Review on HTML5 & CSS3

Aplicações para a Internet

Engenharia Informática – 2015/2016

Copyright

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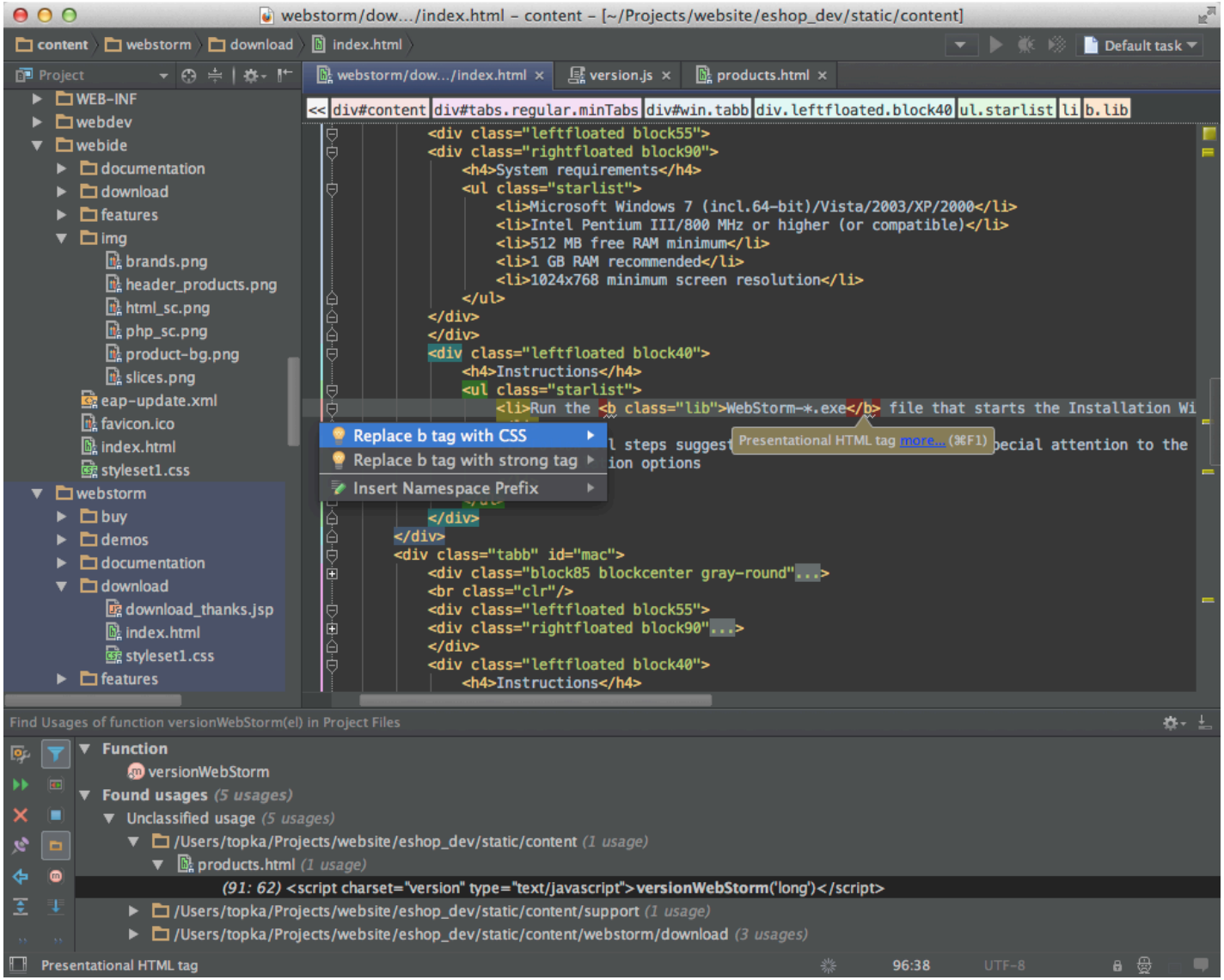
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<h4>System requirements</h4>
<ul class="starlist">
Microsoft Windows 7 (incl.64-bit)/Vista/2003/XP/2000
Intel Pentium III/800 MHz or higher (or compatible)
512 MB free RAM minimum
1 GB RAM recommended
1024x768 minimum screen resolution

<h4>Instructions</h4>
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Replace b tag with strong tag
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<br class="clr"/>

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<h4>Instructions</h4>
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Function
versionWebStorm
Found usages (5 usages)
Unclassified usage (5 usages)
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products.html (1 usage)
(91: 62) <script charset="version" type="text/javascript">versionWebStorm('long')</script>
/Users/topka/Projects/website/eshop_dev/static/content/support (1 usage)
/Users/topka/Projects/website/eshop_dev/static/content/webstorm/download (3 usages)
Presentational HTML tag
96:38
UTF-8

