *****

Gender: Male

Date of Birth: Jan 01 2000

PREFERENCES

Favorite Color: Blue Red Green

Interests: News Sports Entertainment Automotive

Input - Attributes



Type attribute is used to specify the type of the <input> element

Input types include

- text
- checkbox
- radio
- password
- button
- submit
- reset
- hidden
- file
- Image

The default type is **text**.

Example - 1



```
<html>
<body>
Name :<input type="text" name="name"/><br>
Password :<input type="password" name="password"/><br>
Gender :Male <input type="radio" name="gender" value="male" checked="checked" />
Female <input type="radio" name="gender" value="female"/> <br>
<input type="submit" value="Submit"/>
<input type="reset" value="Reset"/>
</body>
</html>
```

Name:

Password:

Gender: Male Female

Example - 2



```
<html>
<body>
<select name="qual">
<option value="UG">UG</option>
<option value="PG">PG</option>
</select>
<input type="button" value="signin"/>
<input type="file" name="img"/>
</body>
</html>
```

A screenshot of a web browser showing an HTML form. It includes a dropdown menu with options 'UG' (selected), 'PG', and 'UG'; a button labeled 'signin'; a file input field with the placeholder 'Browse...' and the file name 'html_form.jpg'; and a standard text input field.

Example - 3



```
<html>
<body>
Certification Java <input type="checkbox" name="cert" />
Oracle <input type="checkbox" name="cert"/><br>
Address <textarea name="address" cols="20" rows="5"></textarea><br>
<input type="reset" value="Reset"/>
<input type="submit" value="Submit" />
</body>
</html>
```

A screenshot of a web browser showing an HTML form. It includes two checkboxes labeled 'Certification Java' and 'Oracle'; a text area labeled 'Address'; and a set of standard buttons labeled 'Reset' and 'Submit'.

HTML5 Form



HTML5 web forms have introduced new

- Form elements
- Input types
- Attributes
- form validation
- placeholder text

HTML
FORM ELEMENTS



Attributes



Form Attributes:

- autocomplete
- novalidate

Input Attributes:

- autocomplete
- autofocus
- formaction
- formmethod
- formnovalidate
- height and width
- list
- min and max
- multiple
- pattern (regexp)
- placeholder
- required
- step

Form Attributes



Autocomplete

- Specifies whether a form or an input field should have autocomplete on or off.
- Automatically completes values based on values that a user has entered

Novalidate

- Boolean attribute.
- Specifies that the form-data (input) should not be validated when submitted.

Form Attributes



FormAction

- Specifies the URL of a file that will process the input control when the form is submitted.
- Overrides the action attribute of the <form> element.

FormMethod

- This attribute defines the HTTP method for sending form-data to the action URL.
- The formmethod attribute overrides the method attribute of the <form> element.

Formnovalidate and Autofocus



FormNoValidate

- The formnovalidate attribute is a boolean attribute.
- It specifies that the <input> element should not be validated when submitted.
- Overrides the novalidate attribute of the <form> element.

Autofocus

- The autofocus attribute is a boolean attribute.
- It specifies that an <input> element should automatically get focus when the page loads.
- Only one form element can have autofocus in a given page.

Required



Required

- The Boolean required attribute tells the browser to submit the form only if the field in question is filled out correctly.
- If a required field is empty or invalid, the form will fail to submit, and focus will move to the first invalid form element.
- The required attribute can be set on any input type except button, range, color, and hidden, all of which generally have a default value.

Name Please fill out this field.

List and Datalist



List

- Used to bind the datalist created with the input element

Datalist

- The <datalist> tag specifies a list of pre-defined options for an <input> element.
- The <datalist> tag is used to provide an "autocomplete" feature on <input> elements. Users will see a drop-down list of pre-defined options as they input data.

```
<html>
<body>
Data List Example
<datalist id="names">
    <option value="Ivan"></option>
    <option value="Johan"></option>
    <option value="Teena"></option>
</datalist>
<input list="names" name="name" />
</body>
</html>
```

Data List Example

Ivan
Johan
Teena

Placeholder



The placeholder attribute allows a short hint to be displayed inside the form element, telling the user what data should be entered in that field

The placeholder text disappears when the field gains focus, and reappears on blur if no data was entered.

Mark

Multiple



Multiple

HTML

- If present, a user can select more than one file when the input type is file, and can include several comma-separated email addresses when the input type is email.
- While it was available in previous versions of HTML, it could be applied to select element only.

```
<html>
<body>
Example for Multiple: <br>
Upload File <input type="file" name="img" multiple="multiple"/>
</body>
</html>
```

Example for Multiple:
Upload File Form-Elements.png

Values of Type Attribute



HTML5 gives us input types that provide for more data-specific UI elements and native data validation.

