

# HTML

# Roadmap

➤ HTML

# HTML

- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- An HTML file is a special type of text file that
  - Contains special control sequences or **tags** that control how text is to be formatted
- HTML files are the “source code” for Web Browsers
  - A browser reads the HTML file and
  - Tries to display it using the tags to control layout
- An HTML file can be created using **simple text editors** like Notepad
- An HTML file must have an **htm** or **html** file extension – or it won't work.

# HTML Tags

- HTML tags are used to mark-up HTML **elements**
  - Control the structure, formatting and hypertext linking on HTML pages
- HTML tags are keywords enclosed by the two characters **<** and **>** (angle brackets)
- HTML tags normally **come in pairs** like **<b>** and **</b>**
  - But not all tags come in pairs
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The text between the start and end tags is the **element content**
- HTML tags are not case sensitive, **<b>** means the same as **<B>**
  - XHTML requires to use lowercase!
- A tag can be nested within another tag
  - Nested tag must be closed first
  - Example: **<H1>** **<I>** A Nested tag **</I>** **</H1>**

# A Simple HTML Document

```
<!DOCTYPE html>
<html>

<head>

<title>Page Title</title>

</head>

<body>

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

</body>

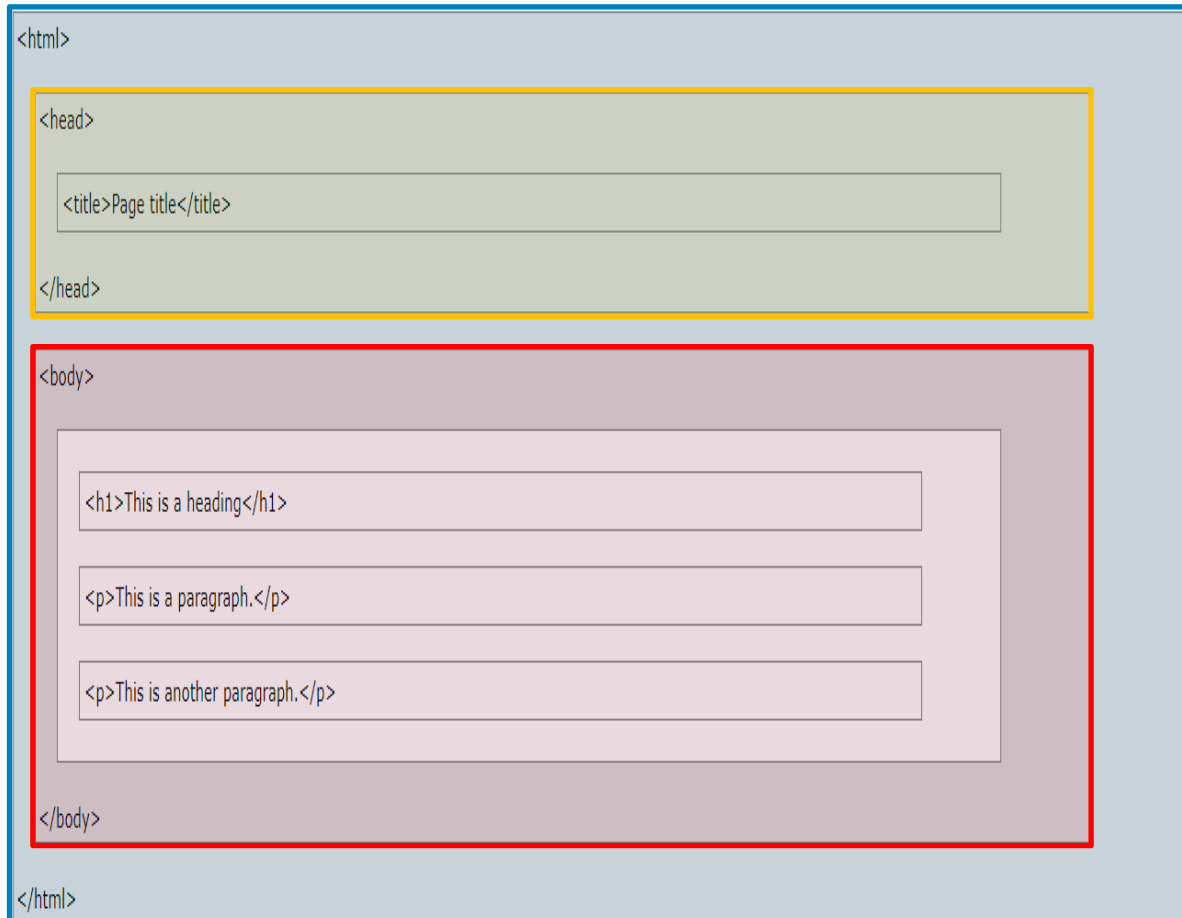
</html>
```

## This is a Heading

This is a paragraph.

