

INFO 151

Web Systems and Services

Week 2: T1

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Basic functions in HTML

Overview

- In this tutorial we will introduce the basic HTML 5.2 functions including:
 - Adding and formatting text
 - Document linking
 - Creating lists
 - Creating tables
 - Adding images
 - Image mapping
 - Text overlay over an inline image

Review

Review

- Creating a Sample HTML File
- This simple HTML code prints
 - “My first web page!”
- You will learn about HTML
- You will learn how to add style to web-pages using
 - Cascading Style Sheets (CSS)

```
<!-- this is a comment -->
<!DOCTYPE html>
<html>
<head>
<title>First Web Page</title>
</head>
<body>
<p>
My first web page!
</p>
</body>
</html>
```

My first web page!

HTML Tags

```
<!-- this is a comment -->
<!DOCTYPE html>
<html>
<head>
<title>First Web Page</title>
</head>
<body>
<p>
My first web page!
I want the following text on a new
line
</p>
</body>
</html>
```

```
<!-- this is a comment -->
<!DOCTYPE html>
<html>
<head>
<title>Second Web Page</title>
</head>
<body>
<p>
This is my first line of text
<br>
This is my second line of text
</>
</p>
</body>
</html>
```

The <meta> Tag Elements

- In the **<meta>** tag
 - Located within the **<head>...</head>** tags
 - Information is specified describing web document
 - Provide information for search engine catalogs
- The <meta> tag provides information such as:

```
<meta name="keywords" content="web page, design, education,..." />
```

```
<meta name="description" content="This is the first web page of ..." />
```


My first web page! I want the following text on a new line

This is my first line of text
This is my second line of text

Second Web Page

- Creating a Sample HTML File
- This simple HTML code prints
 - “My first web page!”
 - A horizontal line
 - “A line of text on a new line”
- Note:
 - White space is ignored

```
<!-- this is a comment -->
<!DOCTYPE html>
<html>
<head>
<title>First Web Page </title>
</head>
<body>
<p>My first web page!</p>
<hr />
<p>A line of text on a new line</p>
</p>
</body>
</html>
```

My first web page!

A line of text on a new line

HTML

Source of HTML Tags and Example HTML

- The primary source of information on HTML is the *w3schools.com* web site is accessed using the url:
 - <https://www.quanzhanketang.com/>
- At this reference source there is
 - An overview of HTML 5 with the revised (deprecated) HTML 4 <tags> and methods in HTML 5
 - A comprehensive list of <tags>
 - Other related HTML resources
 - Information relating to web-browser supported

Language Selection

Language Selection

- English is the language of HTML
- We may however change the language the text is presented in the web-page
- The language used in the web-page may be selected.
- For example:
 - The general tag for Chinese:
 - `<html lang="zh-Hans"> ... </html>`
 - The tag for Chinese (Simplified):
 - `<html lang="zh-Hant"> ... </html>`
 - The tag for Chinese (TRaditional):
 - `<html lang="zh"> ... </html>`

Adding Text

Formatting Text

Adding and Formatting Text

- Adding text is an essential part of the formatting of a web-page
- Text may be added using:
 - HTML
 - JavaScript
 - PHP
 - In this lecture we focus on HTML (JavaScript and PHP will be covered later)
- Inserting text is simply a matter of typing into the HTML file the required text
 - The language shown in the web-page is the text inserted
 - However, 'white space' is ignored in the processing of an HTML file
- We must insert tags to:
 - Place text on a new line and create paragraphs
 - Format text (*italic* or *emphasised* or **Bold** or in color)

Linking Documents

Document Linking

- In week 1 we introduced ***hypertext*** which is central feature of HTML
- The HTML tags for document linking can be found at w3schools.com
- Using hypertext linking we can:
 - Create an external link in a web-page (the source) to another web-page (the destination)
 - `Visit our HTML tutorial`
 - Create an local (internal) link in a section of a web-page to another section within the same web-page
 - `HTML Images`
 - Create a link to enable users viewing your web-page to send an email to the creator of the web-page (or any other legitimate email address (this is termed a *mailto*)
 - `Send Email`

Creating Lists

Creating an Ordered List

- An ordered list starts with the **** tag.
- Each list item starts with the **** tag.
- Uppercase letters
 - **<ol type="A">**
- Lowercase letters
 - **<ol type="a">**
- Numbers
 - **<ol type="1">**

```
<ol type="1">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

