Lesson 2

HTML
Hypertext Mark-up Language

How a Web Page is Fetched?
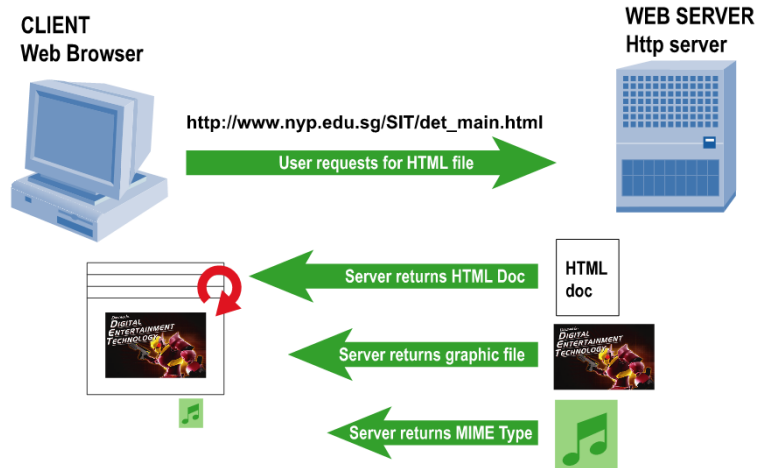
Introduction to HTML

- Hypertext Mark-up Language
- HTML is made up of elements (called tags) that build the contents of a web page.

The Differences

- HTML is not compiled. It is a text file which a browser interprets it.
- HTML is readable.
- The browser does not display the HTML tags, but uses the tags to interpret the content of the page.

W3C Standard

- The World Wide Web Consortium (W3C), founded in 1994 by Tim Berners, is an international consortium where Member organizations, a full-time staff, and the public work together to develop Web standards.

Version History of the Standard

- HTML 2.0 — September 22, 1995,
- HTML 3.0 — proposed by W3C in March, 1995
- HTML 3.2 — January 14, 1997,
- HTML 4.0 — December 18, 1997, support presentational language, cascading style sheets.
- HTML 4.01 — December 24, 1999, recommended by the W3C
- XHTML 1.0 — January 26, 2000. W3C introduced XHTML to succeed HTML.
- HTML 5 —2004 Web Hypertext Application Technology Working Group (WHATWG).
  - In 2006. W3C and WHATWG work together on the development

What is HTML5?

- new standard for HTML
- Collaboration between World Wide Web Consortium (W3C) and the Web Hypertext Application Technology Working Group (WHATWG).
- HTML5 is also cross-platform. It is designed to work whether you are using a PC, or a Tablet, a Smartphone, or a Smart TV.

Why?

- New features should be based on HTML, CSS, DOM, and JavaScript
- Reduce the need for external plugins (like Flash)
- HTML5 should be device independent
- Better error handling
- *More mark-up to replace scripting*
- The development process should be visible to the public

Web Interoperability

- Problem:
  - many different platforms, operating systems, and browsers available
  - developers are always trying to provide something different
- *Web interoperability* ensures that standard-compliant web pages can be viewed in any browser under various operating systems
  - Windows to Mac OS and Linux, on desktop computers, tablet PCs and smartphones etc

The Problem of Non-standardised Documents

- Bad mark-up significantly increase code length, complexity, download, and rendering time.
- Incorrect rendering.
- Low level of web accessibility. Web may not be usable by people of all abilities and disabilities.
- Low level of backward compatibility.
- Difficult updating and maintenance.

Benefits of Standard-Compliant Mark up

- Search engine crawlers can index documents more adequately, and the content is basically search engine optimised.
- Optimal content lengths and file size, as well as optimal storage
- Easier to maintain and update than the mark up that violates standards.
- Compatibility with current and future browsers is guaranteed.

HTML Validator

- http://validator.w3.org/
- Use the validator to checks the mark-up validity of you Web documents.

Common HTML Mark-up Mistakes

- No Doctype
- Use of Uppercase for Tags and Attributes
- Improperly Nesting Tags
- Place Block Elements Inside Inline Elements
- Forget to Close an Element
- Forget To Open and Close Quotes
- Use Physical Style Tags
- Forget to Convert Special Characters
- Forget to Add ALT Attribute to Image Tags
- Use Inline Styles

Page 5

My First Web Page

WORKSHOP (Page 6)

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>My First HTML5 Web Page</title>
  </head>
  <body>
    This is my first attempt at creating a HTML5 Web page.
  </body>
</html>
```

myfirstWeb

Workshop Explained

- Document Type Declaration <!DOCTYPE>
  - All HTML documents should begin with

```
<!DOCTYPE html>
```

  - It tells the browser what form the page will take. The browser must render the page in accordance with the specifications given.
- The <!DOCTYPE> is simpler than ever, no need for excessive body attributes.

Workshop Explained

- The <html> element
  - The <html>...</html> container tag surrounds all HTML coding in the document.

