



Agenda

10 min ▶ Introduction to HTML (and HTML5)

What you'll learn to do:

5 min ▶ Task 1: Create a new HTML document (webpage)

5 min ▶ Task 2: Add elements for body content structure

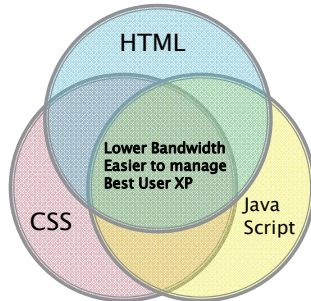
35 min ▶ Task 3: Add displayed content:

- 5 min • a) paragraph and headings
- 5 min • b) text formatting
- 5 min • c) list
- 5 min • d) link
- 5 min • e) image
- 5 min • f) table
- 5 min • g) simple form

By the end of this tutorial, you should have created simple and semantic web-pages with HTML5

HTML, CSS & JavaScript

The three elements of modern web development:



- ▶ **HTML** – Content & Structure
- ▶ **CSS** – Presentation
- ▶ **JavaScript** – Behavior (dynamic functionality)

HTML – Hyper Text Markup Language

- ▶ **HTML** is the main **markup language** used by a web browser to display the page
 - Written in ASCII / Unicode
 - Contains hypertext information (links)
 - Embedded format codes (tags)
 - White space is ignored
- ▶ The **HTML documents** are also known as web pages
- ▶ The individual mark-up components are called **HTML elements**
 - ▶ <http://www.w3.org/TR/html-markup/elements.html>
- ▶ The standards for both HTML and CSS are maintained by **W3C** <http://www.w3.org/>

HTML Editors

- ▶ Main difference is in the degree of support
 - No support: NotePad
 - Syntax highlighting: Notepad++ (<http://notepad-plus-plus.org/>)
 - Auto complete: Free HTML Editor (<http://www.coffeecup.com/free-editor/>)
 - Comprehensive: Adobe Dreamweaver <http://www.adobe.com/cfusion/tdrc/index.cfm?product=dreamweaver>

