Web Technology

Lecture 6: More about HTML

HTML Head

The HTML title Element

- The `<title>` tag defines the title of the document.
- The title element is required in all HTML/XHTML documents.
- The title element:
  - defines a title in the browser toolbar
  - provides a title for the page when it is added to favorites
  - displays a title for the page in search-engine results

The HTML base Element

- The `<base>` tag specifies a default address or a default target for all links on a page:

```
<head>
  <base href="http://www.csd.abdn.ac.uk/" />
  <base target="_blank" />
</head>
```

- `<a href="contactus.html"> Contact Us </a>`

The HTML link Element

- The `<link>` tag defines the relationship between a document and an external resource.
- The `<link>` tag is most used to link to style sheets:

```
<head>
   <link rel="stylesheet" type="text/css"
                          href="style.css" />
</head>
```

The HTML style Element

- The `<style>` tag is used to define style information for an HTML document.
- Inside the style element you specify how HTML elements should render in a browser:

```
<head>
  <style type="text/css">
     body {background-color:yellow}
    </style>
</head>
```

The HTML meta Element

- The `<meta>` tag provides metadata about the HTML document. Metadata will not be displayed on the page, but will be machine parsable.
- Meta elements are typically used to specify page description, keywords, author of the document, last modified, and other metadata.

```
<meta name="author, description, revised … "
content="text" />
```

- The metadata can be used by browsers (how to display content or reload page), search engines (keywords), or other web services.

Keywords for Search Engines

- Some search engines will use the name and content attributes of the meta element to index your pages.
- `<meta name="description" content="My Music" />`
  - The following meta element defines keywords for a page:
- `<meta name="keywords" content="music, artist" />`
  - The intention of the name and content attributes is to describe the content of a page.

The HTML script Element

- The `<script>` tag is used to define a client-side script, such as a JavaScript.
- The script element either contains scripting statements or it points to an external script file through the `src` attribute.

```
<script type="text/javascript">
    document.write("Hello World!")
</script>
```

- The required type attribute specifies the MIME type of the script.
- Common uses for JavaScript are image manipulation, form validation, and dynamic changes of content. (Lecture 10)

The HTML <noscript> Element

- Browser or have a browser that doesn't support client-side scripting.
- The <noscript> element can contain all the elements that you can find inside the body element of a normal HTML page.
- The content inside the <noscript> element will only be displayed if scripts are not supported, or are disabled in the user's browser

```
<noscript>JavaScript is not
          supported</noscript>
```

Which of these tags are all `<head>` tags?

A. `<title><table><body><base><html>`

B. `<meta><style><base><script><title>`

C. `<thead><link><base><caption><a>`

HTML Entities

HTML Entities

- Some characters are reserved in HTML.
- It is not possible to use the less than (<) or greater than (>) signs in your text, because the browser will mix them with tags.
- To actually display reserved characters, we must use character entities in the HTML source code.
- A character entity looks like this: `&entity;`

Non-breaking Space

- A common character entity used in HTML is the non-breaking space (` `).
- Browsers will always truncate spaces in HTML pages. If you write 10 spaces in your text, the browser will remove 9 of them, before displaying the page. To add spaces to your text, you can use the ` ` character entity.

Result	Description	Entity
<	Less than	<
>	More than	>
&	Ampersand	&
£	Pound	£
€	Euro	€
§	Section	§
©	Copyright	©
®	Registered trademark	®
™	trademark	™

