



IT2805 - Web Technologies

HTML, Basics, Tables and Page Design

Issues

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Agenda

- HTML Structure
- HTML Semantic Information
- Defining Tables
- Creating Hyperlinks
- Adding Images
- Good HTML practices
- Site map

HTML Example

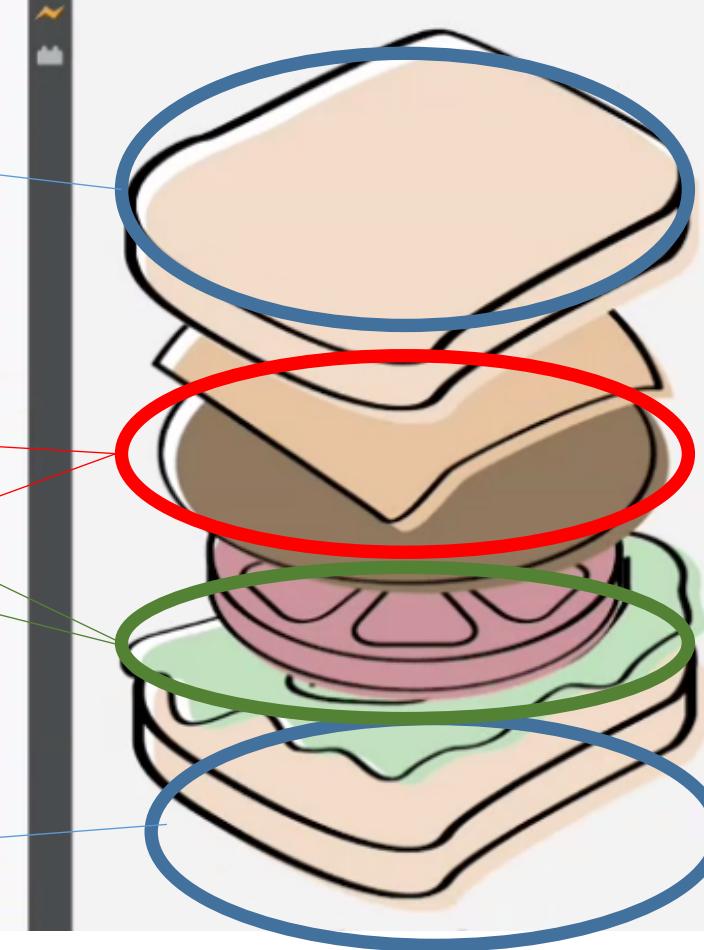
- The first line is called Document Type Definition (DTD) – is a markup declaration that defines the type of the document, **practically, says to the browser what syntax to use.**
- An HTML file begins with the `<html>` tag and ends with `</html>`. All HTML code is inserted between these tags.

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

  <body>
    <p>Hello world!</p>
  </body>
</html>
```

An Analogy

```
1 <!doctype html>
2 <html> ←
3 <head> ←
4 <meta charset="UTF-8">
5 <title>Welcome to Roux Academy</title>
6 <!--[if lt IE 9]>
7 <script src="http://html5shiv.googlecode.com/svn/trunk/html5.js"></script>
8 <![endif]-->
9 <!--[if lt IE 9]>
10 <script src="_scripts/respond.min.js"></script>
11 <![endif]-->
12 <link href="_css/main.css" rel="stylesheet" media="screen, projection">
13 </head> ←
14 <body> ←
15 <header class="homeHeader pageHeader">
16 <h1>Roux Academy of Art and Design<a href="/index.htm" title="home"></a></h1>
17 </header>
18 <article id="mainContent">
19 <h2>Fall registration is now open</h2>
20 <p>Here at Roux, we're as excited for the upcoming school year as we are this one. Visiting professors Barry Madow (renowned photojournalist) and Rebecca Short (textile designer) will be joining us in the fall and construction on the Roux North remodel will be completed by October 2012.</p>
21 <footer id="pageFooter" class="cf">|←
22 <p>&copy;Copyright Roux Academy of Art & Design. All rights reserved.<a href="privacy.htm" title="privacy statement"> Privacy Statement</a> |<a href="legal.htm" title="legal terms"> Legal Terms and Conditions</a> |<a href="disclosures.htm" title="student outcomes and disclosures"> Student Outcomes/Disclosures</a></p>
23 </footer>
24 </body> ←
25 </html> ←
```



Metadata

- <meta charset = “utf-8”>
 - Specifies character encoding (code for mapping characters to binary representations)
 - Required in HTML5

Example of metadata

```
<head>
    <meta name="description" content="lecture 3, examples">
    <meta name="keywords" content="HTML, meta information">
    <meta name="author" content="mike">
    <meta charset="UTF-8">
</head>
```

Marking Elements with Tags

- The core building block of HTML is the **tag**, which marks each element in a document. Tags can be **two-sided or one-sided**
- A **two-sided tag** is a tag that contains some document content. General syntax for a two-sided tag:

<element> content </element>

- HTML allows you to enter element names in either uppercase or lowercase letters, but it is good habit to use lowercase

Empty Elements with One-sided Tags

- A one-sided tag contains no content; general syntax for a one-sided tag:

<element />

- Elements that employ one-sided tags are called empty elements since they contain no content. An example is a line break **
** and a horizontal line **<hr />**

The Comment Tag

- A third type of tag is the comment tag, which you can use to add notes to your HTML code

<!-- comment -->

- Comments are useful in documenting your HTML code for yourself and others

HTML's White-Space insensitivity

- HTML treats each occurrence of **white-space** as a single blank space
- You can use **white-space** to make your HTML source code more readable, but **not for formatting because extra space will not be displayed in the browser.**
- With exception the preformatted `<pre>` tag.