HTML Cheat sheets

Document Outline	Lists	Objects	Template	Syntax	Head	Table
<!DOCTYPE> Version of XHTML <html> HTML document <head> Page information <body> Page contents	<a> Unordered list List item Definition list <dl> Definition term <dd> Term description	<div> Empty Elements <div> <div> <input /> <div> <link /> <div> <meta /> <div> <param />	Basic HTML: <tag><tagclose> or <tag> XHTML: <tag><tagclose> or <tag /> With Attribute HTML: <tag attribute="T"> XHTML: <tag attribute="T" />	General <body> Visible part of the page <head> Part not displayed on page <html> Creates an HTML page <title> Creates the Page name in title bar	<style type="text/css"> External CSS link <type="text/css"> External CSS link <script language="javascript"> Embedded javascript <type="text/javascript"> Embedded javascript <meta name="T" content="T"> Meta info	<table> <thead> <tr> <td> </td> </tr> </thead> <tbody> <tr> <td> </td> </tr> </tbody> <tfoot> <tr> <td> </td> </tr> </tfoot> </table>
Comments <!-- Comment Text -->	Form <form> Form <fieldset> Collection of fields <legend> Form legend <input type="text"> Input label <input type="checkbox"> Form input <input type="radio"> Drop-down box <input type="button"> Group of options <input type="submit"> Drop-down options <input type="reset"> Large text input <input type="button"> Button	Core Attributes id class style title Note: Core Attributes may not be used in base, head, meta, param, script, style or title elements.	CSS Media all handheld print projection screen	Links Displays an image Link to anchor in current page Link to another page Link to anchor in another page E-mail link	Tables <caption> Table caption <table> Defines a table <tbody> Body section of table <tr> Table row <td colspan="T"> Number of columns cell spans <td rowspan="T"> Number of rows cell spans <tfoot> Footer section of the table <thead> Table header cells <th colspan="T"> Number of columns table header cell spans <thead> Header section of table <tr> Table row	Input Types button checkbox file hidden image password radio reset submit text
Document Structure <h1> Heading <h2> Page section <h3> Page section <h4> Page section <h5> Page section <h6> Page section <hr /> Horizontal rule	Table <table> Table <caption> Caption <thead> Table header <tbody> Table body <tfoot> Table footer <tr> Table row <td colspan="T"> Number of columns cell spans <td rowspan="T"> Number of rows cell spans <thead> Table header cells <thead> Header section of table <tr> Table row	Language Attributes dir lang Note: Language Attributes may not be used in base, head, meta, param, script, style or title elements.	Meta Types http-equiv name	Lists <ul style="list-style-type: none"> 	Forms <form> Defines a form <fieldset> Group of related form items <input type="text"> Form element (see input types) <input type="checkbox"> Form element (see input types) <input type="radio"> Form element (see input types) <input type="button"> Form element (see input types) <input type="submit"> Form element (see input types) <input type="reset"> Form element (see input types) <input type="text"> Form element (see input types)	Special Characters &lt; Non-breaking space &gt; Quotation mark &quot; Quotation mark &apos; Apostrophe &copy; Copyright symbol &reg; Registered trademark symbol
Text Markup Strong emphasis Emphasis Deleted text <ins> Inserted text <sub> Subscript <sup> Superscript <div> Text direction	Images and Image Map Image Image Map <area /> Area of Image Map	Form Events onblur onfocus onmouseover onmouseout onmousemove onmousedown onmouseup onmouseover onmouseout onmousemove onmousedown onmouseup	Form Events onblur onfocus onmouseover onmouseout onmousemove onmousedown onmouseup onmouseover onmouseout onmousemove onmousedown onmouseup	Frames <frame> Defines a single frame <frameset> Frame document <iframe> Inline frame	Comment <!-- comment here --> Ensures anything in between is not interpreted	

* Does not require a closing tag.

Overview of tags

▶ Markup achieved with **tags**:

- Enclosed in angle brackets < ... >
- Use lower case
- *Most* come in pairs <tag> ... </tag>
- **Note:** *Empty elements* are unpaired; e.g. ,

- Describes content between its start and end tag; e.g.

This word is emphasized in italics

▶ Tags must be correctly nested

- Cannot close an open tag until all the open tags that it affects are also closed

```
<tag>
Text only affected by "tag"

[ <tag2>
Text affected by both "tag" and "tag2"
</tag2>

Text only affected by "tag"
</tag>
```

Essential tags

```
<!DOCTYPE html>
<html>
  <head>
    <title>
    </title>
  </head>
  <body>

</body>
</html>
```

<!DOCTYPE html>

- **not an html tag**
- but should be the first thing in the HTML document
- contains information about the version of HTML the page is written in.

<html>

- Encloses the entire document
- Specifies that the document uses html

<head>

- Contains information for the browser
- **Does not contain any content that will appear on the page**

<title>

- Part of the head
- Specifies the **title to be used by the browser**
 - Name of the window
 - Used in navigation (bookmarks, history, etc.)

<body>

- **Contains all the content that will appear on the page**

Task1: Create a new webpage

[allocated time: 5 min]

► A bare-bones webpage

- Open any text or HTML editor & type:

```
<!DOCTYPE html>
<html>
  <head>
    <title>
    </title>
  </head>
  <body>
  </body>
</html>
```

Recall: Nested tags



```
<html>
<head>
  <title> . . . </title>
</head>
<body>
  .
  .
  .
</body>
</html>
```

- Save as “index.html” in a project folder (name the folder ‘html tutorial-yourName’) and display in browser.
- Add the text content below into the <title> element

```
<title> My HTML5 page </title>
```
- Save and display in browser

Other additional stuff to include in the <head> element:

<http://www.dimensionedelta.net/webstuff/html5-meta-and-other-header-tags/>

Elements for body structure



Ref: <http://ftsanzuan.com/projects/html5/>

► HTML5 introduces new elements that improve the semantic structure of block-level tags

