



## Geoinformation and Sectoral Statistics Section (GiSS)

# INTRODUCTION TO WEB USING HTML

## What is HTML?

HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language
- HTML describes the structure of Web pages using markup
- HTML elements are the building blocks of HTML pages
- HTML elements are represented by tags
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page

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## A Simple HTML Document

### Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

### Example Explained

- The `<!DOCTYPE html>` declaration defines this document to be HTML5
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information about the document

- The `<title>` element specifies a title for the document
  - The `<body>` element contains the visible page content
  - The `<h1>` element defines a large heading
  - The `<p>` element defines a paragraph
- 

## HTML Tags

HTML tags are element names surrounded by angle brackets:

`<tagname>content goes here...</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 **forward slash** inserted before the tag name

**Tip:** The start tag is also called the **opening tag**, and the end tag the **closing tag**.

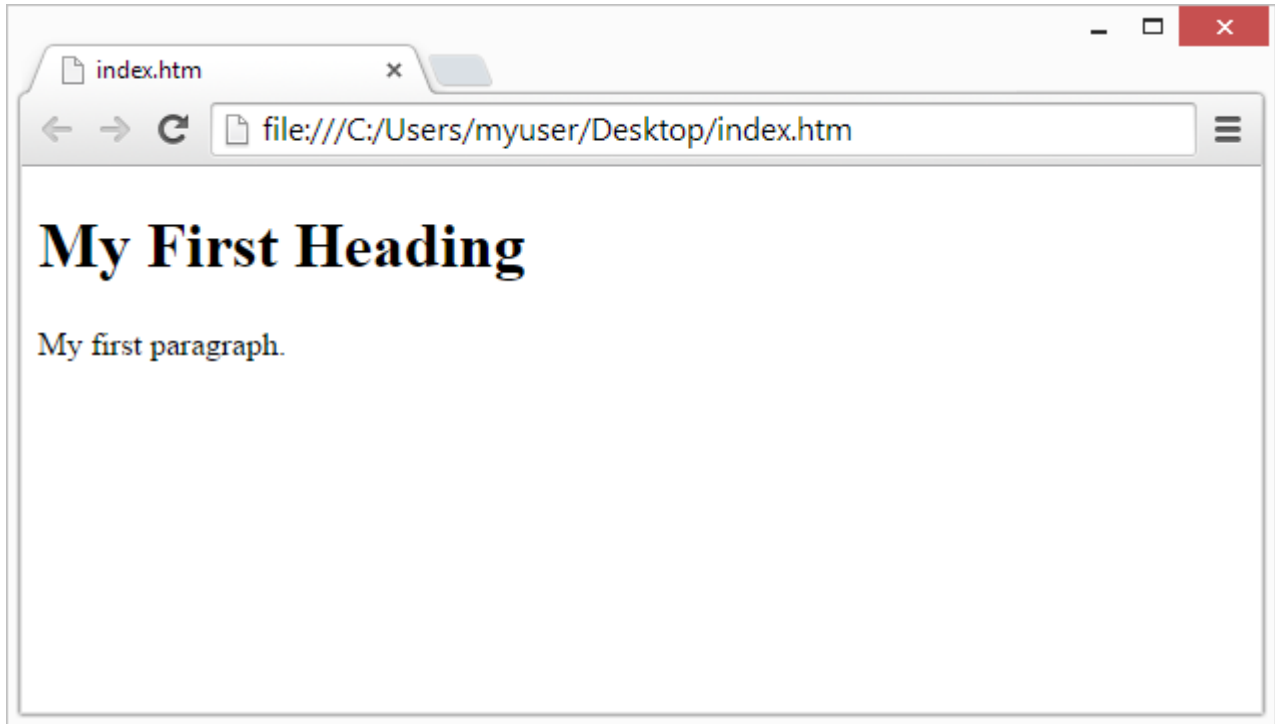
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## Web Browsers

The purpose of a web browser (Chrome, IE, Firefox, Safari) is to read HTML documents and display them.

