



Web Engineering & Design 1

HTML

Introduction

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HOCHSCHULE FÜR TECHNIK
RAPPERSWIL

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Content

- A first HTML document
- HTML Tags

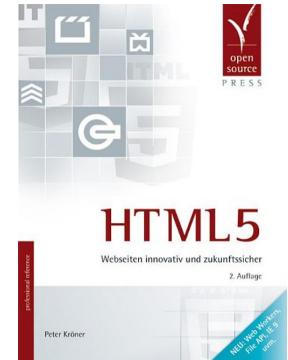
Learning goals

You are able to...

- ...create a basic document containing head (document title, charset) and body (titles and paragraphs).
- ...able to explain the structure of an HTML tag and what void tags and entities are.
- ...able to validate the structure of an HTML document.
- ...able to validate and use HTML tag attributes.
- ...read the W3C spec of an tag to determine how it should be used and which tags may be nested.

Sources

- HTML5, Webseiten innovativ und zukunftssicher,
Peter Kröner

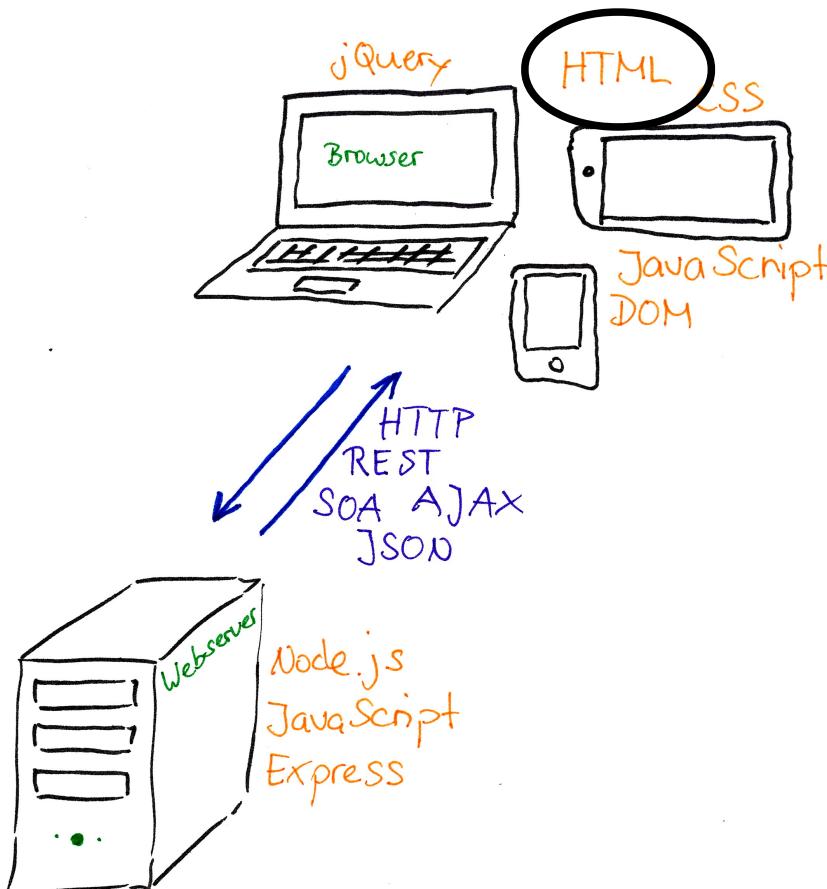


Links

- Selfhtml wiki site (D)
wiki.selfhtml.org/wiki/HTML/Textstrukturierung/ul
- Mozilla Developer Network (D zum Teil)
developer.mozilla.org/de/docs/Web/HTML/Element/ul

- WHATWG living HTML Specification
html.spec.whatwg.org/multipage/semantics.html#the-ul-element
- W3C HTML5 Specification
www.w3.org/TR/html5/grouping-content.html#the-ul-element www.html5-deutsch.de/TR/html5/Overview.html
www.w3.org/wiki/HTML/W3C-WWHATWG-Differences
- Validation:
W3C: validator.w3.org/#validate_by_input
Firefox Plugin:
<https://addons.mozilla.org/de/firefox/addon/html-validator/>

