HTML Basics

R0244 - Verkkosivujen kehittäminen / R0278 - Foundations of Web Development

Contents

1. What is HTML?

▸ HyperText Markup Language

▸ Language of the Web

▸ Invented by Tim Berners-Lee, maintained by W3C.

▸ HTML is not a programming language but a markup language -> static not dynamic.

▸ Usually web pages and applications are built with a combination of

  ▸ HTML

  ▸ CSS

  ▸ JavaScript

THIS COURSE

1. What is HTML?

▸ HTML is written in a text file with an extension html (or htm).

▸ File can then be opened in a web browser and the browser will render the content of the page based on the HTML code in the file.

▸ It's really easy to get started with; you only need a text editor and a web browser. No need for specific tools, compilers, servers and such.

1. What is HTML?

▸ Modern web pages are not typically written by hand as plain HTML but often you would use content management systems (CMS), web frameworks or such.

▸ It is still important to understand basics of HTML to be able to use these tools effectively.

▸ Code editors can do a lot for you and be a good help but for this basic course I recommend to use just a basic text editor like Notepad++ to learn the basics properly.

2. Document Type Declaration (DTD)

▸ The very first thing you need to do when creating a new HTML file is to tell the browser that your file actually is a HTML file and should be treated accordingly.

▸ In previous versions of HTML you needed to specify the version of HTML you're using and refer to a specific document type definition. In HTML5 you only declare the file to be HTML.

▸ Always add DTD before any other HTML in your file.

```
<!DOCTYPE html>
```

3. HTML Elements

▸ HTML code consists of HTML **elements.**

▸ Typically element have a starting tag and a corresponding closing tag.

▸ Tags are marked with angle brackets < and >.

▸ Ending tag has a forward slash </>

```
<element>Contents of the element</element>
```

▸ Some elements can be self closing (stand alone, void) tags which means that they don't have a closing tag but closure is marked by a forward slash in the start tag (not required in HTML5).

```
<element />
```

3. HTML Elements

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

        <h1>This is a Heading</h1>
        <p>This is a paragraph.</p>

    </body>
</html>
```

More in www: https://www.w3schools.com/html/html_basic.asp

Elements can be nested i.e. have elements inside elements.

It is important to make sure all elements are closed properly and in correct order. Unclosed elements may cause unwanted behaviour. You should indent your code to make it easier to verify that all elements are closed.
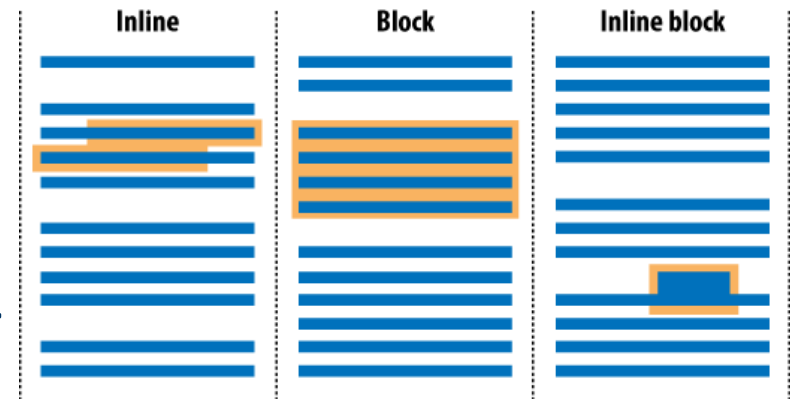
3. HTML Elements

▸ Elements can be either **block elements** or **inline elements.**

▸ Block elements

  ▸ Always start a new line

  ▸ Full-width

  ▸ tables, headings, forms etc.

▸ Inline elements

  ▸ Doesn't start a new line.

  ▸ Only takes as much space as needed.

  ▸ links, images, input fields etc.

| Inline | Block | Inline block |

(Pics: https://www.safaribooksonline.com/library/view/html-css/9781449381943/ch06s05.html)

4. Element Attributes

▸ HTML elements can have attributes.

▸ Different elements have different set of attributes available.

▸ Attributes are defined in the starting tag of the element.

▸ Attribute values are enclosed in double quotes.