- Previously <div> elements were used as a container – has no semantic meaning
- Further info on the new HTML5 elements:
http://www.w3schools.com/html/html5_new_elements.asp
- Also, go back to
<http://www.w3.org/TR/html-markup/elements.html>
- Additionally, try understanding e.g. the difference between <section> and <article>:
 - <http://www.bruceclawson.co.uk/2010/html5-articles-and-sections-whats-the-difference/>
 - <http://html5doctor.com/the-article-element/>

Task2: Add elements for body structure

[allocated time: 5 min]

- ▶ Continue by adding these elements (nested in the body tag):

```
..
<body>
<header>
</header>
<nav>
</nav>
<article>
  <aside>
  </aside>
</article>
<footer>
</footer>
</body>
..
```

▶ Elements:

- header
- nav
- section
- article
- aside
- footer

Recall: <body> tag

Contains all the content that will appear on the page. This means, any **text** between the tags nested in the <body> tag will be displayed on your web page.



- ▶ Save and display in browser.
 - Still see nothing? Let's add text content.

Paragraphs & line breaks

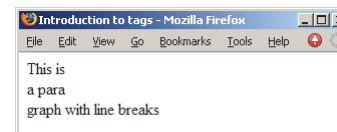
- ▶ <p> defines a paragraph of text
 - Don't forget the end tag </p>
 - **Note:** Browsers automatically add an empty line before and after a paragraph.

```
<body>
<p>This is a very simple web
page</p>
<p>It contains two different
paragraphs
of text.</p>
</body>
```



- ▶ Use the
 tag if you want a line break (a new line) without starting a new paragraph:

```
<body>
<p>This is<br>a para<br>graph
with line breaks</p>
</body>
```



Headings

Six levels of headings

- `<h1>` First level heading
- `<h2>` Second level heading
- `<h3>` Third level heading
- `<h4>` Fourth level heading
- `<h5>` Fifth level heading
- `<h6>` Sixth level heading

```
<h1>A very simple web page</h1>
<p>It contains two paragraphs
and two headings</p>
<h2>Second section</h2>
<p>This section is less
important</p>
```



Task3: Add text content

(a) paragraphs and headings [allocated time: 5 min]

- ▶ Add appropriate text as headings and paragraphs nested within the existing block-level elements; e.g.

```
..
<heading>
  <h1> Welcome! </h1>
</heading>
..
<article>
  <p> Lorem ipsum dolor sit amet,
consectetur adipiscing elit. Duis nec
lobortis neque. </p>
</article>
..
```

Tips: Use dummy text generators for temporary text fillers

<http://www.lipsum.com/>



- ▶ Save and display in browser.

In-line elements for text formatting

► HTML Text Formatting Tags

Tag	Description
<u></u>	Defines bold text
<u></u>	Defines emphasized text
<u><i></u>	Defines a part of text in an alternate voice or mood
<u><small></u>	Defines smaller text
<u></u>	Defines important text
<u><sub></u>	Defines subscripted text
<u><sup></u>	Defines superscripted text
<u><ins></u>	Defines inserted text
<u></u>	Defines deleted text

Elements for text formatting

► HTML Citations, Quotations and Definition Tags

Tag	Description
<u><abbr></u>	Defines an abbreviation or acronym
<u><address></u>	Defines contact information for the author/owner of a document
<u><bdo></u>	Defines the text direction
<u><blockquote></u>	Defines a section that is quoted from another source
<u><q></u>	Defines an inline (short) quotation
<u><cite></u>	Defines the title of a work
<u><dfn></u>	Defines a definition term

Task3: Add displayed content

(b) HTML text formatting [allocated time: 5 min]

- ▶ Add in-line elements for formatting some of the text; e.g.

```
..  
<aside>  
  <q> Donec eu risus pulvinar  
    purus suscipit vehicula. Duis  
    erat nibh, egestas eget eleifend  
    sed, dapibus eget velit. Integer  
    condimentum lobortis</q>  
</aside>  
..
```

Try them out
beforehand:



http://www.w3schools.com/html/tryit.asp?filename=tryhtml_formatting

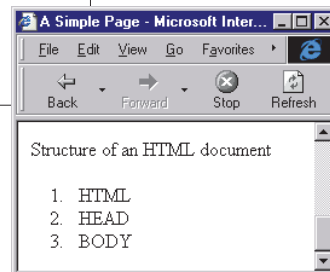
- ▶ Save and display in browser.