Tools

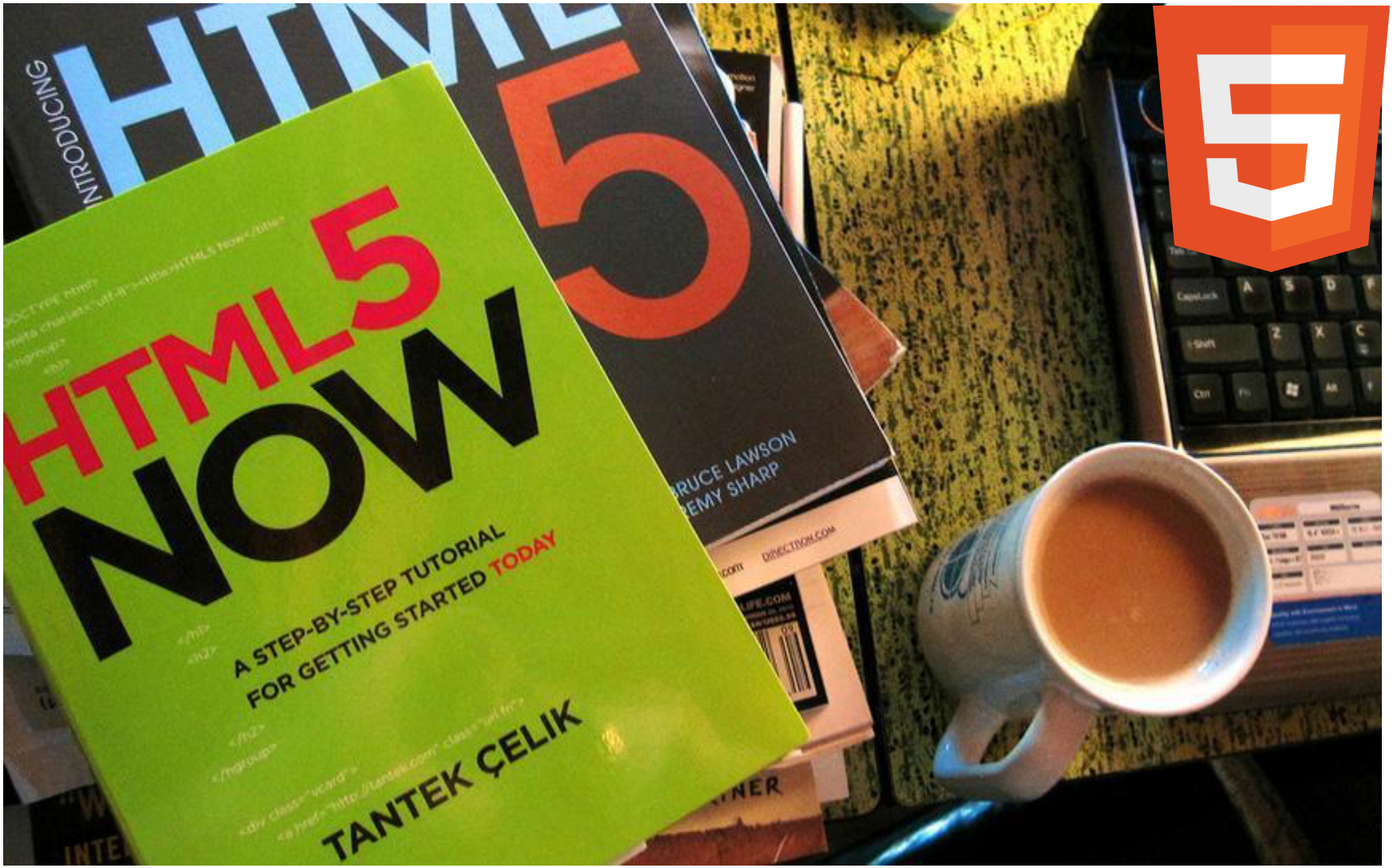
Tools

- Editors such as:
  - Notepad 2, Notepad++ (http://notepad-plus-plus.org/)
  - Sublime Text 3 (http://www.sublimetext.com)
  - PhpStorm (https://www.jetbrains.com/phpstorm)
- IDEs such as:
  - Eclipse plugin for web development (Eclipse PDT)
  - Aptana
  - Netbeans

- Q: Why should I use a simple text editor? Aren't there powerful tools like Dreamweaver, FrontPage and GoLive for creating Web pages?
  - A: Those are all great tools, but they do a lot of the work for you, and until you are a master of HTML and CSS you want to learn this stuff without a big tool getting in your way.

Tools

- Plug-ins/Add-ons (MUST HAVE)
  - Web Developer
    - The Web Developer extension adds a menu and a toolbar to the browser with various web developer tools (includes W3C validation wrapper)
    - http://chrispederick.com/work/web-developer/
  - Firebug
    - Firebug integrates with your browser to put a wealth of development tools at your fingertips while you browse. You can edit, debug, and monitor CSS, HTML, and JavaScript live in any web page...
    - http://getfirebug.com/
  - HTML Validator (for Firefox)
    - HTML Validator is a Mozilla extension that adds HTML validation inside Firefox and Mozilla. The extension can validate the HTML sent by the server or the HTML in the memory (after Ajax execution)
    - Great tool for validating pages in mode offline (also handles file:// scheme)
    - https://addons.mozilla.org/pt-pt/firefox/addon/html-validator/
- Best practice
  - Develop for Firefox or Chrome (WebKit) and test in all major browsers


INTRODUCING
HTML5
HTML5
NOW
A STEP-BY-STEP TUTORIAL
FOR GETTING STARTED TODAY
TANTEK ÇELIK
BRUCE LAWSON
REMY SHARP

HTML5

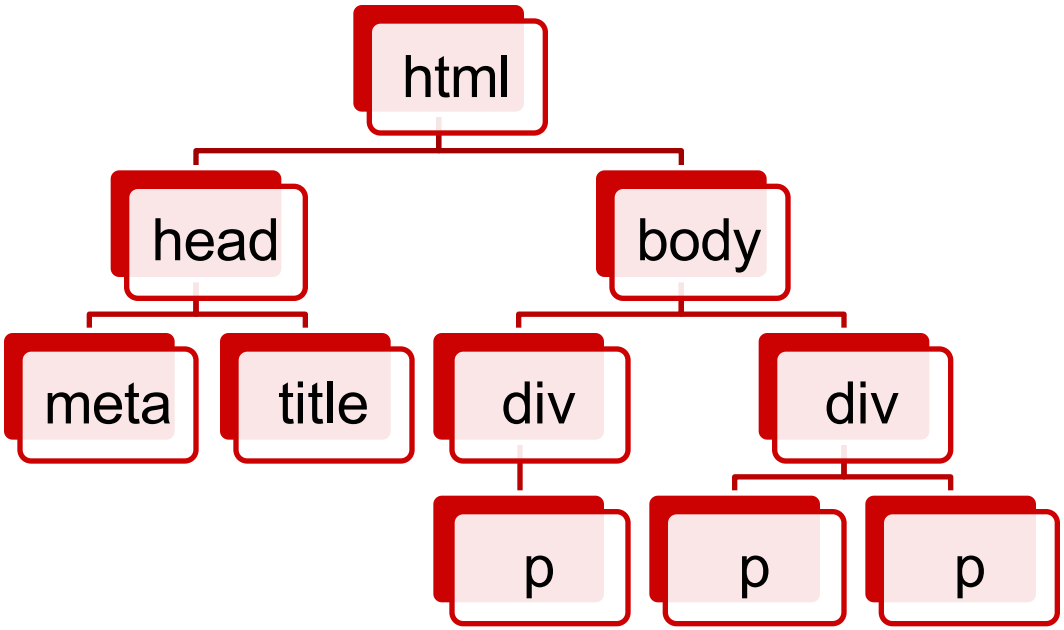
HTML5

What does HTML5 offers when comparing with prior versions?