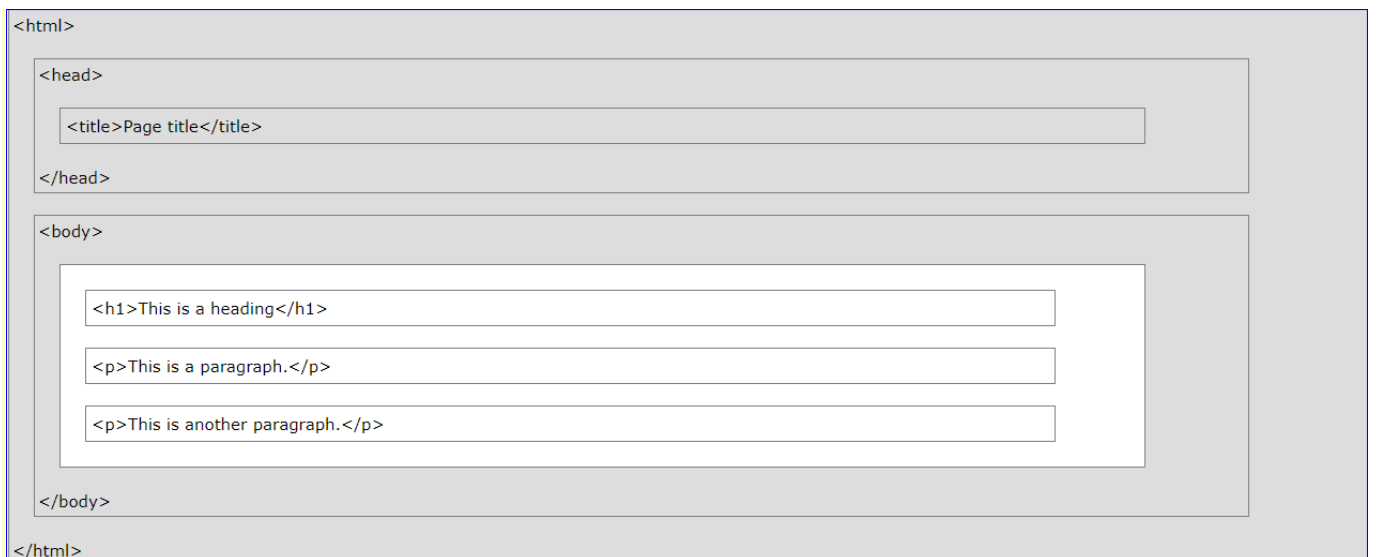
The browser does not display the HTML tags, but uses them to determine how to display the document:



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## HTML Page Structure

Below is a visualization of an HTML page structure:



**Note:** Only the content inside the <body> section (the white area above) is displayed in a browser.

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## The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration represents the document type, and helps browsers to display web pages correctly.

It must only appear once, at the top of the page (before any HTML tags).

The <!DOCTYPE> declaration is not case sensitive.

The <!DOCTYPE> declaration for HTML5 is:

```
<!DOCTYPE html>
```

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## HTML Versions

Since the early days of the web, there have been many versions of HTML:

HTML, HTML 2.0, HTML 3.2, HTML 4.01 XHTML, HTML 5

## Write HTML Using Notepad or TextEdit

Web pages can be created and modified by using professional HTML editors.

However, for learning HTML we recommend a simple text editor like Notepad (PC) or TextEdit (Mac).

We believe using a simple text editor is a good way to learn HTML.

Follow the four steps below to create your first web page with Notepad or TextEdit.

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## Step 1: Open Notepad (PC)

**Windows 8 or later:**

Open the **Start Screen** (the window symbol at the bottom left on your screen). Type **Notepad**.

**Windows 7 or earlier:**

Open **Start > Programs > Accessories > Notepad**

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## Step 1: Open TextEdit (Mac)

Open **Finder > Applications > TextEdit**

Also change some preferences to get the application to save files correctly. In **Preferences > Format >** choose "**Plain Text**"

Then under "Open and Save", check the box that says "Display HTML files as HTML code instead of formatted text".

**Then open a new document to place the code.**

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## Step 2: Write Some HTML

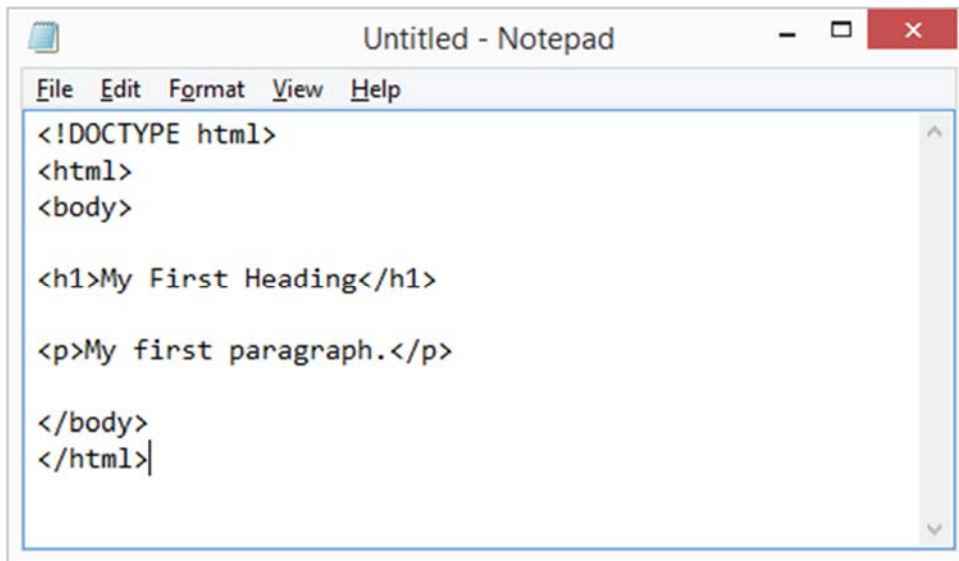
Write or copy some HTML into Notepad.