```
<pre>This is  
preformatted text.  
It preserves both  
spaces  
and line breaks.</pre>
```



```
This is  
preformatted text.  
It preserves both spaces  
and line breaks.
```

This is a very simple document.

Block boxes

It consists of *two* paragraphs.

Inline box

Elements are block or Inline

Most HTML elements are defined as **block level** elements or as **inline** elements.

Inline Elements

- Inline elements are normally displayed without starting a new line.
- Examples: ****, **<td>**, **<a>**, ****

w3resource HTML tutorial.



Short and did not begin with a new line

The screenshot shows a browser's developer tools with the "HTML" tab selected. The DOM tree on the left shows the structure: <html> -> <head> -> <body> -> <p>. The source code on the right shows the HTML code:

```
w3resource
<abbr title="Hyper Text Markup Language">HTML</abbr>
tutorial.
```

A red arrow points to the word "tutorial." in the source code, highlighting the error of not starting a new line after the opening tag of the **<abbr>** element.

Block Elements

- Block level elements start (and end) with a new line when displayed in a browser.
- Examples: <h1>, <p>, , <table>

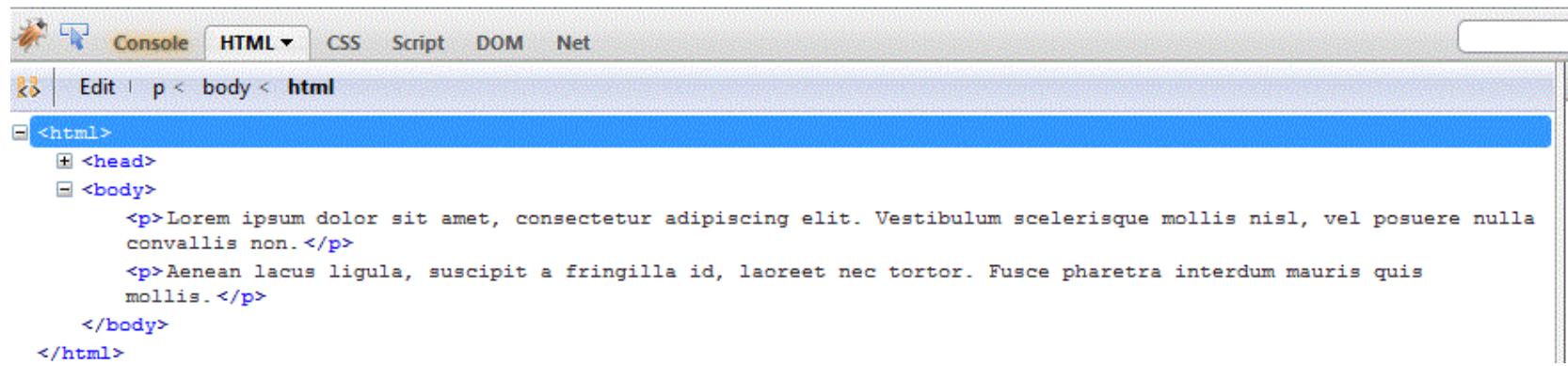
Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum scelerisque mollis nisl, vel posuere nulla convallis non.

Aenean lacus ligula, suscipit a fringilla id, laoreet nec tortor. Fusce pharetra interdum mauris quis mollis.

Both of the paragraphs began with a new line

New Line

New Line



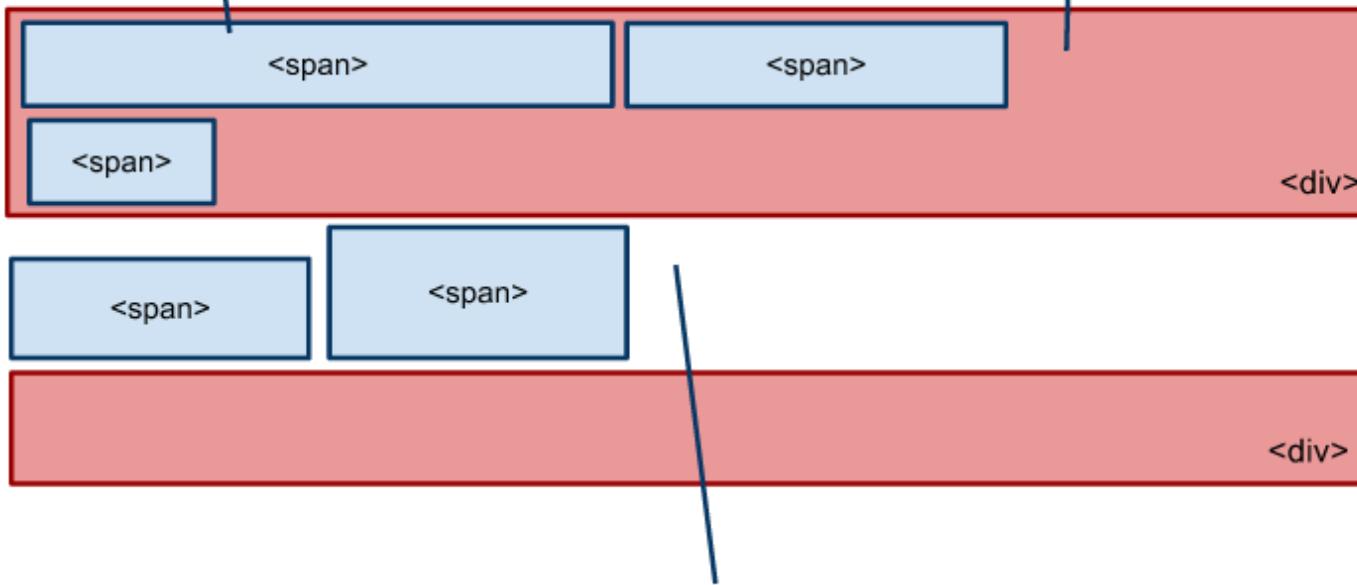
The screenshot shows the DOM tree of a simple HTML document. The root node is <html>. It contains a <body> node which in turn contains two <p> nodes. The first <p> node contains the text "Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum scelerisque mollis nisl, vel posuere nulla convallis non.". The second <p> node contains the text "Aenean lacus ligula, suscipit a fringilla id, laoreet nec tortor. Fusce pharetra interdum mauris quis mollis.". Red arrows point from the text "New Line" to the start of each of the two paragraphs, indicating that both paragraphs begin with a new line character.

