HTML5
Basics

Web Development with HTML5
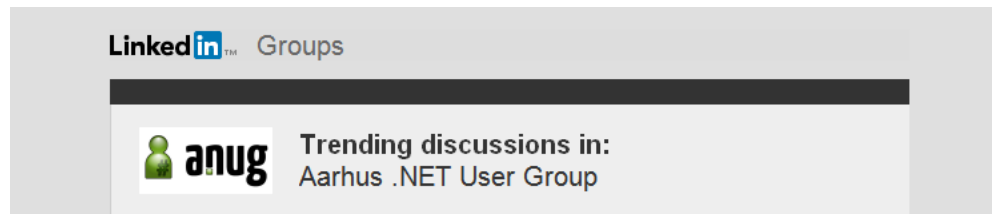
What is HTML?

- HTML is an acronym for Hyper Text Mark-up Language

- The set of markup symbols or codes placed in a file intended for display on a Web browser page

- The World Wide Web Consortium (http://w3c.org) sets the standards for HTML and its related languages

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HTML Elements

- Each markup code represents an HTML element
- Each element has a purpose
- Most elements are coded as a pair of tags:
  an opening tag and a closing tag.
  - Tags are enclosed in angle brackets, "<" and ">" symbols

```html
<html>
  <head>
    <title>I4GUI</title>
  </head>
  <body>
    <h1>GUI programmering</h1>
    <h2>I4GUI</h2>
    <p>Til Web-applikationer anvendes <b>HTML</b>,
        CSS og Javascript.</p>
  </body>
</html>
```

What is XHTML?

- **eXtensible HyperText Markup Language**
  - Is a dialect of HTML

- **XHTML uses:**
  - the elements and attributes of HTML
  - the syntax of XML (eXtensible Markup Language)

- Must be **well-formed:**
  - Use lowercase
  - Use opening and closing tags

    \<body\>   \</body\>

  - Close stand-alone tag with special syntax

    \<hr /\>

What is HTML5?

- Newest recommended version of HTML/XHTML
  - **HTML 5.2:** W3C Recommendation, December 2017
- Supported by modern browsers
  - Safari, Google Chrome, Firefox, Edge
- Intended to be backwards compatible
- Adds new elements
- Adds new functionality
  - Validate form data
  - Native video and audio
  - And more!

Document Type Definition

- Doctype statement placed at the top of a web page document

- Identifies the version of HTML contained in your document

- DTD Examples:

  – XHTML 1.0 Transitional DTD:
  <!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
  http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd>

  – **HTML5 DTD**
  <!DOCTYPE html>

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Example HTML5 Web Page

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <title>Page Title Goes Here</title>
    <meta charset="utf-8">
</head>
<body>
    <p>
        Body text and more HTML5 tags go here
    </p>
</body>
</html>
```

XHTML5

```html
<!DOCTYPE html>
<html lang="en" xmlns="http://www.w3.org/1999/xhtml">
<head>
    <meta charset="utf-8" />
    <title></title>
</head>
<body>
</body>
</html>
```

Head Sections

- Contains information that describes the Web page document