<https://www.w3schools.com/html/>

# Structure of a HTML Document



## ➤ **<html></html>**

- Defines the html document

## ➤ **<head></head>**

- Informs browser where to find style sheets, meta info etc.
- JavaScript <script> is normally contained here

## ➤ **<body></body>**

- Contains document content

# HTML Head Elements

- The head element contains general information, also called **meta-information**, about a document
- The elements inside the head element (e.g., base, link, meta) will not be displayed by a browser

Tag	Description
<code>&lt;head&gt;</code>	Defines information about the document
<code>&lt;title&gt;</code>	Defines the document title
<code>&lt;base&gt;</code>	Defines a base URL for all the links on a page
<code>&lt;link&gt;</code>	Defines a resource reference (e.g. css)
<code>&lt;meta&gt;</code>	Defines meta information
<code>&lt;script&gt;</code>	Defines JavaScript file

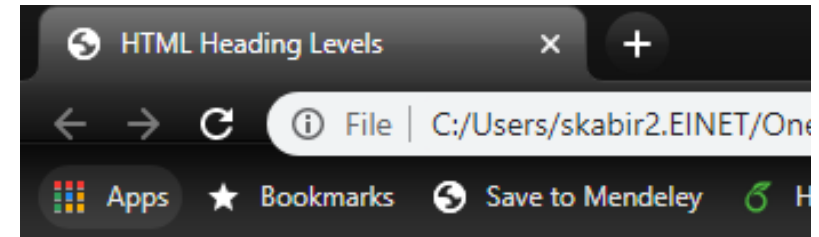
# Basic Tags

- `<!DOCTYPE html>` this is first line in HTML 5
  - Identifies content as HTML 5
- Headings: HTML has 6 levels of headings labelled h1, h2, ..., h6
  - Delimit headings between the `<hn> . . . .</hn>` tags where  $n = 1 \dots 6$
  - Headings are displayed in larger/bolder fonts than normal body text
  - Larger number means smaller heading
- `<p>` for paragraph
  - Includes vertical whitespace (before and after the paragraph) unlike `<br>`
- `<hr>` horizontal rule
- `<br>` new line
- `<b> . . .</b>` bold text
- `<i> . . .</i>` italic text



# HTML headings example

```
<html>
<head>
<title> HTML Heading Levels </title>
</head>
<body>
<h1> This is a level 1 heading </h1>
<p>
This is not a heading. It is a paragraph.
</p>
<h2> This is a level 2 heading </h2>
<h3> This is a level 3 heading </h3>
<h4> This is a level 4 heading </h4>
<h5> This is a level 5 heading </h5>
<h6> This is a level 6 heading </h6>
</body>
</html>
```



## This is a level 1 heading

This is not a heading. It is a paragraph.

### This is a level 2 heading

#### This is a level 3 heading

##### This is a level 4 heading

###### This is a level 5 heading

###### This is a level 6 heading

# HTML Text Manipulation: Examples

```
<b>
This is bold text.
</b><br><br>
<i>
This is italic text.
</i><br><br>
<u>
This is text is underlined.
</u><br><br>
<s>
This is text is struck through.
</s><br><br>
This is normal text.
<big>
This is bigger text.
</big><br><br>
This is normal text.
<small>
This is smaller text.
</small><br><br>
X<sub>1</sub> is subscripted (1).<br><br>
X<sup>2</sup>. the squared (2) is superscripted<br><br>
<em>
This is emphasised Text
</em><br><br>
<strong>
This is Strong Text
</strong><br><br>
Code Text looks like this:<br>
<code>
begin
for i:= 1 to N
end
</code><br><br>
<pre>
This is preformatted          text.
New lines, spaces etc. are
significant.
</pre>
```

**This is bold text.**

*This is italic text.*

This is text is underlined.

~~This is text is struck through.~~

This is normal text. This is bigger text.

This is normal text. This is smaller text.

X<sub>1</sub> is subscripted (1).

