

# Pemrograman Web

## 2. HTML Lanjut

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# HTML DOCTYPE

- A `<!DOCTYPE>` declaration helps the browser to display a web page correctly.
  - **The `<!DOCTYPE>` Declaration**
    - There are many different documents on the web. A browser can only display a document correctly, if it knows what kind of document it is.
    - There are also many different versions of HTML, and a browser can only display an HTML page 100% correctly if it knows the exact HTML version used in the page. This is what `<!DOCTYPE>` is used for.
    - `<!DOCTYPE>` is not an HTML tag. It is an information (a declaration) to the browser about what version the HTML is written in.
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- **Example** - An HTML document with an HTML5 DOCTYPE:

```
<!DOCTYPE html>  
<html>  
<head>  
<title>Title of the document</title>  
</head>  
  
<body>  
The content of the document.....  
</body>  
  
</html>
```

---

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# HTML Versions

Version	Year
HTML	1991
HTML+	1993
HTML 2.0	1995
HTML 3.2	1997
HTML 4.01	1999
XHTML 1.0	2000
HTML5	2012
XHTML5	2013

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# The HTML `<head>` Element

- The `<head>` element is a container for all the head elements. Elements inside `<head>` can include scripts, instruct the browser where to find style sheets, provide meta information, and more.
  - The following tags can be added to the head section: `<title>`, `<base>`, `<link>`, `<meta>`, `<script>`, and `<style>`.
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# The HTML `<title>` Element

- **The `<title>` tag** defines the title of the document.  
The title element is required in all HTML/XHTML documents.
- The title element:
  - defines a title in the browser toolbar
  - provides a title for the page when it is added to favorites
  - displays a title for the page in search-engine results
- A simplified HTML document:

```
<!DOCTYPE html>  
<html>  
<head>  
<title>Title of the document</title>  
</head>
```

```
<body>  
The content of the document.....  
</body>
```

```
</html>
```

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# The HTML `<base>` Element

- The `<base>` tag specifies a default address or a default target for all links on a page:

```
<head>
```

```
<base href="http://eepis-its.edu" />
```

```
<base target="_blank" />
```

```
</head>
```

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# The HTML <link> Element

- The <link> tag defines the relationship between a document and an external resource.
- The <link> tag is most used to link to style sheets:

```
<head>
```

```
<link rel="stylesheet" type="text/css" href="mystyle.css" />
```

```
</head>
```

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# The HTML <style> Element

- The <style> tag is used to define style information for an HTML document.
- Inside the style element you specify how HTML elements should render in a browser:

```
<head>  
<style type="text/css">  
body {background-color:yellow}  
p {color:blue}  
</style>  
</head>
```

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# The HTML `<meta>` Element

- Metadata is information about data.
  - The `<meta>` tag provides metadata about the HTML document. Metadata will not be displayed on the page, but will be machine readable.
  - Meta elements are typically used to specify page description, keywords, author of the document, last modified, and other metadata.
  - The `<meta>` tag always goes inside the head element.
  - The metadata can be used by browsers (how to display content or reload page), search engines (keywords), or other web services.
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# Keywords for Search Engines

- Some search engines will use the name and content attributes of the meta element to index your pages.
  - The following meta element defines a description of a page:  
`<meta name="description" content="Free Web tutorials on HTML, CSS, XML" />`
  - The following meta element defines keywords for a page:  
`<meta name="keywords" content="HTML, CSS, XML" />`
  - The intention of the name and content attributes is to describe the content of a page.
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# The HTML `<script>` Element

- The `<script>` tag is used to define a client-side script, such as a JavaScript.
- The script element will be explained in a later chapter.

## HTML head Elements

Tag	Description
<code>&lt;head&gt;</code>	Defines information about the document
<code>&lt;title&gt;</code>	Defines the title of a document
<code>&lt;base /&gt;</code>	Defines a default address or a default target for all links on a page
<code>&lt;link /&gt;</code>	Defines the relationship between a document and an external resource
<code>&lt;meta /&gt;</code>	Defines metadata about an HTML document
<code>&lt;script&gt;</code>	Defines a client-side script
<code>&lt;style&gt;</code>	Defines style information for a document

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# The HTML script Element

- The <script> tag is used to define a client-side script, such as a JavaScript.
- The script element either contains scripting statements or it points to an external script file through the src attribute.
- The required type attribute specifies the MIME type of the script.
- Common uses for JavaScript are image manipulation, form validation, and dynamic changes of content.

```
<body>
```

```
<script type="text/javascript">  
document.write("Hello World!")  
</script>
```

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

Hello World!