```
<head>
    head section info goes here
</head>
```

- HTML head Elements

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

BODY SECTION

Contains text and elements that display in the Web page document
<body>
	body section info goes here
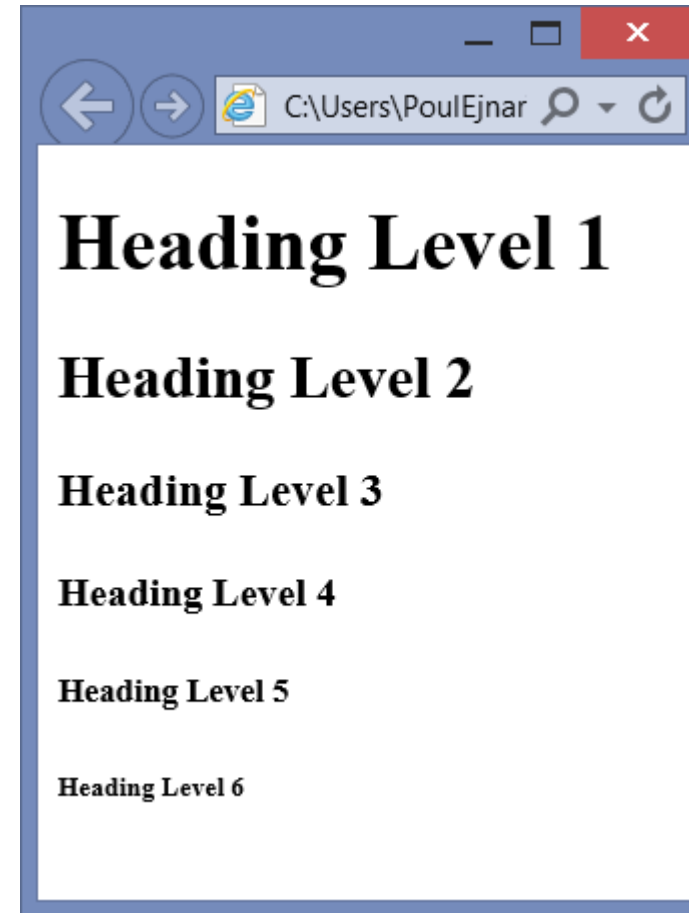**</body>**

The Heading Element

```
<body>

    <h1>Heading Level 1</h1>

    <h2>Heading Level 2</h2>

    <h3>Heading Level 3</h3>

    <h4>Heading Level 4</h4>

    <h5>Heading Level 5</h5>

    <h6>Heading Level 6</h6>

</body>
```

Google recomends
max one <h1> on a page!

Paragraph Element

- Paragraph element

`<p> …paragraph goes here… </p>`

- Groups sentences and sections of text together

- Configures a blank line above and below the paragraph
  - This can be modified by a css style

Line Break Element

- ## Line Break element
  - Stand-alone, or void tag
    - HTML syntax: \<br\>
    - XHTML syntax: \<br /\>

  ...*text goes here* \<br\>
  **   *This starts on a new line*...**

  - Causes the next element or text to display on a new line

Void Elements

- The term void elements is used to designate elements that must be empty
  - Such elements include, among others, br, hr, link and meta

- **HTML example:**
  A void element in the HTML syntax. This is not permitted in the XHTML syntax
  \<br\>

- **HTML- and XHTML-compatible example:**
  A void element using the HTML- and XHTML-compatible self-closing tag syntax
  \<br/\>

- **XHTML Example:**
  A void element using the XHTML-only syntax with an explicit end tag. This is not permitted for void elements in the HTML syntax
  \<br\>\</br\>

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Blockquote Element

- ## Blockquote element

  – Indents a block of text for special emphasis

```
<blockquote>
    …text goes here…
</blockquote>
```
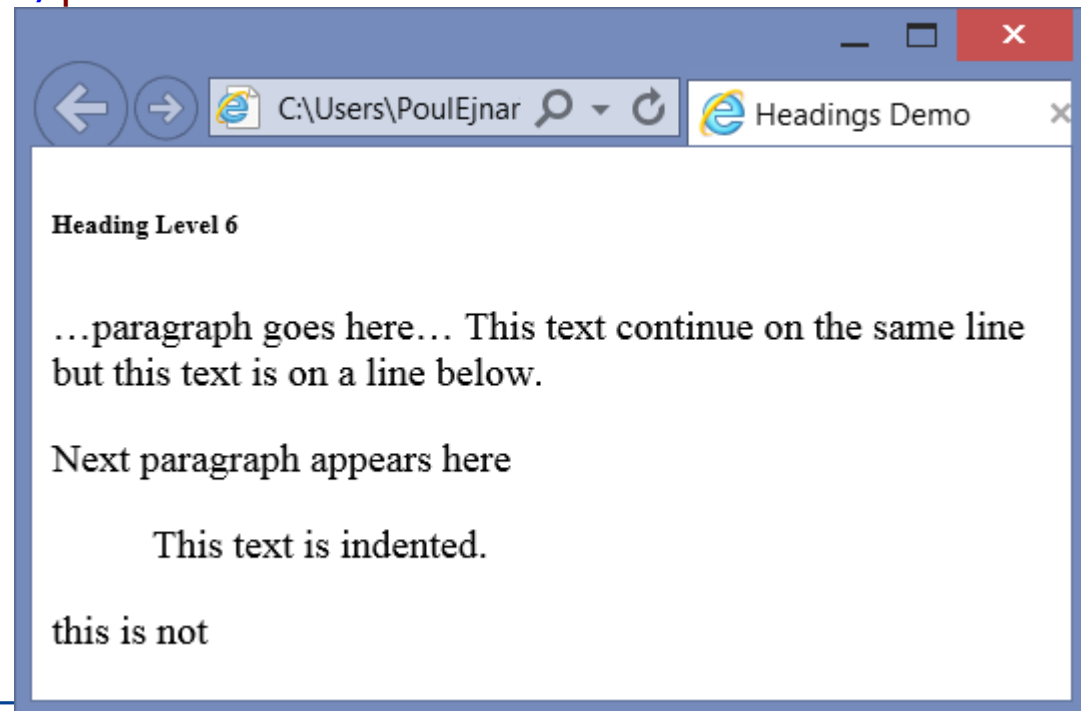
Paragraph and Blockquote Demo

