

# HTML Basics

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# HTML Basics

HTML is the standard markup language for creating webpages.

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage.
- HTML describes the ***structure*** of webpages using markup.
- HTML ***elements*** are the building blocks of HTML pages.
- HTML elements are represented by ***tags***.
- HTML tags label pieces of content such as "heading", "paragraph", "table".
- Browsers do not display the HTML tags, but use them to render the content of the page.

# HTML Basics

## Structure of the language: Tags

The content is enclosed by a ***start tag*** (opening tag) and an ***end tag*** (closing tag)

`<tagname>content</tagname>`

The end tag is written like the start tag, but with a forward slash inserted before the tag name.

Some elements don't need a closing tag, they are called empty elements:

Image: `<img>`

Line break: `<br>`

Horizontal line: `<hr>`

# HTML Basics

## Example of a simple HTML Document

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>Page Title</title>
```

```
  </head>
```

```
  <body>
```

```
    <h1>Heading</h1>
```

```
    <p>Paragraph</p>
```

```
  </body>
```

```
</html>
```

visible part of  
the document

A diagram consisting of a large rectangular box with a thin black border. The box is positioned to the left of the text 'visible part of the document'. A horizontal line extends from the right side of the box, connecting it to the text. The box contains the HTML code for the body: <h1>Heading</h1> and <p>Paragraph</p>. The text '<body>' is to the left of the box, and '</body>' is to the right of the box, indicating the box spans the content between these tags.

# HTML Basics

## Explanation of the Tags used in the example

- The `<!DOCTYPE html>` declaration defines this document to be HTML5
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information
- The `<title>` element specifies a title for the document
- The `<body>` element contains the visible page content
- The `<h1>` element defines a large heading
- The `<p>` element defines a paragraph

Use `<html>`, `<head>`, `<title>`, `<body>`, `<h1>` only **ONCE!**

# HTML Basics

## Some simple HTML Elements to start with

### *Headings*

`<h1>`This is heading 1`</h1>`

`<h2>`This is heading 2`</h2>`

`<h3>`This is heading 3`</h3>`

### *Paragraphs*

`<p>`This is a paragraph.`</p>`

`<p>`This is another paragraph.`</p>`

HTML tags are not case sensitive, but use lowercase!

# HTML Basics

## Some more basic HTML elements

### *Link*

```
<a href="http://www.mynewwebsite.com">This is a link</a>
```

The link's destination is specified in the **href attribute**. Every HTML element can have one or more attributes.

### *Image*

```

```

This image element has a **src (source) attribute** and an alternate text **alt attribute**.

# HTML Basics

## The HTML Head Element

The HTML `<head>` element has nothing to do with HTML headings (h1, h2,...)!

The `<head>` element is a container for metadata. HTML metadata are data about the HTML document. Metadata are not displayed in the browser window.

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
    <title>Title of the HTML document</title>
```

```
    <meta charset="utf-8">
```

```
</head>
```



# HTML Basics

## The HTML Head Element

Inside the `<head>` you can place the following elements:

- `<title>` Defines the page title (important for SEO)
- `<style>` Style information for your webpage
- `<link>` Used to link to external stylesheets (see CSS)
- `<meta>` Defines meta data like character set, description, keywords, author and more
- `<script>` Defines client side JavaScript for your page

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## HTML Elements can be nested

*Example: Inline Link*

<p>You can buy this book in my  
<a href="http://www.mynewwebshop.com">webshop</a>  
or in most bookstores in town.</p>

Remember the basic structure of an HTML document:

```
<html>
  <head>
    <title>Page Title</title>
  </head>
  <body>
```

# HTML Basics

## HTML Attributes

- All HTML elements can have attributes
- Attributes provide ***additional information*** about an element
- Attributes are always specified in the ***start tag***
- Attributes usually come in ***name/value*** pairs like:

name="value"

# HTML Basics

## HTML Attributes

### *Examples*

Language: `<html lang="en-US">`

Title: `<p title="I'm a tooltip">content</p>`

Link address:

`<a href="http://www.mynewwebsite.com">`This is a link`</a>`

Image Attributes:

``

# HTML Basics

## HTML Text Formatting Elements

<code>&lt;b&gt;</code>	Defines bold text
<code>&lt;em&gt;</code>	Defines emphasized text
<code>&lt;i&gt;</code>	Defines italic text
<code>&lt;small&gt;</code>	Defines smaller text
<code>&lt;strong&gt;</code>	Defines important text
<code>&lt;sub&gt;</code>	Defines subscripted text
<code>&lt;sup&gt;</code>	Defines superscripted text
<code>&lt;mark&gt;</code>	Defines marked/highlighted text