```
<html>
  <body>
    <p>Lorem ipsum dolor sit amet, consectetur adipiscing elit. Vestibulum scelerisque mollis nisl, vel posuere nulla convallis non.</p>
    <p>Aenean lacus ligula, suscipit a fringilla id, laoreet nec tortor. Fusce pharetra interdum mauris quis mollis.</p>
```

 and <div> the HTML Grouping Tags

spans are only as wide as the content they wrap.

Spans can be put inside divs. Note that regardless of how much horizontal space they take, the div always expands to the width of it's parent



Divs always cause a new line

Style Attributes

- Use the **style attribute** to control the appearance of an element
- Styles specified as tag attributes are referred to as **inline styles**
- Example: **text-align style** specifies horizontally alignment of element contents
 - Old HTML way:
`<h1 align="right">A big, right aligned heading<h1>`
 - HTML5 compatible way:
`<h1 style="text-align: right">A big, right aligned heading<h1>`

Example Strong

<p>Beware: Pickpockets operate in this area.</p>

<p>This toy has many small pieces and is not suitable for children under five years old.</p>

Beware: Pickpockets operate in this area.

This toy has many small pieces and is **not suitable for children under five years old.**

Semantic Markup Examples (sometimes referred as logical elements)

<q>, for quotes (**<blockquote>**, for long quotes)

<abbr>, for abbreviations or acronyms, eg. NTNU, NASA, Dr.

<address>, address physical or digital

Examples

<abbr title="Norwegian University of Science and Technology">NTNU</abbr>

<blockquote cite="http://www.worldwildlife.org/who/index.html">

For 50 years, WWF has been protecting the nature. **</blockquote>**

<address>IDI, Sem Saelands vei 9, Glosshaugen, Trondheim, Norway </address>

Lists

- HTML supports three kinds of lists:
 - **ordered** ,
 - **unordered** , and
 - **definition** <dl> (for items that describe a term)
- One **list** can contain another list; this is called a nested list (combination)

Unordered List

- The ` ... ` element represents an unordered list. Items in the list are marked with the `` element. For example:

My shopping list:

```
<ul>
  <li>Apples</li>
  <li>Bananas</li>
</ul>
```



My shopping list:

- Apples
- Bananas

Ordered List

- The **** ... **** element represents an ordered list. Items in the list are marked with the **** element. For example:

My shopping list:

```
<ol>
  <li>Apples</li>
  <li>Bananas</li>
</ol>
```



My shopping list:

1. Apples
2. Bananas

Styled List

- The **<ol style="list-style-type:upper-roman"> ...** element represents a list with the upper-roman list-style-type. For example:

My shopping list:

```
<ol style="list-style-type:upper-  
roman">  
  <li>Apples</li>  
  <li>Bananas</li>  
</ol>
```



My shopping
list:
I. Apples
II. Bananas

Definition Lists

The `<dl> ...</dl>` element represents a definition list. Items in the list are marked with `<dt>` for the term and `<dd>` for the definition of the term. For example:

```
<dl>
  <dt>Coffee</dt>
  <dd>Black hot drink</dd>
  <dt>Milk</dt>
  <dd>White cold drink</dd>
</dl>
```



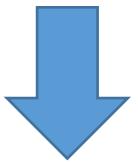
Coffee	Black hot drink
Milk	White cold drink

Links

- Creating links **to a specific section of the page**
- Creating links **to other pages on the same site**
- Creating links **to other sites**
- Creating links **to a specific section of another page**

Linking to other sites