```
<ol type="A">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```

```
<ol type="a">  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ol>
```



Run »

```
<!DOCTYPE html>
<html>
<body>

<h2>Ordered List with Lowercase Letters</h2>

<ol type="a">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

Ordered List with Lowercase Letters

- a. Coffee
- b. Tea
- c. Milk



Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>Ordered List with Letters</h2>

<ol type="A">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

Ordered List with Letters

- A. Coffee
B. Tea
C. Milk



Introduction to Voice Design



for Graphical UI Designers & Developers



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>Ordered List with Numbers</h2>

<ol type="1">
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

Ordered List with Numbers

1. Coffee
2. Tea
3. Milk

Creating an Unordered List

- An unordered list starts with the
 - `` tag
- Each list item starts with the
 - `` tag
- The list items will be marked with bullets (small black circles) by default

```
<ul>  
  <li>Coffee</li>  
  <li>Tea</li>  
  <li>Milk</li>  
</ul>
```



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>An unordered HTML list</h2>

<ul>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ul>

</body>
</html>
```

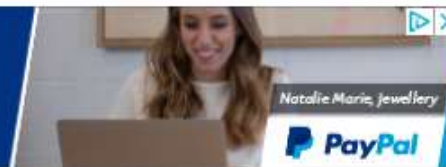
An unordered HTML list

- Coffee
- Tea
- Milk

Creating a Description List

- HTML supports description lists.
- A description list is a list of terms, with a description of each term.
- The **<dl>** tag defines the description list
- The **<dt>** tag defines the term (name)
- The **<dd>** tag describes a description list with terms and descriptions

```
<dl>  
  <dt>Coffee</dt>  
  <dd>- black hot drink</dd>  
  <dt>Milk</dt>  
  <dd>- white cold drink</dd>  
</dl>
```



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>A Description List</h2>

<dl>
  <dt>Coffee</dt>
  <dd>- black hot drink</dd>
  <dt>Milk</dt>
  <dd>- white cold drink</dd>
</dl>

</body>
</html>
```

A Description List

Coffee

- black hot drink

Milk

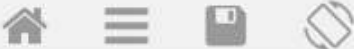
- white cold drink

Creating Tables

Creating Tables

- An HTML table is defined with the **<table>** tag
- Each table row is defined with the **<tr>** tag
- A table header is defined with the **<th>** tag
- By default, table headings are bold and centered
- A table data/cell is defined with the **<td>** tag

```
table style="width:100%">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
</table>
```



Run »

Result Size: 605 x 532

```

<!DOCTYPE html>
<html>
<body>

<h2>Basic HTML Table</h2>

<table style="width:100%">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
  <tr>
    <td>John</td>
    <td>Doe</td>
    <td>80</td>
  </tr>
</table>
    
```

Basic HTML Table

Firstname	Lastname	Age
Jill	Smith	50
Eve	Jackson	94
John	Doe	80

Adding Images

Adding Images (1)

- Adding images
 - Requires the location of the image which is stored in a local folder
 - The path to the image will be known and used to access the image
 - When the image is changed (in the local folder) the image in the web-page will be changed when the web-page is created
- In HTML
 - Images are defined with the `` tag.
 - Note: the `` tag is empty, it contains attributes only, and does not have a closing tag.
 - The `<src>` attribute specifies the URL (web address) of the image

Nested_iframe_snu

Search

Favourites

- Downloads
- philipmoore
- AirDrop

iCloud

- iCloud Drive
- Desktop
- Documents

Locations

- 4G

Tags

- Red
- All Tags...

htdocs (24.7.19)

- JS_Examples
- NetBeansProjects (24.7.19)

Nested_iframe_snu

- MySQL_Conn_Test
- MySQL_INSERT_Test
- Php_break
- Php_continue
- Php_do_while
- Php_for
- Php_for_each
- Php_HTML
- Php_HTML_1
- Php_if
- Php_if_else
- Php_if_elseif_else
- Php_printf_example
- Php_switch
- Php_test_1
- Php_Test_2
- Php_Test_3
- Php_Test_4
- Php_Test_5
- Php_Test_6
- Php_while
- PhpProject1
- ToDoList

index.html

inset.html

SNU.mp4

- Where files are located in the local web site (or web page) project folder all files must be located in one folder:
 - A example is the `Nested_iframe_snu` multimedia file and the two web page files. In this case the location of the files are known.
- Where files are located in a local folder (not the project folder) the PATH to the folder must be specified in the HTML code
- Where files are located over the Internet the URL to the file must be specified in the HTML code

Adding Images (2)

- HTML Code for Inserting Images

- Basic HTML:

``

- With descriptive (**alternative**) text:

``

- With size specifications:

``

Alternative Text

- The `<alt>` attribute provides an alternate text for an image
- In the event of a slow connection (or) if there is an error in the `<src>` attribute (or) if the user is uses a screen reader:
 - The value of the alt attribute should describe the image (the image will not be shown – only the `<alt>` attribute
- Using the HTML:
 - ``
 - The `<alt>` attribute will show on the web-page:
 - “Flowers in China”

WebStorm
Powerful IDE for modern JavaScript development

Try it now