# HTML Basics

## HTML Comments

Comments are not displayed by the browser, but they can help explaining or debugging your HTML source code.

```
<!-- Left column starts here -->
```

```
<!-- Added on 07-22-2017 by John -->
```

```
<!-- Main Navigation -->
```

# HTML Basics

## HTML Links - Hyperlinks

If you click on a link you will jump to another document.

```
<a href="http://www.google.de" target="_blank" title="external  
link to google.de">Go to the Google Search Engine</a>
```

### *Attributes of a Link*

- **href** Defines the link address (absolute/relative)
- **target** Defines where to open the linked document
- **title** Additional information as a tooltip

# HTML Basics

## HTML Link Element as Bookmark Jump

Bookmark Jumps are useful if your webpage is very long. Give the element to jump to an **id attribute** and refer to that id in your link.

```
<a href="#free">Go to free downloads</a>
```

...

...

...

...

```
<h2 id="free">Free downloads</h2>
```

```
<p>You can download our free software here.</p>
```



# HTML Basics

## HTML Images

The most commonly used formats for images in HTML are jpg, gif and png. GIFs allow for animated images.

```

```

- **src** Defines the source/url of the image
- **alt** Alternate text, if image cannot be displayed
- **width** Defines the width of the image in pixel
- **height** Defines the height of the image in pixel

# HTML Basics

## HTML Tables

*A simple table with 2 rows and 3 columns.*

```
<table>
  <tr>
    <th>First Name</th>
    <th>Last Name</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Smith</td>
    <td>46</td>
  </tr>
</table>
```

# HTML Basics

## HTML Table Elements

<code>&lt;table&gt;</code>	Defines a table
<code>&lt;tr&gt;</code>	Defines a table row
<code>&lt;td&gt;</code>	Data container. Can contain all sorts of HTML elements
<code>&lt;th&gt;</code>	Defines a table heading
<code>&lt;caption&gt;</code>	Defines a table caption
<code>&lt;colgroup&gt;</code>	Specifies a group of one or more columns in a table for formatting
<code>&lt;col&gt;</code>	Specifies column properties for each column within a <code>&lt;colgroup&gt;</code> element

# HTML Basics

## HTML Table Attributes

**border** attribute defines a border (in pixel)

**cellspacing** defines the space between table cells (px, %)

**cellpadding** defines the space between the border of a cell and its content (px, %)

**colspan** attribute makes a cell span many columns

**rowspan** attribute makes a cell span many rows

## Use of Tables

HTML Tables are used to display tabular data.

**Don't use HTML Tables to layout/design your website!**

# HTML Basics

## HTML Lists

### Ordered List

```
<ol>  
  <li>First Item</li>  
  <li>Second Item</li>  
  <li>Third Item</li>  
</ol>
```

### Resulting output

1. First Item
2. Second Item
3. Third Item

### Unordered List

```
<ul>  
  <li>Home</li>  
  <li>Products</li>  
  <li>Contact</li>  
</ul>
```

- Home
- Products
- Contact

# HTML Basics

## HTML List Elements

`<ol>` Defines an ordered list

`<ul>` Defines an unordered list

`<li>` Defines a list item

`type` Attribute to define the numbering type (1, A, a, I, i)

Nesting: List items can contain new lists and other HTML elements, like images and links, etc.

Unordered lists are often used to create a menu/navigation for your website. They can be styled in many different ways with CSS.

# HTML Basics

## Structure of a Website



# HTML Basics

## Navigation

In order to navigate between the different pages of the website, we need a navigation on every page, which links the pages together.

```
<ul>  
  <li><a href="index.html">Home</a></li>  
  <li><a href="products.html">Products</a></li>  
  <li><a href="service.html">Service</a></li>  
  <li><a href="contact.html">Contact</a></li>  
</ul>
```

Test: Create a navigation for the website structure showed in the last slide!



# HTML Basics

## HTML Block and Inline Elements

Block Elements always start on a new line and take up the full width available (if not styled otherwise with CSS).

Inline Elements take up as much width as necessary and don't start on a new line.