```
<body>
<p>Movie Reviews:
<ul>
  <li><a href="http://www.empireonline.com">Empire</a></li>
  <li><a href="http://www.metacritic.com">Metacritic</a></li>
  <li><a href="http://www.rottentomatoes.com">Rotten Tomatoes</a></li>
  <li><a href="http://www.variety.com">Variety</a></li>
</ul>
</p>
```



Movie Reviews:

- [Empire](#)
- [Metacritic](#)
- [Rotten Tomatoes](#)
- [Variety](#)

Linking to other pages on the same site

- When you are linking to other pages within the same site you don't need to specify the domain name in the URL, you can use a shorthand named, **relative URL**.

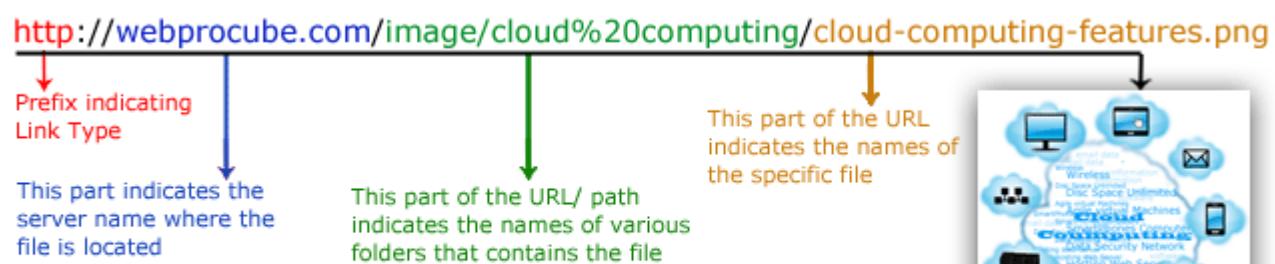
```
<ul>
```

```
  <li><a href="index2.html">Home</a></li>
  <li><a href="about-us.html">About</a></li>
  <li><a href="movies.html">Movies</a></li>
  <li><a href="contact.html">Contact</a></li>
```

```
</ul>
```



- [Home](#)
- [About](#)
- [Movies](#)
- [Contact](#)



Anatomy of an Absolute URL path



Linking to a specific part of the same page

Film-Making Terms

[Arc Shot](#arc_shot)
[Interlude](#interlude)
[Prologue](#prologue)

Arc Shot

A shot in which the subject is photographed by an encircling or moving camera

Interlude

A brief, intervening film scene or sequence, not specifically tied to the plot, that appears within a film

Prologue

A speech, preface, introduction, or brief scene preceding the main action or plot of a film; contrast to epilogue

[Top](#)

```
<h1 id="top">Film-Making Terms</h1>
<a href="#arc_shot">Arc Shot</a><br />
<a href="#interlude">Interlude</a><br />
<a href="#prologue">Prologue</a><br /><br />
```

Arc Shot

A shot in which the subject is photographed by an encircling ...

Interlude

A brief, intervening film scene or sequence, not specifically tied ...

Prologue

A speech, preface, introduction, or brief scene preceding ...

<p>Top</p>

Linking to a specific part of another page

- As long as the page you are linking to has id attributes that identify specific parts of the page, you can simply add the same syntax to the end of the link for that page e.g., <http://www.sundance.org/#jumbotron>

```
<h3>January</h3>
<p><a href="http://www.sundance.org/#jumbotron">Sundance Film
Festival</a><br /> Park City, Utah, USA<br />20 - 30 January 2011</p>
```



January
Sundance Film Festival
Park City, Utah, USA
20 - 30 January 2011

Exercise 1

To start this exercise, go to <https://jsfiddle.net/> JSFiddle is a popular sandbox that allows you to play with HTML, CSS and JS right in your browser.

Copy/paste the following code into the HTML box of the JSFiddle. Then click the "Run" menu item to see the result.

```
<p>This is the text on my little page. </p>
<p>This is some additional, very boring, text on my page. </p>
```

- Then add an h1 header and an h2 header to the page.
- Then put in a link to your favorite website.

This example combines different type of links

[http://www.idi.ntnu.no/~michailg/IT2805/examples/lecture3/linkse
xample.html](http://www.idi.ntnu.no/~michailg/IT2805/examples/lecture3/linkse xample.html)

Images

- Include an image in your web pages using HTML
- Pick which image format to use
- Show the image at the right size
- Optimize an image for use on the web to make pages load faster

Adding Images

- To add an image into the page you need to use an **** element. Image must carry the following attributes:
 - **src**: this tells the browser where it can find the image file.
 - **alt**: this provides a text description of the image, for accessibility and indexing purposes.

```

```

Height & Width of Images

- You will often see an **** element use two other attributes that specify its size:
 - **height**: this specifies the height of the image in pixels.
 - **width**: this specifies the width of the image in pixels.
- Images take longer to load than text, it is therefore a good idea to specify their size so the browser can render the rest of the page while leaving the right amount of space for the image.
- CSS is also increasingly used today for specifying images' size

Where to place your image – Before a paragraph

```

```

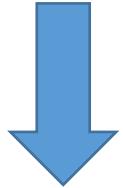
```
<p>There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.</p>
```



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

Where to place your image – Inside the start of a paragraph

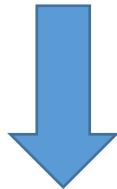
```
<p> There  
are around 10,000 living species of birds that inhabit different ecosystems  
from the Arctic to the Antarctic. Many species undertake long distance  
annual migrations, and many more perform shorter irregular journeys.</p>
```



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

Where to place your image – In the middle of a paragraph

<p>There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.</p>



There are around 10,000 living species of birds that inhabit different



ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

Three Rules for Creating Images

- **Save images In the right format**, o/w your site might not look as sharp as you want or will load slow.
- **Save images at the right size**, faster website load and no need for images stretching
- **Measure images in pixels** (not centimeters or inch), you will be independent from screen resolutions.

Figure Captions (HTML5) – Example

Code

