

Web Development Fundamentals

HTML1 - Introduction to HTML

Learning Outcomes

- Recognise and understand various web terminology
- Understand the building blocks of HTML
- Understand the structure of a simple HTML page
- Create a simple HTML page

Web Development Terminology

- **Web page**

- A web page is viewed using a **web browser**. It may contain text, images, animation, sound & video clips. It is typically written in **HTML** and is accessed on the **WWW**.

- **Website**

- A collection of web pages generally relating to the same theme.

Web Development Terminology

- **Web browser**

- A software application that is used to view web pages
e.g.

- Chrome



- Edge



- Firefox



- Safari



- Opera



- UC Browser

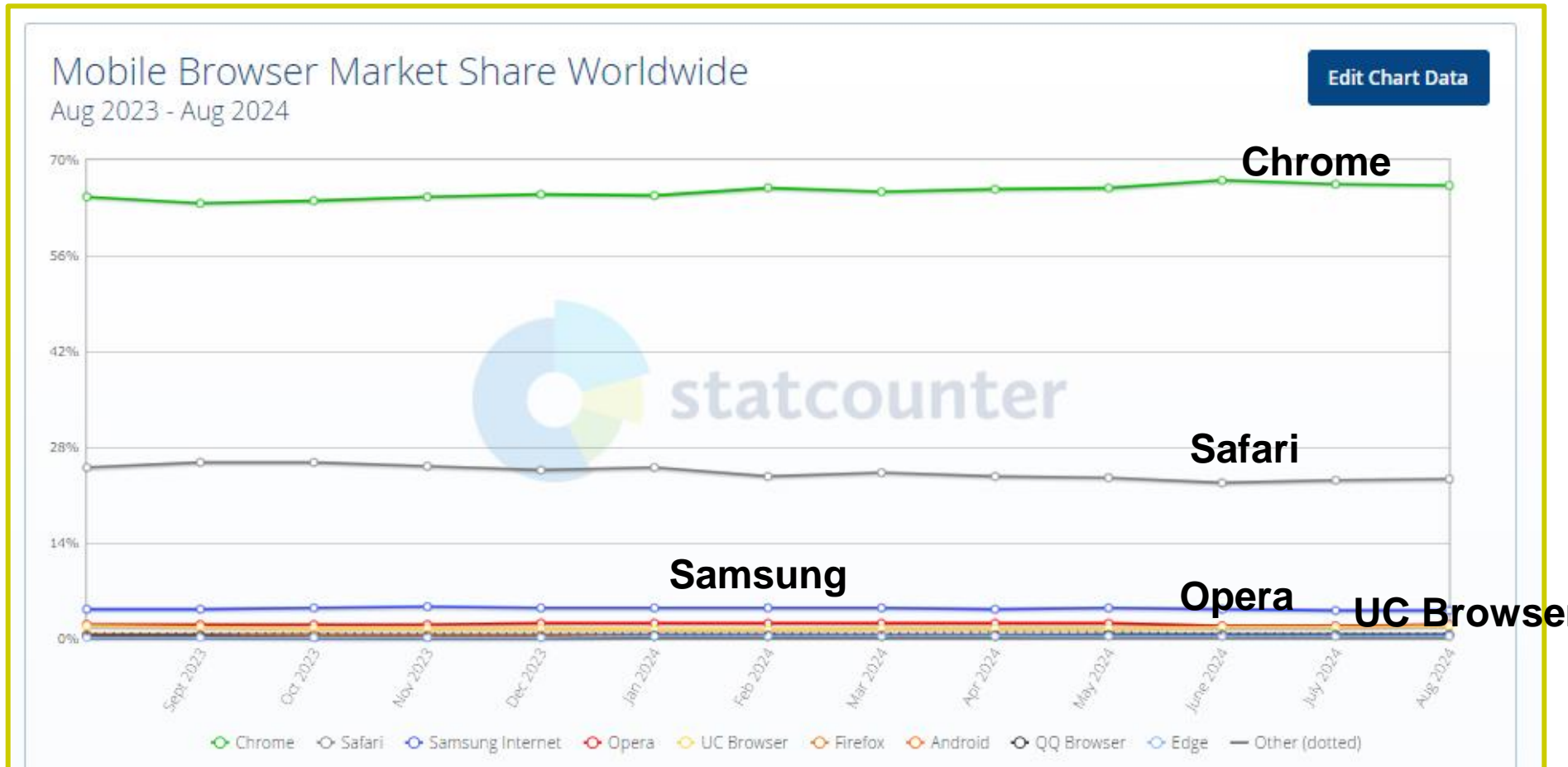


Web browsers can also be used in the development process i.e. Developer Tools

Browser Statistics (w3schools 2024)

