

## Differences between HTML and HTML 5

<sup>1</sup> T.N.Sharma, <sup>2</sup> Priyanka Bhardwaj, <sup>3</sup> Manish Bhardwaj

### Abstract:

Web technology is a standard that allow developing web applications with the help of predefined sets of classes, objects, methods and properties available in a markup language, style sheet language, or programming language. It also provides an interface that allows the sharing of information between a Web server and its clients. HyperText Markup Language (HTML) is the main markup language for web pages. HTML elements are the basic building-blocks of webpages. HTML standard were and are created by World Wide Web consortium (W3C). HTML5 is markup language for structuring and presenting content for the World Wide Web, and is a core technology of the Internet originally proposed by Opera Software .It is the fifth revision of the HTML standard. There are lots of differences which are given in HTML 5. This paper presents some of the main differences with the help of a few examples

**Keywords :** HTML, HTML5, WWW, Web Pages, Web Application

### Introduction to Web Technologies:

Web technology is a standard that allows to develop Web applications with the help of predefined sets of classes, objects, methods and properties available in a markup language ,style sheet language , or programming language. It also provides an interface that allows the sharing of information between a Web server and its clients. Web server is a computer that stores and hosts a website to make it available to its clients with the help of a specific URL link.

Using different Web Technologies, create professional looking websites can be created. Dynamic Web pages can also be developed, which allow users to update, edit , and format the text and upload or replace images, photos, or videos without the help of a Web Designer. Some common Web technologies to develop websites are HTML, Javascript, CSS, XML, XHTML, AJAX, ASP.NET , PHP.

HTML was originally developed by Tim Berners-Lee while at CERN. While working at CERN, he became frustrated at having to log on to different computers to find different information and thought that there must be a better way. He figured that there must be a way to hop from one set of information to another that's on different computers. This concept of a hyper-text system (connected with the networking technology and protocols needed to pass information between computers) would go on to form the basis for the fundamental language of the world wide web – HTML. HTML is a markup language used to create Web pages. A markup language provides a way to describe the structure of text and graphics on a web page. HTML standard were and are created by World Wide Web consortium (W3C). It is derived from a more general markup language called Standard Generalized Markup Language (SGML), which is an International Organization for Standardization (ISO) technology that defines markup languages.

HTML5 is markup language for structuring and presenting content for the World Wide Web, and is a core technology of the Internet originally proposed by Opera Software .It is the fifth revision of the HTML standard (created in 1990 and standardized as HTML4 as of 1997) and, as of August 2012, is still under development. Its core aims have been to improve the language with support for the latest multimedia while keeping it easily readable by humans and consistently understood by computers and devices (web browsers, parsers, etc.). HTML5 is a cooperation between the World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).WHATWG was working with web forms and applications, and W3C was working with XHTML 2.0. In 2006, they decided to cooperate and create a new version of HTML.

Some rules for HTML5 were established:

- New features should be based on HTML, CSS, DOM, and JavaScript.
- Reduce the need for external plugins (like Flash).
- Better error handling.
- More markup to replace scripting.
- HTML5 should be device independent.
- The development process should be visible to the public.

## HTML5 - New Features

Some of the most interesting new features in HTML5:

The <canvas> element for 2D drawing

- The <video> and <audio> elements for media playback
- Support for local storage
- New content-specific elements, like <article>, <footer>, <header>, <nav>, <section>
- New form controls, like calendar, date, time, email, url, search

Difference between HTML and HTML5:

HTML	HTML5
DOCTYPE is much longer as HTML4 is based on SGML-based.  <!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01//EN" " <a href="http://www.w3.org/TR/html4/strict.dtd">http://www.w3.org/TR/html4/strict.dtd</a> ">	DOCTYPE is required to enable standards mode for HTML documents.  <!DOCTYPE html>
Audio and Video are not part of HTML4 specification.	Audio and Videos are integral part of HTML5 specifications e.g. <audio> and <video> tags.
Vector Graphics is possible with the help of technologies such as VML, Silverlight, Flash etc	Vector graphics is integral part of HTML5 e.g. SVG and canvas
It is almost impossible to get true GeoLocation of user browsing any website especially if it comes to mobile devices.	JS GeoLocation API in HTML5 helps identify location of user browsing any website (provided user allows it)
Browser cache can be used as temporary storage.	Application Cache, Web SQL database and Web storage is available as client side storage. Accessible using JavaScript interface in HTML5 compliant browsers.
Web Sockets are not available. Generally used mechanisms are long polling and streaming.	Full duplex communication channels can be established with Server using Web Sockets. Accessible using JavaScript interface in HTML5 compliant browsers.
Does not allow JavaScript to run in browser. JS runs in same thread as browser interface.	Allows JavaScript to run in background. This is possible due to JS Web worker API in HTML5
Works with all old browsers	Most of modern browser have started supporting HTML5 specification e.g. Firefox, Mozilla, Opera, Chrome, Safari etc.