```
<figure>
    
<br />
<figcaption>Sea otters hold hands when they sleep so they don't drift away from each other.</figcaption>
</figure>
```

Results



Sea otters hold hands when they sleep so they don't drift away from each other.

Images Summary

- The `` element is used to add images to a website
- You must always specify an **src** attribute to indicate the source of an image and an **alt** attribute to describe the content of an image
- **Photos** are best saved as **JPEGs**; **illustrations or logos** that use flat colors are better saved as **GIFs**

Exercise 2

→ Modify the JSfiddle to display the image of the main building.
(Of course, you could replace this image by any other image you'd like!)

Note: that you must use an absolute URL for the IMG, namely:

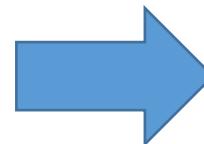
http://www ccp2010 no/img/mainbuilding_ntnu jpg

→ Add a **caption** “*NTNU main Building*” to the image.

The TABLE Element, example

Example

```
<table>
  <tr>
    <td>1</td>
    <td>1</td>
  </tr>
  <tr>
    <td>2</td>
    <td>2</td>
  </tr>
</table>
```



Result

1	1
2	2

Table Headings, example

```
<table>  
  <tr>  
    <th></th>  
    <th scope="col">Saturday</th>  
    <th scope="col">Sunday</th>  
  </tr>  
  <tr>  
    <th scope="row">Tickets sold:</th>  
    <td>120</td>  
    <td>135</td>  
  </tr>  
  <tr>  
    <th scope="row">Total sales:</th>  
    <td>$600</td>  
    <td>$675</td>  
  </tr>  
</table>
```



	Saturday	Sunday
Tickets sold:	120	135
Total sales:	\$600	\$675

Spanning Column Example

```
<table border="1">
  <tr>
    <th></th>
    <th>9am</th>
    <th>10am</th>
    <th>11am</th>
    <th>12am</th>
  </tr>
  <tr>
    <th>Monday</th>
    <td colspan="2">Geography</td>
    <td>Math</td>
    <td>Art</td>
  </tr>
  <tr>
    <th>Tuesday</th>
    <td colspan="3">Gym</td>
    <td>Home Ec</td>
  </tr>
</table>
```



Result:

	9am	10am	11am	12am
Monday	Geography	Math	Art	
Tuesday	Gym		Home Ec	

Spanning Row Example

```
<table border="1">
  <tr>
    <th></th>
    <th>ABC</th>
    <th>BBC</th>
    <th>CNN</th>
  </tr>
  <tr>
    <th>6pm - 7pm</th>
    <td rowspan="2">Movie</td>
    <td>Comedy</td>
    <td>News</td>
  </tr>
  <tr>
    <th>7pm - 8pm</th>
    <td>Sport</td>
    <td>Current Affairs</td>
  </tr>
</table>
```



Result:

	ABC	BBC	CNN
6pm - 7pm	Movie	Comedy	News
7pm - 8pm	Sport	Current Affairs	

Long Tables

- There are three elements that help distinguish between the main content of the table and the first and the last row.
 - **<thead>**: for the headings of the table
 - **<tbody>**: for the main body of the table
 - **<tfoot>**: for the footer of the table
- By default, browsers rarely treat the content of these elements in a different way.
- However, we should use these elements to improve the accessibility, indexing and design flexibility of our page.

“Long” Tables, example