2024	<u>Chrome</u>	<u>Edge</u>	<u>Firefox</u>	<u>Safari</u>	<u>Opera</u>
March	77.6 %	10.7 %	4.6 %	3.7 %	2.2 %
February	77.5 %	10.5 %	4.6 %	3.6 %	2.0 %
January	78.1 %	10.4 %	4.7 %	3.8 %	2.1 %
2023	Chrome	Edge	Firefox	Safari	Opera
December	78.2 %	10.0 %	4.6 %	3.7 %	2.1 %
November	77.4 %	10.6 %	4.9 %	3.9 %	2.4 %
October	78.0 %	10.3 %	4.8 %	3.9 %	2.3 %
September	78.8 %	10.3 %	4.6 %	3.4 %	2.2 %
August	80.1 %	9.8 %	4.6 %	3.0 %	1.8 %

Mobile Browser Statistics (statcounter)



Web Development Terminology

- **Home page**

- The first web page that users see when they enter a website. All pages within the site should link back to the home page.

- **Hyperlink**

- A keyword or phrase in a web page that is highlighted and takes the user to another location on the same page or another page when clicked.

Web Development Terminology

- **HTML**

- **HyperText Markup Language** is an authoring language used to create web pages
- HTML tells the browser about the structure of a document e.g. headings, text, hyperlinks
- HTML is platform independent which means that all computers/devices can interpret it
- **Hypertext** refers to the way in which Web pages (HTML documents) are linked together

HTML 5



- Latest generation of HTML
- Officially released by W3C as stable in October 2014 after several years of development
- All major browsers (Chrome, Firefox, Opera, Safari, Edge) continue to add new HTML5 features to their latest versions.
- Developed b/t W3C (World Wide Web Consortium) and WHATWG (Web Hypertext Application Technology Working Group)

Web Development Terminology

- **Text editor**

- A software application that is used for editing text e.g.
 - Microsoft Word
 - Notepad/Notepad++
 - HTML documents can be written in a text editor such as Notepad++, Sublime Text or **Brackets**
 - (***brackets.io*** to download at home)

Web Terminology

- **File extension**

- All files have an extension that is used to identify the type of file. The extension is a tag of usually 3 or 4 letters preceded by a full stop e.g.
 - Lecture.doc, practical1.html, dog.jpg
- Web pages generally have a **.html** or **.htm** extension.

HTML

- **HTML is a mark-up language**
 - You "mark up" a text document with tags that tell a web browser how to structure and display any text & graphics
 - Markup: Four Key Concepts
 - Elements
 - Tags
 - Attributes
 - Values

HTML building blocks

- **Elements**

- An element is an individual component of a HTML document. An element can be an image, text, a paragraph, form, table etc.
 - e.g. **<table> ... </table>**

Tags

- **Tags**

- Tags are used to define elements
- Elements generally have a start tag and end tag `<>`
`</>`
- One TAG appears at the start of a section to be formatted `<..>` - the beginning tag
- And one containing a slash at the end of the section `</...>` - the end tag

Tags – example `...`

- The `...` pair of tags are used to tell a browser that this text has special emphasis.

```
<html>
```

```
:
```

This `` word`` will generally appear in italics.