Lists

Ordered Lists

- Automatically numbered
- `<ol> ... </ol>` Contains the entire list
- `<li> ... </li>` Used for each list item

```
<p>Structure of an HTML document</p>  
<ol>  
  <li>HTML</li>  
  <li>HEAD</li>  
  <li>BODY</li>  
</ol>
```

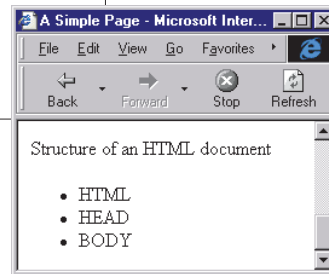


Lists

Unordered Lists

- Bullet Points
- `<ul> ... </ul>` Contains the entire list
- `<li> ... </li>` Used for each list item

```
<p>Structure of an HTML document</p>
<ul>
  <li>HTML</li>
  <li>HEAD</li>
  <li>BODY</li>
</ul>
```



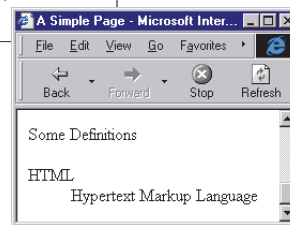
Lists

Definition lists

Terms and explanations

- `<dl> ... </dl>` Contains the entire list
- `<dt> ... </dt>` A definition term
- `<dd> ... </dd>` A definition description

```
<p>Some definitions</p>
<dl>
  <dt>HTML</dt>
  <dd>Hypertext Markup Language</dd>
</dl>
```



Task3: Add displayed content

(c) list [allocated time: 5 min]

- ▶ We are going to use an 'unordered list' as the site menu. Nest the elements under <nav>:

```
..
<nav>
  <ul>
    <li>Home</li>
    <li>About </li>
    <li>Services</li>
    <li>Contact</li>
  </ul>
</nav>
..
```

- ▶ Save and display in browser.

Hypertext reference

- ▶ A link to another resource on the WWW
 - References to other documents
 - Pages, images, files, sections

- ▶ <a>
 - **Anchor tag**

- ▶ href
 - Attribute used to specify the destination of the link
 - URL

```
<a href="... url ...">text appearing</a>
```

URLs

▶ Absolute paths

- Protocol
- Host name
- Path
- File

```
<p>To check the validity of your  
content use  
<a href="http://validator.w3.org">W3C  
Validator</a>.</p>
```

▶ Relative paths

- Omit the first parts
- Path and file
- File

- courses/compsci345s1c/index.html
- lectures/index.html
- index.html
- ../index.html



```
C:\Users\Fujitsu\Dropbox\_000  
tutorial\345tutorial-safurah\HTML  
basics\html tutorial-safurah
```

Task3: Add displayed content

(d) links [allocated time: 5 min]

▶ Add links to your 'unordered list' site menu.

```
..  
<nav>  
  <ul>  
    <li><a href="index.html">Home</a></li>  
    <li> <a href="http://www.cs.auckland.ac.nz/compsci345s1c/tutorials/">  
      About</a></li>  
    <li><a href="service.html">Services </a></li>  
    <li><a href="contact.html">Contacts</a></li>  
  </ul>  
</nav>  
..
```

- ▶ Save and display in browser. Click on the links.
- ▶ Duplicate two copies of 'index.html' file and rename them:
 - service.html
 - contact.html
- ▶ Save and display in browser.