# The HTML noscript Element

- The <noscript> tag is used to provide an alternate content for users that have disabled scripts in their browser or have a browser that doesn't support client-side scripting.
- The noscript element can contain all the elements that you can find inside the body element of a normal HTML page.
- The content inside the noscript element will only be displayed if scripts are not supported, or are disabled in the user's browser:

```
<body>
<script type="text/javascript">
document.write("Hello World!")
</script>
<noscript>Sorry, your browser does not support JavaScript!</noscript>
<p>A browser without support for JavaScript will show the text in the noscript
element.</p>
</body>
</html>
```

Hello World!

A browser without support for JavaScript will show the text in the noscript element.

# HTML Entities

- Some characters are reserved in HTML.
- It is not possible to use the less than (<) or greater than (>) signs in your text, because the browser will mix them with tags.
- To actually display reserved characters, we must use character entities in the HTML source code.
- A character entity looks like this:

*&entity\_name;* OR

*&#entity\_number;*

Result	Description	Entity Name	Entity Number
	non-breaking space	&nbsp;	&#160;
<	less than	&lt;	&#60;
>	greater than	&gt;	&#62;
&	ampersand	&amp;	&#38;
¢	cent	&cent;	&#162;
£	pound	&pound;	&#163;
¥	yen	&yen;	&#165;
€	euro	&euro;	&#8364;
§	section	&sect;	&#167;
©	copyright	&copy;	&#169;
®	registered trademark	&reg;	&#174;
™	trademark	&trade;	&#8482;



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# HTML Uniform Resource Locators

- **A URL (Uniform Resource Locator)** is another word for a web address.
  - A URL can be composed of words, such as "w3schools.com", or an Internet Protocol (IP) address: 192.68.20.50. Most people enter the name of the website when surfing, because names are easier to remember than numbers.
  - A Uniform Resource Locator (URL) is used to address a document (or other data) on the world wide web.
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- URL syntax rules: scheme://host.domain:port/path/filename
- Explanation:
  - scheme - defines the type of Internet service. The most common type is http
  - host - defines the domain host (the default host for http is www)
  - domain - defines the Internet domain name, like w3schools.com
  - :port - defines the port number at the host (the default port number for http is 80)
  - path - defines a path at the server (If omitted, the document must be stored at the root directory of the web site)
  - filename - defines the name of a document/resource

## ■ Common URL Schemes

Scheme	Short for....	Which pages will the scheme be used for...
http	HyperText Transfer Protocol	Common web pages starts with http://. Not encrypted
https	Secure HyperText Transfer Protocol	Secure web pages. All information exchanged are encrypted
ftp	File Transfer Protocol	For downloading or uploading files to a website. Useful for domain maintenance
file		A file on your computer

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# HTML Multimedia

- Multimedia on the web is sound, music, videos, and animations.
  - Modern web browsers have support for many multimedia formats.
  - **What is Multimedia?**
    - Multimedia comes in many different formats. It can be almost anything you can hear or see like text, pictures, music, sound, videos, records, films, animations, and more.
    - On the Internet you can often find multimedia elements embedded in web pages, and modern web browsers have support for a number of multimedia formats.
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## ■ Browser Support

- The first Internet browsers had support for text only, and even the text support was limited to a single font in a single color. Then came browsers with support for colors, fonts and text styles, and the support for pictures was added.
- The support for sounds, animations and videos is handled in different ways by different browsers. Some elements can be handled inline, and some requires an extra helper program (a plug-in).

## ■ Multimedia Formats

- Multimedia elements (like sounds or videos) are stored in media files.
  - The .xml extension indicates an XML file, and the .css extension indicates a style sheet. Picture formats are recognized by extensions like .gif and .jpg.
  - Multimedia elements also have their own file formats with different extensions like .swf, .wmv, .mp3, and .mp4.
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# Video Formats

Format	File	Description
AVI	.avi	The AVI (Audio Video Interleave) format was developed by Microsoft. The AVI format is supported by all computers running Windows, and by all the most popular web browsers. It is a very common format on the Internet, but not always possible to play on non-Windows computers.
WMV	.wmv	The Windows Media format is developed by Microsoft. Windows Media is a common format on the Internet, but Windows Media movies cannot be played on non-Windows computer without an extra (free) component installed. Some later Windows Media movies cannot play at all on non-Windows computers because no player is available
MPEG	.mpg .mpeg	The MPEG (Moving Pictures Expert Group) format is the most popular format on the Internet. It is cross-platform, and supported by all the most popular web browsers.
QuickTime	.mov	The QuickTime format is developed by Apple. QuickTime is a common format on the Internet, but QuickTime movies cannot be played on a Windows computer without an extra (free) component installed.
RealVideo	.rm .ram	The RealVideo format was developed for the Internet by Real Media. The format allows streaming of video (on-line video, Internet TV) with low bandwidths. Because of the low bandwidth priority, quality is often reduced.
Flash	.swf .flv	The Flash (Shockwave) format was developed by Macromedia. The Shockwave format requires an extra component to play. But this component comes preinstalled with web browsers like Firefox and Internet Explorer.
Mpeg-4	.mp4	Mpeg-4 (with H.264 video compression) is the new format for the internet. In fact, YouTube recommends using MP4. YouTube accepts multiple formats, and then converts them all to .flv or .mp4 for distribution. More and more online video publishers are moving to MP4 as the internet sharing format for both Flash players and HTML5.