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```

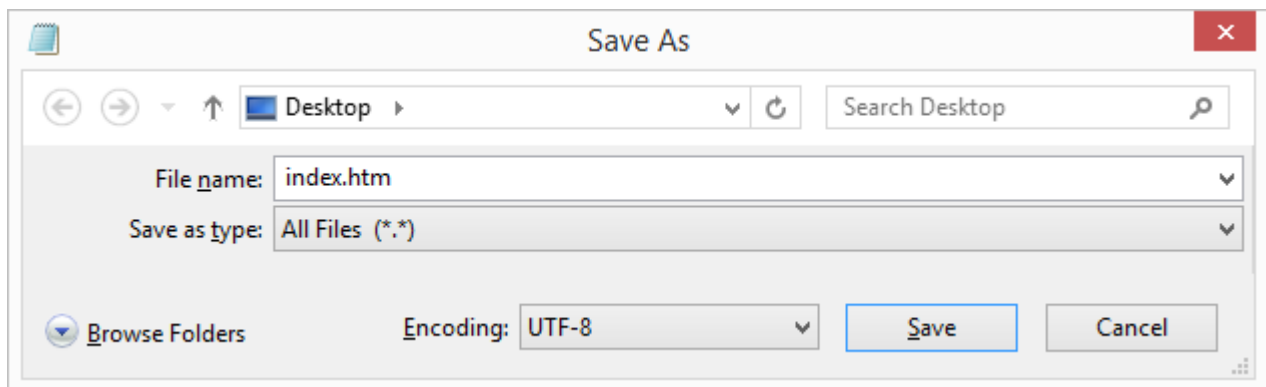


---

## Step 3: Save the HTML Page

Save the file on your computer. Select **File > Save as** in the Notepad menu.

Name the file "**index.htm**" and set the encoding to **UTF-8** (which is the preferred encoding for HTML files).