- New tags and attributes that redefine the scheme of a page
- An improved semantics that helps interpreting the site by parsers and by bots
- New APIs that increase the independence of the client from the server

HTML Documents

- HTML documents are defined through an HTML element tree
- The root of the tree is defined by an <html> element



(HTML element tree example)

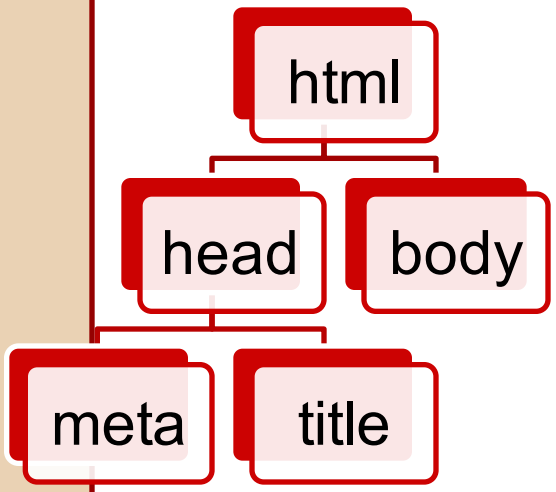
HTML Document Structure

- HTML5 minimal structure

```
<!doctype html>

<html>
  <head>
    <meta charset="UTF-8">
    <title>Título</title>
  </head>
  <body>


  </body>
</html>
```



HTML5: tags 1/3

The syntax of a tag:

```
<name attribute="value" attrib... >
```

The name or type of a tag and their corresponding attributes are settled by a specification:

http://www.w3.org/TR/html5

One tag can have as attributes numbers, text or specific keywords

HTML5: tags 2/3

Pre- HTML 5 most widely used tags

```
<!DOCTYPE ... >
<html>
<head>
<title>
<body>
<div>
<img>
<p>
…
```

New **HTML5** tags:

```
<!DOCTYPE html>
<section>
<article>
<nav>
<aside>
<figure>
<time>
<canvas>
…
```

HTML5: tags 3/3

The majority of the tags are presented in pairs, one opening tag and one closing tag:

```
<h1>Hello World!</h1>
```

Nevertheless, some tags, known as empty elements, present a single tag

```
<img src="/img/blank.gif" alt="" />
```

It is possible to find text, or other tags, between a set of tags

Inside a tag we can find **attributes** and **values**

```
<img src="/img/blank.gif" alt="" />
```

HTML5: standards 1/4

According with the specifications, the fundamental HTML tags are:

Tag Name	HTML Version	Description
<!DOCTYPE>	4.01/5	Allows deffining the HTML version used in the document
<html>	4.01/5	Defines the beginning of an HTML document, informing the web client (browser) that all of the following content must be processed as HTML code.
<head>	4.01/5	Defines the header of an HTML document. It allows adding meta-information, such as a link to a resource that is used by the page (stylesheet, javascript,…), or to define the title of the document. <meta charset="UTF-8“> <title>An application with a long head</title> <link rel =“stylesheet" href="default.css">

HTML5: standards 2/4

Tag Name	HTML Version	Description
<title>	4.01/5	The title of the page must be defined inside of the <head> tag: <title>TITLE OF PAGE</title>.
<body>	4.01/5	Defines the main content: the body of the document. This is the part of the HTML document that is shown on the browser. In this tag it is possible to define properties that are common to the entire page, such as background color, margins and other formatting options.
<header>	5	Defines the header of the website. This tag should present introductory content or navigation links.
<nav>	5	This tag contains the website navigation menu.
<article>	5	Defines an area for displaying sealed information, such as posts from foruns or blogs, news articles or comments.
<aside>	5	This tag can be used for displaying infromation related with the one present in the <article> tag.

HTML5: standards 3/4

Tag Name	HTML Version	Description
<p>	4.01/5	Defines a paragraph.
<img>	4.01/5	Defines an image inside the html. It has 2 mandatory attributes: src (image location) and alt (alternative text).
<table>	4.01/5	Defines a table. Inside of the tag <table> we can fnd <th>, <tr>, <td>, which define a table header, a table row and a table column (respectively)
	4.01/5	This tag is used for grouping code content in order to easily apply CSS rules on that code.
<a>	4.01/5	Defines a hyperlink to other resource.
<h1> a <h6>	4.01/5	The “h” tags define different types of title: <h1> is the most important and <h6> the less important.
<footer>	5	Used to display information on the footer of the website. Rodapé do website.

HTML5: standards 4/4

How do I know that the HTML code is following the standards defined by W3C?

Use the validation page to check for errors in code, and possible solutions:

http://validator.w3.org

Hands-on: My First Web Page

- Create a new Web page
  - Use all of the required elements
  - The default character encoding in HTML5 is UTF-8

Best practice: Separate head from body with an empty line

```
<!DOCTYPE html>
<html>
 <head>
  <meta charset="UTF-8">
  <title>My first web page</title>
 </head>

 <body>
  <p>My first paragraph.</p>
 </body>
</html>
```

Assume all resources (web page, css files, images, folders, etc) are CASE-SENSITIVE. You never know on which server the application will be deployed

Hands-on: Validation

- Check the document in IE, Firefox and Chrome
- Always validate the page
  - Use W3C validation tool at http://validator.w3.org/
    - URL validation (for pages hosted externally)
    - File validation or form validation (for local pages)
  - Use Web Developer plug-in or HTML Validator
  - Add the following tag to the previous web page and validate:

```
<font size="2">Test</font>
```

    - Note: Some editors accept the tag as being valid

Comments and spaces

- Comments
  - Start comment: <!--
  - End comment: -->
  - Example:

```
<!-- This is a comment. Comments are not displayed
  in the browser -->
```

- Spaces
  - Multiple spaces or tabs are rendered as a single space

```
<p>    Browser only     renders   a         single
  space    </p>
```