```
<element attribute="value">
    Contents of the element
</element>
```

5. Sections

- HTML is placed within `html` tags.

- HTML is divided into two main sections:
  - Head
    - Information about the page, such as:
      - metadata
      - title
      - styles, scripts etc.
  - Body
    - Elements of the page, such as:
      - text
      - images
      - lists
      - tables etc.

```
<!DOCTYPE html>
<html>
    <head></head>
    <body></body>
</html>
```

6. Head

- To set up the title shown in the browser window you use title element:

```
<head>
    <title>This is the title of my page</title>
</head>
```

- Meta tags you can use for example to set character set used in the page:

```
<head>
    <title>This is the title of my page</title>
    <meta charset="utf-8" />
</head>
```

You can only use one encoding for a HTML page. You should always use UTF-8 encoding.

7. Heading Element

▸ You can use heading elements for headings of your page.

▸ There are different level (1-6) headings.

▸ You should only have one h1 element in your page.

▸ Search engines utilise headings in indexing.

▸ Block element

```
<body>
    <h1>This is the main heading of my page</h1>
    <h2>This is a sub heading</h2>
</body>
```

8. Paragraph Element

▶ One of the most used elements is paragraph `<p></p>`.

▶ Use this to have textual paragraphs in your page.

▶ Block element

```
<body>
    <h1>This is the main heading of my page</h1>
    <h2>This is a sub heading</h2>
    <p>Here I have some text</p>
    <p>And then the next paragraph.</p>
</body>
```

9. Anchor Element

▶ You can use anchor elements to create hyperlinks.

▶ Use `href` attribute to define the location of the file to link to.

```
<a href="http://www.laurea.fi">Laurea</a>
```

▶ Links can be
  ▶ absolute
    ▶ Links to external pages
    ▶ http://www.laurea.fi
  ▶ relative
    ▶ links to pages on your own site
    ▶ index.html

9. Anchor Element

▸ You can also use anchor elements to create hyperlinks that launch the default e-mail software:

```
<a href="mailto:meija.lohiniva@laurea.fi">Email me</a>
```

10. Line Break Element

▸ You can use line break element `<br/>` to break text into the next line.

▸ Only use this element when you really need it. Before using it consider whether you could use:

  ▸ Paragraph elements if it's a paragraph break

  ▸ Margin or padding if it's a whitespace issue

```
<body>
    <p>Here I have text I want on two lines<br/>
    And then the next paragraph.</p>
</body>
```

11. Phrase Elements

Tag	Usage
<b>	Bold
<em	Emphasized
<i>	Italic
<small>	Small
<strong>	Important
<sub>	Subscript
<sup>	Superscript
<ins>	Inserted
<del>	Deleted
<mark>	Highlighted

This is unformatted text. **This text is formatted with <b>**
This is unformatted text. **This text is formatted with <strong>**
This is unformatted text. *This text is formatted with <em>*
This is unformatted text. *This text is formatted with <i>*
This is unformatted text. This text is formatted with <small>
This is unformatted text. This text is formatted with <mark>
This is unformatted text. ~~This text is formatted with <del>~~
This is unformatted text. This text is formatted with <sub>
This is unformatted text. This text is formatted with <sup>
This is unformatted text. This text is formatted with <ins>

Difference between <b> and <strong>, and <em> and <i> is only semantic.
<b> and <i> are only for styling, <strong> and <em> have semantic meaning as well.

12. List Elements

- Unordered List `<ul>`
  - Bullet point list
  - Consists of List Items `<li>`
- Ordered List `<ol>`
  - Numbered list
  - Consists of List Items `<li>`
- Description List (definition list) `<dl>`
  - List of key value pairs.
  - Consists of terms `<dt>` and their descriptions `<dd>`.

- Item 1
- Item 2

1. Item 1
2. Item 2

Item 1
   description for item 1
Item 2
   Description for item 2

13. HTML Entities

▸ If you want to use special characters on your HTML page you will need **HTML entities**.

▸ For example if you want to use <> symbols, the browser might think they are HTML tags and not show them properly.

Character	HTML entity	
<	<	Less than
>	>	Greater than
&	&	Ampersand
©	©	Copyright
	& nbsp;	Non breaking space

14. Div Element

▸ Structural block or division on a web page.

▸ For layout purposes, no semantic meaning.

▸ Block element

```
<div>
    <h1>This is main heading</h1>
    <p>Lorem ipsum dolor sit amet.</p>
</div>
```

Divs are heavily used on web pages but watch out for "*divitus*", excessive use of divs. Always consider whether there is a HTML element specifically meant for the purpose.