```
<!DOCTYPE html>
<html>
<body>

<h2>HTML Image</h2>


</body>
</html>
```



Adding Images as a Hypertext Link

- We may use an image as a hypertext link
 - Just put the `` tag inside the `<a>` tag:
- For example:

```
<a href="default.asp">  
    
</a>
```

- The HTML shows the `<a>` ... `` tags and adds style with the size of the image.
 - We will introduce style and *Cascading Style Sheets* (CSS) in week 3



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>Image as a Link</h2>
<p>The image is a link. You can click on it.</p>

<a href="default.asp">
  
</a>

<p>Add "border:0;" to prevent IE9 (and earlier) from displaying a
border around the image.</p>

</body>
</html>
```

Image as a Link

The image is a link. You can click on it.



Add "border:0;" to prevent IE9 (and earlier) from displaying a border around the image.

**Start Free Trial Now**

Improve network performance and take control of your entire network



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<h2>Image as a Link</h2>
<p>The image is a link. You can click on it.</p>

<a href="default.asp">
  
</a>

<p>Add "border:0;" to prevent IE9 (and earlier) from displaying a
border around the image.</p>

</body>
</html>
```

w3schools.com

HTML

CSS

MORE ▾



HTML5 Tutorial

< Home

Next >

With HTML you can create your own Website.

This tutorial teaches you everything about HTML.

HTML is easy to learn - You will enjoy it.

Examples in Every Chapter

**DEDICATED SERVERS.
MANAGED HOSTING.**

- High Performance
- No Downtime
- 24/7 UK Support

GET STARTED

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

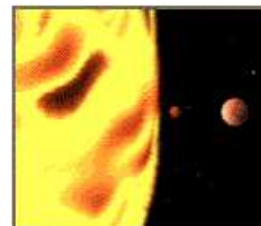
<p>Click on the sun or on one of the planets to watch it closer:</p>



<map name="planetmap">
  <area shape="rect" coords="0,0,82,126" alt="Sun" href="sun.htm">
  <area shape="circle" coords="90,58,3" alt="Mercury"
href="mercur.htm">
  <area shape="circle" coords="124,58,8" alt="Venus" href="venus.htm">
</map>

</body>
</html>
```

Click on the sun or on one of the planets to watch it closer:





**DEDICATED SERVERS.
MANAGED HOSTING.**

- High Performance
- No Downtime
- 24/7 UK Support

GET STARTED



Run »

Result Size: 605 x 532

```
<!DOCTYPE html>
<html>
<body>

<p>Click on the sun or on one of the planets to watch it closer:</p>



<map name="planetmap">
  <area shape="rect" coords="0,0,82,126" alt="Sun" href="sun.htm">
  <area shape="circle" coords="90,58,3" alt="Mercury"
href="mercur.htm">
  <area shape="circle" coords="124,58,8" alt="Venus" href="venus.htm">
</map>

</body>
</html>
```



Image Mapping

Image Mapping (1)

- We have learned that an image can be a link to:
 - Another web-page
 - Section in the same page
- We can also subdivide a single image and link parts of the image to another web-page
 - This type of subdivided image is termed: An *image map*
- The following slide illustrates the concept of an image map
 - The map (a coincidence) shows the states of the USA
 - Each state has a link to a separate dedicated web-site for each state