`` This text has special emphasis.``

```
:
```

```
</html>
```

Basic HTML elements

- Every web page contains the following elements

`<!DOCTYPE html>` ----**DOCTYPE declaration**

`<html>`

`<head>`

`<title> </title>`

`</head>`

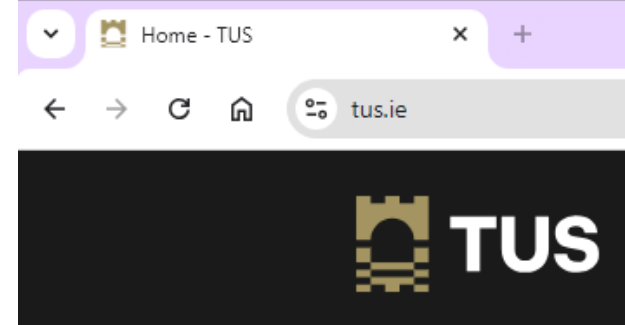
`<body>`

`</body>`

`</html>`

DOCTYPE declaration

- Document Type Declaration **<!DOCTYPE HTML>** must appear at the start of the first line of every HTML5 document to ensure the web browser will render the document in standards mode (i.e. following the HTML 5 specs)



Basic HTML Page Elements

- HTML element
 - `<html>...</html>` contains all the other HTML elements in a page
- HEAD element
 - `<head>...</head>` contains basic information about the webpage, but is not visible in the browser
- TITLE element
 - `<title> My web page</title>` contains the title of the web page and is visible in the web browser

Basic HTML Page

- BODY element
- `<body>...</body>` contains all the visible content of the web page such as text, images & animation etc.
- **TIP:** HTML standards recommend that element names should be in lowercase although HTML is not case sensitive.

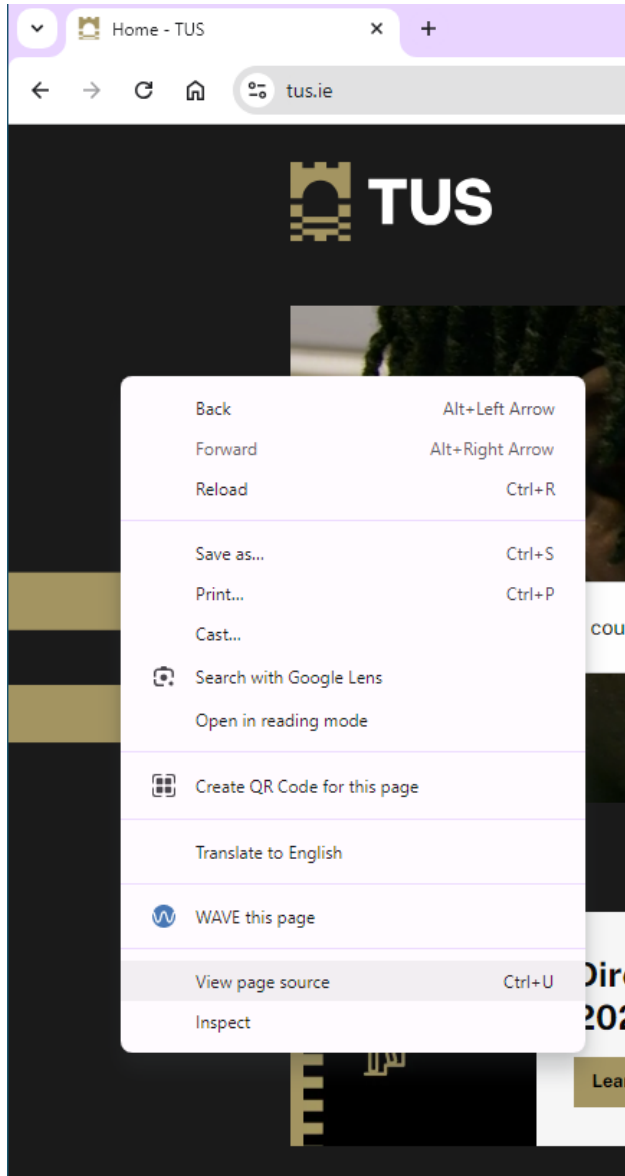
Exercises

Exercise 1: Organising your OneDrive

- Different drives – Saving to the OneDrive vs C drive (*locally*). Important to organise your OneDrive.
- Create a folder on your OneDrive for the web development module (**webdev**). Create 2 sub folders – **lectures**, **practicals** . In the **practicals** subfolder create 10 folders for the next 10 practical classes, **P01**, **P02**, etc.
- Sensible file names
- Different views in My Computer
- Backup your work

Exercise 2: Viewing HTML code

- Open Google Chrome (or FireFox/Edge)
- Logon to the TUS website: <http://www.tus.ie> & view the source code
- Right click>View Source
- Take a quick look at the HTML code in the notepad file that opens. Close this file.
- Do the same for 2 of your favourite websites.



