here are several notable features of HTML5 and few among them are briefed below for your reference.

**The new features of HTML5 include:**

* Support media element like video and audio.
* Local storage
* Supporting some new elements and custom attributes.
* New form elements like url, date, range, time, color etc.

1. HTML5 provides some standard features like that of CSS, HTML, JavaScript, and DOM, which in turn will reduce the requirement of external plugins. It’s more markup to replace scripting, better error handling, etc. HTML5 is device independent.

| **HTML5** | **HTML** |
| --- | --- |
| HTML5 has high-level video and audio support. | High-level video and audio support is not a part of the version and specifications in the previous HTML. |
| Canvas, SVG and other virtual vector graphics are supported in HTML5. | In HTML, if we want to implement vector graphics, that was only possible by using third party library like VML, Silver-light, etc. |
| SVG and MathML can be used in text. | This is not possible in HTML. |
| Web SQL database, application cache and web storage is used as permanent storage. | Browser cache can be used as temporary storage. |
| HTML5 is more mobile friendly. | HTML is less mobile friendly. |
| Doctype declaration is simple and easy. | Doctype declaration is long and complicated.. |
| Allows drag and drop effect. | Does not allow drag and drop effect. |
| Attributes of Async, charset, and ping are available. | These attributes are not available in HTML. |
| HTML5 support javascript to run in the background. | Does not support javascript to run within the web browser. |
| We can draw shapes like rectangle, circle, and triangle in HTML5. | It is not possible to draw shapes like rectangle, circle, triangle etc. |

The <!DOCTYPE> declaration provides instruction to the web browser to understand what information it should be display, and the need to start with <!DOCTYPE> declaration. In HTML5, DOCTYPE declaration is very short, and case-insensitive, and <!DOCTYPE html> is written at the top of every HTML5 page.

**There are 3 types of DOCTYPES as mentioned below:**

* Strict Doctype
* Frameset Doctype
* Transitional Doctype

**The new tags in Media Elements in HTML5 are enlisted below**:

* **<audio>:** Apply for multimedia contents like sounds, audio streams or music, embed audio content without the requirement of any additional plug-in like flash player.
* **<video>:** Apply for video content like video streams or movie clip, embed video content etc.
* **<source>:** Apply for multiple media resources in media elements, such as audio, video, picture etc.
* **<embed>**: Apply for an external application or embedded content (a plug-in).
* **<track>:** Apply for text tracks in the media elements such as video or audio. This tag is used for subtitles or caption files while the video media is playing.

Drag and Drop is the most important User Interface concept which makes it easy to grab an object and Drag it at the place you want with the help of a mouse click.

Some common features that are mostly used by Drag and Drop operation include move, link or copy.

We can drag an image using elements, type = **<img draggable = “true”>**, to make an image draggable and set the draggable image attribute to true.

* **Date:**This is a Date picker, we can pick a date by using type = **“date”.**
* **Week:**This is a Week picker, we can pick a week by using type = **“week”.**
* **Month:**This is a Month picker, we can pick a month by using type = **“month”.**
* **Time:**This is a Time picker, we can pick the time by using type = **“time”.**
* **Datetime:**This is a combined date and time, we can pick the combination of date and time by using type = **“datetime”.**
* **Datetime-local:**A combined local date and time, we can pick the combination of local date and time using type = **“DateTime-local”.**
* **Email:**Allows one or more Email Addresses, we can enter multiple email addresses using type = **“email”.**
* **Tel:**Allows different phone numbers around the world. A phone number is validated by the client-side. We can enter a phone number using type = **“tel”.**
* **Search:**Allows to search queries by input text. We can enter multiple queries using type = **“search”.**
* **Number:**Allows inserting a numerical value with additional attributes such as min, max. etc., and we can enter multiple numerical values using type = **“number”.**
* **Url:**A url input type, that is used for the web address. In a single url, we can use multiple attributes using type = **“url”.**
* **Color:**Allows to select multiple colors, we can pic multiple color using type = **“color”.**
* **Range:**Allows to insert a numerical value within a specific range, Range is similar to the number but it is much specific. We can enter a numerical value within a range using type = **“range”.**
* **Placeholder:**Allows to display a short hint (usually in a light color) in the input fields, before we enter the value. We can write a short hint in the input field by using type = **“placeholder”.**

Image maps are a combination of URL and images, where clicking on these images (clickable area of the image) will open different new web pages.

**Two types of image maps are available in HTML5, i.e. client side and server side:**

**The client-side image map** is created by using two elements **<area>** and **<map>**, where the map holds the map information and the area element takes the attributes to define each section of the map. **Server-side image map** created by using **<usemap>** attribute, the usemap attribute is the name of our map.

In order to write a copyright symbol, we need to type &copy; or &#169; in an HTML5 file.

We need to understand some basic optimization rules, in order to optimize website assets. Initially, we should decrease the download size and make fewer http requests.

**To optimize website assets we can follow the below techniques:**

* File compression
* File concatenation
* CDN Hosting
* Offloading assets
* Re-organizing
* Refining code

The word MathML (Mathematical Markup Language) is a markup language, that is used to show scientific and mathematical expression on the web. MathML is a form of XML (extensible markup language) to describe the Math notation.

We can use **<math>…</math>** tags inside the HTML5 documents for implementing MathML element.

**Example:** print a²+2b+5=0 using HTML5 code.

|  |
| --- |
| <!**doctype** html>  <**html**>   <**head**>  <**meta** charset = “UTF-8”>  <**title**> MathMl Example </**title**>  </**head**>  <**body**>    <**math** xmlns=<a href="http://www.w3.org/1998/Math/MathML">http://www.w3.org/1998/Math/MathML</**a**>”>  <**mrow**>  <**mrow**>  <**msup**>  <**mi**> a </**mi**>  <**mn**> 2 </**mn**>  </**msup**>  <**mo**> + </**mo**>  <**mrow**>  <**mn**> 2 </**mn**>  <**mo**> </**mo**>  <**mi**> b </**mi**>  </**mrow**>  <**mo**> + </**mo**>  <**mn**> 5 </**mn**>  </**mrow**>  <**mo**> = </**mo**>  <**mn**> 0 </**mn**>  </**mrow**>  </**math**>    </**body**>  </**html**> |

**Note:**If MathML is used by an application that conforms to the Namespace in an XML Recommendation, then the following namespace should be used:

* **Marked text:**Represents highlighted text for Reference purposes. We can use **<marks**> tags for text highlight.
* **Deleted text:**Specifies the deleted block of text. We can use **<del>** tags to implement a deleted text.
* **Emphasized text:** Defines the emphasized text. We can use **<em>** tags to implement an emphasized text.
* **Inserted text:**Inserts a block of text into a document. We can use **<ins>** tags to implement an inserted text.
* **Small text:** Display inserted text in a small size. We can use **<small>** tags to implement a small text.
* **Superscript text:**This is a superscripted text. We can use **<sup>** tags to implement a superscript text.
* **Subscript text:** This is a subscripted text. We can use **<sub>** tags to implement a superscript text.

HTML5 supports animation, drawing, audio, video, etc and it easily embeds a video on the web page. It does not require any additional software like Flash for watching videos.

**Some of the important reasons to use HTML5 are given below:**

* Legacy and cross-browser support
* Better interactions
* Smarter storage
* Cleaner code