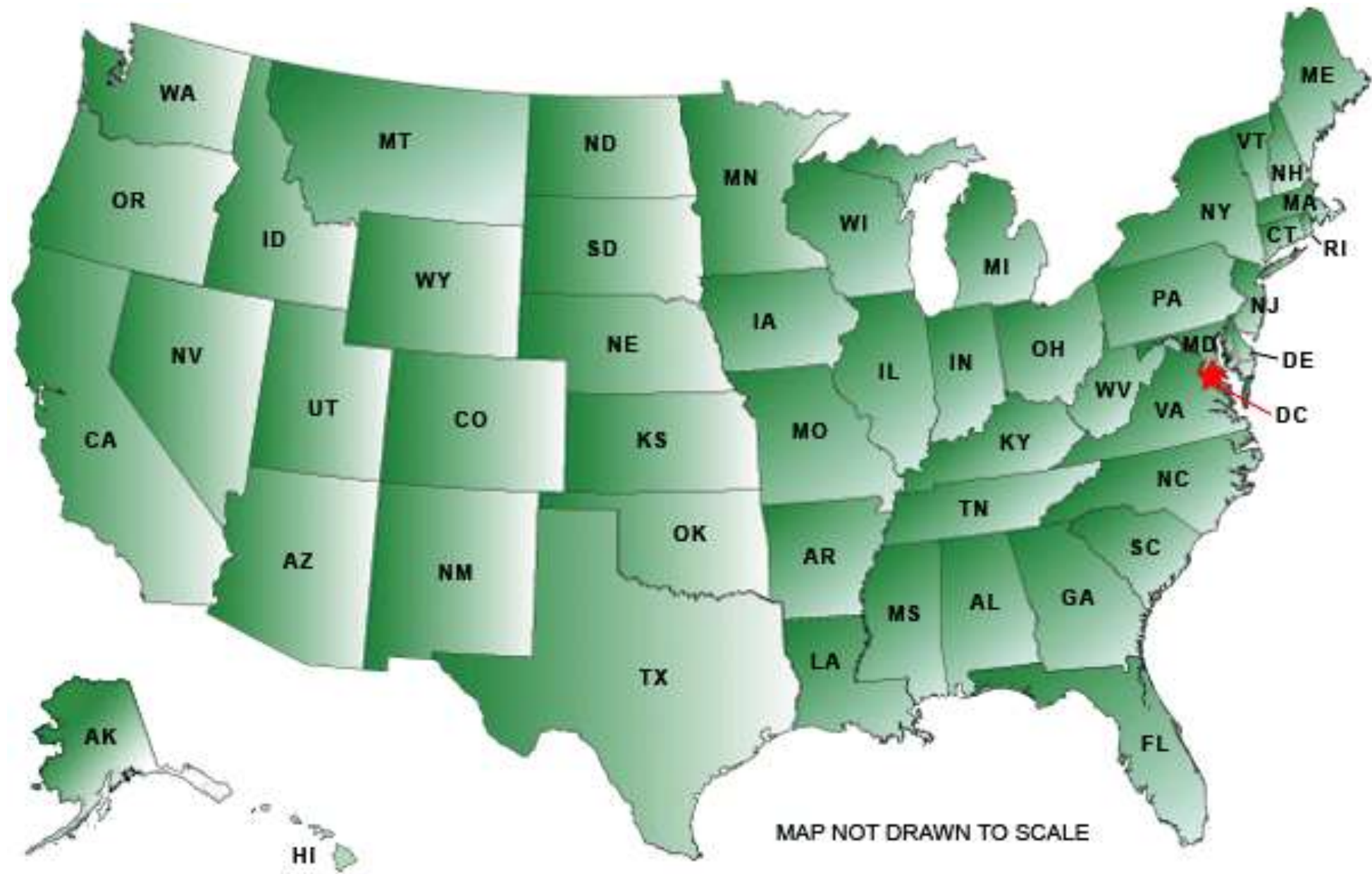


Image Mapping

- The `<map>` tag is used to define a client-side image-map.
- An image-map is an image with clickable areas.
- The required name attribute of the `<map>` element is associated with the `` usemap attribute to create a link between the image and the map.
- The `<map>` element contains a number of `<area>` elements
- The `<area>` element defines the clickable areas in the image map.
- In Week 3 we will consider
 - Frames and inline-frames `<iframe>`
 - Windows
 - Web-page layout using frames