View source in a browser

- In Google Chrome you can view the HTML source of any webpage
 - Right click> View Source

Simple Procedure for creating a web page

1. Use the basic Notepad text editor (installed on all windows machines)
2. Enter your HTML text
3. Save as a **.html** file into the appropriate location on your OneDrive.
4. Save as type 'All Files'.
5. View the file in a browser by double clicking it in Windows Explorer.

Exercise 3: Creating your first HTML file

1. Open Notepad & type the code in the box below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>My Website </title>
  </head>

  <body>
    Just a little bit of information about me.
  </body>
</html>
```

2. Save the file as **myFirstWebPage.html** into the *lectures* sub folder.
3. View in the browser

Let's look at the HTML code 1

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>My Website Name </title>
```

```
  </head>
```

```
  <body>
```

```
    Just a little bit of information about me
```

```
  </body>
```

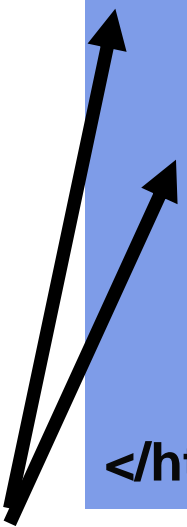
```
</html>
```

A blue rectangular box contains the HTML code. A thick black arrow starts from the bottom left of the box and points upwards to the opening <html> tag. Another black arrow starts from the bottom right of the box and points upwards to the closing </html> tag.

This pair of tags show where the HTML document begins and ends

Let's look at the HTML code 2

```
<!DOCTYPE html>
<html>
  <head>
    <title>My Website Name </title>
  </head>
  <body>
    Just a little bit of information about me
  </body>
</html>
```

A diagram consisting of two black arrows. The first arrow starts at the opening <html> tag and points to the <head> tag. The second arrow starts at the opening <html> tag and points to the <body> tag.

This pair of tags is used to identify general information about the web page. This information is not displayed in the main body of the browser display

Let's look at the HTML code 3

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title> My Website Name </title>
```

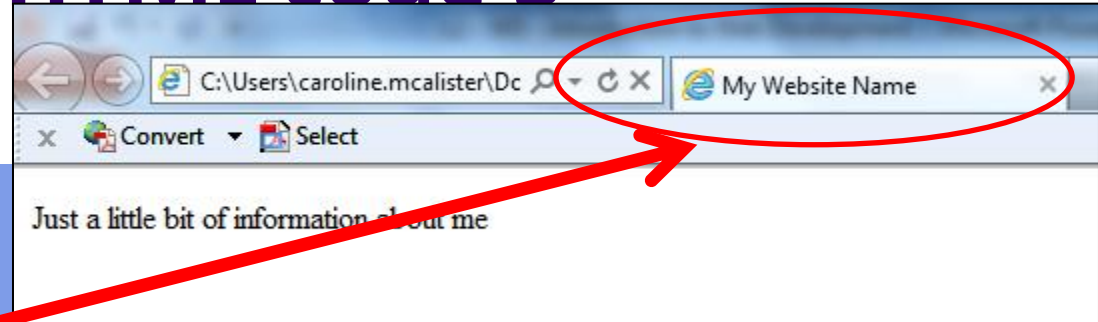
```
  </head>
```

```
  <body>
```

```
    Just a little bit of information about me
```

```
  </body>
```

```
</html>
```



This pair of tags is used to tell the browser what to display in the TITLE bar & tab header.

Let's look at the HTML code 4

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title>My Website Name </title>
```

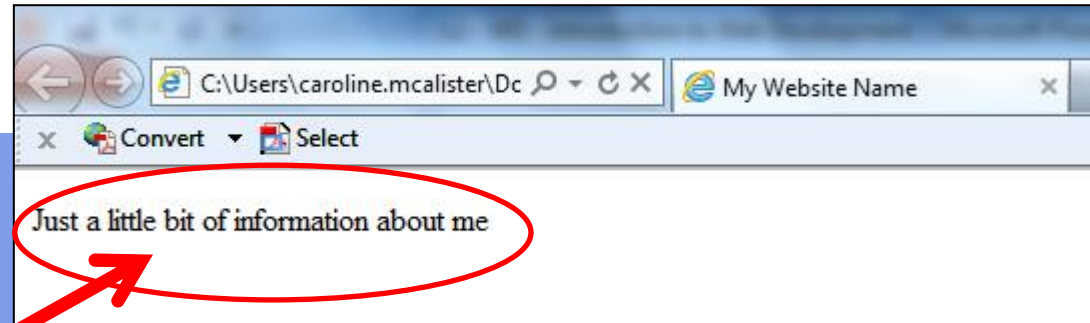
```
  </head>
```

```
  <body>
```

```
    Just a little bit of information about me
```

```
  </body>
```

```
</html>
```