http://www.w3schools.com/tags/ref_entities.asp

HTML Tables

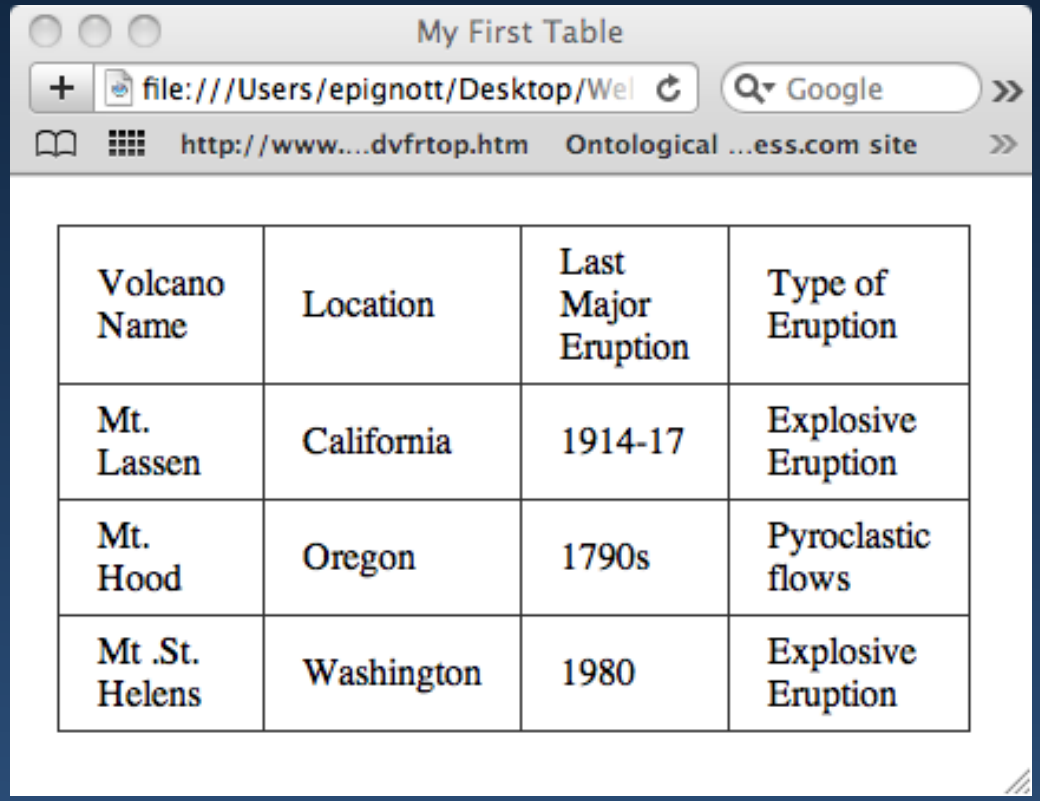
Tables

- In web design tables are a good way to organize data into a tabular form
- Tables are defined with the `<table>` tag.
- A table is divided into rows, and each row is divided into data cells.

```
<table>
    <tr>
      <td>content</td>
      <td>content</td>
      <td>content</td>
    </tr>
</table>
```

Basic Table

```
<table>
     <tr>
          <td>Volcano Name</td>
               <td>Location</td>
          <td>Last Major Eruption</td>
         <td>Type of Eruption</td>
     </tr>
      <tr>
         <td>Mt. Lassen</td>
         <td>California</td>
          <td>1914-17</td>
         <td>Explosive Eruption</td>
     </tr>
     <tr>
          <td>Mt. Hood</td>
          <td>Oregon</td>
          <td>1790s</td>
          <td>Pyroclastic flows</td>
     </tr>
     <tr>
          <td>Mt .St. Helens</td>
          <td>Washington</td>
          <td>1980</td>
          <td>Explosive Eruption</td>
    </tr>
</table>
```



Volcano Name	Location	Last Major Eruption	Type of Eruption
Mt. Lassen	California	1914-17	Explosive Eruption
Mt. Hood	Oregon	1790s	Pyroclastic flows
Mt .St. Helens	Washington	1980	Explosive Eruption

Example:
http://jsfiddle.net/edo77uk/hsG4W/

HTML Tables and the Border Attribute

- If you do not specify a border attribute, the table will be displayed without borders.
- To display a table with borders, specify the border attribute:

```
<table border="1">
  <tr>
        …
 </tr>
</table>
```

- In HTML5,the value of `border` can only be `0` or `1`.
- Use CSS to change the visual appearance of borders

Other <table> attributes

Attribute	Value	Description
sortable	sortable	Specifies that the data in the table should be sortable
~~cellspacing~~	~~*pixels*~~	~~Specifies the space between cells~~
~~width~~	~~Pixels, %~~	~~Specifies the width of a table~~

sortable and border are the only attributes supported in HTML5. Use CSS for design.