  - Q: How to force a space?
  - A: Use the meta-character non-breaking space: ` `

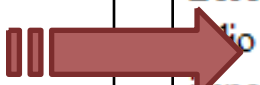
Document Sections

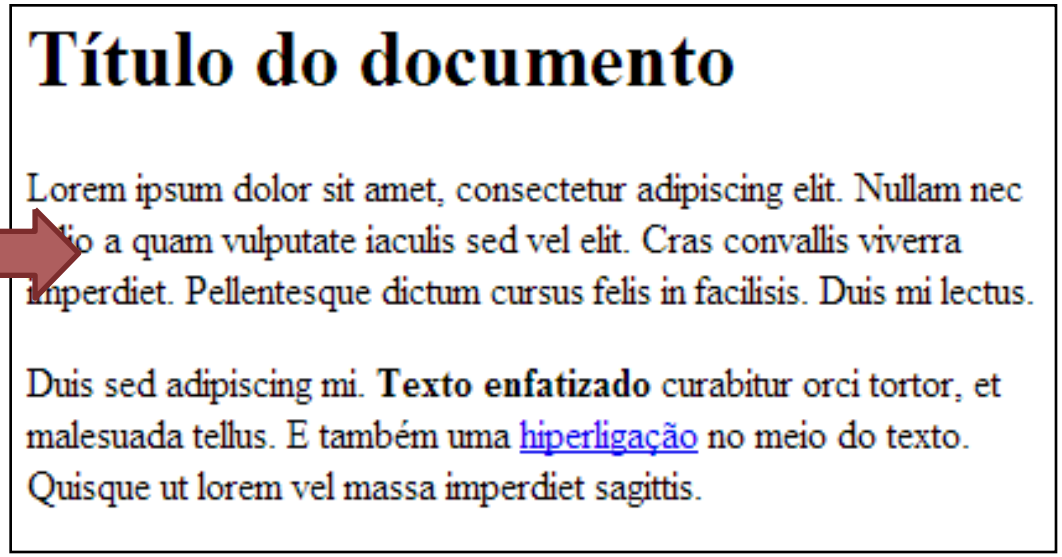
block `<div>`	Logical area that allows grouping elements It can include any other type of elements – even other blocks
inline `<span>`	Logical area that allows grouping other elements It can only include inline elements or text

- They only define logical areas
  - Do not have a proper semantics
  - Do not have a proper formatting
  - Used only for grouping other elements/data
  - Usually used with CSS for redefining the appearance of an area of the page

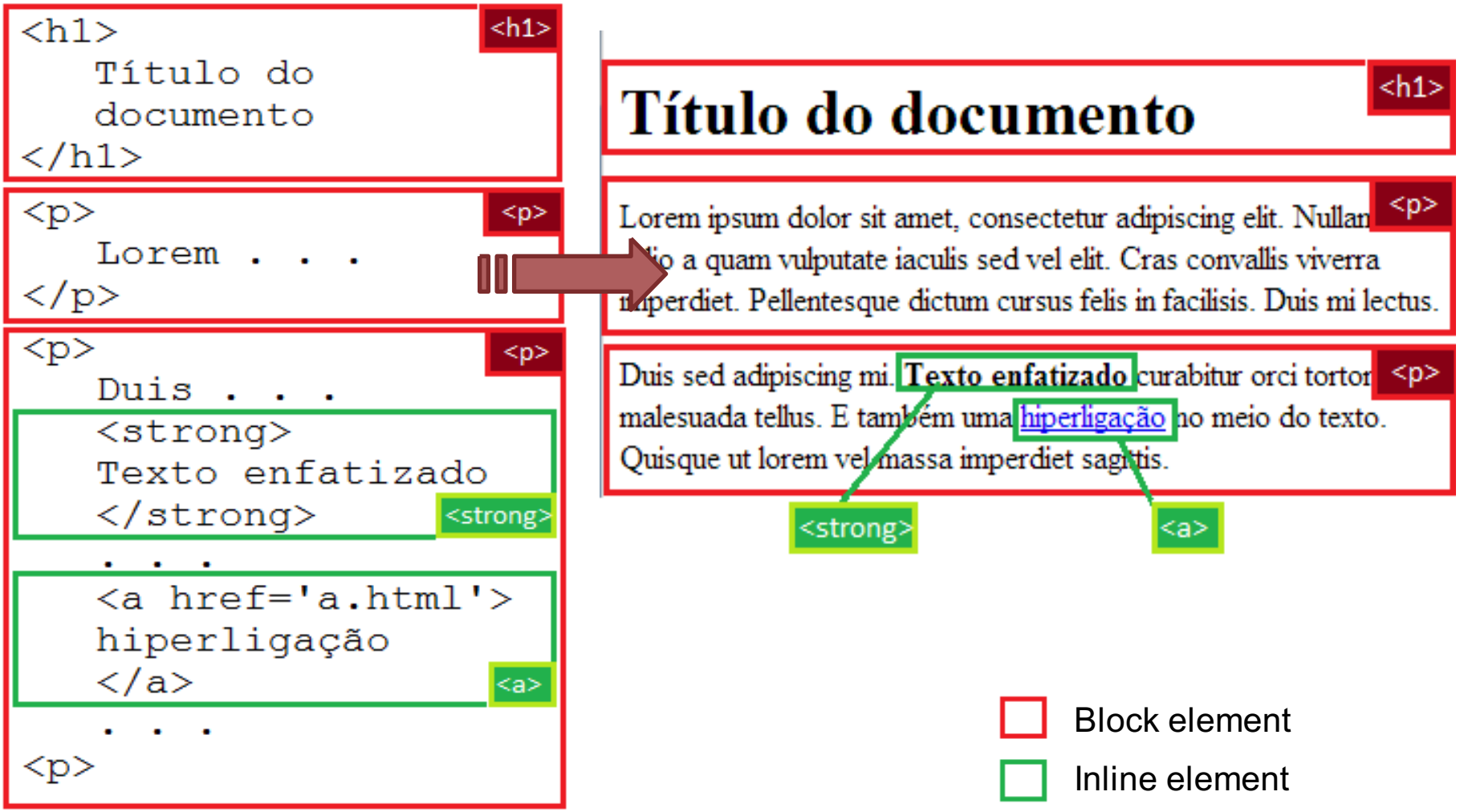
Document Sections: Block vs. Inline

```
<h1>
   Título do
   documento
</h1>
<p>
   Lorem ...
</p>
<p>
   Duis ...
  <strong>
   Texto enfatizado
   </strong>
   . . .
   <a href='doc.html'>
   hiperligação
  </a>
  . . .
<p>
```





