HTML

Building Web Pages

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HTML

- **Introduction to HTML**
- HTML Elements and Attributes
- HTML Forms
- Introduction to CSS

What is HTML

- HTML is a language for describing web pages.
  - HTML stands for **H**yper **T**ext **M**arkup **L**anguage.
  - HTML uses markup tags to describe web pages.
  - Note that HTML is not a programming language.
  - HTML tags are keywords surrounded by angle brackets, e.g.:

```html
<html>
<head>
    <title>My WebSite</title>
</head>
<body>
    <h1> My First HTML </h1>
</body>
</html>
```
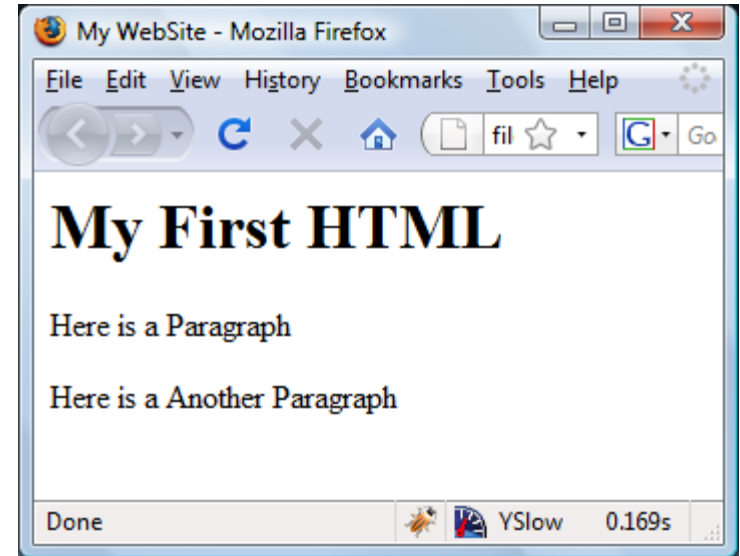
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HTML Syntax

- HTML tags usually come in pairs like <body> and </body>.
  - these are called opening tag and closing tag respectively.
- HTML documents describe web pages.
- HTML documents consist of nested HTML elements:

```
<html>
<body>
   <h1> My First HTML </h1>
</body>
</html>
```
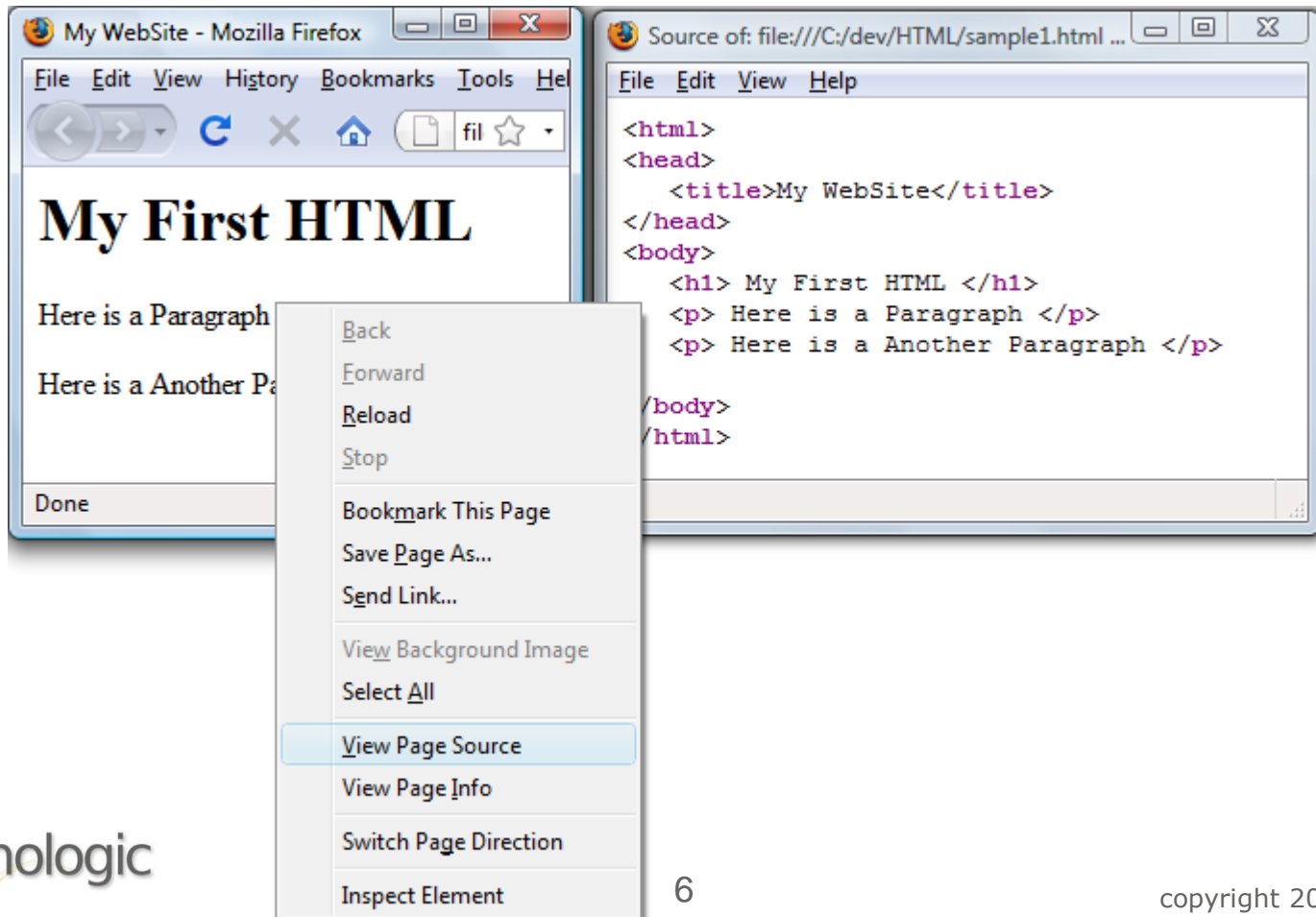
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Basic Example

```html
<html>
<head>
    <title>My WebSite</title>
</head>
<body>
    <h1> My First HTML </h1>
    <p> Here is a Paragraph </p>
    <p> Here is a Another Paragraph </p>

</body>
</html>
```