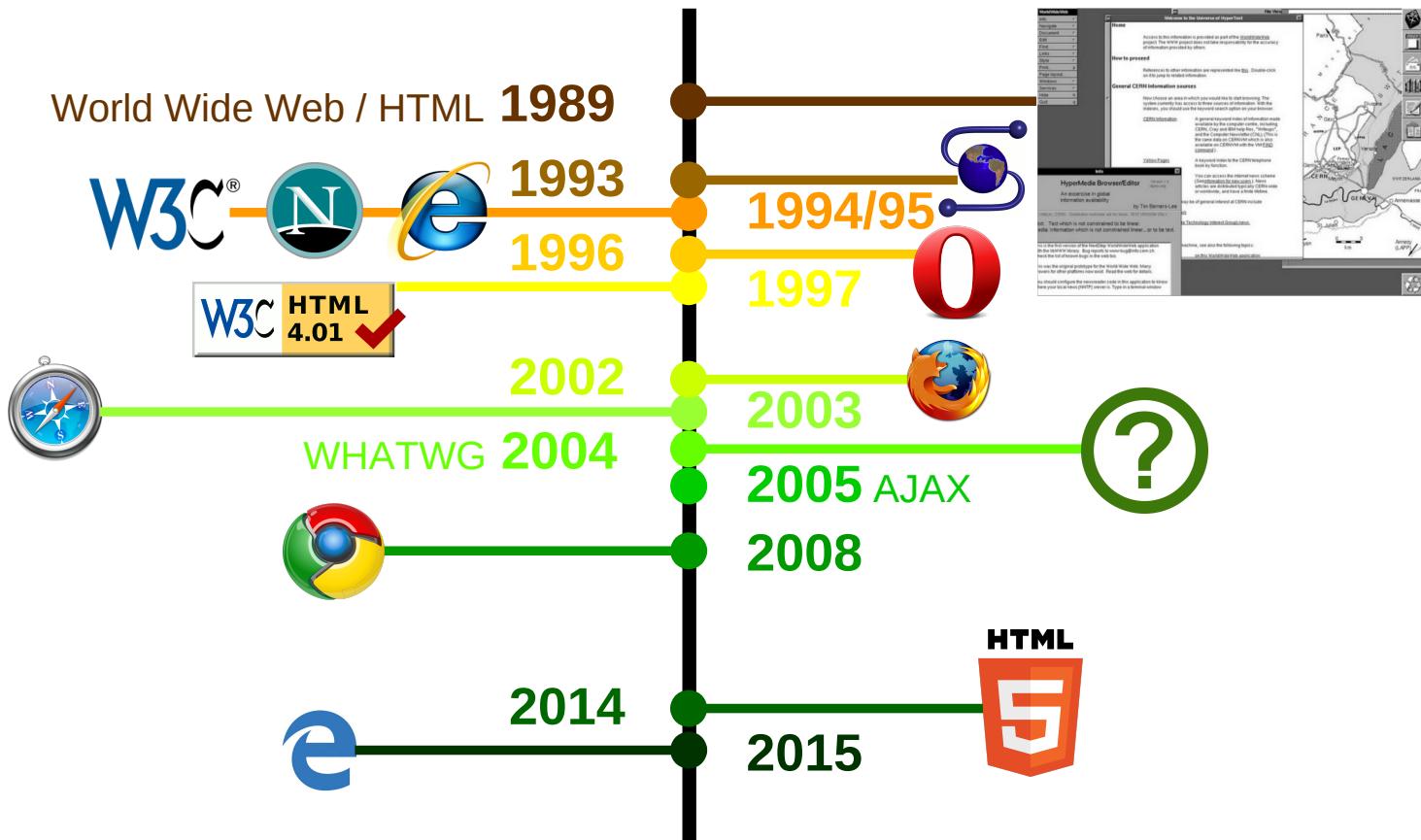
World Wide Web



- Client
 - HTML / CSS / JS
- Server
 - **Node.js / Apache / Nginx/IIS / Tomcat / ...**
 - **JavaScript / PHP / Python / C# / Java / ...**
 - **Express / Flow / ASP.Net MVC / Spring MVC / ...**

Web technology overview

History



info.cern.ch/hypertext/WWW/TheProject.html

First website screenshot: Cern

A first document

A first document

This is our first HTML-document.