### Block-Level Elements

`<h1>` - `<h6>`

`<p>`

`<form>`

`<div>`

### Inline-Level Elements

`<span>`

`<a>`

`<img>`

`<strong>`

# HTML Basics

## Visual Example for Block and Inline Elements

```
<h1> Our Services </h1>
```

```
<p> We help you improve your company's performance. We  
deliver real business results through a <strong> people-centered  
approach </strong> to technology and providing the right  
expertise according to your needs. </p>
```

```

```

```

```

```

```

# HTML Basics

## HTML Form Elements

The HTML Form element defines a form used to collect user input.

- `<form>` Defines a form element
- `<input>` Defines a single line input field
- `<textarea>` Defines a multiline input field
- `<label>` Defines a label for an `<input>` element
- `<select>` Defines a drop-down list
- `<option>` Defines an option in a drop-down list

# HTML Basics

## HTML Form Example

```
<form action="action_page.php">
  <label for="firstname">First name:</label>
  <input type="text" name="firstname"><br>
  <label for="lastname">Last name:</label>
  <input type="text" name="lastname"><br>
  <input type="radio" name="gender"
value="male" checked> Male<br>
  <input type="radio" name="gender"
value="female"> Female<br>
  <input type="submit" value="Submit">
</form>
```

First name:

Last name:

☒ Male  
☐ Female

Submit

# HTML Basics

## Form Input Types

text	Defines a one-line text input field
password	Defines a password field
submit	Button for submitting form data
reset	Button that resets all form data to default values
radio	Defines a radio button (one choice)
checkbox	Defines a checkbox (0 or more options)
button	Defines a button
number	Defines a numeric input field
image	Defines an image as the submit button

# HTML Basics

## Form Input Attributes

<b>value</b>	Defines the initial value for an input field
<b>readonly</b>	The input field can not be changed
<b>size</b>	Size (in characters) for the input field
<b>maxlength</b>	Maximum allowed length (in characters)

## *HTML5 Form Attributes*

autocomplete, autofocus, formaction, formmethod, formtarget, multiple, required, placeholder, min, max and many more...

HTML5 Form attributes help making forms more user-friendly.

# HTML Basics

## HTML IFrames

An iframe (inline frame) is used to display a webpage within a webpage.

```
<iframe src="ext_webpage.htm" height="400" width="700"  
name="my_iframe" style="border:none;"></iframe>
```

An iframe can be the target frame for a link.

```
<p><a href="http://www.devugees.org"  
target="my_iframe">Devugees Project</a></p>
```

Example: Embedding of Youtube Videos

# HTML Basics

## HTML Script Tag

The `<script>` tag is used to include client side programming language (like JavaScript). Common uses are dynamic changes, animations, user interactions or form validation.

```
<head>
  <script>
    document.createElement('header');
    document.createElement('nav');
    document.createElement('article');
    document.createElement('footer');
  </script>
</head>
```

Scripts can be placed inside the body element as well.



# HTML Basics

## HTML5 Outlook

The most interesting new **HTML5** elements are:

**Semantic elements** like `<header>`, `<footer>`, `<main>`, `<nav>`, `<article>`, `<section>` and `<aside>`.

**Graphic elements:** `<svg>` and `<canvas>`.

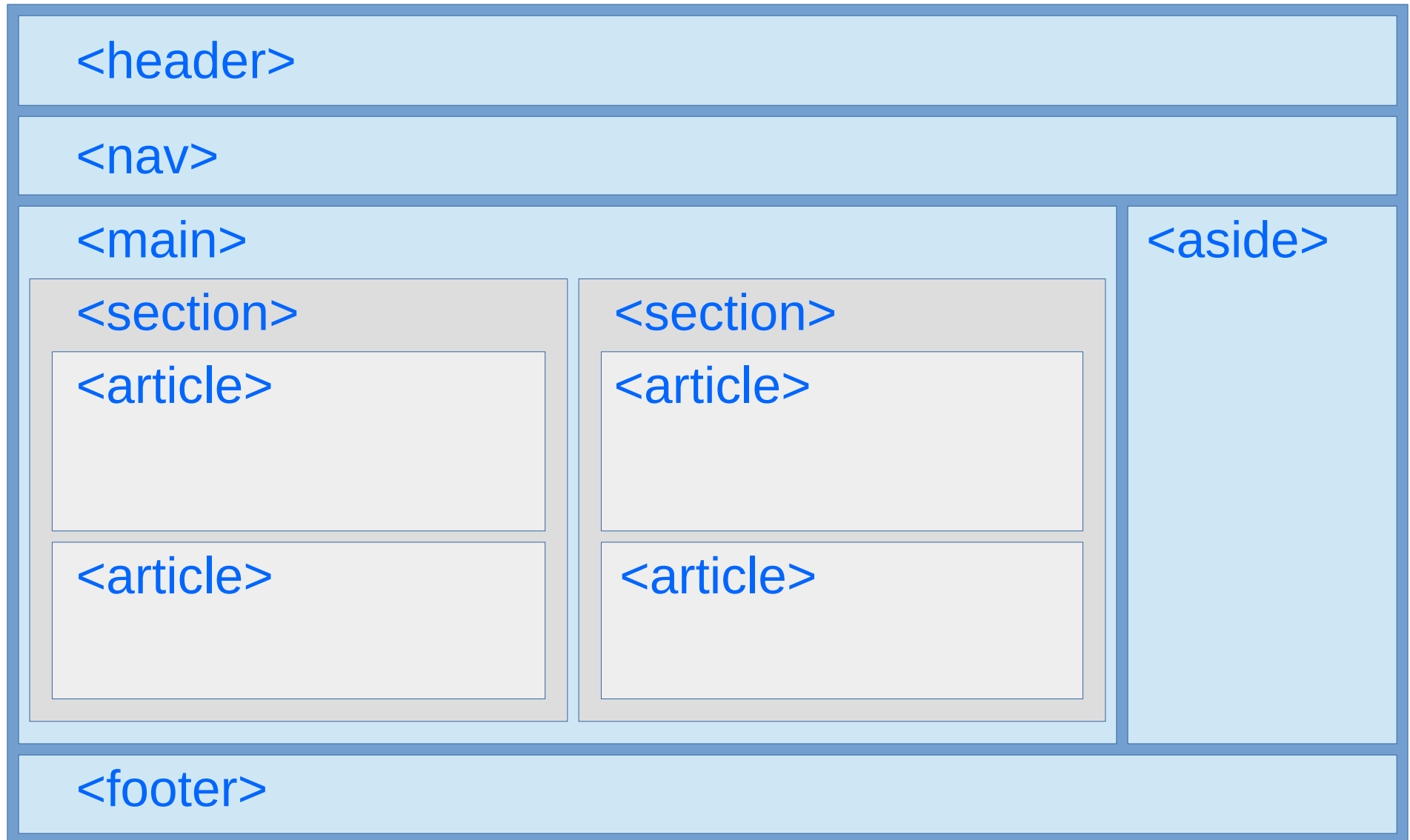
**Multimedia elements:** `<audio>` and `<video>`.

New **attributes** for **form** elements like `number`, `date`, `time`, `calendar`, and `range`.

**HTML5 API's:** Geolocation, Websockets, Offline Storage...

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## HTML5 Structure with Semantic Elements



# HTML Basics

## HTML5 Multimedia Elements

<audio controls autoplay>

<source src="test.ogg" type="audio/ogg">

<source src="test.mp3" type="audio/mpeg">

Your browser does not support the HTML5 audio element.

</audio>

<video controls width="320" height="240">

<source src="test.mp4" type="video/mp4">

<source src="test.ogg" type="video/ogg">

Your browser does not support the HTML5 video element.

</video>

# HTML Basics

## The HTML Style Attribute

With the style attribute you can set the style of an HTML element. This is called *inline style*.

```
<body style="background-color:blue;">
```

```
<h1 style="color:red;">This heading ist red.</h1>
```

```
<p style="font-weight:bold;">This paragraph is bold.</p>
```

```
</body>
```

The style attribute is part of the styling language **CSS: Cascading Style Sheets**.

# HTML Basics

## Styling HTML with CSS

CSS describes how HTML elements are to be displayed on screen, paper, or in other media.

CSS can be added to HTML elements in 3 ways:

- Inline - by using the style attribute in HTML elements
- Internal - by using a `<style>` element in the `<head>` section
- External - by using the `<link>` element and external CSS file

With CSS you can define colors, font properties, box sizes and positions, margins, borders and much more.

# HTML Basics

## HTML Editors and Tools

Write HTML using a simple **Text Editor** like Notepad (PC) or TextEdit (Mac). Don't use MS Word!

**Code Editors** like Notepad++ (PC), Sublime Text, Atom or Brackets (Adobe) help you with Syntax Highlighting, Auto Complete, Makros, Plugins or Extensions.

For advanced users an **Integrated Development Environment** (IDE) like NetBeans is recommendable. With an IDE you can use Automation Tools, Debugger or a Version Control System.

Use a **Local Web Server** for testing purposes like XAMPP or MAMP.