Images

- ▶ Pages may contain images
 - But images are not plain text
 - Can't be inserted directly into HTML page
- ▶ Solution
 - Store the image on the internet (or locally on disk)
 - Tag contains the address of the image
 - Web browser loads image when required
 - Only use images the browser understands
 - GIF, JPG, PNG

Image tag

- ▶ `<img>`
 - Insert an image at this location
- ▶ `src`
 - The source file of the image
 - Attribute that specifies the file name
- ▶ `alt`
 - Attribute to specify alternate text
 - Displayed if the image can't load
 - Important for people with visual impairment

```

```

```

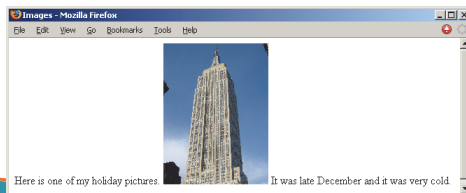
```

 example

- ▶ An image is inserted inline, so it is used inside a block-level element (a paragraph in this example):

```
<p>
Here is one of my holiday pictures.

It was late December and it was very cold.
</p>
```



Task3: Add displayed content

(e) image [allocated time: 5 min]

- ▶ Create an 'img' subfolder in your project folder
- ▶ Copy an image (e.g. get one from the internet) into the folder
- ▶ Add the image to one of your web page (e.g. index.html) using the element & relative path:

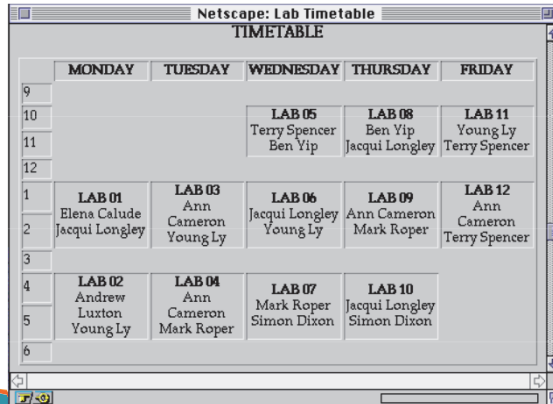
```
..
<section>
<h3>My Profile</h3>

<p>This is me.</p>
</section>
..
```

- ▶ Save and display in browser.

Tables

- ▶ `<table>`
 - Used to format tables of information
 - By default, there are no borders shown

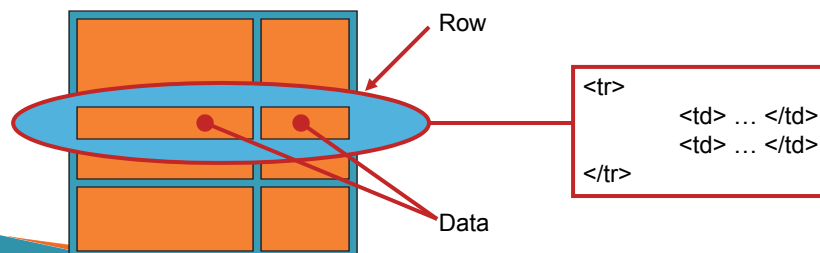


The screenshot shows a Netscape browser window titled "Netscape: Lab Timetable". The table displayed is titled "TIMETABLE" and has five columns: MONDAY, TUESDAY, WEDNESDAY, THURSDAY, and FRIDAY. The rows are numbered 1 through 12. The table content is as follows:

	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY
9					
10					
11			LAB 05 Terry Spencer Ben Yip	LAB 08 Ben Yip Jacqui Longley	LAB 11 Young Ly Terry Spencer
12					
1	LAB 01 Elena Calude Jacqui Longley	LAB 03 Ann Cameron Young Ly	LAB 06 Jacqui Longley Young Ly	LAB 09 Ann Cameron Mark Roper	LAB 12 Ann Cameron Terry Spencer
2					
3					
4	LAB 02 Andrew Luxton Young Ly	LAB 04 Ann Cameron Mark Roper	LAB 07 Mark Roper Simon Dixon	LAB 10 Jacqui Longley Simon Dixon	
5					
6					