```
<html lang="en">
```

  - lang → language
- *Optional*. In conformance with *XHTML* standards

```
<html xmlns="http://www.w3.org/1999/xhtml" xml:lang="en"
lang="en">
```

Workshop Explained

- The <head> element
  - The <head>...</head> container tag encloses the head section of the HTML document. The head section supplies a title for the document along with other information related to formatting and indexing of the document.
    - <title>...</title>
    - <meta>...</meta>

```
<head>
<title>My First HTML5 Web Page</title>
<meta charset="utf-8" />
</head>
```

Other <meta> tags include

```
<!-- Example 1 - Define keywords for search engines: -->
<meta name="keywords" content="HTML, CSS, XML, JavaScript">

<!-- Example 2 - Define a description of your web page: -->
<meta name="description" content="Free Web tutorials" />

<!-- Example 3 - Define the author of a page: -->
<meta name="author" content="Mr Quah" />

<!-- Example 4 - Refresh document every 30 seconds: -->
<meta http-equiv="refresh" content="30" />
```

Workshop Explained

- The <body> element
  - The bulk of the coding of an HTML document appears in the body section surrounded by the <body>...</body> container tag.
  - Only information appearing inside this tag is displayed in the browser window.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    <meta charset="utf-8" />
    <title>My First HTML5 Web Page</title>
  </head>
  <body>                    body opening tag
    This is my first attempt at creating a HTML5 Web page.   body conte
  </body>            body closing tag
</html>
```

myfirstWeb.html

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HTML Elements & Attributes

- Every HTML document is mark-up of a hierarchical structure of elements and their content.
- An element consists of an opening (or start) tag, some content, and a closing (or end) tag.
- Some elements have empty content and do not have closing tag.

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HTML Elements & Attributes

- Tags are labels used to surround the content to be formatted and are enclosed inside angled brackets ("<" and ">") to identify them as mark-up instructions.
- The browser displays the page in the specified layout structure and style according to the elements.
- Attributes provide additional information about HTML elements. The attributes are always specified in the opening tag.

HTMLBasics.html

HTML Basics

HTML BASIC

- Headings
  - <hn>...</hn> n=1 to 6
- Paragraphs
  - <p>...</p>
- Line Breaks
  -
- Comments in HTML
  - <!-- ... -->

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Based on week 1 worksheet
Add title and layout body

WORKSHOP

Text Formatting

- textformat.html
- *Physical Style Tags (depreciated)*
  - *...*
- Logical Style Tags
  - ...
  - More suitable for across browsers.
- Logical style tags are *preferred*

Format your layout

WORKSHOP

Special Characters

- SpecialCharacters.html
- Cannot be displayed in the browser.
- Have special meaning in HTML
  - interprets the characters as HTML code.
- Example
  - <p> is interprets as a start of a paragraph.
  - To display <p> on the browser, we use <p>
  - *Symbols*, such as © (copyright) and ™ (trademark)

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Change all Special Characters

WORKSHOP

Images.html
Images

Images

- We insert images using the <img> tag.

```
<img src="same5001.jpg" width="400" height="400" alt="2005 Year
of the Rooster $10 Silver Colour Piedfort Proof Coin" />
```

- <img> element does not have content and closing tag, it contains attributes only
- The src Attribute identify the source (or src) or the URL
  - Absolute Path
  - Relative Path

src: Absolute Path

- Complete URL- the address of a file,
  - "http://172.21.128.133/DM2113/lesson2/images/5001.jpg"
- / - location of a file or directory in reference to a root directory,
  - eg. "/DM2113/lesson2/images/5001.jpg "
  - The root is "http://172.21.128.133/"
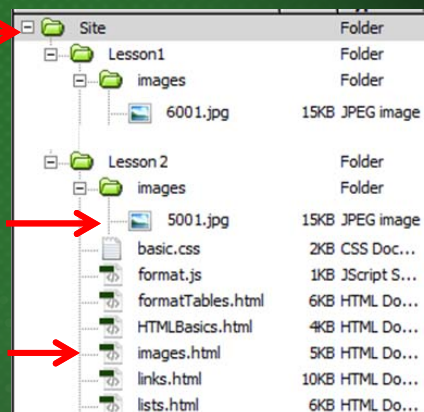
src: Absolute Path

