

# HTML



Basic HTML Tags

Tables

Styles - CSS (Cascading Style  
Sheets)

# HTML basic tags 1

- `<html> ... </html>`
  - Basic tag to identify portion of file that contains HTML
  - Text between the opening and closing tag is the content
- `<head> ... </head>`
  - Placed at the top of document immediately after the `<html>` tag
  - Tags information about the document, e.g. author, style, etc. which is not displayed in the browser window
  - Contains the document `<title>...</title>` tag
- `<br />` is a new line
- Text between `<b><i>` and `</i></b>` will be a bold italic font

```
<!doctype html>
<html>
<head>
<title>My first web page</title>
</head>
<body>
<p>This is my first web page.</p>
<br />
<b><i>This text is in
      bold italic!</i></b>
</body>
</html>
```

# HTML basic tags 2

- `<title> ... </title>`
  - Included as an element inside the `<head>...</head>` section
  - The content of this tag is the title displayed in title bar or tab of the browser
  - May also be used as title of page when page is bookmarked
  - Should be meaningful and uniquely identify the page
- `<body> ... </body>`
  - Included as the second element inside the `<html>...</html>` tags
  - Follows the `<head>...</head>` portion of the document
  - Contains the information to be displayed in the browser window
  - Any attributes set on this tag will apply to the entire page

# HTML basic tags 3

- `<p> ... </p>`
  - Included as an element inside the `<body>...</body>` section
  - Surrounds a paragraph of text
- DOCTYPE
  - Must be the very first line of your file, before `<html>`
  - NOT an HTML tag; it is an instruction to your web browser
  - Tells the browser what version of HTML to expect
  - In this course we use only the HTML5 type:  
`<!doctype html>`
  - Example of the “strict” HTML version 4.01 type:

```
<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML  
4.01//EN" "http://www.w3.org/TR/html4/strict.dtd">
```

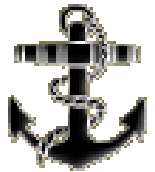
# HTML basic tags 4

- `<br>` (no closing tag needed but is nice)
  - Put a line break in the text (starts a new line)
- `<h1> ... </h1>` through `<h6> ... </h6>`
  - Used to identify text as a Level 1 (major) to Level 6 (minor) heading

## Comment Tag

- `<!-- comments here -->`
  - Notice that the comment is typed as an attribute inside the tag
  - Comments may be one or multiple lines long (HTML is free-form)
  - Text within this tag will not be displayed or processed by your browser
  - Comments do not nest! No comments inside comments!
  - The comment may not contain two (or more) adjacent dashes, e.g. `--`

# The anchor tag



Hyper Linking - making the web a web

- `<a> ... </a>`
  - One major attribute ()
    - `href="url_string"` - specifies the destination of the hyperlink
    - `target="_blank"` - specifies where to open the link (new window/tab)
  - Element is clickable/selectable as a document hyperlink
  - Browser attempts to load the page specified by the `href=` attribute (HREF=Hypertext REFerence)
  - The `href="string"` can be a **relative URL** on the same server, an **absolute URL** on any server or an **email address**
  - Without the leading `"http://hostname/..."` it is in the same directory structure
    - `<a href="page2.html" target="_blank">Click here to continue</a>`
    - `<a href=" ../another_dir/page3.html">Click here</a>`
    - `<a href="images/box.jpg">See the box here!</a>`
    - `<a href="http://www.gnu.org/philosophy/">Free Software</a>`
  - Try to open an email client with the `mailto` address in the To: field
    - `<a href="mailto:hjo@du.se">Hans Jones email</a>`

# The image tag

- **<img>** (no closing tag needed)
- Used to display graphics (.jpeg, .png, .gif) in your web pages
- You must specify the URL for the image source, and an alt="text"
- The basic attributes of <img> are:
  - src="url\_string" - the absolute or relative location of the image file
  - alt="string" - Alternate Text for people who don't see images
  - height="string" - image height, percent or absolute pixels (optional)
  - width="string" - image width, percent or absolute pixels (optional)
  - title="string" - mouse-over title of the image (optional)
  - Etc. ...
- Specifying height= and width= lets your browser reserve space in the document to load the image in the background and avoid redrawing the page after the image is fully loaded
- Example (align, border, hspace, longdesc, and vspace is not supported in HTML5 and deprecated in HTML4):
  - ``