Tags required to format Tables

- ▶ A table is divided into rows (with the `<tr>` tag), and each row is divided into data cells (with the `<td>` tag).
 - `<table> ... </table>` Surrounds the entire table
 - `<tr> ... </tr>` Identifies a row in the table
 - `<td> ... </td>` Each element/cell of data in the row

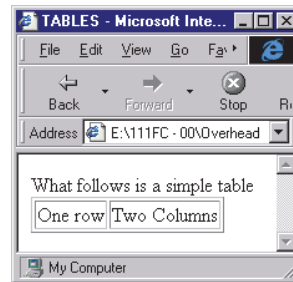


A simple table example

```
<html>
  <head>
    <title>TABLES</title>
  </head>
  <body>
    <p>What follows is a simple
    table</p>

    <table>
      <tr>
        <td>One row</td><td>Two
        Columns</td>
      </tr>
    </table>

  </body>
</html>
```



Task3: Add displayed content

(f) table [allocated time: 5 min]

- ▶ Add a simple table to one of your web page (e.g. services.html):

```
..
<section>
<h3>Data table of services</h3>
<table>
  <tr>
    <td>row 1, cell 1</td>
    <td>row 1, cell 2</td>
  </tr>
  <tr>
    <td>row 2, cell 1</td>
    <td>row 2, cell 2</td>
  </tr>
</table>
</section>
..
```

- ▶ Save and display in browser.

HTML form elements

- ▶ HTML Forms are used to select different kinds of user input and pass data to the server
 - The `<form>` tag is used to create an HTML form

```
<form>
.
.
.
</form>
```

- ▶ The most important form element is the `<input>` element; e.g.:

- `<input type="text" name="firstname">`
- `<input type="password" name="pwd">`
- `<input type="radio" name="gender" value="male">Male<br>`

- ▶ http://www.w3schools.com/html/html_forms.asp
- ▶ http://www.w3schools.com/html/html5_form_input_types.asp

Try them out



http://www.w3schools.com/html/tryit.asp?filename=tryhtml_form_mail

Task3: Add displayed content

(g) form elements [allocated time: 5 min]

- ▶ Create a contact/query form using the input and textarea elements; e.g.

```
..
<h2>Contact Me! </h2>
<form action="mailto:youremail@aucklanduni.ac.nz" method="post"
autocomplete="on">
  Name:<input type="text" name="fname"><br>
  Gender:
    <input type="radio" name="gender" value="male">Male
    <input type="radio" name="gender" value="female">Female<br>
  E-mail: <input type="email" name="email"><br>
  Telephone: <input type="tel" name="usrtel" required><br>
  Your homepage: <input type="url" name="homepage" required><br>
  Wanna meet up? (date and time): <input type="datetime-local"
name="meetUptime"><br>
  <textarea name="comment"></textarea><br>
  <input type="checkbox" name="agree" value="agree"> I agree.<br>
  <input type="submit">
</form>
..
```

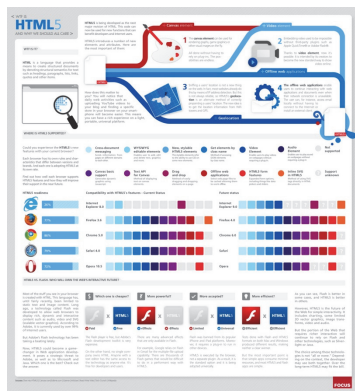
- ▶ Save and display in browser.

End of tutorial

Note: we will be styling these webpages in the next tutorial, so keep the HTML files you have created during this session

Related infographics

– further quick overview of HTML5



WTF is HTML5 and why should we all care:

<http://www.r2integrated.com/blog/wp-content/uploads/2012/04/HTML5-infographic.jpg>

The history of HTML5

<http://www.sounasdesign.com/?portfolio=the-history-of-html5-infographic>

