

# Compulsory - Chapter 19

## Introduction to HTML

### 1. Introduction to HTML

#### 1.1 Web browsing

- **Website**
  - May contain elements like **text, graphics, animation, audio, videos and hyperlinks.**
- **Web browser**
  - An **application software** which is used to **display a webpage.**
  - It makes a **request** to the **web server** by a **URL.**
  - If the required web page exists, the web server will send it to the web browser.
  - The web browser **interprets the codes** (usually written in HTML) in the web page and **displays** it accordingly.

#### 1.2 Hypertext Markup Language (HTML)

- HTML is a **markup language** for **describing** web documents (web pages).
- HTML stands for **Hypertext Markup Language**
- **Hypertext** is any text which possesses the ability to **link to other documents.**
- A **markup language** is a set of markup tags, which
  - **Define the properties of text, graphics and various elements** on a web page.
  - Not a programming language
  - **Cross-platforming:** documents can work properly on various platforms
  - Example: HTML, XML, XHTML, MathML, DHTML
- **HTML document**
  - Described by **HTML tags**
  - Each HTML tag describes different document content
  - **Plain text** with file extension **.html** or **.htm**
  - Can be created and edited using a text editor like Windows **Notepad**
  - Other **web authoring tools** that produce HTML documents (**WYSIWYG editor\***)
    - **Adobe Dreamweaver**
    - **Microsoft Expression Web**

\*Remarks: WYSIWYG stands for "What You See Is What You Get"

#### 1.3 HTML tags

- HTML tags are **keywords (tag names)** surrounded by **angle brackets:**

`<tagname>content</tagname>`

- HTML tags normally come in **pairs** like **<p>** and **</p>**
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The end tag is written like the start tag, but with a **slash** before the tag name
- Some tags work in **singular**, e.g. **<br/>**
- HTML tags are **case-insensitive**

## 1.4 HTML attributes

- HTML elements can have **attributes**
- Attributes provide **additional information** about an element
- Attributes are always **specified in the start tag**
- Attributes come in **name/value pairs** like: name="value":

```
<tagname attr1=value1 attr2=value2>content</tagname>
```

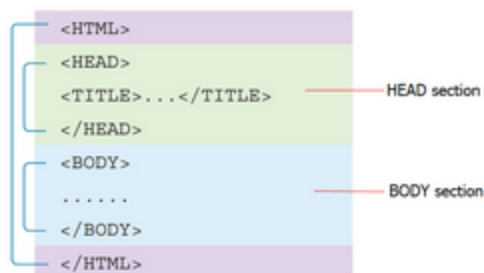
- Example:

```
<a href="http://www.singyin.edu.hk">School Web</a>
```

defines a link: [School Web](http://www.singyin.edu.hk) which has an "href" attribute www.singyin.edu.hk.

## 1.5 Basic structure of an HTML document

- Head section**
  - Contain the **title** and information describing the **properties of the document**
- Body section**
  - Contain the **main content** and HTML tags used to describe how the web page should be displayed



## 2. Basic HTML Tags

### 2.1 Document structure

| <u>Tag</u>         | <u>Representation</u> | <u>Description</u>  |
|--------------------|-----------------------|---|
| <html>...</html>   | HTML document         | Define the start and the end of an HTML document.                                     |
| <head>...</head>   | Head section          | Define the head section of an HTML document.  |
| <title>...</title> | Document title        | Define the title of an HTML document in the head section.                             |
| <body>...</body>   | Body section          | Define the body section of an HTML document.<br>Attributes: text, bgcolor, background |

## 2.2 Document layout

| <u>Tag</u>   | <u>Representation</u> | <u>Description</u>  |
|--|-----------------------|---|
| <code>&lt;h1&gt;...&lt;/h1&gt;</code><br><code>&lt;h2&gt;...&lt;/h2&gt;</code><br><code>&lt;h3&gt;...&lt;/h3&gt;</code><br><code>&lt;h4&gt;...&lt;/h4&gt;</code><br><code>&lt;h5&gt;...&lt;/h5&gt;</code><br><code>&lt;h6&gt;...&lt;/h6&gt;</code> | Heading               | Define a section header.  |
| <code>&lt;p&gt;...&lt;/p&gt;</code>  | Paragraph             | Define a new paragraph.   |
| <code>&lt;br/&gt;</code>   | Line break            | Force a line to break without starting a new paragraph.         |
| <code>&lt;pre&gt;...&lt;/pre&gt;</code>  | Preformatted text     | Display a block of text including extra spaces and line breaks. |
| <code>&lt;hr/&gt;</code>   | Horizontal rule       | Define a horizontal rule.                                       |