[examples/basic-document.html](#)

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>First document</title>
        <meta charset="utf-8" />
    </head>
    <body>
        <h1>A first document</h1>
        <p>This is our first HTML-document.</p>
    </body>
</html>
```

[jsfiddle.net/n96kjh1s/1/](#)

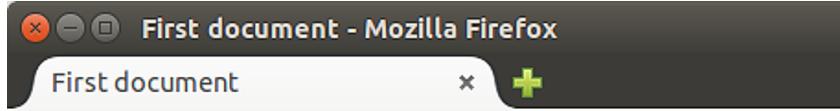
HTML Document structure

Document type declaration

Document Header

HTML Document Root

Document Body



A screenshot of Mozilla Firefox showing the title bar "First document - Mozilla Firefox" and the content area displaying an HTML document. The code is:

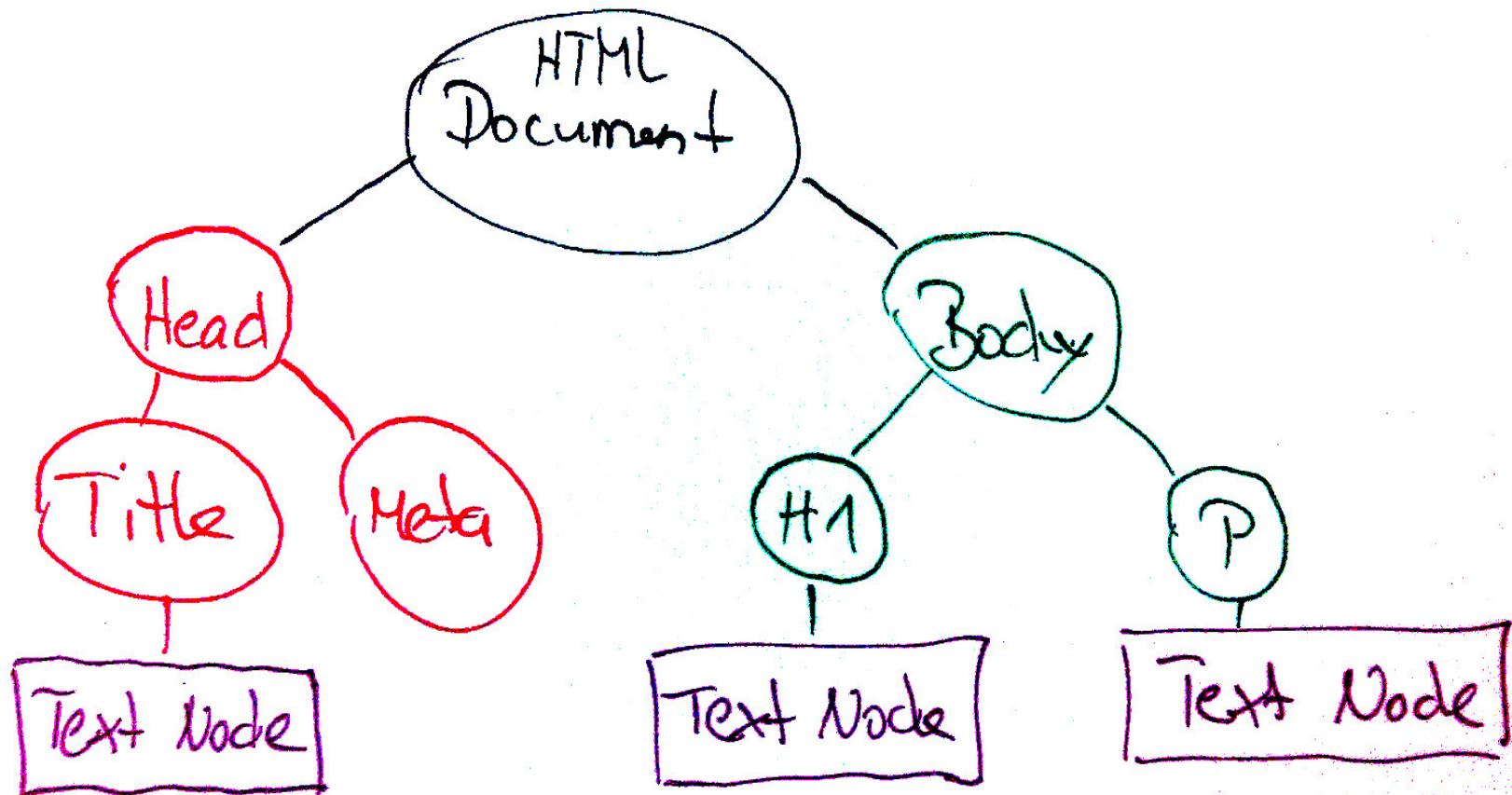
```
1  <!DOCTYPE html>
2  <html>
3  <head>
4      <title>First document</title>
5      <meta charset="utf-8" />
6  </head>
7  <body>