```
<table><thead>
  <tr>
    <th>Date</th>
    <th>Income</th>
    <th>Expenditure</th>
  </tr>
</thead>
<tbody>
  <tr>
    <th>2nd January</th>
    <td>285</td>
    <td>48</td>
  </tr>
</tbody>
<tfoot>
  <tr>
    <td></td>
    <td>535</td>
    <td>84</td>
  </tr>
</tfoot></table></
```

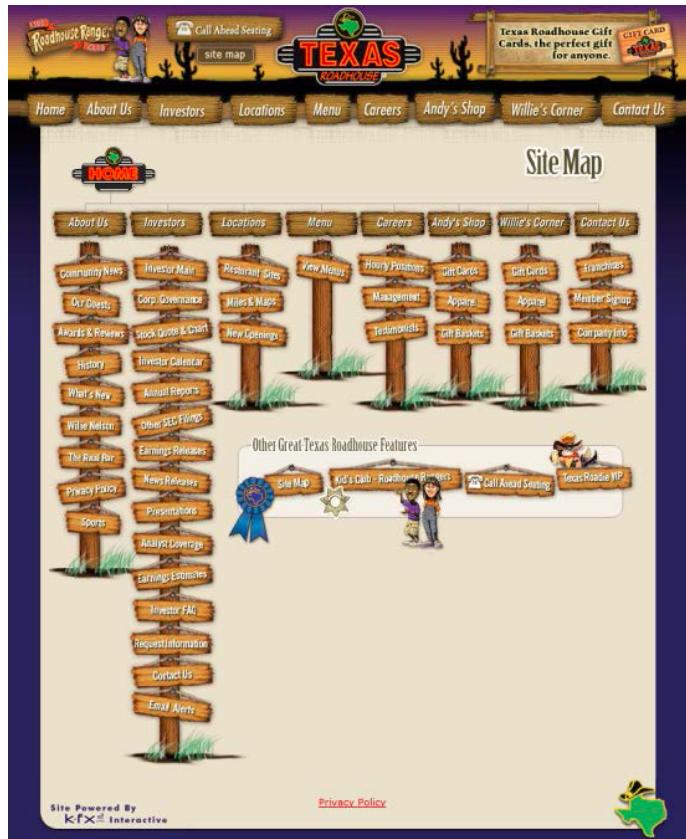
Result:

	Date	Income	Expenditure
	1st January	250	36
	2nd January	285	48
		535	84

Site Map – Definition

- We **define a site map** as a special page intended to **act as a website guide** (Nielsen, 2008).
- The two main usability guidelines for site maps are:
 - **Call it "Site Map"** and use this label to consistently link to the site map throughout the site.
 - **Use a static design.** Don't offer users interactive site map widgets. The site map should give users a quick visualization without requiring further interaction (except scrolling, if necessary).
- A site map is, after all, a map; it should not be a navigational challenge of its own.

Site Map – Examples



A screenshot of the TiVo website's sitemap page. The page has a blue header with navigation links for Home, What is TiVo?, Shop, Find TV shows, My TiVo, and Support. The main content area is titled "Sitemap" and contains a message about changes to the website. It features a sidebar with links to "About us", "Investor Relations", "Press room", "Resource center", "Affiliate program", "Careers", "Contact us", "Policies", and "International". The main content area is divided into three columns: "What is TiVo?", "Shop", and "Find TV shows", each listing various sub-links related to TiVo products and services.

Examples for practice

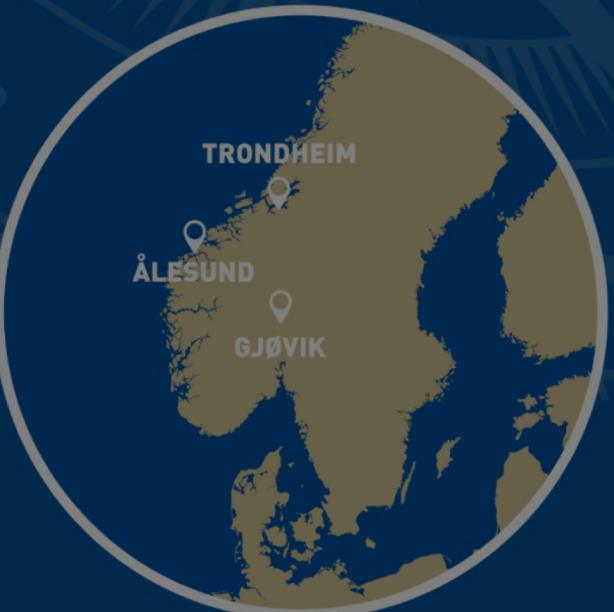
<http://www.idi.ntnu.no/~michailg/IT2805/examples/lecture3/>



Lecture 3 Examples

Try the following HTML tasks, **after** trying them you can check the given Examples

1. [Provide metadata for a document](#)
2. [Style font, color, and size](#)
3. [Style background color](#)
4. [Style HTML elements](#)
5. [Use an image as a link](#)
6. [Jump to another part of a document \(on the same page\)](#)
7. [Insert images from another folder or another server](#)
8. [Basic HTML tables](#)
9. [Create a nested list](#)
10. [Different types of ordered lists](#)
11. [Table with borders](#) (new websites should use CSS to control appearance)
12. [Table with figures](#)
13. [One default URL and target for all links on a page](#)



Thank you!

NORWEGIAN UNIVERSITY OF SCIENCE AND TECHNOLOGY

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TRONDHEIM | GJØVIK | ÅLESUND