My WebSite - Mozilla Firefox

File Edit View History Bookmarks Tools Help

My First HTML

Here is a Paragraph

Here is a Another Paragraph

Done   YSlow   0.169s

- <html> describes the web page.
- <body> is the visible page content.
- <h1> is displayed as a heading.
- <p> is displayed as a paragraph.
- <head> gives information about the page.
- <title> is the browser's window title.

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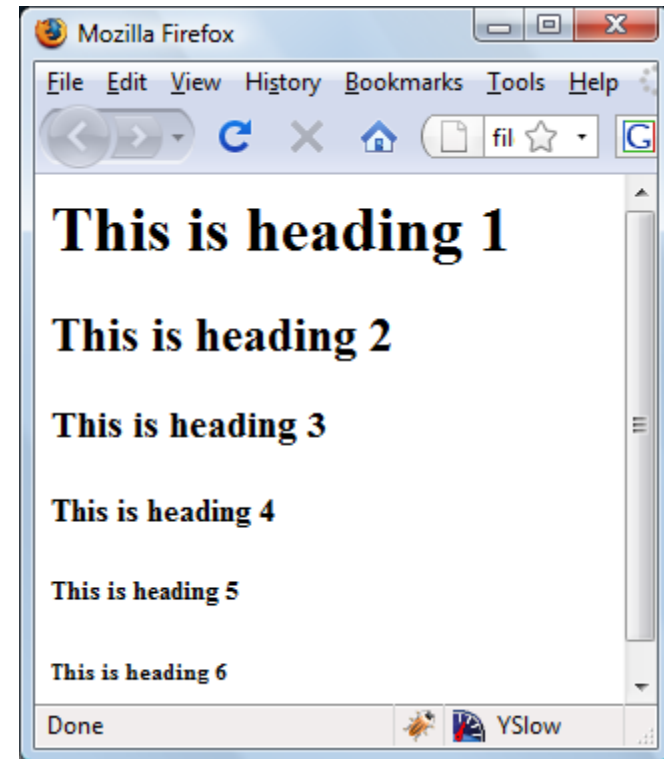# HTML is the Browser's "Mother-Tongue"

Headings

```
<html>
<body>
    <h1>This is heading 1</h1>
    <h2>This is heading 2</h2>
    <h3>This is heading 3</h3>
    <h4>This is heading 4</h4>
    <h5>This is heading 5</h5>
    <h6>This is heading 6</h6>
</body>
</html>
```

- These are the headers provided in HTML.
- Browsers automatically add an empty line before and after headings.
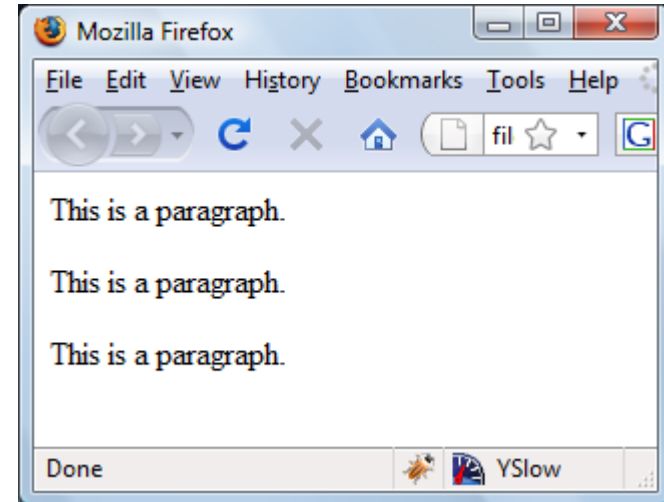- We will see later that we can change the way they look.