- reference to a root directory

Root Director →

Absolute Path"/lesson2/images/5001.jpg"
e.g. http://172.21.128.133/lesson2/images/5001.jpg

Current page
e.g. http://172.21.128.133/lesson2/images.html
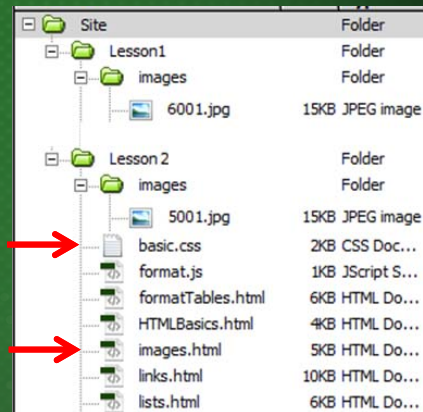
You can omit the http://172.21.128.133
in your reference

src: Relative Path

- Points to files based on their locations relative to the current file

Same Directory "basic.css"
e.g. http://172.21.128.133/lesson2/basic.css

Current page
e.g. http://172.21.128.133/lesson2/images.html

Site	Folder
Lesson1	Folder
images	Folder
6001.jpg	15KB JPEG image
Lesson 2	Folder
images	Folder
5001.jpg	15KB JPEG image
basic.css	2KB CSS Doc...
format.js	1KB JScript S...
formatTables.html	6KB HTML Do...
HTMLBasics.html	4KB HTML Do...
images.html	5KB HTML Do...
links.html	10KB HTML Do...
lists.html	6KB HTML Do...

You can omit the http://172.21.128.133/lesson2/
in your reference

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---

src: Relative Pathname

- Points to files based on their locations relative to the current file

Relative Sub Directory Path "images/5001.jpg"
e.g. http://172.21.128.133/lesson2/ images/5001.jpg

Current page
e.g. http://172.21.128.133/lesson2/images.html

Site	Folder
Lesson1	Folder
images	Folder
6001.jpg	15KB JPEG image
Lesson 2	Folder
images	Folder
5001.jpg	15KB JPEG image
basic.css	2KB CSS Doc...
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images.html	5KB HTML Do...
links.html	10KB HTML Do...
lists.html	6KB HTML Do...

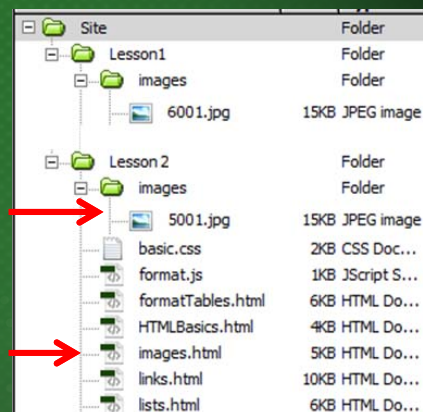You can omit the http://172.21.128.133/lesson2/
in your reference

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src: Relative Pathname

- Points to files based on their locations relative to the current file

Parent of current directory "../"
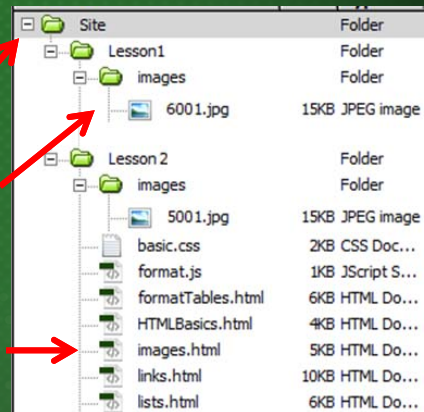
Relative Parent-Sub Path
"../Lesson1/images/6001.jpg"
e.g. http://172.21.128.133/lesson1/images/6001.jpg

Current page
e.g. http://172.21.128.133/lesson2/images.html

parent   current directory

	Site	Folder
	Lesson1	Folder
	images	Folder
	6001.jpg	15KB JPEG image
	Lesson 2	Folder
	images	Folder
	5001.jpg	15KB JPEG image
	basic.css	2KB CSS Doc...
	format.js	1KB JScript S...
	formatTables.html	6KB HTML Do...
	HTMLBasics.html	4KB HTML Do...
	images.html	5KB HTML Do...
	links.html	10KB HTML Do...
	lists.html	6KB HTML Do...

alt

```
<img src="same5001.jpg" width="400" height="400" alt="2005 Year
of the Rooster $10 Silver Colour Piedfort Proof Coin" />
```

- Images.html
    - If the image is not found, that alternative text is displayed instead.
    - If you "mouseover" the image, the content of the alt attribute is displayed.

height and *width*

- The height and width attributes are used to specify the height and width of an image
- It is a good practice to specify both the height and width attributes for an image.