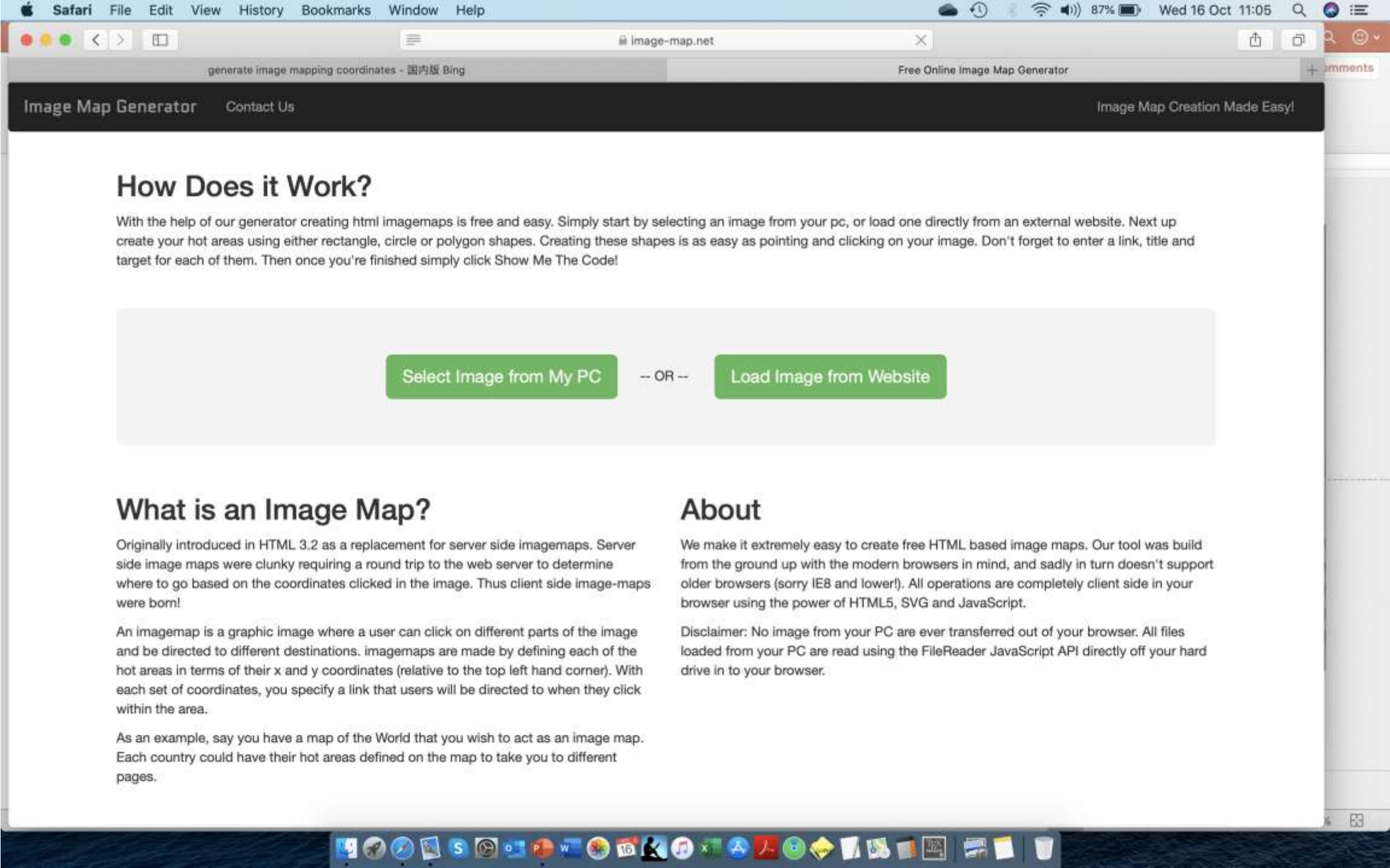
Image Mapping

- Image maps may be created on using both *client-side* (or) *server-side* web programming
- In both cases the image map is stored on the web-server
- In client-side implementation
 - The web-browser does the work to deliver the new location
 - The web-browser selects the specified link in the activated region and follows it
- In server-side implementation
 - The user clicks on the server-side image map
 - The server receives the request
 - The server delivers the response (the linked resource)