This pair of tags is used to tell the browser where the body of the text to be displayed starts and ends

Adding more text

1. Add more text into the body of the HTML document.
2. 5 lines about yourself
3. Save and view in Chrome

- Note the following
 - The browser ignores any line breaks in your file
 - The browser ignores multiple spaces



TIP: For your changes to register, you may need to reload the page. (In Chrome use the reload button), in Edge hit F5. If this does not work, you may need to browse for your file again).

Adding Text

- Notice the text scrolls all the way over the screen
- Go back into your HTML document and try to organise your text into paragraphs
- View again in the browser
- No difference because you must explicitly tell the browser to create paragraphs
- Use the paragraph element to do this `<p></p>` and view again in the browser.

Adding Text

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head><title>First web page</title></head>
```

```
  <body>
```

```
    <p> hello welcome to my webpage</p>
```

```
    <p> this is my first web page</p>
```

```
  </body>
```

```
</html>
```


Other useful elements

Element	Treatment
<code> </code>	Used to emphasize content. (Content appears in italics)
<code> </code>	Used to strongly emphasize content. (Content appears in bold)
<code>
</code>	Creates a line break i.e. prevents text from wrapping all the way to the right margin
<code><hr></code>	Creates a horizontal rule

Exercise 4: Heading elements

- Specify different heading levels in a document & are used to introduce new document sections
 - There are six heading elements
 - `<h1>`, `<h2>`, `<h3>`, `<h4>`, `<h5>`, and `<h6>`
 - `<h1>` is the largest element
1. Create a new HTML document called **headings.html** and add the following text to your HTML document to see the difference between the headings

Heading elements

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head><title>The Heading Element</title></head>
```

```
    <body>
```

```
      <h1>This is a level one heading.</h1>
```

```
      <h2>This is a level two heading.</h2>
```

```
      <h3>This is a level three heading.</h3>
```

```
      <h4>This is a level four heading.</h4>
```

```
      <h5>This is a level five heading.</h5>
```

```
      <h6>This is a level six heading.</h6>
```

```
    </body>
```

```
</html>
```

Heading elements

- Headings provide a logical hierarchy to the information on a website. It is very important therefore to always start with the **<h1>** header and work your way down numerically.
 - i.e. do not jump from a <h1> to a <h3>

Attributes & values

- **Markup: Four Key Concepts**

- Elements
- Tags
- Attributes
- Values

- **Attribute**

- An attribute is used to define the characteristics of an element and is found inside the element's opening tag e.g. hyperlinks are defined with the anchor element `<a>`. The link address is specified in the href attribute.
 - `This is a link to TUS`