Add Images

WORKSHOP

links.html
Links

Links

- Links (or Hyperlinks) are found in nearly all Web pages. Links allow users to click their way from page to page.
- Without the links, the World Wide Web would be utterly useless. Links form the basis of the web because they are the means by which a user can navigate from page to page or from site to site.

Links

- To create a link in HTML, you need two things:-
  - The name of the file (or the URL of the file) to which you want to link.
  - The "hotspot" (a word, group of words, or image) identifies the hyperlink on the page

The <a> tag

- a is short for "anchor".
- The <a> … is used.

```
<a href="http://www.nyp.edu.sg/">Nanyang Polytechnic</a>
```

href which is the URL

Anchor content displayed in the browsers

- By default, links will appear as follows in all browsers:
  - An unvisited link is underlined and blue
  - A visited link is underlined and purple
  - An active link is underlined and red

On-Page Links

- Links can also be made to different locations in the same document.

- In order to create on-page links you need to code the pair of <a> anchor tags.

```
<a href="#name"> link text </a>
<a name="name"> target text </a>
```

- Tags using name attributes are "invisible" targets for links. They are not displayed.

```
<!-- from the same directory to this page -->
 <a href="links.html#ITEM1">Go to Item 1</a>
 <!-- using Absolute Pathname  -->
 <a href="http://172.21.128.133/DM2113/examples/links.html#ITEM1"
>Go to Item 1</a>
```

Adding a image Link

- An image can be as a link when used with a <a> tag like this

```
<a href="index.html"> <img src="images/5001.jpg" alt="2005 Year
of the Rooster $10 Silver Colour Piedfort Proof Coin" /> </a>
```

- Images can be used as navigation buttons instead of text-based hyperlinks.

Add Links
WORKSHOP

Using Lists And Tables

Lists

- lists.html
- lists of unordered items
  - ..., list item is enclosed with <li>...
- lists of ordered items
  - ...
  - has an "start" attributes.
    - <ol start="3"> -- restart the list from 3.
  - Each list item is enclosed with <li>...
- lists of terms and definitions
  - <dl> and </dl>
  - <dt> and </dt> open and close the "term" part
  - <dd> and </dd> are used to open and close the "definition" part.

Nested Lists

```
<ul>
  <li>First list item</li>
  <li>Second list item
    <ul>
      <li>First nested item</li>
      <li>Second nested item</li>
      <li>Third nested item</li>
    </ul>
  </li>
  <li>Third list item</li>
<li>Fourth list item</li>
<ul>
```

Tables And Cells

- Presentation of information
  - General display of data in rows and columns. It helps the viewer sort through masses of data to understand their underlying structure and content.
- Management of document layout (Not recommented)
  - It can be used to structure the layout of a Web page regardless of its content.

<table> element

- A table is divided into rows (with the <tr> tag),
- each row is divided into data cells (with the <td> tag).
  - The td or "table data" can contain text, images, lists, paragraphs, forms, horizontal rules, tables, etc.
- By default, <table> tags produce no borders around the table or around its cells.
  - Style sheets must be applied to the table and to

```
table {border:outset 1px} /* for the table */
td    {border:inset 1px}  /* for the cell */
```

Table Size

- By default, the size of a table depends on the size of the data appearing in its cells.
- Data are aligned horizontally left and vertically centered within the cells.
- You can change these default with the size attribute.

Add Lists and Tables

WORKSHOP

Table Variation

- Nested Tables
  - Tables can be nested
    - appear within cells of a table.
    - The cell expands in size to permit full display of the nested table.
- Table Headings
  - Headings in a table are defined with the <th> tag.

Table: Common Mistakes

- Empty Cells in a Table
  - Table cells with no content are not displayed
  - Borders around the empty table cell are missing.
  - To avoid this, add a non-breaking space ( ) to empty data cells, to make the borders visible.
- Missing td tag
  - Table with missing tag look funny.
  - Solution?

Formatting Tables

- formatTables.html
- The way to vary the number of cells in the columns or rows of a single table is to use the colspan and rowspan attributes of the <td> and <th> tags.

eLearning

Web page layout using <div> & Block elements

header, footer & <div> elements.

<title>Layout with DIV</title>

<div id="container"></div>

<header>Web Development</header>

<div id="menu">
    Menu
    Main
    Profile
    Images
    Contact
</div>

<div> My Web Content</div>

<footer> Copyright © Nanyang Polytechnic</footer>

NOTE: Colour and formatting are added using CSS!