Paragraphs

```
<html>
<body>

<p>This is a paragraph.</p>
<p>This is a paragraph.</p>
<p>This is a paragraph.</p>

</body>
</html>
```

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This is a paragraph.

This is a paragraph.

This is a paragraph.

Done   YSlow

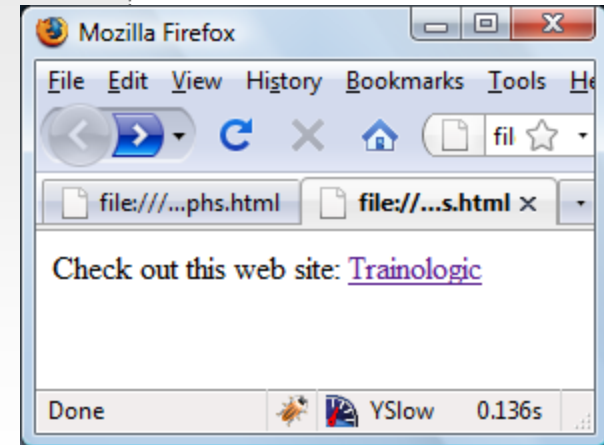- Paragraphs imply a line break and a space from other elements.

Links

```html
<html>
<body>

Check out this web site:
<a href="http://www.trainologic.com">Trainologic</a>

</body>
</html>
```

- Links allow us to navigate in the web.
- Note that the link address is provided as an attribute, we will talk about attributes shortly.
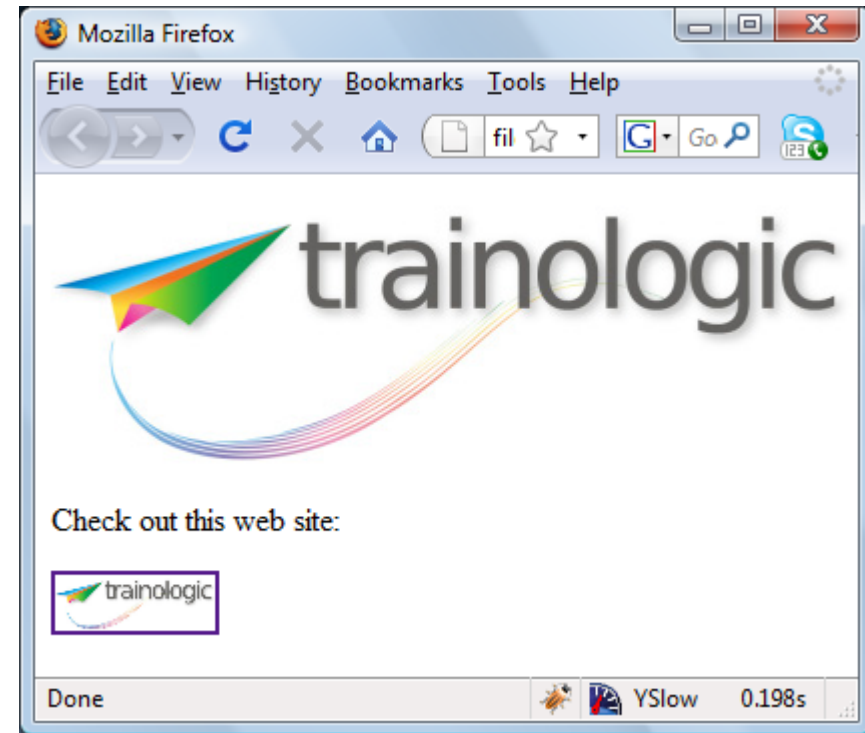
Images

```html
<html>
<body>

<img src="trainologic.jpg" />
<p>Check out this web site:</p>

<a href="http://www.trainologic.com">
<img src="trainologic.jpg" width="80"
height="28" />
</a>

</body>
</html>
```

- Note that *<img>* is an **empty element** – no closing tag is needed.
- More attributes are shown here, we will talk about attributes soon.

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HTML

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- HTML Forms
- Introduction to CSS

What is XHTML

- XHTML is HTML that is also a valid XML Documents.
- Adhering to XML rules reduces the probability of making errors and helps your page run correctly on different browsers.
- Examine the rules on the next slide.