Document Sections: Block vs. Inline



Document Sections

- New HTML5 structural elements
  - Allow dividing the document into logical sections
  - Similar to but with a specific semantic

block	`<section>`	Defines a document section
block	`<header>`	Header of the document or of the section
block	`<footer>`	Footer of the document or of the section
block	`<article>`	Defines an article
block	`<aside>`	Defines tangencial contents
block	`<nav>`	Groups navigation links (menus)

Document Sections

- New HTML5 structural elements
  - Allow ... ument into logical sections
  - ... pecific semantics

Lets take this tag as an example for better understanding of the semantic of these tags

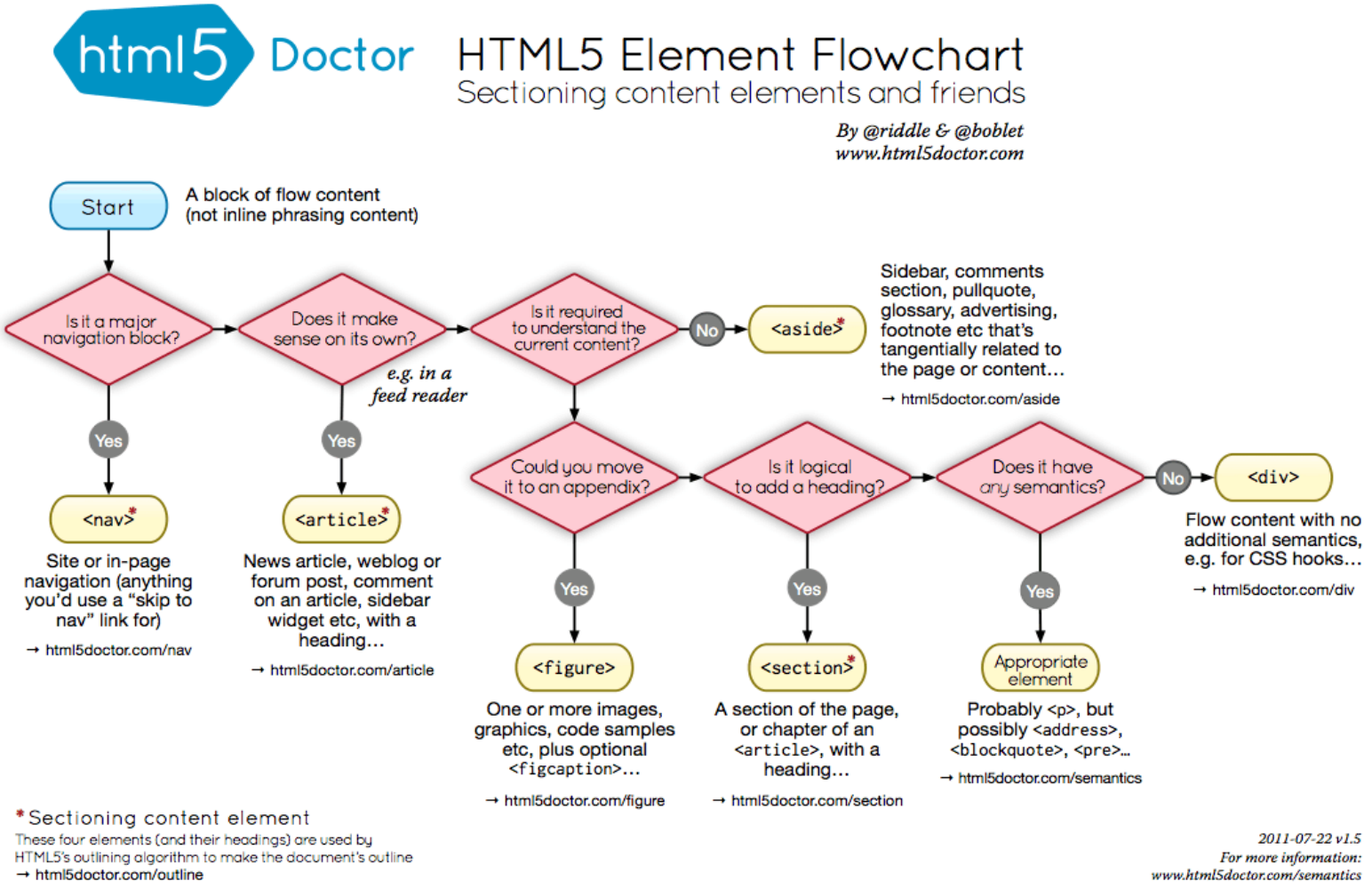
block	<he...	...ment section
block	<he...	...the document or of the section
block	<foote...	Footer of the document or of the section
block	<article>	Defines an article
block	<aside>	Defines tangencial contents
block	<nav>	Groups navigation links (menus)

Document Sections

- What does the specification states about the <article> tag?

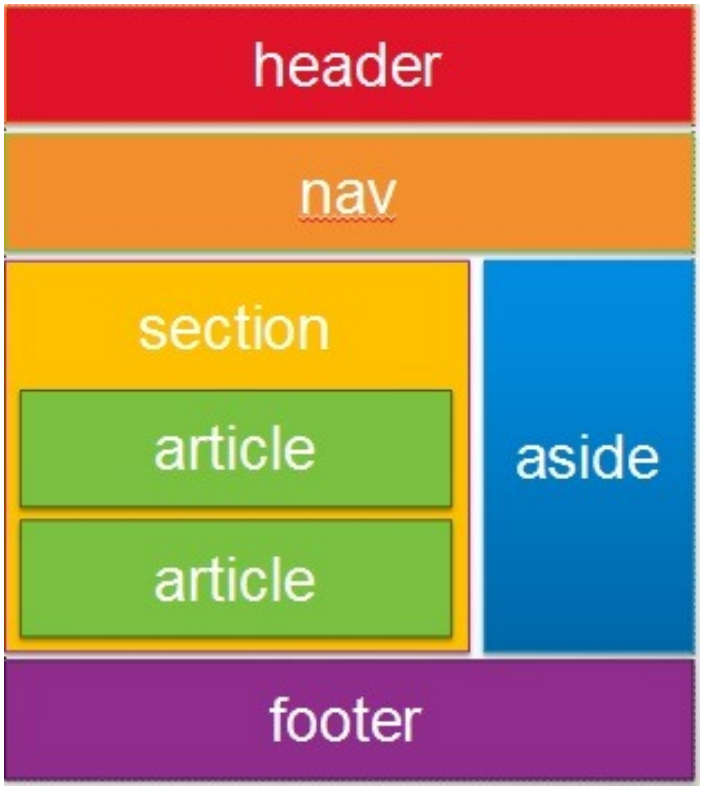
“The article element represents a component of a page that consists of a self-contained composition in a document, page, application, or site and that is intended to be independently distributable or reusable, e.g. in syndication. This could be a forum post, a magazine or newspaper article, a blog entry, a user-submitted comment, an interactive widget or gadget, or any other independent item of content.”

