COMP6080
Web Front-End Programming

HTML Intro

HTML

This is the basic "webpage" scaffold 脚手架 on virtually every website on the internet. It's made up of "HTML".

```html
1  <!doctype html>
2  <html>
3    <head>
4      <title>Title</title>
5      <!-- More meta -->
6    </head>
7    <body>
8      Hi
9      <!-- More meta -->
10   </body>
11 </html>
```

What is HTML?

HTML stands for "Hypertext Markup Lanaguge". It is a markup language that provides the structure for webpages. It does not provide the aesthetics/style (that's what CSS is for), and it does not deal with dynamic state (that's what Javascript is for).

A standard HTML tag consists of:

1. Tag name
2. (optional) Series of attribute/value pairs
3. (optional) Inner HTML

```
1  <tag1 attr1="value1" attr2="value2">
2     <tag2>Text</tag2>
3     <tag3>Other</tag3>
4  </tag1>
```

What is a web browser?

A web browser is essentially a tool that takes in HTML, CSS, Javascript, and more, and renders dynamic web pages. Think of a web browser a little bit like a compiler/interpret that takes in our HTML as "source code" and produces something that is compiled for the user/client.

This "source code" is available in most web browsers, and is easy to find and analyse.

<!DOCTYPE html> <html></html>

<!DOCTYPE html> is required by the specification on modern websites. However, if you omit it, many browsers will render the page anyway.

```
 1  <!doctype html>
 2  <html>
 3    <head>
 4      <title>Title</title>
 5      <!-- More meta -->
 6    </head>
 7    <body>
 8      Hi
 9      <!-- More meta -->
10    </body>
11  </html>
```

<head></head>

Contains meta information of the page. <u>Nothing in this section is rendered in the browser.</u>

We usually use this to:

- Give meta-information about the page
- Load in CSS stylesheets
- Load in Javascript code

```
1  <head>
2    <title>My page</title>
3    <meta charset="utf-8" />
4    <link rel="icon" href="favicon.ico" />      ← icon.
5    <link rel="stylesheet" type="text/css" href="styles.css" />
6    <script type="text/javascript" src="script.js"></script>
7  </head>
```

<body></body>

Everything inside <body> renders on the webpage. <body> only begins rendering after all the meta information in <head></head> has been processed by the web browser.

Most tags associated with the body focus on rendering something...

Layout Tags

Layout tags help us separate our page into separate structures. Many of these tags have limited inherent properties, and are just semantically meaningful ways of distinguishing or identifying particular key parts of the webpage.

```html
1  <!-- This is an HTML comment -->
2
3  <div></div> <!-- A generic "box grouping" element -->
4  <span></span> <!-- A generic "grouping" element -->
5  <p></p> <!-- A paragraph -->
6  <h1></h1> <!-- 1st biggest header -->
7  <h6></h6> <!-- 6th biggest header (also h2, h3, h4, h5) -->
8  <ul><li></li><li></li></ul> <!-- A unordered list of items -->
9  <ol><li></li><li></li></ol> <!-- A ordered list of items -->
10 <table></table> <!-- A table of information -->
11 <b></b> <!-- Bold text -->
12 <i></i> <!-- Italic -->
13 <u></u> <!-- Underlined text -->
14 <!-- So much more.... -->
```

Formatting Tags

Formatting tags usually have some basic visual properties that are assigned to all elements inside those tags.

```
1 <!-- This is an HTML comment -->
2
3 <b></b> <!-- Bold text -->
4 <i></i> <!-- Italic -->
5 <u></u> <!-- Underlined text -->
6 <!-- So much more.... -->
```

Links: <a>

The "anchor" tag is how we link to another resource from our current page. It takes in a URL that may be relative or absolute.

There are other interesting properties of the anchor too, including:

- **title** attribute which is the hover-over tooltip text
- **target="_blank"** to open the link in a new tab

鼠标在上面会显示

```
1  <a href="/settings" title="Open settings page">Settings</a>
2
3  <a href="https://en.wikipedia.org" target="_blank">Wikipedia</a>
4
5  <!-- A rare but interesting use case -->
6  <a href="/image.png" download><img src="download-icon.png" /></a>
```

opened in new tab.

Images: <img />

- An image tag is one of many HTML properties known as a "void" tag. Since it doesn't need to contain any inner HTML, we don't need a close tag.
- We can specify image height, width, and source of the image
- We can also specify the "alternate" text in case the image doesn't load

Show when img doesn't load

```
1 <img src="cat.jpg" alt="Image of the cat" width="300" height="600" />
```

△ <form></form>

Forms will be covered in much more depth in another lecture. In particular, the dynamic interaction with a form and it's results will be covered later. We will not cover **action** or **method** of a form just yet.

Forms provide the structure to collect information from a user and then submit it. Key parts of forms include:

- inputs & labels
- textarea
- select
- button
- submit

<input />

Form inputs consist of the a number of properties:

- **type:** the type of the field (text, radio)
- **name**: name of the attribute during submission
- **value**: the default value to the field that will be sent when submitting
- **placeholder:** background text to hint at what value to input
- **disabled:** boolean as to whether the field is disabled

```html
1  <!-- There are more input types -->
2
3  <input type="text" placeholder="Hayden Smith" />
4
5  <input type="radio" id="yes" name="answer" value="yes" checked />
6  <input type="radio" id="no" name="answer" value="no" />
7
8  <input type="checkbox" id="no" name="answer" value="no" checked />
9  <input type="checkbox" id="yes" name="answer" value="yes" />
10
11 <input type="hidden" name="messageID" value="message123" />
```

Same name can't check both. Diff name can.

Can check all.

<textarea></textarea>

Textareas are essentially "extended response text inputs"

```
1 <textarea rows="5" cols="40" placeholder="Write here">
2   Default value
3 </textarea>
```

<select></select>

used when options are too many

OR use radio

<select> is a dropdown box that contains options inside of it.

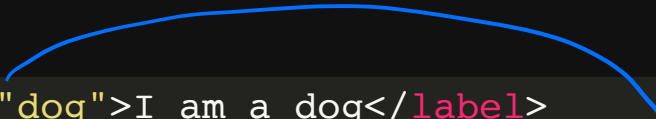```
1 <select name="animal">
2   <option value="" selected>Select your favourite animal</option>
3   <option value="dog">Dog</optio>
4   <option value="cat">Cat</option>
5 </select>
```

# <label></label>

Labels group text to an input so that when text is clicked, the field is selected or focused

*for = id*

```
1  <label for="dog">I am a dog</label>
2  <input type="checkbox" value="dog" id="dog" />
```

When clicking I am a dog

the checkbox is checked.

<button></button>

You can make a form button with <button></button>. These can have
a lot of functionality added to them later with Javascript.

An input of type "submit" is also a button that will automatically
submit the form (covered later).

```
1  <button>
2    This is a general button
3  </button>
4
5  <input type="submit" value="This is a submit button" />
```

Interesting HTML

```html
1  <!-- iframes allow us to include a "view" to another webpage in our own -->
2  <iframe src="https://google.com" width="400" height="400"></iframe>
3
4  <!--
5  HTML5 brought with it a number of other interesting features.
6  These include the ability to render the playing of audio, and video
7  -->
8
9  <audio src="music.mp3" controls>
10    Browser does not support audio
11 </audio>
12
13 <video src="movie.mp4" type="video/mp4" controls>
14    Browser does not support video
15 </video>
```

Extra Information

- The <html> tag often has an attribute <html lang="en-AU"> that search engines use to understand the language your website is in.