**Example:**

[illegible]

## 2.3 Text format

| Tag                               | Representation | Description                                       |
|-----------------------------------|----------------|---|
| <b>&lt;b&gt;...&lt;/b&gt;</b>     | Bold           | Apply the bold style to the enclosed text.        |
| <b>&lt;i&gt;...&lt;/i&gt;</b>     | Italic         | Apply the italic style to the enclosed text.      |
| <b>&lt;u&gt;...&lt;/u&gt;</b>     | Underline      | Underline the enclosed text.                      |
| <b>&lt;sup&gt;...&lt;/sup&gt;</b> | Superscript    | Apply the superscript style to the enclosed text. |
| <b>&lt;sub&gt;...&lt;/sub&gt;</b> | Subscript      | Apply the subscript style to the enclosed text.   |

Example:

| HTML code   | Browser display  |
|---|--|
| This is <b>&lt;b&gt;bold&lt;/b&gt;</b> text<br><i>&lt;i&gt;italic&lt;/i&gt;</i><br><u>&lt;u&gt;underline&lt;/u&gt;</u><br><b><u>mixed</u></b><br>normal<sup>super</sup><sub>sub</sub> | This is bold text<br><i>italic</i><br><u>underline</u><br><b>mixed</b><br>normal <sup>super</sup> <sub>sub</sub> |

## 2.4 List

| Tag                             | Representation | Description   |
|---------------------------------|----------------|---|
| <b>&lt;ol&gt;...&lt;/ol&gt;</b> | Ordered list   | Define an ordered list.<br>Attribute: <i>type="1" / "A" / "a" / "I" / "i"</i> |
| <b>&lt;ul&gt;...&lt;/ul&gt;</b> | Unordered list | Define an unordered list.   |
| <b>&lt;li&gt;...&lt;/li&gt;</b> | List item      | Define an item in the list..  |

Example:

| HTML code   | Browser display  |
|---|--|
| Ordered list<br><ol><br><li>Ordered item 1</li><br><li>Ordered item 2</li><br><li>Ordered item 3</li><br></ol><br>Unordered list<br><ul><br><li>Unordered item 1</li><br><li>Nested list 2<br><ol type="a"><br><li>Nested item 1</li><br><li>Nested item 2</li><br></ol></li><br><li>Unordered item 3</li><br></ul> | Ordered list <ol style="list-style-type: none"> <li>Ordered item 1</li> <li>Ordered item 2</li> <li>Ordered item 3</li> </ol> Unordered list <ul style="list-style-type: none"> <li>Unordered item 1</li> <li>Nested list 2               <ol style="list-style-type: none"> <li>Nested item 1</li> <li>Nested item 2</li> </ol> </li> <li>Unordered item 3</li> </ul> |

## 2.5 Table


| <u>Tag</u>                                  | <u>Representation</u> | <u>Description</u>  |
|---|-----------------------|---|
| <code>&lt;table&gt;...&lt;/table&gt;</code> | Table                 | Define a table.   |
| <code>&lt;tr&gt;...&lt;/tr&gt;</code>       | Table row             | Define a new row in a table.  |
| <code>&lt;th&gt;...&lt;/th&gt;</code>       | Table header          | Define a header in a table.<br>Attribute: <i>colspan</i> , <i>rowspan</i> |
| <code>&lt;td&gt;...&lt;/td&gt;</code>       | Table cell            | Define a cell in a table.<br>Attribute: <i>colspan</i> , <i>rowspan</i>   |

Example:

| HTML code  | Browser display  |          |          |          |   |   |   |   |   |   |   |  |
|--|--|----------|----------|----------|---|---|---|---|---|---|---|--|
| <pre>&lt;table&gt;   &lt;tr&gt;     &lt;th&gt;Header 1&lt;/th&gt;     &lt;th&gt;Header 2&lt;/th&gt;     &lt;th&gt;Header 3&lt;/th&gt;   &lt;/tr&gt;   &lt;tr&gt;     &lt;td&gt;A&lt;/td&gt;     &lt;td&gt;B&lt;/td&gt;     &lt;td style="text-align:center"&gt;C&lt;/td&gt;   &lt;/tr&gt;   &lt;tr&gt;     &lt;td&gt;D&lt;/td&gt;     &lt;td&gt;E&lt;/td&gt;     &lt;td rowspan="2" style="text-align:right; vertical-align:center"&gt;F&lt;/td&gt;   &lt;/tr&gt;   &lt;tr&gt;     &lt;td colspan="2"&gt;G&lt;/td&gt;   &lt;/tr&gt; &lt;/table&gt;</pre> | <table><tr><th>Header 1</th><th>Header 2</th><th>Header 3</th></tr><tr><td>A</td><td>B</td><td>C</td></tr><tr><td>D</td><td>E</td><td rowspan="2">F</td></tr><tr><td colspan="2">G</td></tr></table> | Header 1 | Header 2 | Header 3 | A | B | C | D | E | F | G |  |
| Header 1   | Header 2   | Header 3 |          |          |   |   |   |   |   |   |   |  |
| A  | B  | C        |          |          |   |   |   |   |   |   |   |  |
| D  | E  | F        |          |          |   |   |   |   |   |   |   |  |
| G  |  |          |          |          |   |   |   |   |   |   |   |  |

## 2.6 Others

| <u>Tag</u>                        | <u>Representation</u> | <u>Description</u>   |
|-----------------------------------|-----------------------|--|
| <code>&lt;img ... /&gt;</code>    | Inline image          | Insert an image.<br>Attribute: <i>src</i> , <i>alt</i>                     |
| <code>&lt;a ... &lt;/a&gt;</code> | Anchor                | Define an anchor or a hyperlink.<br>Attribute: <i>href</i> , <i>target</i> |
| <code>&lt;!-- ... --&gt;</code>   | Comment               | Insert a comment.  |

| HTML code  | Browser display  |
|--|--|
| <pre>&lt;!-- Text typed here will not be shown --&gt; &lt;img src="html5.gif" alt="image fail" /&gt; &lt;br/&gt; &lt;a href="http://www.singyin.edu.hk"&gt;SYSS&lt;/a&gt; &lt;br/&gt; &lt;a href="http://www.singyin.edu.hk" target="_blank"&gt; Open in new window&lt;/a&gt; &lt;br/&gt; &lt;a href="http://www.singyin.edu.hk"&gt; &lt;img src="Logo.png" alt="Link by image" /&gt; &lt;/a&gt;</pre> | <br><a href="http://www.singyin.edu.hk">SYSS</a><br><a href="http://www.singyin.edu.hk" target="_blank">Open in new window</a><br> |

### 3. Colour Representation

Colors in HTML can be specified by the following methods:

|                    |   |
|--------------------|---|
| Hexadecimal colors | <ul style="list-style-type: none"> <li>Specified with #RRGGBB, where the RR (red), GG (green) and BB (blue) specify the components of the color. All values must be <b>between 00 and FF</b>.</li> <li>For example, the #0000FF value is rendered as blue, because the blue component is set to its highest value (FF) and the others are set to the lowest value (00).</li> </ul>          |
| RGB colors         | <ul style="list-style-type: none"> <li>Specified with: <b>rgb(red, green, blue)</b>. Each parameter (red, green, and blue) defines the intensity of the color and can be an integer <b>between 0 and 255</b>.</li> <li>For example, the <b>rgb(0,0,255)</b> value is rendered as blue, because the blue parameter is set to its highest value (255) and the others are set to 0.</li> </ul> |
| Color names        | <ul style="list-style-type: none"> <li>All major browsers also support 140 standard <b>color names</b>.</li> <li>For example, white, black, red, etc.</li> </ul>  |

Example:

| Color  | Color HEX | Color RGB        | Color Name |
|--|-----------|------------------|------------|
|  | #FF0000   | rgb(255,0,0)     | Red        |
|  | #00FF00   | rgb(0,255,0)     | Green      |
|  | #0000FF   | rgb(0,0,255)     | Blue       |
|  | #000000   | rgb(0,0,0)       | Black      |
|  | #808080   | rgb(128,128,128) | Gray       |
|  | #FFFFFF   | rgb(255,255,255) | White      |

| HTML code  | Browser display                                 |
|--|---|
| <pre>&lt;body style="background-color:lightgrey"&gt; &lt;p style="color:red"&gt;Hello world!&lt;/p&gt; &lt;p&gt;How are &lt;span style="color:blue"&gt;YOU&lt;/span&gt;?&lt;/p&gt; &lt;/body&gt;</pre> | <div>Hello World!</div> <div>How are YOU?</div> |