X<sup>2</sup>. the squared (2) is superscripted

*This is emphasised Text*

**This is Strong Text**

Code Text looks like this:  
begin for i:= 1 to N end

This is preformatted text.  
New lines, spaces etc. are  
significant.

# HTML Tag Attributes

- Attributes provide **additional information** to an HTML element
- Each element may have any number of attributes
- Attributes always come in **name/value pairs** like this: **name="value"**
- Attributes are always specified in the start tag of an HTML element
  - E.g. `<p align="center">` would center the paragraph
- Attributes and attribute values are also **case-insensitive**
- World Wide Web Consortium (W3C) recommends lowercase attributes/attribute values in their HTML 4 recommendation
- XHTML demands lowercase attributes/attribute values
- A list of attributes are available at:

[https://www.w3schools.com/tags/ref\\_attributes.asp](https://www.w3schools.com/tags/ref_attributes.asp)

# HTML Head Elements- Title and Style

- The **<title>** element defines the document title
  - `<title>This is the page title </title>`
  - title is displayed in search engine results
- The **<style>** element is used to define how the rest of the document will be displayed
  - This element is used to embed style declarations within our HTML document, rather than linking to an external dedicated stylesheet
  - Each HTML document can contain multiple `<style>` tags
  - The `<style>` element does not necessarily have to be within the `<head>`, although that is currently the best practice for HTML validation
  - Example:

```
<style>
  body {background-color:white;}
  h1 {color: red;}
  p {color: blue;}
</style>
```

# HTML Head Elements-Meta

- Often the meta element is used to provide information that is relevant to browsers or search engines
  - E.g., to describe the content of your document
- Page description (used by search engines)
  - `<meta name="description" content="Free Web">`
- Keywords (used by search engines)
  - `<meta name="keywords" content="HTML, CSS, XML, XHTML, JavaScript">`
- Author information
  - `<meta name="author" content="John Doe">`
- Character Set used
  - `<meta charset="UTF-8">`
- Page refresh
  - `<meta http-equiv="refresh" content="30">`

# HTML Head Elements-base

- Assume that the absolute address for an image is:

```

```

- Now we insert the **<base>** tag, which specifies a base URL for all of the links in a page, in the head section of a page:

```
<head>
```

```
  <base href="http://www.w3schools.com/images/">
```

```
</head>
```

- When inserting images on the page in the example above, we just have to specify the **relative** address

```

```

- The browser will look for that file using the full URL,  
["http://www.w3schools.com/images/smile.gif"](http://www.w3schools.com/images/smile.gif)

# HTML Comments and Special Characters

## ➤ Comments defined by:

- `<!-- This is a comment -->`

- `<!--`

*This paragraph, is also a  
comment...*

`-->`

## ➤ Comments are Ignored by browser – No formatting function

## ➤ Like all good programming practice:

Use meaningful comments in your HTML documents

## ➤ Special Characters:

- `&lt;` → `<` (less than)
- `&gt;` → `>` (greater than)
- `&amp;` → `&` (ampersand)
- `&nbsp;` → space

# HTML Comments - Example

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

<!-- This is a comment -->
<p>This is a paragraph.</p>
<!-- Comments are not displayed in the browser -->

</body>
</html>
```

This is a paragraph.

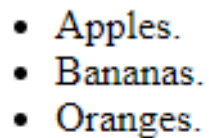


# Lists

- HTML supports a variety of lists
  - Unordered or Bulleted lists
  - Ordered or Numbered lists
- **Unordered or Bulleted lists**
  - `<ul> ... </ul>` delimits list
  - `<li> ... </li>` indicates list items
- Example:

```
<ul>
<li> Apples. </li>
<li> Bananas.</li>
<li> Oranges.</li>
</ul>
```

It looks like this when viewed through a browser:



- Apples.
- Bananas.
- Oranges.

# Lists

## ➤ Ordered or Numbered lists

- `<ol> ... </ol>` delimits list
- `<li> ... </li>` indicates list items

## ➤ Example:

```
<ol>
<li> Apples. </li>
<li> Bananas.</li>
<li> Oranges.</li>
</ol>
```

It looks like this when viewed through a browser:

```
1. Apples.
2. Bananas.
3. Oranges.
```

## ➤ Lists can be nested

- One type of list contains same or another type of list
- Multi-level nesting possible

## ➤ Example:

??