Attributes & Values

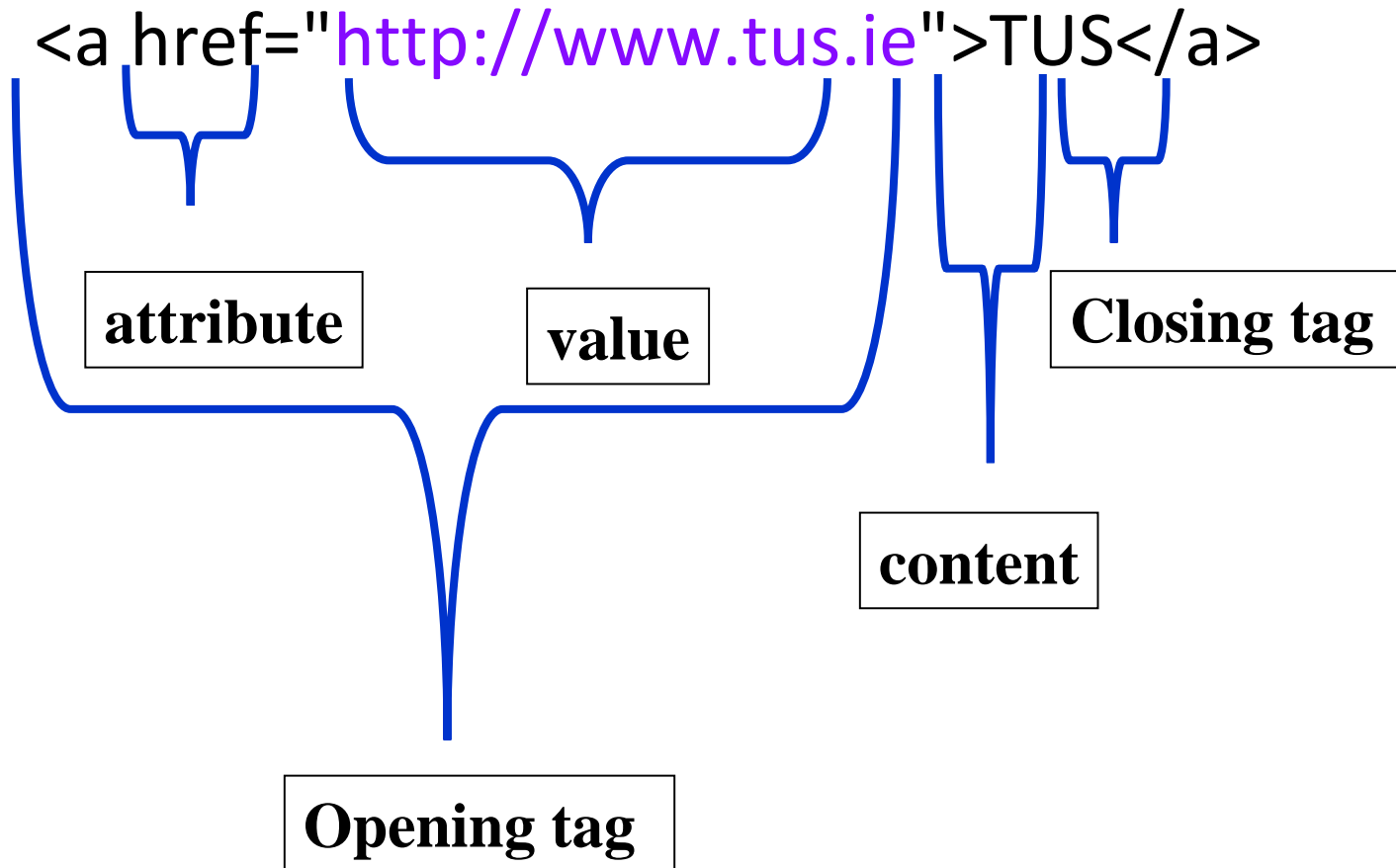
- **Value**

- The value is held between the quotation marks
 - e.g. `This is a link to TUS`
- Values work together with attributes to complete the definition of an element's characteristics

Exercise 5: Creating Hyperlinks

- To create a hyperlink to another website
 - `Google`
- 1. Create a new HTML page called **Links.html**, with the same title and enter the following text in the body
 - `Go to Google`
 - `Go to Ireland`
- 2. View in the browser and test the links.
- 3. Add in line breaks so that the links appear underneath each other

Mark-up: 4 Key Concepts



Nesting

- Nesting is an important HTML concept
- Nearly all elements are **nested** or **contained** by other elements e.g. the **title** element is nested within the **head** and **html** elements
- Nesting means that elements must never overlap

Basic HTML elements

- Every web page contains the following elements

```
<!DOCTYPE html>
```

```
<html>
```

```
  <head>
```

```
    <title> </title>
```

```
  </head>
```

```
  <body>
```

```
    <p> Hello</p>
```

```
  </body>
```

```
</html>
```

HTML

- The purpose of HTML is to provide **meaning & structure** to the content.
- HTML is *not* intended to be used to define how that content should appear.
- As a web designer you must select the HTML element that provides the best description of the content.
- However, in the early years of HTML, elements were used to change the appearance of fonts, colours & alignment. You may still come across this in some older websites.

Summary

- HTML is a mark-up language
- The 4 key concepts of a mark-up language are elements, tags, attributes & values