Table Headers

- Header information in a table are defined with the `<th>` tag.

```
<table border="1">
<tr>
<th>Header 1</th>
<th>Header 2</th>
</tr>
<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>
```

```
<table border="1">
<tr>
   <th> First </th>
   <th> Second </th>
   <th> Third </th>
 </tr>
 <tr>
      <td>cell one</td>
      <td>cell two</td>
      <td>cell three</td>
 </tr>
 <tr>
      <td>cell four</td>
      <td>cell five</td>
      <td>cell six</td>
 </tr>
</table>
```

First	Second	Third
cell one	cell two	cell three
cell four	cell five	cell six

HTML Tables <caption> tag

- The <caption> tag defines a table caption.
- The <caption> tag must be inserted immediately after the <table> tag. You can specify only one caption per table. Usually the caption will be centered above the table.

```
<table border="1">
<caption>The caption text goes
here</caption>
  <tr>
        …
 </tr>
</table>
```

```
<table border="1">
<caption>Sample Table with Caption
</caption>
 <tr>
       <td>this is the first column</td>
       <td>this is the second column</td>
    </tr>
</table>
```

Sample Table with Caption

this is the first column	this is the second column

<tr> attributes

Attribute	Value	Description
~~align~~	~~right, left, center, justify or Char~~	~~Aligns the content in a table row~~
~~char~~	~~*character*~~	~~Aligns the content in a table row to a character~~
~~valign~~	~~top, middle, bottom or baseline~~	~~Vertical aligns the content in a table row~~

In HTML5 <tr> has no extra attributes. Some legacy ones above, all deal with presentation and not structure, so they have been removed. Use CSS instead.

<td> attributes

Attribute	Value	Description
~~align~~	~~right, left, center, justify or Char~~	~~Aligns the content in a cell~~
colspan	Number	Specifies the number of columns a cell should span
rowspan	*number*	Sets the number of rows a cell should span
~~valign~~	~~top, middle, bottom or baseline~~	~~Vertical aligns the content in a cell~~

Choose the correct HTML to left-align the content inside a table cell

A. `<td align="left">`

B. `<td style="text-align:left">`

C. `<td valign="left">`

D. `<td leftalign>`

More complex tables

- Sometimes you want a cell to expand over more than one column
- Use the `colspan` attribute to do this

```
<table border="1">
  <tr>
    <th>Month</th>
    <th>Savings</th>
  </tr>
  <tr>
    <td>January</td>
    <td>$100</td>
  </tr>
  <tr>
    <td>February</td>
    <td>$100</td>
  </tr>
  <tr>
    <td colspan="2">Sum:
$180</td>
  </tr>
</table>
```

Month	Savings
January	$100
February	$100
Sum: $180	

Spanning rows

- Sometimes you want a cell to expand over more than one row
- Use the `rowspan` attribute to do this

```
<table border="1">
<tr>
    <th>Month</th>
    <th>Savings</th>
    <th>Savings for
holiday!</th>
  </tr>
  <tr>
    <td>January</td>
    <td>$100</td>
    <td rowspan="2">$50</td>
  </tr>
  <tr>
    <td>February</td>
    <td>$80</td>
  </tr>
</table>
```

Month	Savings	Savings for holiday!
January	$100	$50
February	$80	

Table group tags

http://www.w3schools.com/tags/tag_thead.asp

CSS styles, in <head>:

```
<style>
thead {color:green;}
tbody {color:blue;}
tfoot {color:red;}

table, th, td {
    border: 1px solid
black;
}
</style>
```

```
<table>
  <thead>
    <tr>
      <th>Month</th>
      <th>Savings</th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td>January</td>
      <td>$100</td>
    </tr>
    <tr>
      <td>February</td>
      <td>$80</td>
    </tr>
  </tbody>
  <tfoot>
    <tr>
      <td>Sum</td>
      <td>$180</td>
    </tr>
  </tfoot>
</table>
```