- ```
• Apples
  1. Fuji
  2. Granny Smith
• Oranges
```

# Lists

## ➤ Ordered or Numbered lists

- `<ol> ... </ol>` delimits list
- `<li> ... </li>` indicates list items

## ➤ Example:

```
<ol>
<li> Apples. </li>
<li> Bananas.</li>
<li> Oranges.</li>
</ol>
```

It looks like this when viewed through a browser:

```
1. Apples.
2. Bananas.
3. Oranges.
```

## ➤ Lists can be nested

- One type of list contains same or another type of list
- Multi-level nesting possible

## ➤ Example:

```
<ul>
<li>Apples
<ol>
<li>Fuji </li>
<li>Granny Smith </li>
</ol>
</li>
<li>Oranges</li>
</ul>
```

- Apples
  - 1. Fuji
  - 2. Granny Smith
- Oranges

# Lists - Example

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

<h2>An Unordered HTML List</h2>

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

<h2>An Ordered HTML List</h2>

<ol>
  <li>Coffee</li>
  <li>Tea</li>
  <li>Milk</li>
</ol>

</body>
</html>
```

## An Unordered HTML List

- Coffee
- Tea
- Milk

## An Ordered HTML List


1. Coffee
2. Tea
3. Milk

<https://www.w3schools.com/html/>

# HTML List Manipulation: Unordered List


- The CSS **list-style-type** property is used to define the style of the list item marker in an unordered list
  - The values of this property could be disc(default one), circle, square, and none

```
<ul style="list-style-type:disc;">  
  <li>Apple</li>  
  <li>Banana</li>  
</ul>
```




- Apple
- Banana

```
<ul style="list-style-type:circle;">  
  <li>Apple</li>  
  <li>Banana</li>  
</ul>
```



- Apple
- Banana

```
<ul style="list-style-type:square;">  
  <li>Apple</li>  
  <li>Banana</li>  
</ul>
```



- Apple
- Banana

# HTML List Manipulation: Ordered List

- The **type** attribute of the `<ol>` tag, defines the type of the list item marker
- If you want to start counting from a specified number, you can use the **start** attribute
- The **value** attribute may be used to change value of individual `<li>`
- All these manipulations can be done using CSS
  - See some examples [here](#)

```
<ol type="1">  
  <li>Apple</li>  
  <li>Banana</li>  
</ol>
```

1. Apple  
2. Banana

```
<ol type="A">  
  <li>Apple</li>  
  <li>Banana</li>  
</ol>
```

A. Apple  
B. Banana

```
<ol type="a">  
  <li>Apple</li>  
  <li>Banana</li>  
</ol>
```

a. Apple  
b. Banana

```
<ol type="I">  
  <li>Apple</li>  
  <li>Banana</li>  
</ol>
```

I. Apple  
II. Banana

```
<ol type="i">  
  <li>Apple</li>  
  <li>Banana</li>  
</ol>
```

i. Apple  
ii. Banana

```
<ol start="10">  
  <li>Apple</li>  
  <li>Banana</li>  
  <li>Orange</li>  
</ol>
```

10. Apple  
11. Banana  
12. Orange

```
<ol>  
  <li>Apple</li>  
  <li value="5">Banana</li>  
  <li>Orange</li>  
</ol>
```

1. Apple  
5. Banana  
6. Orange

# Example of HTML-Annotated with tags

`<h2>Introduction</h2>`

`<p>`

There are several good reasons for taking

`<i>COS4018-B: Internet Technologies</i>:`

`</p>`

`<ul>`

`<li>`

You will learn to design and develop static and dynamic websites.

`</li>`

`<li>`

You will learn the principles of data transfer on World Wide Web.

`</li>`

`<li>`

It will give you the opportunity to use most current web technologies.

`</li>`

`</ul>`

# Browser doesn't care but programmers do

```
<h2>Introduction</h2>
```

```
<p>
```

```
  There are several good reasons for taking
```

```
  <i>COS4018-B: Internet Technologies</i>:
```

```
</p>
```

```
<ul>
```

```
  <li>
```

```
    You will learn to design and develop static and dynamic websites.
```

```
  </li>
```

```
  <li>
```

```
    You will learn the principles of data transfer on World Wide Web.
```

```
  </li>
```

```
  <li>
```

```
    It will give you the opportunity to use most current web  
    technologies.
```

```
  </li>
```

```
</ul>
```



# Example HTML - Browser output

## Introduction

There are several good reasons for taking *COS4018-B: Internet Technologies*:

- You will learn to design and develop static and dynamic websites.
- You will learn the principles of data transfer on World Wide Web.
- It will give you the opportunity to use most current web technologies.