```
DON'T:   <div class="header">This is my header</div>
DO:      <h1>This is my header</h1>
```

15. HTML5 Structural Elements

▶ HTML5 introduced new structural elements:

   ▶ `<header></header>`

      ▶ header elements.

   ▶ `<nav></nav>`
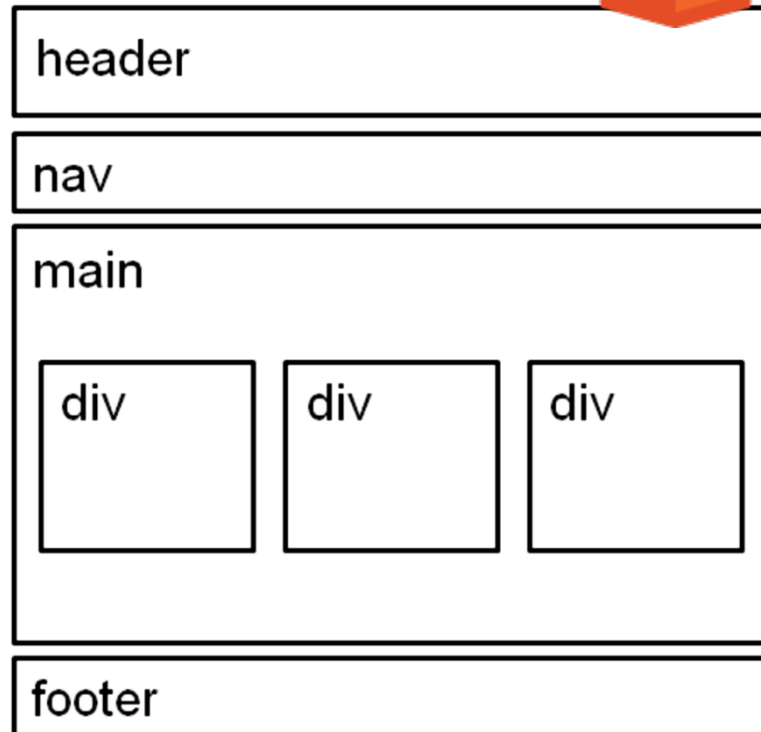
      ▶ main navigation.

   ▶ `<main></main>`

      ▶ main content.

   ▶ `<footer></footer>`

      ▶ footer elements

16. Code Validation

- Some browsers (especially Chrome) are quite forgiving in the means of displaying invalid web pages. Browsers differ in the way they handle invalid HTML so you should always aim for valid code.

- Invalid HTML can harm SEO (search engine optimisation).

- Always check your code with W3C validator https://validator.w3.org/

- You can get browser addons to easily validate your HTML.

17. Indentation

▸ Code is easier to read

▸ Issues are easier to spot

FIND MISSING END TAG

```
<html>
    <head></head>
    <body>
        <ul>
            <li>Item 1</li>
            <li>Item 2</li>
        </ul>
        <ol>
            <li>Item 1</li>
            <li>Item 2</li>
        </ol>
        <dl>
            <dt>Item 1</dt>
            <dd>description for item 1</dd>
            <dt>Item 2</dt>
            <dd>Description for item 2</dd>
        </dl>
    </body>
</html>
```

```
<html>
<head></head>
<body>
<ul>
<li>Item 1</li>
<li>Item 2</li>
</ul>
<ol>
<li>Item 1</li>
<li>Item 2</li>
</ol>
<dl>
<dt>Item 1</dt>
<dd>description f
<dt>Item 2</dt>
<dd>Description for item 2</dd>
</dl>
</body>
</html>
```

```
<html>
    <head></head>
    <body>
        <ul>
            <li>Item 1</li
            <li>Item 2</li
        </ul>
        <ol>
            <li>Item 1</li
            <li>Item 2</li
        </ol>
</html>
```

```
<html>
<head></head>
<body>
<ul>
<li>Item 1</li>
<li>Item 2</li>
</ul>
<ol>
<li>Item 1</li>
<li>Item 2</li>
</ol>
</html>
```

18. Questions, comments?