```html
<body>
<h6>Heading Level 6</h6>
<p>

    …paragraph goes here…
    This text continue on the same line<br />
    but this text is on a line below.
</p>
<p>Next paragraph appears here</p>
    <blockquote>
      This text is indented.
    </blockquote>
<p>        this is not </p>
</body>
```


Heading Level 6

…paragraph goes here… This text continue on the same line but this text is on a line below.

Next paragraph appears here

    This text is indented.

this is not

Phrase Elements

- Indicate the context and meaning of the text.

Element	Example	Usage
\<b>	**bold** text	Text that has no extra importance but is styled in bold font by usage and convention
\<em>	*emphasized* text	Causes text to be emphasized in relation to other text; usually displayed in italics
\<i>	*italicized* text	Text that has no extra importance but is styled in italics by usage and convention
\<mark>	mark text	Text that is highlighted in order to be easily referenced
\<small>	small text	Legal disclaimers and notices ("fine print") displayed in small font-size
\<strong>	**strong** text	Strong importance; causes text to stand out from surrounding text; usually displayed in bold
\<sub>	sub text	Displays a subscript as small text below the baseline
\<sup>	sup text	Displays a superscript as small text above the baseline

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HTML Lists

- Unordered List

- Ordered List

- Description List
  formerly called a definition list

Unordered List

- Displays a bullet, or list marker, before each entry in the list
-
  Contains the unordered list
  - type attribute determines the type of bullet point
  - default type is disc (but depends on the browser)

-
  Contains an item in the list

```
<ul>
    <li>TCP</li>
    <li>IP</li>
    <li>HTTP</li>
    <li>FTP</li>
</ul>
```

- TCP
- IP
- HTTP
- FTP

Ordered List

- Displays a numbering or lettering system to itemize the information contained in the list
-
Contains the ordered list

  – type attribute determines numbering scheme of list, default is numerals

-
Contains an item in the list

```
<ol>
    <li>Apply to school</li>
    <li>Register for course</li>
    <li>Pay tuition</li>
    <li>Attend course</li>
</ol>
```

1. Apply to school
2. Register for course
3. Pay tuition
4. Attend course

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Description List

- Useful to display a list of terms and descriptions or a list of FAQ and answers

  - <dl>
    Contains the description list

  - <dt>
    Contains a term/phrase/sentence
    Configures empty space above and below the text

  - <dd>
    Contains a description of the term/phrase/sentence
    - Indents the text
    - Configures empty space above and below the text

Description List Example

```
<dl>
   <dt>IP</dt>
         <dd>Internet Protocol</dd>
    <dt>TCP</dt>
          <dd>Transmission Control Protocol</dd>
</dl>
```

IP
      Internet Protocol

TCP
      Transmission Control Protocol

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Special Characters

- Display special characters such as quotes, copyright symbol, etc.

Character	Code
©	©
<	<
>	>
&	&

- Insert white space of different widths

	Non braking space
	The width of two normal spaces
	Roughly four normal spaces

Div Element

- Configures a structural block area or "division" on a web page with empty space above and below
- Can contain other block display elements, including other div elements