# Sound Formats

Format	File	Description
MIDI	.mid .midi	<p>The MIDI (Musical Instrument Digital Interface) is a format for electronic music devices like synthesizers and PC sound cards. MIDI files do not contain sound, but digital musical instructions (notes) that can be played by electronics (like your PC's sound card).</p> <p><a href="#">Click here to play The Beatles.</a></p> <p>Since MIDI format only contains instructions (notes), MIDI files are extremely small. The example above is only 23K in size but it plays for nearly 5 minutes. MIDI is supported by many software systems over a large range of platforms. MIDI is supported by all the most popular Internet browsers.</p>
RealAudio	.rm .ram	<p>The RealAudio format was developed for the Internet by Real Media. The format also supports video. The format allows streaming of audio (on-line music, Internet radio) with low bandwidths. Because of the low bandwidth priority, quality is often reduced.</p>
Wave	.wav	<p>The Wave (waveform) format is developed by IBM and Microsoft. It is supported by all computers running Windows, and by all the most popular web browsers (except Google Chrome).</p>
WMA	.wma	<p>The WMA format (Windows Media Audio), compares in quality to MP3, and is compatible with most players, except the iPod. WMA files can be delivered as a continuous flow of data, which makes it practical for use in Internet radio or on-line music.</p>
MP3	.mp3 .mpga	<p>MP3 files are actually the sound part of MPEG files. The MPEG format was originally developed for video by the Moving Pictures Experts Group. MP3 is one of the most popular sound formats for music. The encoding system combines good compression (small files) with high quality. Expect future software systems to support it.</p>

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# The HTML Object Element

- The purpose of the <object> element is to support HTML helpers (Plug-Ins).
  - Plug-Ins can be used in HTML for many purposes. They can be used to display maps, verify your bank id, control your input, and much more.
  - HTML Helpers (Plug-Ins)
    - A helper application is a program that can be launched by the browser to "help". Helper applications are also called Plug-Ins.
    - Helper applications can be used to play audio and video (and much more). Helper applications are launched using the <object> tag.
    - One advantage of using a helper application to play video and audio, is that you can let some (or all) of the player settings be controlled by the user.
    - Most helper applications allow manual (or programmed) control over the volume settings and play functions like rewind, pause, stop and play.
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- Playing Wave Audio Using QuickTime

```
<object width="420" height="360"  
classid="clsid:02BF25D5-8C17-4B23-BC80-D3488ABDDC6B"  
codebase="http://www.apple.com/qtactivex/qtplugin.cab">  
<param name="src" value="liar.wav" />  
<param name="controller" value="true" />  
</object>
```

- Playing MP4 Video Using QuickTime

```
<object width="420" height="360"  
classid="clsid:02BF25D5-8C17-4B23-BC80-D3488ABDDC6B"  
codebase="http://www.apple.com/qtactivex/qtplugin.cab">  
<param name="src" value="movie.mp4" />  
<param name="controller" value="true" />  
</object>
```

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- Playing SWF Videos Using Flash

```
<object width="400" height="40"  
classid="clsid:d27cdb6e-ae6d-11cf-96b8-444553540000"  
codebase="http://fpdownload.macromedia.com/  
pub/shockwave/cabs/flash/swflash.cab#version=8,0,0,0">  
<param name="SRC" value="bookmark.swf">  
<embed src="bookmark.swf" width="400" height="40"></embed>  
</object>
```

- Playing WMV Movies Using Windows Media Player

```
<object width="100%" height="100%"  
type="video/x-ms-asf" url="3d.wmv" data="3d.wmv"  
classid="CLSID:6BF52A52-394A-11d3-B153-00C04F79FAA6">  
<param name="url" value="3d.wmv">  
<param name="filename" value="3d.wmv">  
<param name="autostart" value="1">  
<param name="uiMode" value="full" />  
<param name="autosize" value="1">  
<param name="playcount" value="1">  
<embed type="application/x-mplayer2" src="3d.wmv" width="100%"  
height="100%" autostart="true" showcontrols="true"  
pluginspage="http://www.microsoft.com/Windows/MediaPlayer/"></embed>  
</object>
```