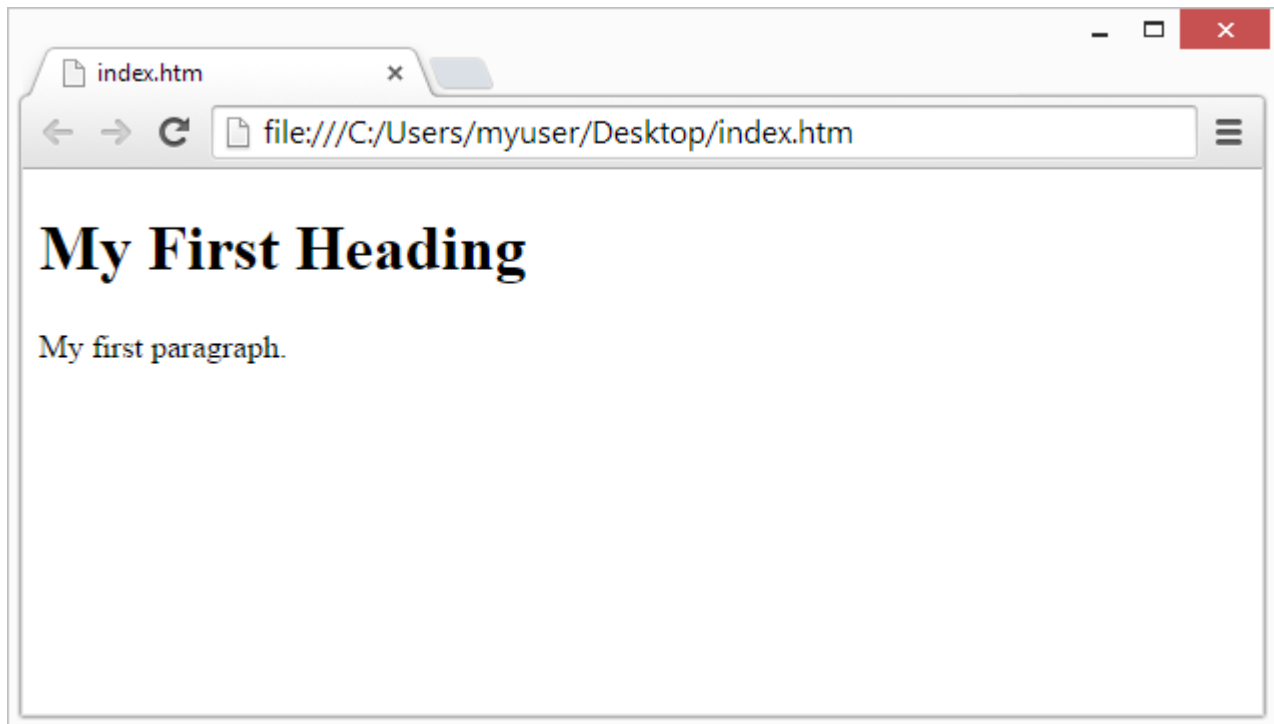


You can use either .htm or .html as file extension. There is no difference, it is up to you.

## Step 4: View the HTML Page in Your Browser

Open the saved HTML file in your favorite browser (double click on the file, or right-click - and choose "Open with").

The result will look much like this:



### Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>This is a Heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```

# HTML Documents

All HTML documents must start with a document type declaration: `<!DOCTYPE html>`.

The HTML document itself begins with `<html>` and ends with `</html>`.

The visible part of the HTML document is between `<body>` and `</body>`.

## Example

```
<!DOCTYPE html>
<html>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

---

# HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading:

## Example

```
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
```

---

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# HTML Paragraphs



HTML paragraphs are defined with the `<p>` tag:

## Example

```
<p>This is a paragraph.</p>  
<p>This is another paragraph.</p>
```

---

## HTML Links

HTML links are defined with the `<a>` tag:

## Example

```
<a href="https://www.w3schools.com">This is a link</a>
```

The link's destination is specified in the `href` attribute.

Attributes are used to provide additional information about HTML elements.

You will learn more about attributes in a later chapter.

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## HTML Images

HTML images are defined with the `<img>` tag.

The source file (`src`), alternative text (`alt`), `width`, and `height` are provided as attributes:

## Example

```

```

---

## HTML Buttons

HTML buttons are defined with the `<button>` tag:

## Example

```
<button>Click me</button>
```

---

## HTML Lists

HTML lists are defined with the `<ul>` (unordered/bullet list) or the `<ol>` (ordered/numbered list) tag, followed by `<li>` tags (list items):

## Example

```
<ul>  
<li>Coffee</li>  
<li>Tea</li>  
<li>Milk</li>  
</ul>
```

## HTML Elements

An HTML element usually consists of a **start** tag and **end** tag, with the content inserted in between:

```
<tagname>Content goes here...</tagname>
```

The HTML **element** is everything from the start tag to the end tag:

```
<p>My first paragraph.</p>
```

Start tag	Element content
<h1>	My First Heading

```
<p>
```

My first paragraph.

```
<br>
```

HTML elements with no content are called empty elements. Empty elements do not have an end tag, such as the `<br>` element (which indicates a line break).

## Nested HTML Elements

HTML elements can be nested (elements can contain elements).

All HTML documents consist of nested HTML elements.

This example contains four HTML elements:

### Example

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>My First Heading</h1>
```

```
<p>My first paragraph.</p>
```

```
</body>
```

```
</html>
```

### Example Explained

The `<html>` element defines the **whole document**.

It has a **start** tag `<html>` and an **end** tag `</html>`.

The element **content** is another HTML element (the `<body>` element).

```
<html>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

The `<body>` element defines the **document body**.

It has a **start** tag `<body>` and an **end** tag `</body>`.

The element **content** is two other HTML elements (`<h1>` and `<p>`).

```
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
```

The `<h1>` element defines a **heading**.

It has a **start** tag `<h1>` and an **end** tag `</h1>`.

The element **content** is: My First Heading.

```
<h1>My First Heading</h1>
```

The `<p>` element defines a **paragraph**.

It has a **start** tag `<p>` and an **end** tag `</p>`.

The element **content** is: My first paragraph.