# Pictures

- To put a picture on a Web page, here's what you need to do
  - Obtain the picture as an image file (typically .JPG or .PNG) from your camera or any other suitable source
  - Copy the image file into your web folder along with the HTML files that make up your site
  - Add an `<img>` tag to the HTML page at the point where you want the picture to appear
- Provide an alternate text
  - This is the text visible when hovering over the image with the mouse
  - ``
- About the image size (if the picture is big)
  - Resize it BEFORE placing it on your web page, NEVER resize a picture by changing the width and height settings in the `img` tag
- Pictures as links with no border
  - `<a href="http://www.du.se"></a>`



# HTML basic tags 5

- `<hr>` (no closing tag needed)
  - Hard/Horizontal Rule – draw a horizontal line
  - Rule appearance can be changed with styles
- `<blockquote> ... </blockquote>`
  - Block quotation, indented – (HTML4/HTML5 differ)
- `<q> ... </q>`
  - A short, in-line “quotation as part of running text”
- `<pre> ... </pre>`
  - Preformatted text (e.g. computer code or output)
  - Fixed-width font (e.g. **Courier fixed width**)
  - Preserves spaces and line breaks

# HTML basic tags 6

- Font-style tags – for more control, use CSS instead
  - `<b> ... </b>` and `<i> ... </i>`
    - Bold and italic text (in-line)
  - `<tt> ... </tt>`
    - Teletype Text: fixed-width font (e.g. Courier)
  - `<big> ... </big>` and `<small> ... </small>`
    - Bigger and smaller text (in-line)
- Phrase tags – often better done using CSS
  - `<em> ... </em>` and `<strong> ... </strong>`
    - Text to be emphasized and strongly emphasized
    - Browser decides how: usually italicized, made bold
- Less often used
  - `<code>...</code>`, `<samp>...</samp>`, `<kbd>...</kbd>`
    - Computer code, sample code, keyboard text
    - Usually rendered in courier fixed-width font

# HTML – lists

- `<li>...</li>`
  - List Item: surrounds each list item inside a list
  - Items are indented and bulleted
  - Used inside both `<ul>` and `<ol>` list types
- `<ul>...</ul>`
  - Surrounds an unordered list – no numbering
- `<ol> ... </ol>`
  - Surrounds an ordered list
  - Items are indented and numbered (or alphabetized)
- Use styles (`style=` attribute) to change type of bullet or numbering
  - CSS – `style=list-style-type: string`
  - `<ul>` string can be: circle, disc, square
    - e.g. `<ul style="list-style-type: square"> ... </ul>`
  - `<ol>` string can be decimal, lower-alpha, upper-roman
    - e.g. `<ol style="list-style-type: upper-latin"> ... </ol>`

# HTML – lists cont.

- Lists – `<ul>` unordered list and `<ol>` ordered list

- Apple
- Pear
- Kiwi
- - Big
  - Small

1. Apple
2. Pear
3. Kiwi
4.
  - Big
  - Small

```
<ul>
  <li>Apple</li>
  <li>Pear</li>
  <li>Kiwi</li>
  <li><ul>
    <li>Big</li>
    <li>Small</li>
  </ul>
</li>
</ul>
```

```
<ol>
  <li>Apple</li>
  <li>Pear</li>
  <li>Kiwi</li>
  <li><ul>
    <li>Big</li>
    <li>Small</li>
  </ul>
</li>
</ol>
```

# HTML – definition lists

- `<dl>...</dl>`
  - definition list containing `<dt>` and `<dd>` items
  - `<dt>...</dt>` definition title
  - `<dd>...</dd>` definition description
- Example definition list containing two definitions

Hacker

An expert or enthusiast of any kind.