Image Mapping Co-ordinates (X, Y, Cartesian Co-ordinates)

Image Mapping

- Image maps are created with sections (or areas) of an image (any image – not just a map) selected and defined
- The areas are defined using **X, Y** cartesian co-ordinates
 - The cartesian co-ordinates are two-dimensional (2D) and are measured from the top left corner of the computer screen
 - The cartesian co-ordinates are **X** cartesian co-ordinate represents the horizontal dimension
 - The **Y** cartesian co-ordinate represents the vertical dimension
- Defining the image mapping area is demonstrated in the following slides where the generated output shows the co-ordinates



How Does it Work?

With the help of our generator creating html imagemaps is free and easy. Simply start by selecting an image from your pc, or load one directly from an external website. Next up create your hot areas using either rectangle, circle or polygon shapes. Creating these shapes is as easy as pointing and clicking on your image. Don't forget to enter a link, title and target for each of them. Then once you're finished simply click Show Me The Code!

Select Image from My PC

-- OR --

Load Image from Website

What is an Image Map?

Originally introduced in HTML 3.2 as a replacement for server side imagemaps. Server side image maps were clunky requiring a round trip to the web server to determine where to go based on the coordinates clicked in the image. Thus client side image-maps were born!

An imagemap is a graphic image where a user can click on different parts of the image and be directed to different destinations. imagemaps are made by defining each of the hot areas in terms of their x and y coordinates (relative to the top left hand corner). With each set of coordinates, you specify a link that users will be directed to when they click within the area.

As an example, say you have a map of the World that you wish to act as an image map. Each country could have their hot areas defined on the map to take you to different pages.

About

We make it extremely easy to create free HTML based image maps. Our tool was build from the ground up with the modern browsers in mind, and sadly in turn doesn't support older browsers (sorry IE8 and lower!). All operations are completely client side in your browser using the power of HTML5, SVG and JavaScript.

Disclaimer: No image from your PC are ever transferred out of your browser. All files loaded from your PC are read using the FileReader JavaScript API directly off your hard drive in to your browser.



Generated Image Map Output



```
<!-- Image Map Generated by http://www.image-map.net/ -->


<map name="image-map">
  <area target="_self" alt="Flag_NSW" title="Flag_NSW" href="http://NSW_flag" coords="2067,2126
,2203,172,2533,760,2460,769,2967,2284,2718,2289" shape="poly">
</map>
```





Active	Shape	Link	Title	Target
	Rect	http://sign	Warning	_self

Generated Image Map Output



```
<!-- Image Map Generated by http://www.image-map.net/ -->


<map name="image-map">
  <area target="_self" alt="Warning" title="Warning" href="http://sign" coords="1000,896,1470,1497
" shape="rect">
</map>
```





Generated Image Map Output



```
<!-- Image Map Generated by http://www.image-map.net/ -->


<map name="image-map">
  <area target="_self" alt="Anchor" title="Anchor" href="http://anchor" coords="1352,2601,305" shape="circle">
</map>
```



Adding Text Over an Inline Image

Adding Text Over an Inline Image

- To overlay text on an image see:
 - <https://www.the-art-of-web.com/css/textoverimage/>
- See also:
 - <https://www.w3.org/TR/CSS2/visuren.html>
 - This has sections which have been updated:
 - See: <https://www.w3.org/TR/CSS/#css>
- The following slides show some worked examples with text overlaid on inline images
 - On the following slide you will see the HTML and style used to overlay the text

2. Using CSS to overlay text on an image

Indeed there is a simpler, more flexible solution. Instead of a TABLE we use a DIV and CSS positional attributes to place further text and images with relation to that DIV.