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XHTML Syntax Rules

- Close every element with a matching closing tag:

```
<body>
<p>This is a paragraph.</p>
</body>
```

- Close empty elements by adding a slash to the start tag:

```
<img src="trainologic.jpg" width="80" height="28" />
```

- Even though some browsers will forgive you for syntax errors, it is highly advised that you use correct syntax.
- HTML is not case-sensitive, however, it is recommended to write the tags in lower-case (W3C [World Wide Web Consortium] recommendation).

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XHTML Syntax Rules

- Most HTML elements can have attributes.
- Attributes are additional information about the element.
- Attributes come in name-value pairs.

```
<img src="trainologic.jpg" width="80" height="28" />
```

- Single style quotes are also allowed, useful when the attribute's value contains double quotes:

```
<img src="trainologic.jpg" title='This is the "Trainlogic" site' />
```

- Even though it is forgiven by browsers, it is good practice to surround the attribute's value with quotation marks.
- HTML is not case-sensitive, however, write the attribute names in lower-case.

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More Useful Elements

- **\<br /\>** - (break-row) used to break lines.
- Note that simple line breaking are translated to spaces.
- **\<hr /\>** - (horizontal rule) used to draw a line.
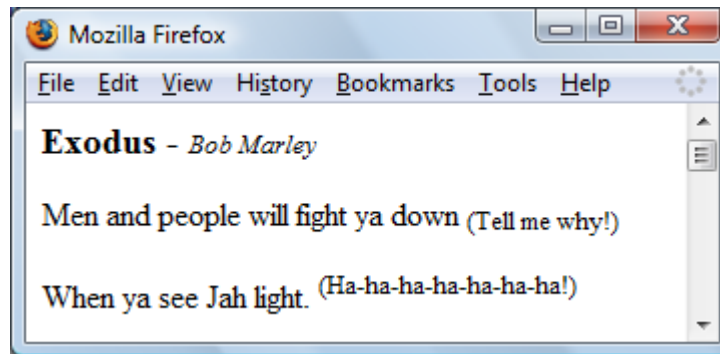- You can configure the width of the rule:

```html
<hr  width="150"  />
```

- You can improve readability using comments (comments are ignored by the browser):

```html
<!-- This is the lists of states,
it is updated when you select a country -->
```

Text Formatting

```
<p>
   <big><b>Exodus - </b></big>
   <small><i>Bob Marley</i></small>
</p>


<p>
   Men and people will fight ya down <sub>(Tell me why!)</sub>
</p>
<p>
   When ya see Jah light. <sup>(Ha-ha-ha-ha-ha-ha-ha!)</sup>
</p>
```

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Exodus – *Bob Marley*

Men and people will fight ya down (Tell me why!)

When ya see Jah light. (Ha-ha-ha-ha-ha-ha-ha!)

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Text Quotes

```
Blockquote quotation:
<blockquote>
Exodus, all right! Movement of Jah
people!
Oh, yeah! O-oo, yeah! All right!
</blockquote>

Q quotation:
<q>We know where we're going,
uh!</q>
```
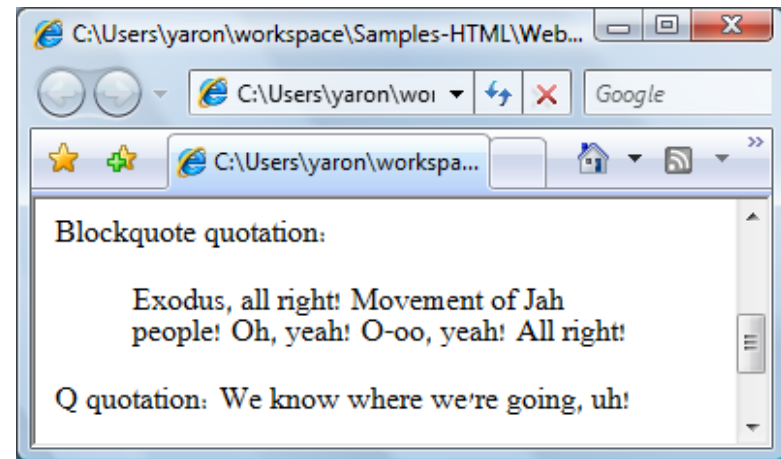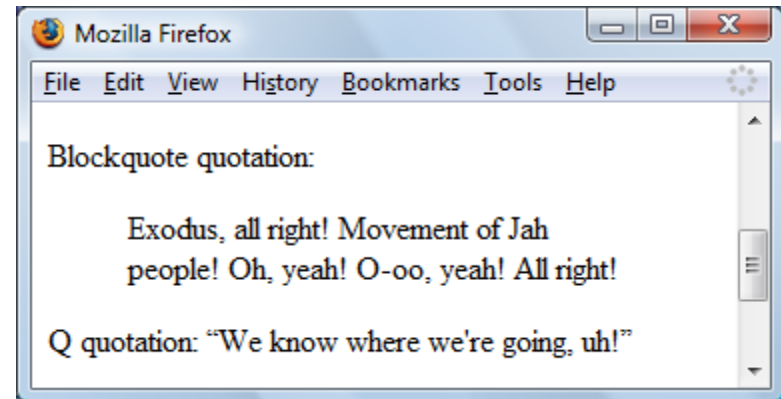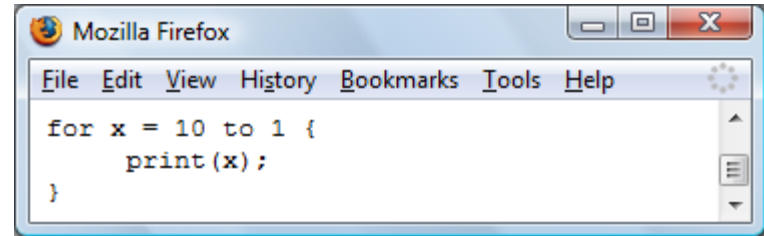