Attacker

An intruder into computer systems.

```
<dl>
  <dt>Hacker</dt>
  <dd>An expert or enthusiast of any kind.</dd>
  <dt>Attacker</dt>
  <dd>An intruder into computer systems.</dd>
</dl>
```

# HTML - <meta> page attributes

- <meta> (no closing tag needed)
  - Used only inside <head> section of page
  - Gives details about page, e.g. author, keywords
  - Search engines may ignore keywords, since many pages use fake keywords to boost search results
  - SEO – Search Engine Optimization
- Elements of <meta> include:
  - name=string identifies what type of meta content will follow
  - content=string details relating to the name

```
<head>
<title>dt1040 internet applications</title>
<meta name="Keywords" content="Fundamentals in HTML, CSS and web scripts">
<meta name="Description" content="An introductory course dealing with Internet applications">
<meta name="GENERATOR" content="Code Lobster PHP Edition 3.10.2">
</head>
```

# HTML - <meta> page attributes

- <meta> can also be used to have your page automatically load another web page after a short delay:

```
<meta http-equiv="refresh" content="10; url=index.html">
```

- Note the attribute name: http-equiv="refresh"
  - The content= string begins with number of seconds before next page is loaded, followed by a semicolon, then url= giving the URL of the next page to be loaded
- Use <meta> to set the character set for the HTML page
    - Needed to pass W3C validation without warnings

```
<meta http-equiv="Content-Type" content="text/html; charset="UTF-8">
```

- For HTML5 it is enough with: <meta charset="UTF-8">
- Also frequently used: charset=iso-8859-1
    - iso-8859-1 is “Latin-1” and includes French, Swedish å, ä, ö etc.
    - Latin-1 is common in North America, Western Europe
    - But UTF-8 includes all languages (preferred)

# HTML – identify/group tags

- `<div>` and `<span>` are very common used tags in HTML!
- Identifying and Grouping elements (e.g. for CSS)
- `<div>...</div>`
  - Defines as division or section
  - Groups and identifies one or more block-elements
  - Usually causes a line break before and after
- `<span>...</span>`
  - Groups and identifies in-line elements (e.g. words)
  - No visual change by itself (no line break)
  - Used to apply styles to parts of a text line, e.g.

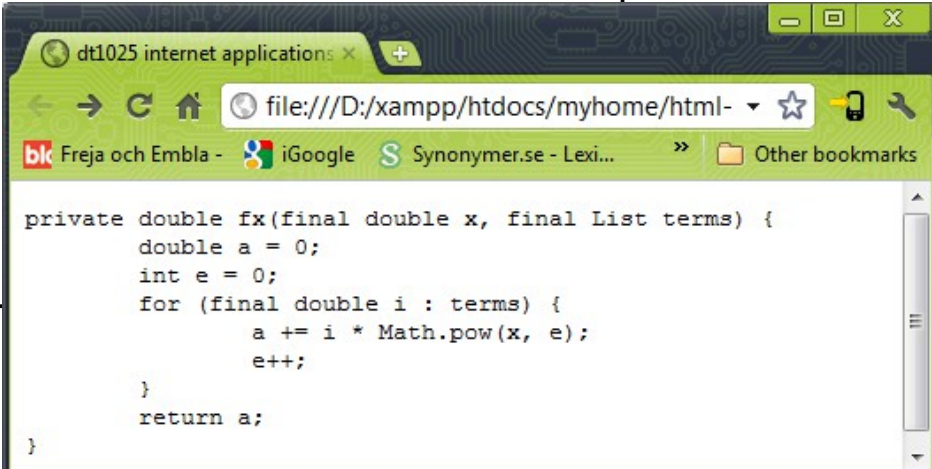
**This `<span style="color: red">red</span> apple.`**



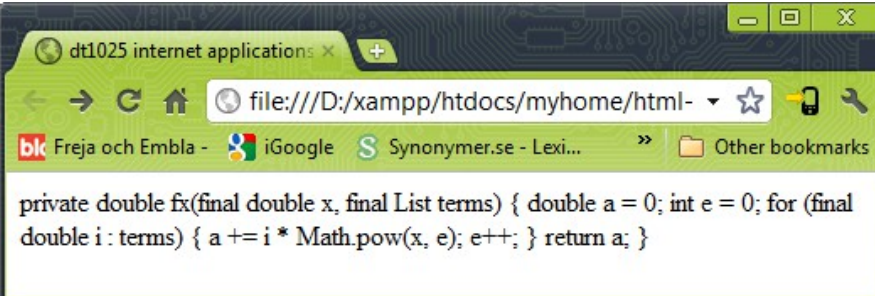
# HTML – pre tag

- Pre formatted text, dont change the layout (preserve)
- `<pre>...</pre>`
  - Essential in some cases since HTML does not care about line breaks, empty lines etc.

```
<pre>
private double fx(final double x, final List<Double> terms) {
    double a = 0;
    int e = 0;
    for (final double i : terms) {
        a += i * Math.pow(x, e);
        e++;
    }
    return a;
}
</pre>
```



```
private double fx(final double x, final List terms) {
    double a = 0;
    int e = 0;
    for (final double i : terms) {
        a += i * Math.pow(x, e);
        e++;
    }
    return a;
}
```



```
private double fx(final double x, final List terms) { double a = 0; int e = 0; for (final double i : terms) { a += i * Math.pow(x, e); e++; } return a; }
```