---

# HTML Audio

- Sounds can be played in HTML by many different methods.
  - Using Plug-ins
    - A browser Plug-in is a small computer program that extends the standard functionality of the browser.
    - Plug-ins can be used for many purposes: play music, display maps, verify your bank id, control your input, and much more.
    - Plug-ins can be added to HTML pages using the `<object>` tag or the `<embed>` tag.
    - These tags defines containers for resources (normally non-HTML resources), which, depending on the type, will either be displayed by the browsers, or by an external plug-in.
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# Audio Using The <embed> Element

- The <embed> tag defines a container for external (non-HTML) content. (It is an HTML5 tag, invalid in HTML 4, but works in all browsers).  
example: `<embed height="100" width="100" src="horse.mp3" />`
  - **Problems:**
    - The <embed> tag is invalid in HTML 4. Your page will not validate as HTML 4.
    - Different browsers have different audio format support.
    - If a browser does not support the file format, the audio will not play without a plug-in.
    - If the plug-in is not installed on the users' computer, the audio will not play.
    - If you convert the file to another formats, it will still not play in all browsers.
  - **NOTE:** Using `<!DOCTYPE html>` (HTML5) solves the validation problem.
-

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# Audio Using The <object> Element

- The <object tag> tag can also define a container for external (non-HTML) content.
  - The following code fragment can display an MP3 file embedded in a web page.
  - Example `<object height="100" width="100" data="horse.mp3"></object>`
  - **Problems:**
    - Different browsers have different audio format support.
    - If a browser does not support the file format, the audio will not play without a plug-in.
    - If the plug-in is not installed on the users' computer, the audio will not play.
    - If you convert the file to another formats, it will still not play in all browsers.
-

---

# Using the HTML5 <audio> Element

- The <audio> element is an HTML5 element, invalid in HTML 4, but it works in all browsers.

- Example

```
<audio controls="controls">
```

```
  <source src="horse.mp3" type="audio/mp3" />
```

```
Your browser does not support this audio format.
```

```
</audio>
```

- Problems:

- The <audio> tag is invalid in HTML 4. Your page will not validate as HTML 4.
  - You must convert your audio files into different formats.
  - The <audio> element does not work in older browsers.
-

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# Audio - The Best HTML Solution

- Example:

```
<audio controls="controls" height="100" width="100">  
  <source src="horse.mp3" type="audio/mp3" />  
  <source src="horse.ogg" type="audio/ogg" />  
<embed height="100" width="100" src="horse.mp3" />  
</audio>
```

- The HTML5 <audio> element tries to play the video either as mp3 or ogg. If this fails, the code "falls back" to try the <embed> element.

- **Problems:**

- You must convert your videos to different formats.
- The <audio> element does not validate as HTML 4 and XHTML.
- The <embed> element does not validate as HTML 4 and XHTML.
- The <embed> element cannot "fall-back" to display an error.

- **NOTE:** Using <!DOCTYPE html> (HTML5) solves the validation problem.
-

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# Using A Hyperlink

- If a web page includes a hyperlink to a media file, most browsers will use a "helper application" to play the file.
  - The following code fragment displays a link to an mp3 file. If a user clicks on the link, the browser will launch a helper application to play the file: `<a href="horse.mp3">Play the sound</a>`
-

---

# Inline Sound

- When sound is included in a web page, or as part of a web page, it is called inline sound.
  - If you plan to use inline sounds in your web applications, be aware that many people will find inline sound annoying. Also note that some users might have turned off the inline sound option in their browser.
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# HTML Videos

- Videos can be played in HTML by many different methods.

- Example:

```
<video width="320" height="240" controls="controls"
autoplay="autoplay">
  <source src="movie.ogg" type="video/ogg" />
  <source src="movie.mp4" type="video/mp4" />
  <source src="movie.webm" type="video/webm" />
  <object data="movie.mp4" width="320" height="240">
    <embed width="320" height="240" src="movie.swf" />
  </object>
</video>
```

- The example above uses 4 different video formats. The HTML 5 `<video>` element tries to play the video either in mp4, ogg, or webm formats. If this fails, the code "falls back" to try the `<object>` element. If this also fails, it "falls back" to the `<embed>` element.

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# HTML - YouTube Videos

- The easiest way to display videos (others or your own) in HTML is to use YouTube.

- Example - YouTube iFrame

```
<iframe width="420" height="345"  
src="http://www.youtube.com/embed/XGSy3_Czz8k">  
</iframe>
```

- Example - YouTube Embedded

```
<embed  
width="420" height="345"  
src="http://www.youtube.com/v/XGSy3_Czz8k"  
type="application/x-shockwave-flash">  
</embed>
```

---

---

# Finish