HTML5 has a total of 13 new input types:

Search	email
url	tel
Datetime	date
Month	week
Time	datetime-local
Number	range
color	

Values of Type Attribute



search

- The search type is used for search fields
- Search type is only supported in Chrome, Opera, and safari

Search <input type="search"/>

Search

Values of Type Attribute



url

- The url type is used for input fields that should contain a URL address.
- The value of the url field is automatically validated when the form is submitted.

URL <input type="url" />
<input type="submit" />

URL Submit

URL Submit

Please enter a URL.

Values of Type Attribute



email

- The email type (type="email") is used for specifying one or more email addresses
- Supports the Boolean multiple attributes, allowing for multiple, comma-separated email addresses

Email <input type="email" />
<input type="submit" />

Email Submit

Please include an '@' in the email address. 'johan' is missing an '@'.

Values of Type Attribute



tel

- (type="tel") is used to accept telephone numbers
- Unlike the url and email types, the tel type doesn't enforce a particular syntax or pattern
- Letters and numbers—indeed, any character other than new lines or carriage returns—are valid

contact no : <input type="tel" />
<input type="submit" value="submit" />

contact no : submit

Values of Type Attribute



number

Mark <input type="number" />

- Restricts the user to input numbers only

Mark

range

Rate(1 to 10) <input type="range" min="1" max="10"/>

- Restricts the user to input a value within the specified range only

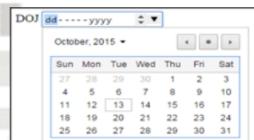
Rate(1 to 10)

Values of Type Attribute



date

DOJ <input type="date"/>



time

Time Allotted <input type="time"/>

Time Alloted 12:59 PM

Values of Type Attribute



month

Repay month & year

week

Summer holidays start from week

Values of Type Attribute



datetime-local

- allows the user to select a date and time

DOB

color

- allows the user to select a color

color

Restrictions on Various Input Types



Restrictions that can be given on input elements

Attribute	Description
disabled	Specifies that an input field should be disabled
max	Specifies the maximum value for an input field
maxlength	Specifies the maximum number of characters for an input field
min	Specifies the minimum value for an input field
pattern	Specifies a regular expression to check the input value against
readonly	Specifies that an input field is read only (cannot be changed)
required	Specifies that an input field is required (must be filled out)
step	Specifies the legal number intervals for an input field
value	Specifies the default value for an input field

Restrictions on Various Input Types



```
<table>
    <tr><td>User Id </td><td> <input type="text" pattern="[A-Ba-b0-9_]" /></td></tr>
    <tr><td>Age </td><td> <input type="number" min=18 max=58/></td>
    <tr><td> Payment duration </td><td><input type="number" step="4"
min="4" max="12"/></td>
    <tr><td>DOB</td><td><input type="date" min="1965-12-31"
max="1995-01-31" /></td></tr>
</table>
```

Restrictions on Various Input Types



The figure consists of four separate screenshots of a web form. Each screenshot shows a different input field with its validation error message displayed below it.

- User Id:** Shows an input field with the value "Johan@". An error message says "Please match the requested format."
- Age:** Shows an input field with the value "9". An error message says "Please enter a valid value. The two nearest valid values are 8 and 12."
- Payment duration:** Shows an input field with the value "12". An error message says "Value must be greater than or equal to 18."
- DOB:** Shows an input field with the value "01-Jan-1960". An error message says "Value must be 31-Dec-1965 or later."

Audio Tag



```
<audio>
```

HTML

- Audio files are played through a plug-in.
- HTML5 defines a new element which specifies a standard way to embed an audio file on a web page: the `<audio>` element.

```
<audio src="http://songserver/english/batman3/song1.mp3"></audio>
```

Currently, there are 3 supported file formats for the `<audio>` element: MP3, Wav, and Ogg:

Browser	MP3	Wav	Ogg
Internet Explorer 9	YES	NO	NO
Firefox 4.0	NO	YES	YES
Google Chrome 6	YES	YES	YES
Apple Safari 5	YES	YES	NO
Opera 10.6	NO	YES	YES

Video Tag



<video>

- Most video files are played through a plug-in (like flash). However, different browsers may have different plug-ins.
- HTML5 defines a new element, which specifies a standard way to embed a video file on a web page: the <video> element.

```
<video src="http://songserver/english/song1.mp3"></video>
```

Currently, there are 3 supported video formats for the <video> element: MP4, WebM, and Ogg:

Browser	MP4	WebM	Ogg
Internet Explorer 9	YES	NO	NO
Firefox 4.0	NO	YES	YES
Google Chrome 6	YES	YES	YES
Apple Safari 5	YES	NO	NO
Opera 10.6	NO	YES	YES