```
<div>Home Services Contact</div>
```

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span Element

- Purpose:
  - configure a specially formatted area displayed in-line with other elements, such as within a paragraph
  - Mainly used to change the style of words

- There is no additional empty space above or below a span
  - it is inline display

```
<p>Here are some text <span class="highlight">and
here comes some important text</span>. Now we are
back to some plain text again.</p>
```

Anchor Element

- Specifies a hyperlink reference (href) to a file
- Text between the <a> and is displayed on the web page

```
<a href="contact.html">Contact Us</a>
```

- href Attribute indicates the file name or URL

Absolute & Relative Hyperlinks

- ## Absolute link
  - – Link to other websites

    `<a href="http://au.dk">Aarhus University</a>`

- ## Relative link
  - – Link to pages on your own site

    `<a href="index.htm">Home</a>`

    No http!!!
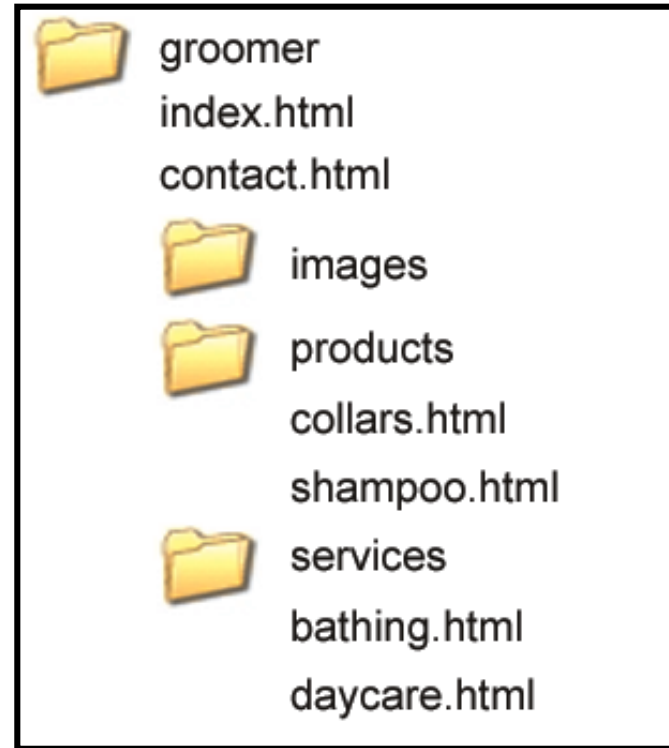
More on Relative Linking

- Relative links from the home page index.html:

  Contact
  Collars

- Relative links from the page collars.html:

  Home
  Dog Bathing

groomer
index.html
contact.html
  images
  products
  collars.html
  shampoo.html
  services
  bathing.html
  daycare.html

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Opening Link in a New Window

- The target attribute on the anchor element opens a link in a new browser window or new browser tab