- Note the different way browsers (IE7, FF3) treat those tags.

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Preformatted Text

```
<pre>
for x = 10 to 1 {
    print(x);
}
</pre>
```

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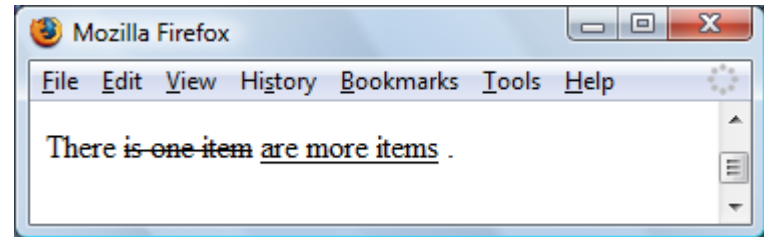File Edit View History Bookmarks Tools Help

```
for x = 10 to 1 {
    print(x);
}
```

- Normally, new lines and multiple white spaces are ignored.
- Preformatted text is displayed with respect to white spaces and new lines.

Deleted and Inserted Text

```
<p>
There
<del>is one item</del>
<ins>are more items</ins>
.
</p>
```

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There ~~is one item~~ <u>are more items</u> .

- Not supported by old browsers.
- In case it *<del>* and *<ins>* are used in such borowser, regular text is displayed.

Lists

- ## Unordered List:

```
<h5>Great Carrot Drink</h5>
<ul>
    <li>Carrots - 5 pieces</li>
    <li>Honey - 1 spoon</li>
    <li>Ice - one glass</li>
</ul>
```

Great Carrot Drink

- Carrots - 5 pieces
- Honey - 1 spoon
- Ice - one glass

- ## Ordered List:

```
<h5>Follow the following steps:</h5>
<ol>
    <li>Go straight to the End</li>
    <li>Turn left</li>
    <li>Leave the case by the tree</li>
    <li>Start running</li>
</ol>
```

Follow the following steps:

1. Go straight to the End
2. Turn left
3. Leave the case by the tree
4. Start running

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Nested Lists

- It is possible to create nested lists:

```html
<ul>
<li>Japan</li>
<li>Israel:
        <ul>
        <li>Tel Aviv:
        <ul>
        <li>Florentin</li>
        <li>HaTikva</li>
        </ul>
        </li>
        <li>Jerusalem</li>
        </ul>
</li>
<li>China</li>
</ul>
```

- Japan
- Israel:
  - Tel Aviv:
    - Florentin
    - HaTikva
  - Jerusalem
- China

More about Anchors

- To open a link in a new window, use:

```
<a href="http://www.gmail.com/" target="_blank">
    Open Gmail (opens a popup window)
</a>
```

  - Note that a Popup Blocker may block this window.

- The URL can point to any resource available on the web, e.g., picture, movie, etc:

```
<a href="http://www.google.com/favicon.ico" target="_blank">
    Open Gmail Icon
</a>
```

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Named Anchors

- Named Anchors are used for linking to a different area in the same page (note the differences):

```html
<a name="pageTop"><h1>Samples</h1></a>
...
...
<a href="#pageTop">Goto Top</a>
```

- Note that the *pageTop* anchor is not displayed differently.