8      <h1>A first document</h1>
9      <p>This is our first HTML-document.</p>
10 </body>
11 </html>
```

The code is annotated with colored lines pointing to specific parts:

- A blue line points from "Document type declaration" to the first line of code: `<!DOCTYPE html>`.
- A red line points from "Document Header" to the `` section of the code.
- An orange line points from "HTML Document Root" to the `` section of the code.
- A purple line points from "Document Body" to the `` section of the code.
- A green line points from "Document meta information: encoding" to the `

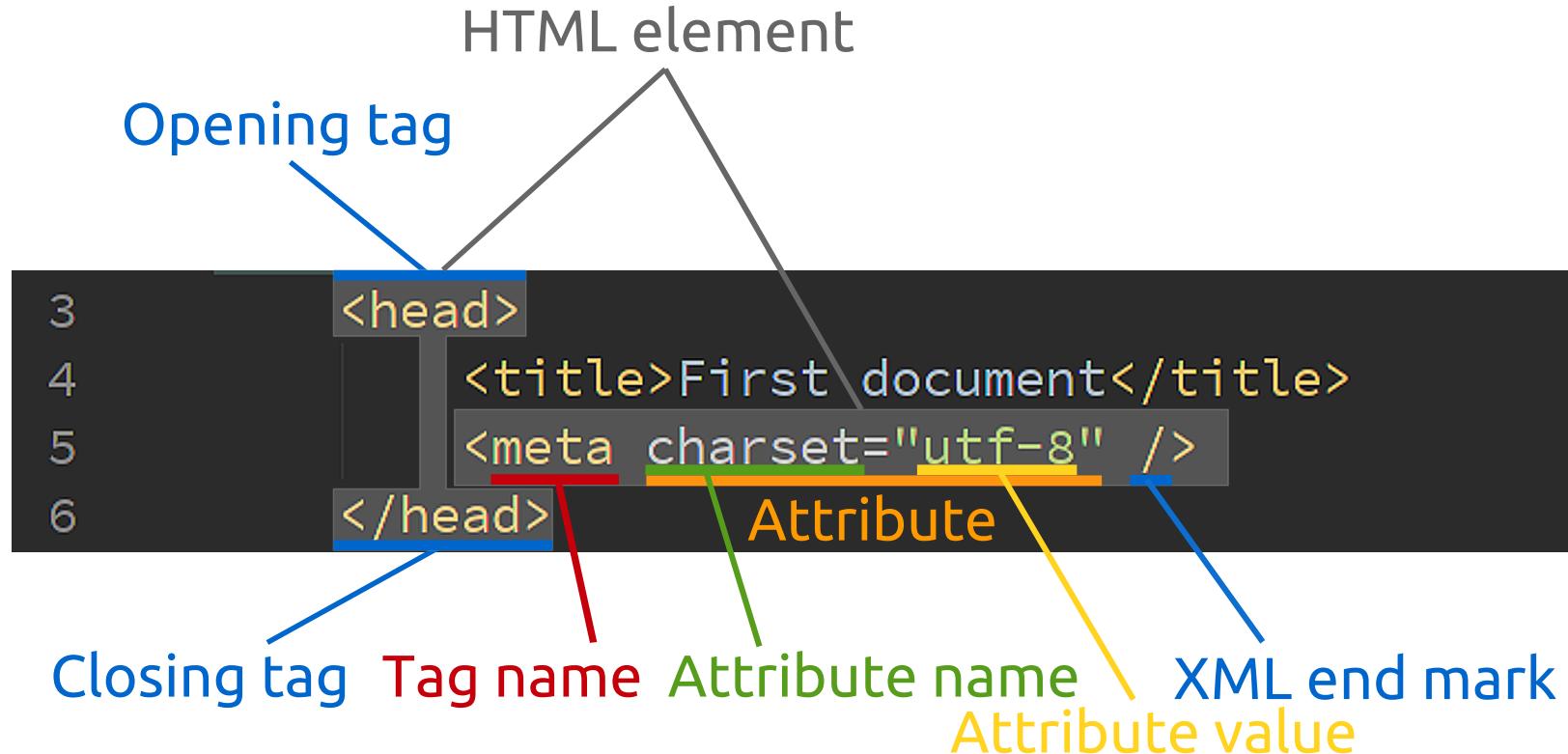
Document meta
information: encoding

Internal structure after parsing



→ DOM (Document Object Model)

HTML Tags



HTML tag rules

- Tags need to be **nested correct**