BRUSSELS | TOKYO



NTNU

Resources

- W3C specifications - <http://www.w3.org/TR/html5/>

The screenshot shows a web browser displaying the W3C Candidate Recommendation page for HTML5. The page title is "HTML5: A vocabulary and associated APIs for HTML and XHTML". It is a "W3C Candidate Recommendation" from 31 July 2014. The page includes links for "This Version", "Latest Published Version", "Latest Editor's Draft", and "Previous Version". It also lists the "Editors" and "WHATWG" contributors. A red banner at the bottom states "This is a work in progress! For the latest updates from the HTML WG, possibly including important bug fixes, please look at the editor's draft instead." The URL in the address bar is "www.w3.org/TR/html5/".

www.w3.org/TR/html5/

W3C Candidate Recommendation

HTML5

A vocabulary and associated APIs for HTML and XHTML

W3C Candidate Recommendation 31 July 2014

This Version: <http://www.w3.org/TR/2014/CR-html5-20140731/>

Latest Published Version: <http://www.w3.org/TR/html5/>

Latest Editor's Draft: <http://www.w3.org/html/wg/drafts/html/CR/>

Previous Version: <http://www.w3.org/TR/2014/WD-html5-20140617/>

Editors:

W3C:
[Robin Berjon](#), W3C
[Steve Faulkner](#), The Paciello Group
[Travis Leithead](#), Microsoft
[Erika Doyle Navara](#), Microsoft
[Edward O'Connor](#), Apple Inc.
[Silvia Pfeiffer](#)

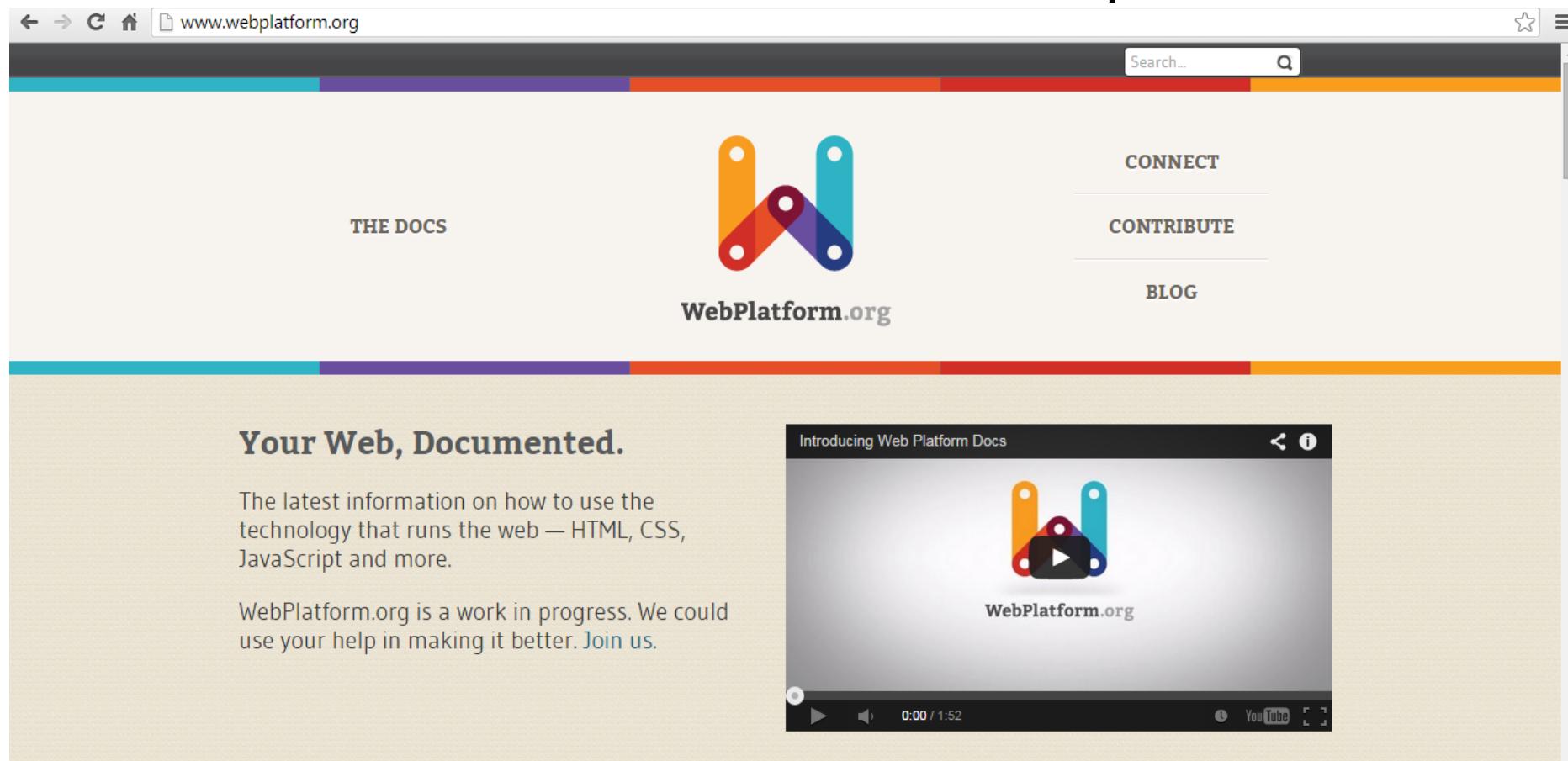
WHATWG:
[Ian Hickson](#), Google, Inc.

This is a work in progress!

For the latest updates from the HTML WG, possibly including important bug fixes, please look at the [editor's draft](#) instead.

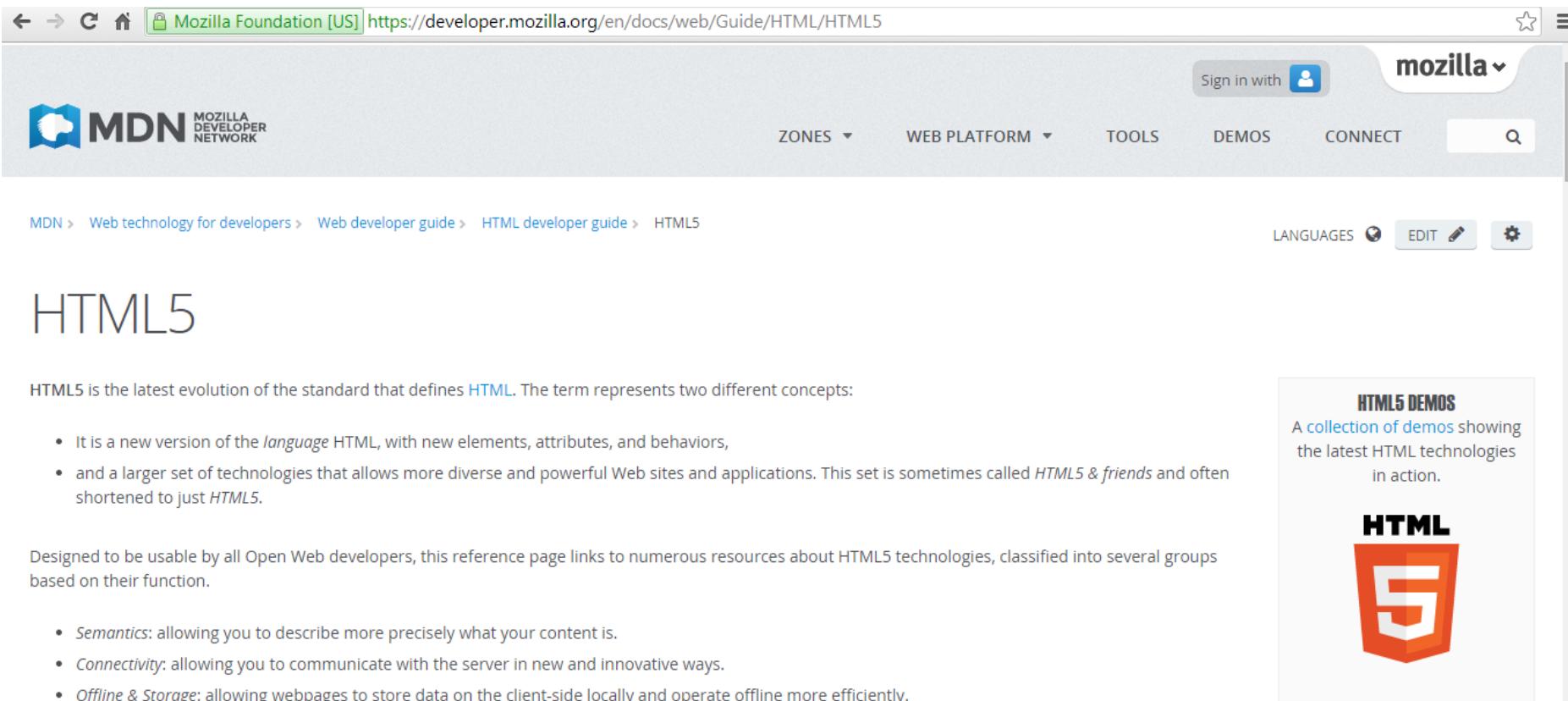
webplatform.org wiki

- The latest information on how to use the technology that runs the web — HTML, CSS, JavaScript and more.



Mozilla developers network

- Beyond a Simple Language reference:
<https://developer.mozilla.org/en/docs/web/Guide/HTML/HTML5>



The screenshot shows a web browser displaying the MDN (Mozilla Developer Network) website at <https://developer.mozilla.org/en/docs/web/Guide/HTML/HTML5>. The page title is "HTML5". The MDN logo is visible in the top left. The top navigation bar includes links for "ZONES", "WEB PLATFORM", "TOOLS", "DEMONSTRATIONS", "CONNECT", and a search icon. A "Sign in with" button and a "mozilla" dropdown menu are also present. The main content area starts with a heading "HTML5" and a paragraph explaining that HTML5 is the latest evolution of the standard that defines HTML. It lists two concepts: a new