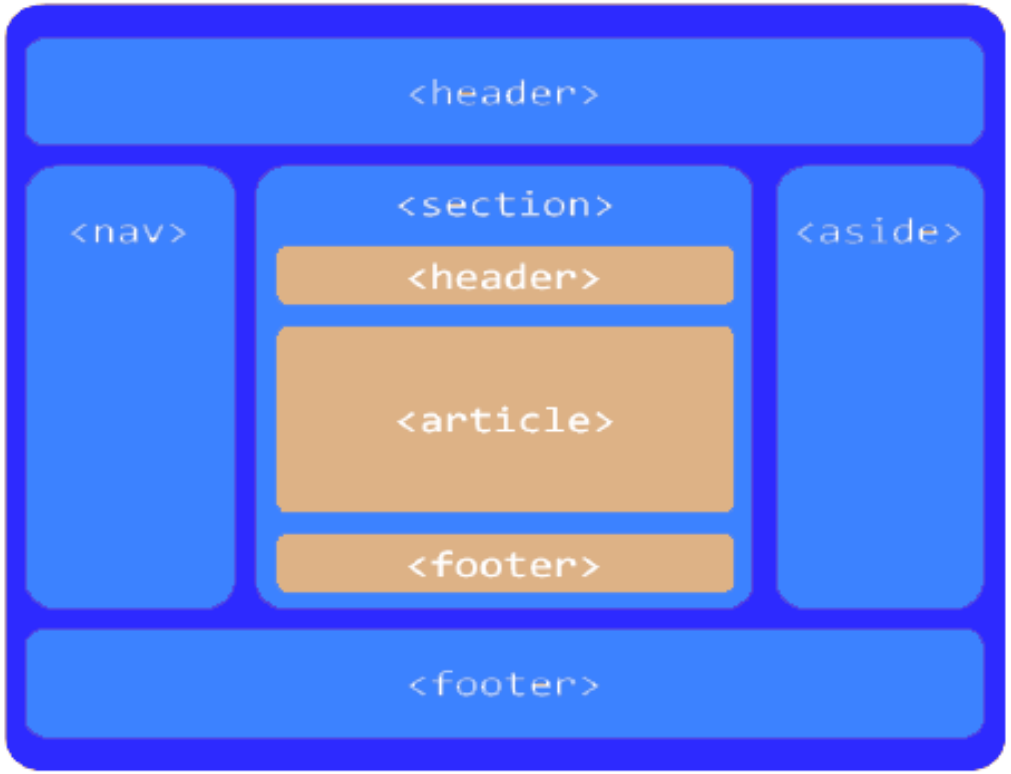
Document Sections



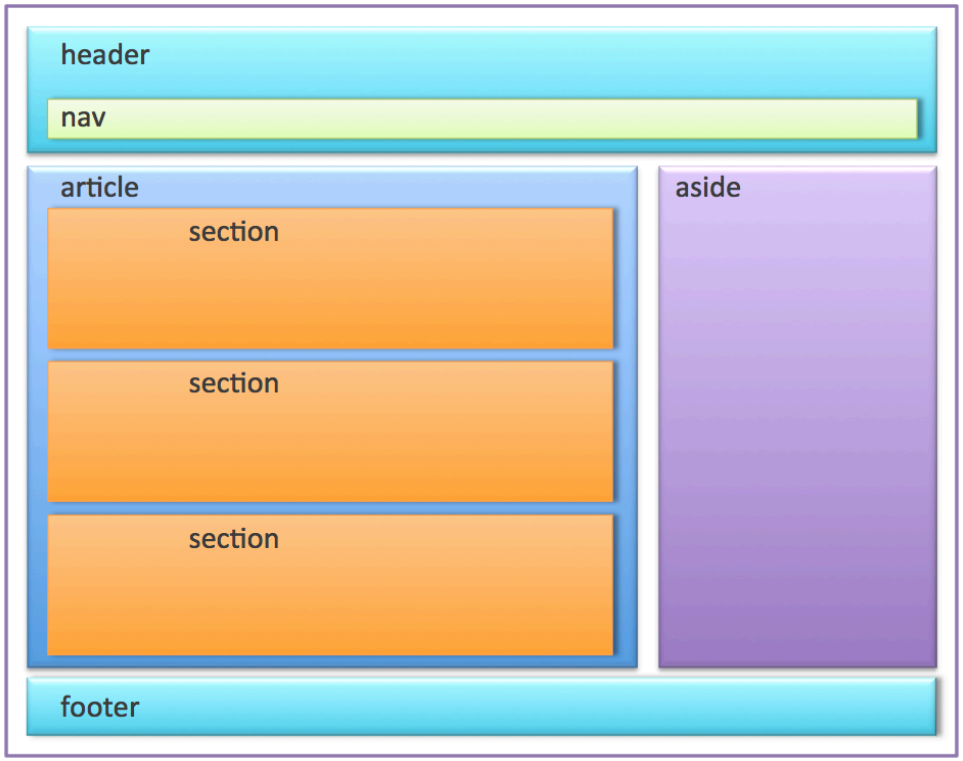
HTML5 new elements: http://www.w3schools.com/html/html5_new_elements.asp