```
<a href="http://au.dk" target="_blank">Aarhus
University</a>
```

Linking to Fragments

- A link to a part of a web page
  - Also called named fragments, fragment ids
- Two components:
  1. The element that identifies the named fragment of a web page.
     This requires the id attribute

     <div id="top"> ….. </div>

  2. The anchor tag that links to the named fragment of a web page.
     This uses the href attribute

     Back to Top

E-Mail Hyperlink

- Automatically launch the default mail program configured for the browser.
- If no browser default is configured, a message is displayed.
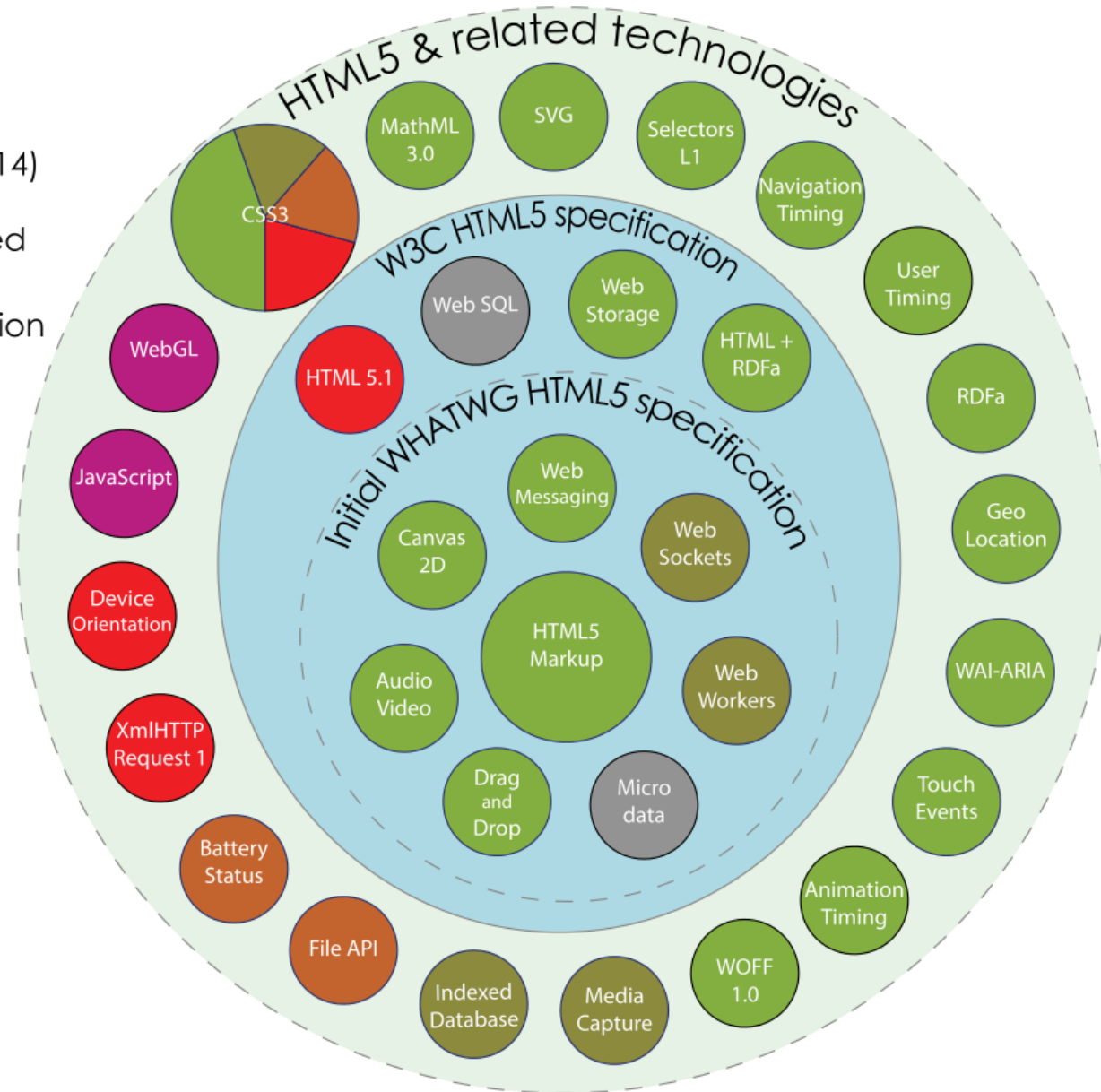
```
<a  href="mailto:me@gmail.com">me@gmail.com</a>
```

Write Valid HTML

- Check your code for syntax errors!
- Valid code → more consistent browser display
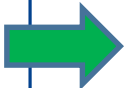
- W3C XHTML Validation Tool:
    - http://validator.w3.org

HTML5

Taxonomy & Status (October 2014)

For an introduction to graphics (Canvas or SVG) on a Web page se:
http://www.codeproject.com/Articles/889679/Learn-HTML-in-days-Day-Part

References & Links

- "**Web Development and Design Foundations with HTML5**" by Terry Felke-Morris

- "HTML5 & CSS3 for the Real World" by Alexis Goldstein, Louis Lazaris, and Estelle Weyl

- Google site dedicated to help developers learn HTML5
  http://www.html5rocks.com/en/ (view in Chrome)

- Validation tool
  http://validator.w3.org

- Test site for common coding problems
  http://www.modern.ie and https://status.modern.ie/

- **http://vswebessentials.com/download** (enhancement to Visual Studio)