- Linking to a specific section in another page:

```html
<a href="http://www.MyDomain.com/MyPage.html#someSection">
Goto Page at Specific Section</a>
```

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More About Images

- The <img> tag is an empty element.
- Use the <alt> attribute to improve readability of your page in text-only browsers, or when a browser fails to load an image:

```
<img src="catEats.gif" alt="Cat eating Food"
     title="This is Charli eating Tuna"/>
```

Cat eating Food

This is Charli eating Tuna

- You can modify the size of an image using the width and the height attribute.
- Note that the image is downloaded from the server in its real size.

```
<img src="cat.jpg" width="48" height="48">
```

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Aligning Images

- ## Aligning images vertically:

```
<p> This Cat: <img src="charli.jpg" align="bottom" width="48"
height="48"> is Aligned with Text</p>
```

This Cat: is Aligned with Text

- ## Aligning images horizontally:

```
<p>
<img src ="cat.jpg" align ="left" width="48" height="48">
Smelly Cat, Smelly cat what are they feeding you?
Smelly Cat, smelly cat it's not your fault...
They won't take you to the vet. You're
obviously not their favorite pet.
</p>
```

Smelly Cat, Smelly cat what are they feeding you? Smelly Cat, smelly cat it's not your fault... They won't take you to the vet. You're obviously not their favorite pet.

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Background Images

- For some elements, you can add a background image:

```
<body background="bg.jpg">
```

Image Maps

- Use Image-Maps to make different parts of the image clickable hyperlinks.

```
<img src="shapes.jpg" usemap="#shapesMap">

<map id="shapesMap" name="shapesMap">
<area shape="rect"
coords="4,112,107,144"
title="Rectangle"
href="showRect.html">

<area shape="circle"
coords="15,58,80"
title="Circle"
href="ShowCircle.html">
</map>
```

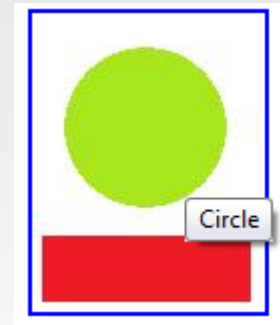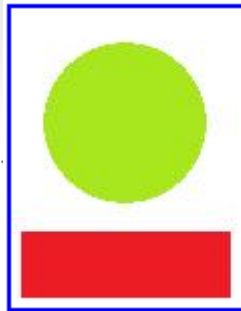# Image Maps

- You can make an image act as Map:

```html
<a href="processSelection.html">
<img src="shapes.jpg" ismap >
</a>
```

file:///C:/Users/yaron/workspace/Samples-HTML/WebContent/processSelection.html?98,82

- When you move the mouse over the image, look at the status bar to see that the current coordinates are attached to the URL as parameters.

- We will understand parameters later on.

Tables

- Tables are very useful elements. Here is a simple example:

```
<table border="1">
<tr>
<td>row: 1, column: 1</td>
<td>row: 1, column: 2</td>
</tr>
<tr>
<td>row: 2, column: 1</td>
<td>row: 2, column: 2</td>
</tr>
</table>
```

| row: 1, column: 1 | row: 1, column: 2 |
| row: 2, column: 1 | row: 2, column: 2 |

- *<tr>* represents a table-row
- *<td>* represents a cell: table-data

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Empty Cells

- When a cell is empty, on some of the browsers (e.g., FF), the table will look like this:

```
<table border="1">
<tr>
<td>row: 1, column: 1</td>
<td>row: 1, column: 2</td>
</tr>
<tr>
<td>row: 2, column: 1</td>
<td></td>
</tr>
</table>
```

row: 1, column: 1	row: 1, column: 2
row: 2, column: 1	

- Note that the inner line is not drawn. This can be fixed by placing a white space in the *td*:

```
<td> </td>
```

row: 1, column: 1	row: 1, column: 2
row: 2, column: 1	

Table Headers

- Tables may have Headers:

```html
<table border="1">
<tr>
<th>header1</th>
<th>header2</th>
</tr>
<tr>
<td>row: 1, column: 1</td>
<td>row: 1, column: 2</td>
</tr>
<tr>
<td>row: 2, column: 1</td>
<td>row: 2, column: 2</td>
</tr>
</table>
```

header1	header2
row: 1, column: 1	row: 1, column: 2
row: 2, column: 1	row: 2, column: 2

- *<th>* is used for headers.