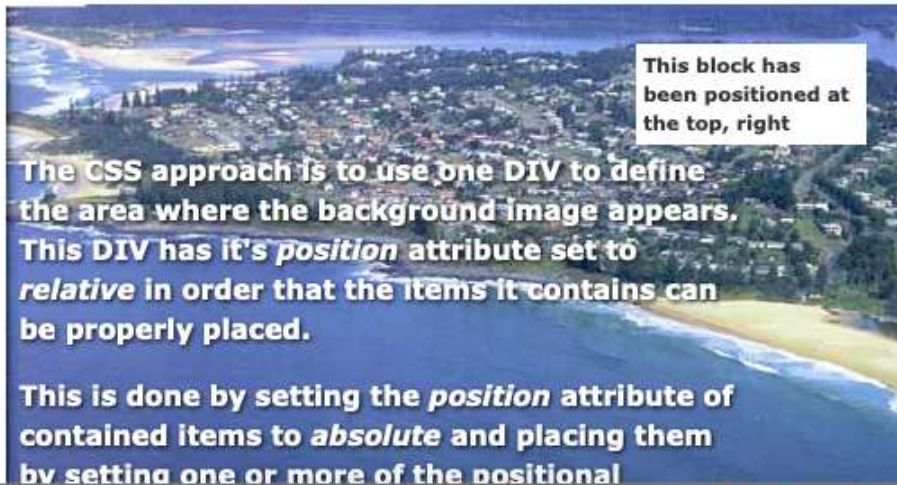
```
<div style="position: relative; background: url(path to image); width: (width)px; height: (height)px;">

<div style="position: absolute; bottom: 0; left: 0.5em; width: 400px; font-weight: bold; color: #fff;">
<p>(text to appear at the bottom left of the image)</p>
</div>

<p style="position: absolute; top: 1em; right: 2em; width: 120px; padding: 4px; background-color: #fff; fon
(text to appear at the top right of the image)
</p>

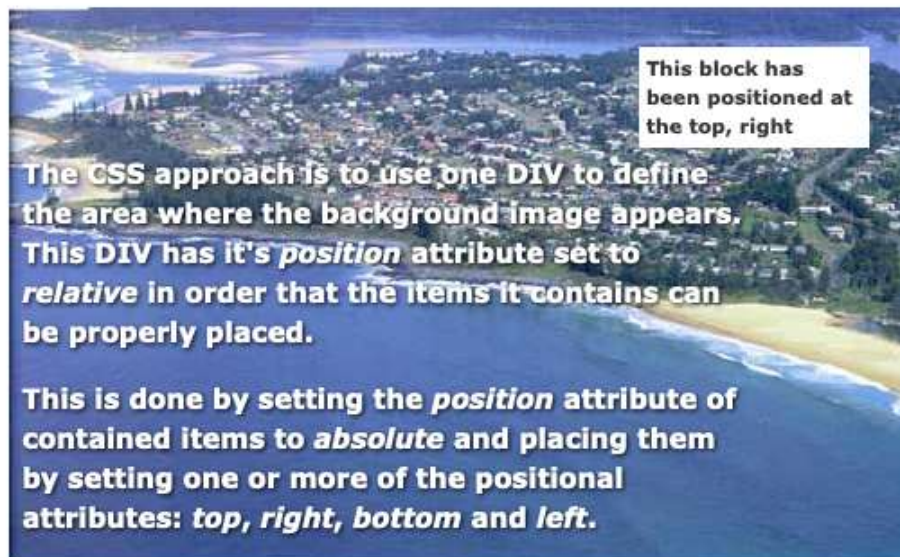
</div>
```

As you can see, we are able to place any number of sub-elements within the surrounding div. In this case a div containing paragraphs with text (bottom left), and a paragraph by itself (top right).




```
</p>
</div>
```

As you can see, we are able to place any number of sub-elements within the surrounding div. In this case a div containing paragraphs with text (bottom left), and a paragraph by itself (top right).



The `position` attribute may seem complicated at first, but it's the key to implementing complicated layouts without excessive amounts of code. Remember that you need to have a container element with `position: relative` in order to place inner elements using `position: absolute`.

Without a container element all positioning will be in relation to the viewport (the corner of the screen). This in combination with `position: fixed` can create elements that stay in one corner of the screen and don't move when the page scrolls, but only in browsers other than Explorer. On this site you might see a `[top]` link doing just that if you're using a compatible browser.

Review

- In this tutorial we have introduced the basic HTML 5.2 functions including:
 - Adding and formatting text
 - Document linking
 - Creating lists
 - Creating tables
 - Adding images
 - Text overlay over an inline image
- In the next tutorial we will extend the introduction to HTML and the functionality provided in HTML 5.2