```
: - ) <div><p>text</p></div>  
: - ( <div><p>text</div></p>
```

- Most **tags need to be closed**
 - html, head, body, div, section, title, a, p, h1, h2, ...
- **void tags** don't need to be closed
 - img, meta, input, link, ...
 - Recommendation: use XML tag **end mark**:

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

- Line breaks and multiple spaces are ignored

■ Comments:

```
<!-- comment -->
```

■ Entities:

```
&nbs; (" "), &rarr; (→), &lt; (<), ...
```

→ www.w3.org/html/wg/drafts/html/master/syntax.html#named-character-references

■ Vocabulary

- **Tag:** <tag> inside the HTML document
- **Element:** Node inside the internal structure of the parser

W3C tag/element specification:

<http://www.w3.org/TR/html5/semantics.html#the-html-element>

4.1.1 The `html` element

Categories:

None.

Contexts in which this element can be used:

As the root element of a document.

Wherever a subdocument fragment is allowed in a compound document.

Content model:

A `head` element followed by a `body` element.

Content attributes:

Global attributes

`manifest` — Application cache manifest

Tag omission in text/html:

An `html` element's start tag can be omitted if the first thing inside the `html` element is not a `comment`.

An `html` element's end tag can be omitted if the `html` element is not immediately followed by a `comment`.

Allowed ARIA role attribute values:

none

HTML Attribute rules

```
<tag attribute-name="attribute-value" />
```

- **lowercase** (convention)
- Some attributes are **required**

```
  
<a href="http://www.hst.ch">HSR</a>
```

- Some attributes allow **predefined values only**

```
<input type="text" /> <!-- "number", "email", "date", "password", ... -->
```

- Some attributes **don't need** values

```
<video src="video.mp4" autoplay controls></video>
```

- **data-*** attributes allow **custom attributes**

```

```

HTML ist a **document markup** language:

- *markup* = semantic annotation of information
- **nothing** about visual appearance/display properties!

```
<!-- bad -->
<p class="red">Warning</p>

<!-- good -->
<p class="warning">Warning</p>
```



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Self Check

1. Create a complete HTML document ("Skyguide news") like the following document:

```
Skyguide news company
```

```
=====
```

```
Skyguide is a independent newspaper company . . .
```

```
With the end of traditional European air . . .
```

```
These include for instance totally digitised . . .
```

2. What happens to multiple whitespace, linebreaks and tabs in your document during rendering?
3. What's the difference between a "Tag" and an "Element"?

4. Why ist this not a good attribute value name?:

```
<p class="bold">Really important</p>
```

Solutions

1. Skyguide news:

```
<!DOCTYPE html>
<html>
  <head>
    <title>Skyguide news</title>
    <meta charset="utf-8" />
  </head>
  <body>
    <h1>Skyguide news company</h1>
    <p>Skyguide is a independent newspaper company . . . .</p>
    <p>With the end of traditional European air . . . .</p>
    <p>These include for instance totally digitised . . . .</p>
  </body>
</html>
```

2. Multiple whitespace will collide.

3. Tag: HTML-Tag in document, Element: node in internal structure of the parser.

4. Markup is nothing about the visual appearance! Better use class "necessary".



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