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No-Border Tables

- Sometimes, we don't want the table to show borders. Leave the default or explicitly set the border to 0:

```
<table border="0" >
<tr>
  <td><img src="pic1.jpg"></td>
  <td>Waiting for the Daly Lama</td>
</tr>
<tr>
  <td><img src="pic2.jpg"></td>
  <td>Sunset in the Arabian sea</td>
</tr>
</table>
```


Waiting for the Daly Lama

Sunset in the Arabian sea

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Tables

- Cells may span more that one row / column, here is how:

```html
<table border="1">
<tr>
  <th>Name</th>
  <th colspan="2">Phones</th>
</tr>
<tr>
  <td>Muki D.</td>
  <td>763-8796-980</td>
  <td>763-3746-731</td>
</tr>
</table>
```

Name	Phones	
Muki D.	763-8796-980	763-3746-731

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Tables

- Cells may span more that one row / column, here is how:

```html
<table border="1">
<tr>
  <th>Name:</th>
  <td>Puki G.</td>
</tr>
<tr>
  <th rowspan="2">Phones:</th>
  <td>763-8796-980</td>
</tr>
<tr>
  <td>763-3746-731</td>
</tr>
</table>
```

Name:	Puki G.
Phones:	763-8796-980
	763-3746-731

Nested Tables

- Tables may be nested:

```
<table border="6">
<caption>Some Table</caption>
<tr>
  <td>
  Here is a table:
   <table border="1">
   <tr>
     <td>1</td>
     <td>2</td>
   </tr>
   <tr>
     <td>3</td>
     <td>4</td>
   </tr>
    </table>
  </td>
```

```
<td>Here is a list:
    <ul>
     <li>Cat</li>
     <li>Dog</li>
     <li>Mouse</li>
    </ul>
   </td>
</tr>
</table>
```

Some Table

Here is a table:

| 1 | 2 |
| 3 | 4 |

Here is a list:
- Cat
- Dog
- Mouse

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Tables

- Use cellpadding to add padding to the cell.

```
<table border="1">
<tr>
  <td>A</td>
  <td>B</td>
</tr>
<tr>
  <td>C</td>
  <td>D</td>
</tr>
</table>
```

A	B
C	D

```
<table border="1" cellpadding="10">
<tr>
  <td>A</td>
  <td>B</td>
</tr>
<tr>
  <td>C</td>
  <td>D</td>
</tr>
</table>
```

A	B
C	D

Tables

- Use cellspacing to add space between cells.

```
<table border="1">
<tr>
  <td>A</td>
  <td>B</td>
</tr>
<tr>
  <td>C</td>
  <td>D</td>
</tr>
</table>
```

```
<table border="1" cellspacing="10">
<tr>
  <td>A</td>
  <td>B</td>
</tr>
<tr>
  <td>C</td>
  <td>D</td>
</tr>
</table>
```

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Tables – Borders

- Let's examine different borders styles using the frame attribute:

```
<table frame="border">
```
AB
CD

```
<table frame="above">
```
AB
CD

```
<table frame="hsides">
```
AB
CD

- …And many more.
- Nice, eh?
- Unfortunately, these attributes are shown differently on different browsers, so this is not very useful.

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Aligning Tables' Cells

- Aligning may be done for each cell

```
<table border="1">
<tr>
  <td><img src="cow.jpg" /></td>
  <td>Cow</td>
  <td align="right">200.00$</td>
</tr>
<tr>
  <td><img src="milk.jpg" /></td>
  <td valign="top">Milk</td>
  <td valign="bottom" align="right">1.50$</td>
</tr>
</table>
```

More Table Attributes

- You may want to change the direction of the entire table, this is done using:

```
<table border="1" dir="rtl">
```

- To set a background for your table, use:

```
<table border="1" cellspacing="5" cellpadding="5" bgcolor="lightgreen">
```

- To set an image background for your table, use:

```
<table border="1" cellspacing="5" cellpadding="5" background="bg.jpg">
```

HTML Entities

- Some characters (like <) cannot be placed inside the text (the browser might mistake them for tags).

- HTML Entities are used to output these special characters.

- For example: *<* is the entity code for <.

- The Entity could be specified using the Entity code or an Entity number: *<*

- Entity names are recommended as they are more readable.

- However, some Entity names are not supported by all browsers.

HTML Entities

- Here are some commonly used Entities:

Entity Output	Description	Code	Number
	non-breaking space		
<	less than	<	<
>	greater than	>	>
&	ampersand	&	&
¢	cent	¢	¢
£	pound	£	£
¥	yen	¥	¥
€	euro	€	€
§	section	§	§
©	copyright	©	©
®	registered trademark	®	®

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The Frame Element

- Using Frames it is possible to display several HTML documents on the same browser window.

- Use the frameset element to declare how the different frames reside on the document.

- Note that when using *frameset*, you don't use the *body* element.

- Note the usage of * for stating – the remaining space.

```html
<frameset rows="30%,70%">
    <frame src="frame1.html" />
    <frameset cols="25%,*">
        <frame src="frame2.html" />
        <frame src="frame3.html" />
    </frameset>
</frameset>
```


Frame 1

Frame 2   **Frame 3**

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Navigating to Frames

```
<frameset cols="150,*">

<frame src="navi.html" noresize="noresize" />
<frame src="frame1.html" name="stage" />

</frameset>
```

Frame 1
Frame 2
Frame 3

Frame 3

```
Navi.html:

<a href ="frame1.html" target ="stage">Frame 1</a><br/>
<a href ="frame2.html" target ="stage">Frame 2</a><br/>
<a href ="frame3.html" target ="stage">Frame 3</a>
```

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Head Elements

- The Head element contains information about the HTML document:

- **Keywords** - used by search engines to index and categorize the page.