version of the language and a larger set of technologies. Below this, a section titled "HTML5 DEMOS" describes a collection of demos showing the latest HTML technologies in action, featuring the HTML5 logo (an orange stylized '5'). The footer of the page contains a list of six categories: Semantics, Connectivity, Offline & Storage, Multimedia, 2D/3D Graphics & Effects, and Performance & Integration.

MDN > Web technology for developers > Web developer guide > HTML developer guide > HTML5

LANGUAGES EDIT ⚙

HTML5

HTML5 is the latest evolution of the standard that defines [HTML](#). The term represents two different concepts:

- It is a new version of the *language* HTML, with new elements, attributes, and behaviors,
- and a larger set of technologies that allows more diverse and powerful Web sites and applications. This set is sometimes called *HTML5 & friends* and often shortened to just *HTML5*.

Designed to be usable by all Open Web developers, this reference page links to numerous resources about HTML5 technologies, classified into several groups based on their function.

- *Semantics*: allowing you to describe more precisely what your content is.
- *Connectivity*: allowing you to communicate with the server in new and innovative ways.
- *Offline & Storage*: allowing webpages to store data on the client-side locally and operate offline more efficiently.
- *Multimedia*: making video and audio first-class citizens in the Open Web.
- *2D/3D Graphics & Effects*: allowing a much more diverse range of presentation options.
- *Performance & Integration*: providing greater speed optimization and better usage of computer hardware.

HTML5 DEMOS
A collection of demos showing the latest HTML technologies in action.



html5 Doctor

- Content structure and best practices: <http://html5doctor.com/>

The screenshot shows the homepage of the html5 Doctor website. At the top, there's a navigation bar with links for Home, Article Archive, Element Index, Resources, and a search bar. Below the navigation is a banner featuring the html5 Doctor logo and the tagline "Helping you implement HTML5 today". A "Featured Article" section highlights "The Web Manifest specification" by Bruce Lawson, dated July 29th, 2014. The main content area contains a summary of the article followed by a "Read full post" link. To the right, a sidebar titled "RECENT COMMENTS" lists several comments from users like C. May, Alex, Ejemplo de uso de la etiqueta div, Pipo, and Edd, each with a link to their respective posts.