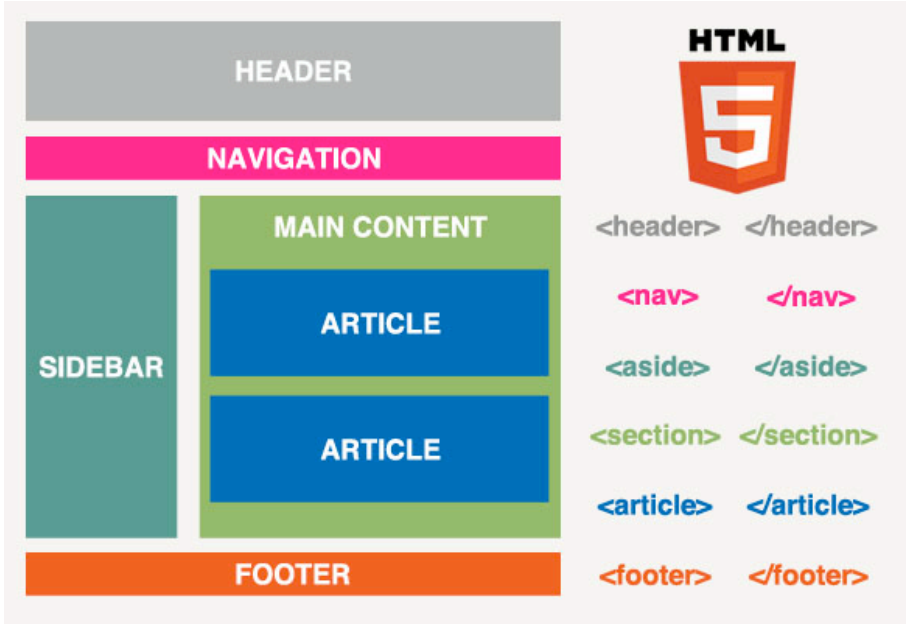
Document Sections: Examples





Document Sections: Examples





HTML5: Browser Support

HTML5 is supported in all modern browsers. All browsers, old and new, automatically handle unrecognized elements as inline elements.

You can "teach" old browsers to handle "unknown" HTML elements.

- Define HTML5 Elements as Block Elements
  - To secure correct behavior in older browsers, you can set the CSS **display** property to **block**:

```
header, section, footer, aside, nav, main, article, figure {
    display: block;
}
```

- Internet Explorer 8 and earlier, does not allow styling of unknown elements
  - Sjoerd Visscher created the "HTML5 Enabling JavaScript", "**the shiv**":

```
<!--[if lt IE 9]>
  <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
<![endif]-->
```

The code above is a comment, but versions previous to IE9 will read it (and understand it).

HTML5: Browser Support

The link to the shiv code must be placed in the <head> element, because Internet Explorer needs to know about all new elements before reading them.

- An HTML5 Skeleton:

```
<!DOCTYPE html>
<html>
 <head>
  <meta charset="UTF-8">
  <title>My first web page</title>
  <!--[if lt IE 9]>
  <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js">
  </script>
  <![endif]-->
 </head>

 <body>
  <p>My first paragraph.</p>
 </body>
</html>
```


body {
font: x-smal
background:
color: black;
margin: 0;
padding: 0;
}
table {

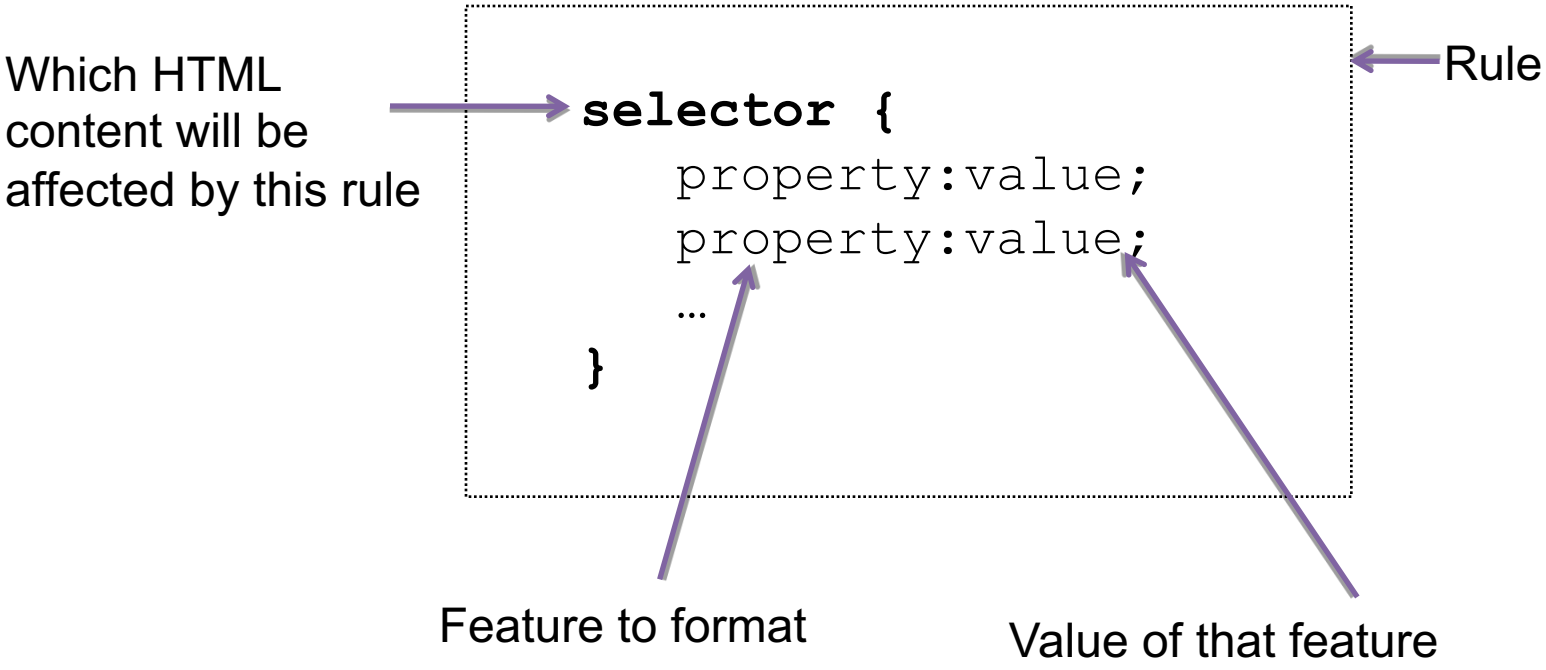
CSS3

Cascading Style Sheets (CSS)

- All visual layout of the HTML pages should be done using CSS's
- Advantages:
  - Separate the content from appearance
  - More compact code
  - Better control over the visual layout
  - Define different layouts to different devices
  - Update the visual appearance of several documents simultaneously

CSS syntax

- A style sheet is a set of rules that indicates the client how to display HTML content.