- **Content-Type** – used by the browser to determine the encoding of the page.

```html
<meta http-equiv="Content-Type" content="text/html; charset=utf-8" />
<meta name="title"          content="Frogi Pets Shop" />
<meta name="description"    content="The best online pets shop" />
<meta name="keywords"       content="Frogi, Pets, Pets Food, cat, dog" />
<meta name="language"       content="en" />
```

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HTML Input Elements

- Input Elements are used to get data from the user:

```
Full Name:<input type="text" name="fname" size="20"/>
```
Full Name: [   ]

```
Password:<input type="password" name="pass" size="20"/>
```
Password: [•••••]

```
Country:
<select name="country" >
   <option id="1">Spain</option>
   <option id="2" selected="selected">China</option>
   <option id="3">Mexico</option>
</select>
```
Country: [China ▼]
Spain
China
Mexico

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HTML Input Elements
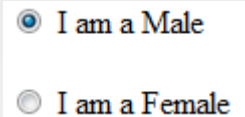
- More input Elements:

```
<input type="radio" id="gender1" name="gender" value="m" checked="checked" />
<label for="gender1">I am a Male</label>
<input type="radio" id="gender2" name="gender" value="f" />
<label for="gender2">I am a Female</label>


<fieldset>
    <legend>Pets Policy:</legend>

    <input type="checkbox" name="dog" id="dog" />
    <label for="dog">I have a Dog</label><br/>


    <input type="checkbox" name="cat" id="cat" checked="checked"/>
    <label for="cat">I have a Cat</label>
</fieldset>
```
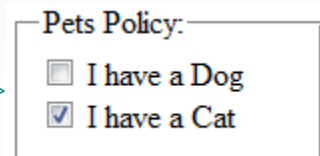
HTML Input Elements

```
Some words about me:<br/>
<textarea name="desc"  rows="3" cols="20">
   I am interested in...
</textarea>

<input type="button" value="Push Me" onclick="alert('Hello')" />
```

Some words about me:

I am interested in...

Push Me

- Buttons are usually used to activate javascript that creates a dynamic browser-side behavior.
- We will see much more power from JavaScript later.
- A commonly used button is one that submits the data from the input Elements to the server.
- This leads us to HTML forms.

HTML Forms

- Form is a logical element, uniting input elements:

```
<form action="processSignup.php" method="get">
    <input type="text" name="fname" size="20"/>
    …
    <input type="submit" value="Send to Server" />

</form>
```
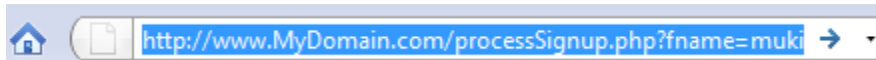
- The *action* element specifies a URL for a server-side file to process the data sent from the browser.

HTML Forms

```
<form action="processSignup.php" method="get">
    <input type="text" name="fname" size="20"/>
    …
    <input type="submit" value="Send to Server" />

</form>
```

- The *method* can be:
- **get** – data is sent as part of the URL and visible to the user, limited by size (1024 characters).

http://www.MyDomain.com/processSignup.php?fname=muki

- **post** – data is sent hidden as part of the http request, this is the recommended way.

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HTML Forms

- Let's put it all together:

Full Name:	Ronaldo
Password:	••••
Country:	China ▾

○ I am a Male
○ I am a Female

Pets Policy:
☐ I have a Dog
☑ I have a Cat

I am interested in...

Some words about me:

[Send to Server]

http://www.mydomain.com/processSignup.php?
fname=Ronaldo&
Pass=poli&
country=Mexico&
gender=m&
cat=on&
desc=I+am+interested+in+musica

Server side code will process the parameters, save to DB and redirect to the next page.

Form Hidden Elements

- Hidden input elements are not shown to the user.
- These are very useful when sending information from the server to the browser and back. Examine the following form:

```html
<form action="processSignup.php" method="get">
    <input type="hidden" name="timestampFromServer" value="112341433"/>
    …
    <input type="submit" value="Send to Server" />

</form>
```

- When the form gets submitted, the server-side code may check the *timestampFromServer* parameter to figure out how much time it took the user to fill the form.

Summary

- HTML is a markup language used to describe a web page.

- HTML Forms are used to send data from the user to the server. Server side code is required to handle the sent data.

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