← No pre tag

# HTML – entities (special characters)

- HTML Entities – for special characters, accents, foreign
  - Starts with ampersand and ends with semicolon
- `&nbsp;`; non-breaking-space – acts like a letter
  - Words connected with `&nbsp;` will not separate across a line break; they stay together as one word
  - Mr.`&nbsp;`Hans`&nbsp;`Edy`&nbsp;`Mårtensson
- `&lt;` (less than) = `<`                      `&gt;` (greater than) = `>`
- `&quot;` (double quote) = `"`                      `&apos;` (apostrophe) = `'`
- `&amp;` (ampersand) = `&`
  - many, many others!
  - [http://www.w3schools.com/html/html\\_entities.asp](http://www.w3schools.com/html/html_entities.asp)
  - [http://www.w3schools.com/tags/ref\\_entities.asp](http://www.w3schools.com/tags/ref_entities.asp)

# HTML – tables 1

- The table tag consists of the `<table>...</table>` tags
  - `<caption> </caption>` is used to create the title of a table
  - `<tr> </tr>` is used to create a table row
  - `<td> </td>` is used to create a table cell
  - `<th> </th>` is used to create a table header (column desc.)
- Attributes
  - `border=` specify the border size
  - `bordercolor=` specify the colour of the border
  - `align=` specify the alignment of the whole table
  - `cellspacing=` specify the amount of empty space between the outer edges of each table cell
  - `cellpadding=` specify the amount of empty space between the border of the table cell and the content of the cell

# HTML – tables 2

- A table example
- Width, height, border, spacing and padding etc. are in pixels or in percentage if the document view

```
<table border="3" bordercolor="blue" cellspacing="10"  
  cellpadding="10" align="center">  
  <caption>simple table</caption>  
  <tr>  
    <td>row 1/column 1</td>  
    <td>row 1/column 2</td>  
    <td>row 1/column 3</td>  
  </tr>  
  <tr>  
    <td>row 2/column 1</td>  
    <td>row 2/column 2</td>  
    <td>row 2/column 3</td>  
  </tr>  
</table>
```

simple table

row 1/column 1	row 1/column 2	row 1/column 3
row 2/column 1	row 2/column 2	row 2/column 3

# HTML – tables 3

- Tables can be useful for organising the layout of your webpage
- For example placing text and image in different cells

```
<table width="60%" border="1">
  <caption>another simple table</caption>
  <tr>
    <td width="30%">row 1/column 1</td>
    <td width="70%">row 1/column 2</td>
  </tr>
  <tr>
    <td>row 2/column 1</td>
    <td>row 2/column 2</td>
  </tr>
</table>
```