```
<p>My first paragraph.</p>
```

---

## Do Not Forget the End Tag

Some HTML elements will display correctly, even if you forget the end tag:

## Example

```
<html>
<body>

<p>This is a paragraph
<p>This is a paragraph

</body>
</html>
```

The example above works in all browsers, because the closing tag is considered optional.

**Never rely on this. It might produce unexpected results and/or errors if you forget the end tag.**

---

## Empty HTML Elements

HTML elements with no content are called empty elements.

`<br>` is an empty element without a closing tag (the `<br>` tag defines a line break).

Empty elements can be "closed" in the opening tag like this: `<br />`.

HTML5 does not require empty elements to be closed. But if you want stricter validation, or if you need to make your document readable by XML parsers, you must close all HTML elements properly.

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## Use Lowercase Tags

HTML tags are not case sensitive: `<P>` means the same as `<p>`.

The HTML5 standard does not require lowercase tags, but W3C **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

Attributes provide additional information about HTML elements.

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# HTML Attributes

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

## The href Attribute

HTML links are defined with the `<a>` tag. The link address is specified in the `href` attribute:

### Example

```
<a href="https://www.w3schools.com">This is a link</a>
```

You will learn more about links and the `<a>` tag later in this tutorial.

---

## The src Attribute

HTML images are defined with the `<img>` tag.

The filename of the image source is specified in the `src` attribute:

### Example

```

```

---

## The width and height Attributes

Images in HTML have a set of **size** attributes, which specifies the width and height of the image:

### Example

```

```

The image size is specified in pixels: width="500" means 500 pixels wide.

You will learn more about images in our [HTML Images chapter](#).

---

## The alt Attribute

The **alt** attribute specifies an alternative text to be used, when an image cannot be displayed.

The value of the attribute can be read by screen readers. This way, someone "listening" to the webpage, e.g. a blind person, can "hear" the element.

### Example

```

```

The **alt** attribute is also useful if the image does not exist:

### Example

See what happens if we try to display an image that does not exist:

```

```

## The style Attribute

The **style** attribute is used to specify the styling of an element, like color, font, size etc.

### Example

```
<p style="color:red">I am a paragraph</p>
```

You will learn more about styling later in this tutorial, and in our [CSS Tutorial](#).

---

# The lang Attribute

The language of the document can be declared in the `<html>` tag.

The language is declared with the `lang` attribute.

Declaring a language is important for accessibility applications (screen readers) and search engines:

```
<!DOCTYPE html>  
<html lang="en-US">  
<body>
```

...

```
</body>  
</html>
```

The first two letters specify the language (en). If there is a dialect, use two more letters (US).

---

# The title Attribute

Here, a `title` attribute is added to the `<p>` element. The value of the title attribute will be displayed as a tooltip when you mouse over the paragraph:

## Example

```
<p title="I'm a tooltip">  
This is a paragraph.  
</p>
```

# We Suggest: Use Lowercase Attributes

The HTML5 standard does not require lowercase attribute names.

The title attribute can be written with uppercase or lowercase like `title` or `TITLE`.



W3C **recommends** lowercase in HTML, and **demands** lowercase for stricter document types like XHTML.

---

## We Suggest: Quote Attribute Values

The HTML5 standard does not require quotes around attribute values.

The `href` attribute, demonstrated above, *can* be written without quotes:

### Bad

```
<a href=https://www.w3schools.com>
```

### Good

```
<a href="https://www.w3schools.com">
```

W3C **recommends** quotes in HTML, and **demands** quotes for stricter document types like XHTML.

Sometimes it is **necessary** to use quotes. This example will not display the title attribute correctly, because it contains a space:

### Example

```
<p title>About W3Schools>
```

Using quotes are the most common. Omitting quotes can produce errors.

---

## Single or Double Quotes?

Double quotes around attribute values are the most common in HTML, but single quotes can also be used.

In some situations, when the attribute value itself contains double quotes, it is necessary to use single quotes:

```
<p title='John "ShotGun" Nelson'>
```

Or vice versa:

```
<p title="John 'ShotGun' Nelson">
```

---

## Chapter Summary

- All HTML elements can have **attributes**
  - The **title** attribute provides additional "tool-tip" information
  - The **href** attribute provides address information for links
  - The **width** and **height** attributes provide size information for images
  - The **alt** attribute provides text for screen readers
  - You are advised to use **lowercase** attribute names
- 
- 

## HTML Attributes

Below is an alphabetical list of some attributes often used in HTML:

Attribute	Description
alt	Specifies an alternative text for an image, when the image cannot be displayed
disabled	Specifies that an input element should be disabled
href	Specifies the URL (web address) for a link

id	Specifies a unique id for an element
src	Specifies the URL (web address) for an image
style	Specifies an inline CSS style for an element
title	Specifies extra information about an element (displayed as a tool tip)

A complete list of all attributes for each HTML element, is listed in our: [HTML Attribute Reference](#).

Exercise – As per the attached hand out.

## References

[https://www.w3schools.com/html/html\\_intro.asp](https://www.w3schools.com/html/html_intro.asp)