HTML

Month	Savings
January	$100
February	$80
Sum	$180

Output

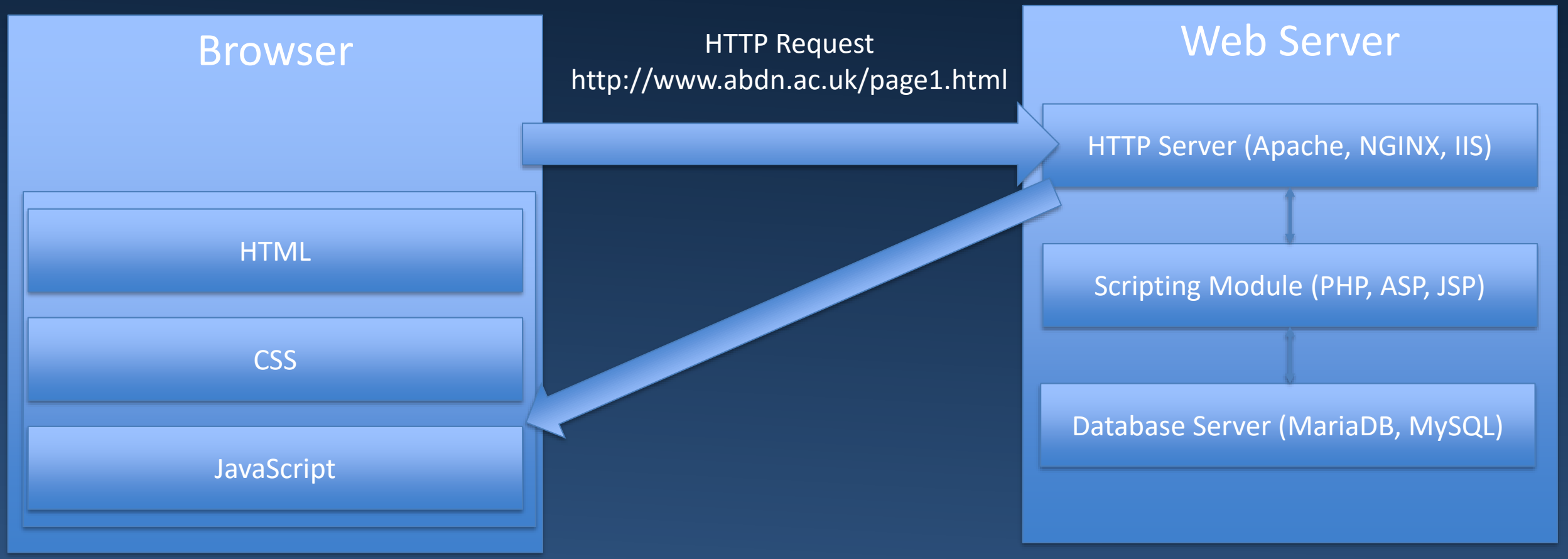
and

- The and tags are used where parts of a document cannot be described by other HTML tags.
- is a block-level element
  - Your content .
- is a in-line element
  - Your text

Web Architecture

- Client/Server
- Client is your web browser
- URIs are translated into a HTTP request

- Server is a computer running a HTTP server
  - Usually Apache, IIS, NGINX or Tomcat
  - Responds to request by serving the content requested (e.g. HTML)


Browser
HTML
CSS
JavaScript
HTTP Request
http://www.abdn.ac.uk/page1.html
Web Server
HTTP Server (Apache, NGINX, IIS)
Scripting Module (PHP, ASP, JSP)
Database Server (MariaDB, MySQL)

Which technologies where?

- HTML, CSS and JavaScript are executed in your Web Browser
  - HTML for documents, CSS for how the document should look, JS for dynamic features

- PHP, CGI, ASP, JSP are scripting languages on the server side
  - Can include common page elements (headers, footers, link bars)
  - Can process logins
  - Read and write to databases (user accounts, profiles, etc)

The server's document root

- A folder on the web server which contains the files which are addressable by the client
  - e.g. your public_html folder on your H:\ drive
- Anything outside of that folder is not normally accessible*
- Use subfolders to keep things organized

How it works

- Client makes request for page
  - http://homepages.abdn.ac.uk/myname/page1.htm
- Web server checks the root of your public_html folder for a file called page1.htm
  - (Does some clever processing to turn your name into your UNIX home path)
- Sends the contents of the file to the browser if it exists

Subfolders

- Client makes request for page
  - http://homepages.abdn.ac.uk/myname/practical1/page1.htm

- Web server checks the root of your public_html folder for a folder called practical1
- Web server looks for a file called page1.htm in the practical1 subfolder
- Sends the contents of the file to the browser if it exists

HTTP is stateless

- Server does not remember anything about previous requests when you request a resource
- Server does not automatically know you are logged in, after you've logged in
- Need something client-side to identify you to the server
  - Cookies and sessions (covered later)

Summary

In this lecture

- HTML `<head>` tag
- HTML Entities
- HTML Tables
- Web Server Architecture

What next?

- Introduction to CSS
- Forms