another simple table

row 1/column 1	row 1/column 2
row 2/column 1	row 2/column 2

# HTML – tables 4

- Rows and columns can be expanded

expanding table

row 1/column 1	row 1/column 2
row 2/column 1	row 2/column 2
	row 3/column 2

expanding table

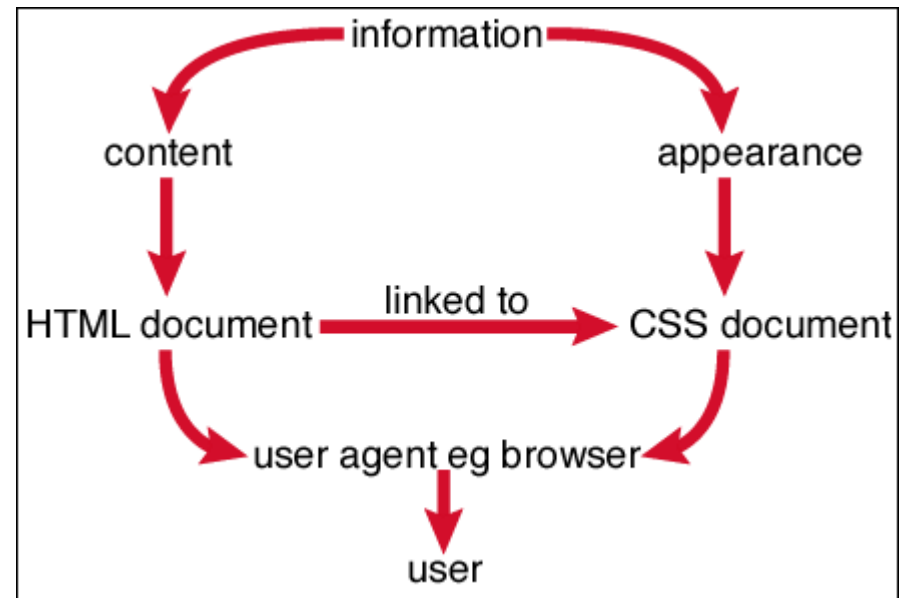
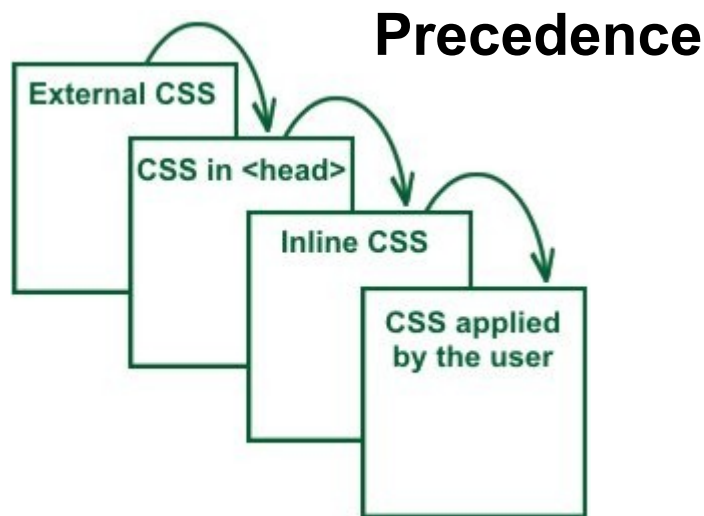
row 1/column 1		row 1/column 3
row 2/column 1	row 2/column 2	row 2/column 3

```
<table width="500" border="1">
  <caption>expanding table</caption>
  <tr>
    <td width="100">row 1/column 1</td>
    <td width="400">row 1/column 2</td>
  </tr>
  <tr>
    <td rowspan="2">row 2/column 1</td>
    <td>row 2/column 2</td>
  </tr>
  <tr>
    <td>row 3/column 2</td>
  </tr>
</table>
```

```
<table width="500" border="1">
  <caption>expanding table</caption>
  <tr>
    <td colspan="2">row 1/column 1</td>
    <td>row 1/column 3</td>
  </tr>
  <tr>
    <td>row 2/column 1</td>
    <td>row 2/column 2</td>
    <td>row 2/column 3</td>
  </tr>
</table>
```

# CSS – cascading style sheets

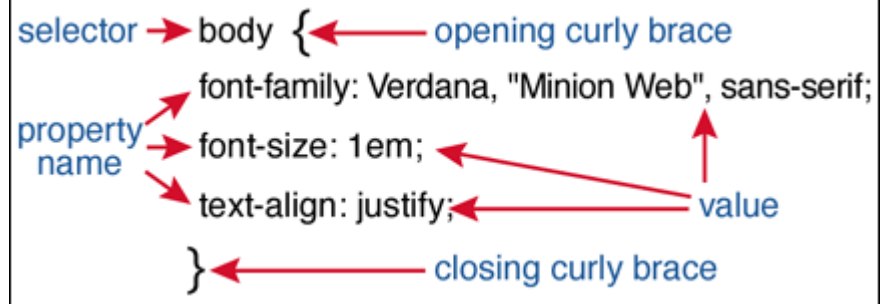
- CSS is an extension to basic HTML that allows you to style your web pages appearance
  - Style separates content from appearance of your page
  - CSS can be used to specify fonts, colors, image background, the looks of your links and many other attributes
- CSS can be embedded into your webpage (head or inline) or stored in an external text file that you can then link to your web page