Difference in Tags:

- <!DOCTYPE html> : In HTML 4.01, there are three different <!DOCTYPE> declarations but In HTML 5 there is only one

<! DOCTYPE html>

- **<a>**: In HTML 4.01, the **<a>** tag could be either a hyperlink or an anchor. In HTML5, the **<a>** tag is always a hyperlink, but if it has no href attribute, it is only a placeholder for a hyperlink.
- **<acronym>**: The **<acronym>** tag is not supported in HTML5. Use the **<abbr>** tag instead. The **<acronym>** tag was used to define acronyms in HTML 4.01.
- **<applet>**: The **<applet>** tag is not supported in HTML5. Use the **<object>** tag instead.
- **<strong>**: In HTML 4.01, the **<strong>** tag defines strong emphasized text, but in HTML5 it defines important text.
- **<body>**: In HTML5, all **<body>** specific attributes are removed, while in HTML 4.01 they were deprecated.
- **<hr>**: In HTML 4.01, the **<hr>** tag represented a horizontal rule. In HTML5, the **<hr>** tag defines a thematic break. The **<hr>** element is used to separate content (or define a change) in an HTML page.
- **<map>**: In HTML5, if the id attribute of the **<map>** tag is also specified, it must have the same value as the name attribute.
- **<meta>**: The scheme attribute is not supported in HTML5.

HTML5 has a new attribute, charset, which makes it easier to define charset:

HTML 4.01: `<Meta http-equiv="content-type" content="text/html; charset=UTF-8">`

HTML5 : `<meta charset="UTF-8">`

- **<script>**: The "type" attribute is required in HTML 4, but optional in HTML5.
- **<small>**: In HTML 4.01 the small element is displayed as smaller text. In HTML5 the small element defines small text and other side comments, and is displayed as smaller text.
- **<table>**: Only the "border" attribute is supported in HTML5, and it only allows the values " " or "1".

### New Semantic/Structural Elements

HTML5 offers new elements for better structure:

Tag	Description
<code>&lt;article&gt;</code>	Defines an article
<code>&lt;aside&gt;</code>	Defines content aside from the page content
<code>&lt;bdi&gt;</code>	Isolates a part of text that might be formatted in a different direction from other text outside it
<code>&lt;command&gt;</code>	Defines a command button that a user can invoke
<code>&lt;details&gt;</code>	Defines additional details that the user can view or hide
<code>&lt;summary&gt;</code>	Defines a visible heading for a <code>&lt;details&gt;</code> element
<code>&lt;figure&gt;</code>	Specifies self-contained content, like illustrations, diagrams, photos, code listings, etc.
<code>&lt;figcaption&gt;</code>	Defines a caption for a <code>&lt;figure&gt;</code> element
<code>&lt;footer&gt;</code>	Defines a footer for a document or section
<code>&lt;header&gt;</code>	Defines a header for a document or section
<code>&lt;hgroup&gt;</code>	Groups a set of <code>&lt;h1&gt;</code> to <code>&lt;h6&gt;</code> elements when a heading has multiple levels
<code>&lt;mark&gt;</code>	Defines marked/highlighted text
<code>&lt;meter&gt;</code>	Defines a scalar measurement within a known range (a gauge)
<code>&lt;nav&gt;</code>	Defines navigation links
<code>&lt;progress&gt;</code>	Represents the progress of a task
<code>&lt;ruby&gt;</code>	Defines a ruby annotation (for East Asian typography)
<code>&lt;rt&gt;</code>	Defines an explanation/pronunciation of characters (for East Asian typography)

<rp>	Defines what to show in browsers that do not support ruby annotations
<section>	Defines a section in a document
<time>	Defines a date/time
<wbr>	Defines a possible line-break

### New Media Elements

HTML5 offers new elements for media content:

<b>Tag</b>	<b>Description</b>
<audio>	Defines sound content
<video>	Defines a video or movie
<source>	Defines multiple media resources for <video> and <audio>
<embed>	Defines a container for an external application or interactive content (a plug-in)
<track>	Defines text tracks for <video> and <audio>

Examples :

<video> :

```
<!DOCTYPE html>
<html>
<body>
<DIV id='abc' style="z-index:2; position:relative;
right:0px; top:10px;
background-color:#cccc33;
width:400px;
height:80px;
padding:10px;
color:White;
border:#fffcc 1px dashed;
font-size:xx-large;">
LogicPace Technologies Pvt.Ltd,Jaipur</DIV><br>
<VIDEO src="atheora.ogv" width="320" height="240" controls autoplay>
</VIDEO>
</body>
</html>
```

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<audio>

```
<!DOCTYPE html>
<html>
<body>
<DIV id='abc' style="z-index:2; position:relative;
right:0px; top:10px;
background-color:#cccc33;
width:400px;
height:80px;
padding:10px;
color:White;
border:#ffffcc 1px dashed;
font-size:xx-large;">
  LogicPace Technologies Pvt.Ltd,Jaipur</DIV><br>
```

```
<audio controls="controls">
  <source src="horse.ogg" type="audio/ogg" />
  <source src="horse.mp3" type="audio/mpeg" />
Your browser does not support the audio element.
</audio>
```

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

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## The new <canvas> Element

Tag	Description
<canvas>	Used to draw graphics, on the fly, via scripting (usually JavaScript)

Example:

```
<!DOCTYPE html>
<html>
<body>
<DIV id='abc' style="z-index:2; position:relative;
right:0px; top:10px;
background-color:#cccc33;
width:400px;
height:80px;
padding:10px;
color:White;
border:#ffffcc 1px dashed;
font-size:xx-large;">
LogicPace Technologies Pvt.Ltd,Jaipur</DIV><br>
<div style=" font-size:x-large;
background-color:maroon;
color:White;
border:#ffffcc 1px solid;
width:200px;
height:40px;">
Canvas Example:</div><br>
<canvas id="myCanvas" width="200" height="100" style="border:1px solid #c3c3c3;">
Your browser does not support the HTML5 canvas tag.
</canvas>

<script type="text/javascript">

var c=document.getElementById("myCanvas");
var ctx=c.getContext("2d");
ctx.fillStyle="#FF0000";
ctx.fillRect(0,0,150,75);

</script>

</body>
</html>
```



SVG: (Scalable Vector Graphics)

```
<!DOCTYPE html>
<html>
<body>
<DIV id='abc' style="z-index:2; position:relative;
right:0px; top:10px;
background-color:#cccc33;
width:400px;
height:80px;
padding:10px;
color:White;
border:#ffffcc 1px dashed;
font-size:xx-large;">
LogicPace Technologies Pvt.Ltd,Jaipur</DIV><br>
<div style=" font-size:x-large;
background-color:maroon;
color:White;
border:#ffffcc 1px solid;
width:200px;
height:40px;">
SVG Example:</div><br>

<svg xmlns="http://www.w3.org/2000/svg" version="1.1" height="190">
<polygon points="100,10 40,180 190,60 10,60 160,180"
style="fill:lime;stroke:purple;stroke-width:5;fill-rule:evenodd;" />
</svg>

</body>
</html>
```



## New Form Elements

HTML5 offers new form elements, for more functionality:

<b>Tag</b>	<b>Description</b>
<datalist>	Specifies a list of pre-defined options for input controls
<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation

### Removed Elements

The following HTML elements are removed from HTML5:

- <acronym>
- <applet>
- <basefont>
- <big>
- <center>
- <dir>
- <font>
- <frame>
- <frameset>
- <noframes>
- <strike>
- <tt>

### Conclusion:

HTML5 is being proved as one of the powerful tool for webpage design. With HTML5, streaming of audio and video without need of third party plug-in such as flash is possible. Player controls can be created that are fully programmable with JavaScript. In HTML5 we have new structural elements instead of traditional div tags to create page template, the final result will be a cleaner and more organized code. HTML5 allows storing data locally from client side. The data can be accessed to support the web application and it can even be accessed when the client is disconnected for a short period of time. There are methodologies for storing data: session storage, local storage and database storage. HTML5 introduces new elements and features that allow developers to improve interoperability, handling elements in a precise way saving time and costs.

### Reference:

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