CSS examples

- Change all paragraphs text font to “Arial”:

```
p{
   font-family: Arial;
 }
```

- All <h1> HTML tags will be underlined and showed in red:

```
h1{
      text-decoration: underline;
      color: red;
  }
```

CSS validator: http://jigsaw.w3.org/css-validator/

CSS selectors

Element selector

- Selects elements based on the element name
  - Only the tag defined in the rule is affected

```
p{ font-family: Arial; }
```

Universal selector

- The universal selector matches the name of any tag.

```
*.answer { font-family: "Times New Roman"; }
```

CSS selectors

Class selector

- Selects elements with a specific class attribute
- Used to format layout on specific areas of the HTML page (the attribute “class” must be defined on the HTML file)

HTML:

```
<p class="question"> Question 1</p>
<p class="answer"> Answer 1</p>
<p class="question"> Question 2</p>
<p class="answer"> Answer 2</p>
```

CSS:

```
.question { font-weight: bold; }
.answer { font-style: italic; }
                or
p.question { font-weight: bold; }
p.answer {font-style: italic; }
```

CSS selectors

Id selector

- Uses the id attribute of an HTML element to select a specific element
- It is used to format a single tag, that has the “id” HTML attribute defined. This case-sensitive “id” attribute must be unique in the HTML document

HTML:

```
<html> <head><title>My document</title></head><body>
<h1 id="heading_red">Red title</h1>
</body></html>
```

CSS:

```
#heading_red { color: red; }
        or
h1#heading_red { color: red; }
```

CSS selectors

Descendant operator (space)

- The properties are applied only when the tags are encapsulated

```
div p{ text-decoration: underline; }
```

In this example, only paragraphs encapsulated in HTML tags are underlined.

CSS selectors

Pseudo-classes selector

- Used to format special states of an element

```
selector:pseudo-class { property: value; }
```

- CSS classes can also be used with pseudo-classes:

```
selector.class:pseudo-class { property : value; }
```

- Examples:

```
a:link {color: #FF0000; }     /*  unvisited link */
a:visited {color: #00FF00; } /*  visited link   */
a:hover {color: #FF00FF; }    /*  mouse over link*/
a:active {color: #0000FF; }   /*  selected link  */
a#desc_id:link { color: black; }
a.desc_class:link { text-transform: lowercase; }
```

Applying CSS

- There are 3 ways to apply CSS rules on a HTML document:

1. Using the **style** attribute on a HTML tag
2. Using the **<style>** tag
3. With the **<link>** tag

Applying CSS

1. The **style** attribute on a HTML tag:

   - The CSS property(s) are placed directly in the HTML tag.

```
<html>
  <head>
     <title>Example</title>
  </head>

  <body style="background-color: #FF0000;">
     <p>This page will showed with red background</p>
  </body>
</html>
```

Applying CSS

2. Using the **<style>** tag:

- All CSS rules defined for this particular document can be placed within a **<style>** tag, usually in the document header

```
<html>
  <head>
    <title>Example</title>
    <style type="text/css">
      body {
        background-color: #FF0000;
      }
    </style>
  </head>

  <body> <p>This page will present a red background</p>
  </body>
</html>
```

Applying CSS

3. The **<link>** tag:

- The style sheet rules are placed in a external file (usually with ".css" extension)
- Several HTML documents can share the same style sheet
- The same HTML document can include more than one <link> tag

```
<html>
  <head>
    <title>My document</title>
    <link rel="stylesheet" type="text/css"
      href="style/style.css" />
  </head>

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

CSS Positioning

- **Static Positioning**
  - HTML elements are positioned static by default
  - Positioned according to the normal flow of the page
  - Not affected by the top, bottom, left, and right properties

- **Fixed Positioning**
  - Positioned relative to the browser window
  - Will not move even if the window is scrolled
  - The document and other elements behave like the fixed positioned element does not exist
  - These elements can overlap other elements

```
p.pos_fixed {
    position: fixed;
    top: 30px;
    right: 5px;
}
```

CSS Positioning

- **Relative Positioning**
  - An element is positioned relative to its normal position
  - Can be moved and overlap other elements
  - The space for the element is preserved in the normal flow
  - Often used as container blocks for absolutely positioned elements

```
h2.pos_top {
    position: relative;
    top: -50px;
}
```

- **Absolute Positioning**
  - An absolute position element is positioned relative to the first parent element that has a position other than static
    - If no such element is found, the containing block is <html>
  - The document and other elements behave like the absolutely positioned element does not exist (removed from normal flow)
  - These elements can overlap other elements

```
h2 {
    position: absolute;
    left: 100px;
    top: 150px;
}
```

CSS Positioning

- **Overlapping Elements**
  - When positioned outside the normal flow, elements can overlap other elements
  - The z-index property specifies the stack order of an element (which element should be placed in front of, or behind, the others)
  - An element can have a positive or negative stack order:

```
img {
    position: absolute;
    left: 0px;
    top: 0px;
    z-index: -1;
}
```

Note: If two positioned elements overlap without a z-index specified, the element positioned last in the HTML code will be shown on top.

CSS Float and Clear

With CSS float, an element can be pushed to the left or right, allowing other elements to wrap around it

- Elements are floated horizontally (**left** or **right**, not up or down)
- A floated element will move as far to the left or right as it can
- The elements after the floating element will flow around it
- The elements before the floating element will not be affected
- If you place several floating elements after each other, they will float next to each other if there is room

```
img {
    float: right;
}
```

Elements after the floating element will flow around it. To avoid this, use the clear property.

- The clear property specifies which sides of an element other floating elements are not allowed

```
.text_line {
    clear: both;
}
```

CSS Float and Clear

By using float, elements are pulled to the right or to the left of its container.

- **float: left**
  - Element is pulled to the left
- **float: right**
  - Element is pulled to the right
- **clear: left**
  - Moves down to dodge floats on the left
- **clear: right**
  - Moves down to dodge floats on the right
- **clear: both**
  - Moves down do dodge floats on the left and on the right

CSS3

- CSS3 is the latest standard for CSS
  - Completely backwards-compatible with earlier versions of CSS
- Some of the most important CSS3 modules are:
  - Selectors
  - Box Model
  - Backgrounds and Borders
  - Image Values and Replaced Content
  - Text Effects
  - 2D/3D Transformations
  - Animations
  - Multiple Column Layout
  - User Interface

For more information: http://www.w3schools.com/css/css3_intro.asp

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