# The style element/attribute

- The style= attribute can be used on most tags but is not recommended to use
  - Defines features for a single HTML element, e.g.  
<p style="text-align: center">Center me.</p>
- The <style> element: <style type="text/css"> ... </style>
  - The <style> tag always goes in the <head> section
  - Defines style information for the whole HTML page
  - Requires the type="text/css" attribute if using XHTML or HTML < HTML5
- Example style for the selected element: body

```
<style type="text/css">
body {
    background-image: url(image.jpg);
    font-family: Verdana, sans-serif;
    font-size: 20px;
    color: green;
}
</style>
```



The diagram illustrates the components of a CSS rule. It shows the following structure: selector → body { opening curly brace → font-family: Verdana, "Minion Web", sans-serif; property name → font-size: 1em; value → text-align: justify; closing curly brace → }

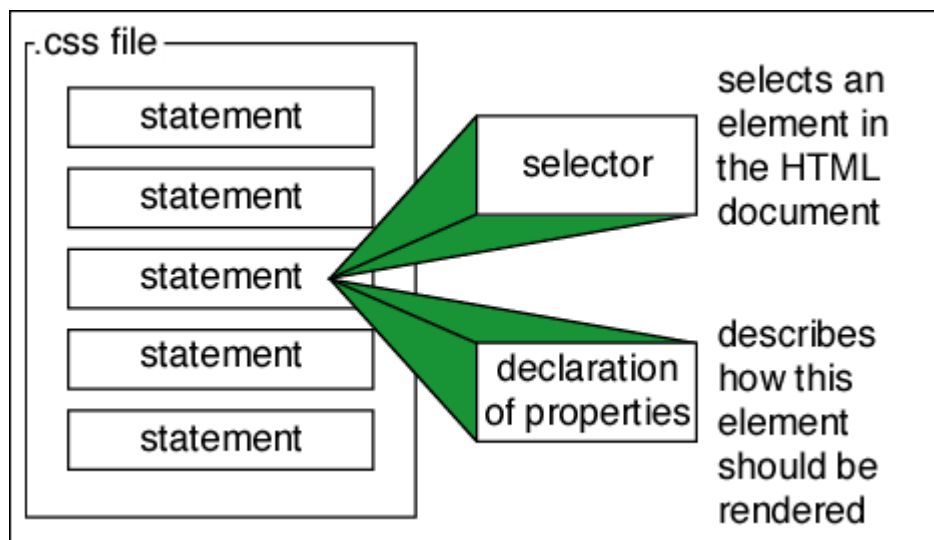
Labels and arrows in the diagram:

- selector** points to `body`
- opening curly brace** points to `{`
- property name** points to `font-size`
- value** points to `1em`
- closing curly brace** points to `}`



# CSS and the link tag

- To link to a external separate CSS style sheet, use the link tag instead
  - `<link rel="stylesheet" type="text/css" href="string">`
  - rel= relation between the page and the destination resource
  - Requires the type="text/css" attribute if using XHTML or HTML < HTML5
  - More about CSS later!



```
body
{
    font-family: verdana, sans-serif;
}
div
{
    position: relative;
    left: 30px;
}
p,ul,li
{
    font-size: 10pt;
}
<!-- class and id based CSS below, TBD later -->
.boldText{
    font-weight: bold;
}
#content
{
    margin-left: 140px;
    border-left: 1px solid gray;
}
```

# Customize your <a> tags

- You can for example customise the way your links appears on the web page

```
a:link {
    text-decoration: underline overline;
    color: red;
}

a:active {
    text-decoration: none;
    color: yellow;
}

a:visited {
    text-decoration: overline;
}

a:hover {
    text-decoration: none;
    background: green;
    color: red;
}
```

Free Software

A link becomes active  
when you click on it

Free Software

Free Software

# HTML5 template

- This is a template (which you should understand most of now) that you can use as basis for your web pages in the course
- It will enable HTML5 on all browsers from IE 6 and up
  - Not the browsers which have disabled javascript!
  - Validate against: <http://validator.w3.org> or <http://html5.validator.nu/>

```
<!doctype html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>dt1040 internet applications</title>
<meta name="description" content="lab in dt1040">
<meta name="author" content="dalarna university">
<link rel="stylesheet" href="css/styles.css?v=1.0">
<!--[if lt IE 9]>
    <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js">
    </script>
<![endif]-->
</head>
<body> <!-- put the js import at end to make page load faster -->
    <script src="js/scripts.js"></script>
</body>
</html>
```