



# 1420-7001

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Web Programming



IT융합대학 컴퓨터공학부(컴퓨터공학전공)

# Week # 1 Lectures Summary

- Part I: Introduction to Web programming course

- Course Contents & Evaluation criteria of this course
- Goals/learning-outcomes of this course
- Assumed Background

- Part II: Basic concepts and definitions

- Basic Definition
- Types of Web applications
- Architecture of Web Programming
- Promising Applications

- Part III: Why study Web Programming?

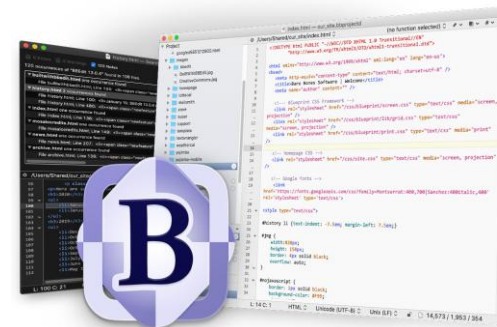
- Web-based systems are everywhere
- To satisfy humanity needs
- To understanding working of web-based systems
- To get a better job.
- To get to know about advanced programming concepts used in web development
- Etc

- Part IV: Software Installation for Web Programming Course

- Notepad++
- XAMP



# Kick start the Web Programing



# Programming Language to be used in this course

- HTML
- CSS
- JavaScript
- PHP
- SQL
- 3<sup>rd</sup> party libraries
- Database tools
- Design patterns



# HTML Language Introduction

- Initially, we will focus on HTML language.
  - ▣ HTML is the standard markup language for Web pages.
  - ▣ With HTML, you can create your Website.
- ✓ HTML describes the structure of a Web page
- ✓ HTML consists of a series of elements
- ✓ HTML elements tell the browser how to display the content
- ✓ HTML elements label pieces of content such as "this is a heading", "this is a paragraph", "this is a link", etc.

# Writing the Web Programming Code

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

## 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**.

Preferably, notepad ++

### Windows 7 or earlier:

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

## Step 1: Open TextEdit (Mac)

Preferably, BBedit

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.**

# Writing the Web Programming Code

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

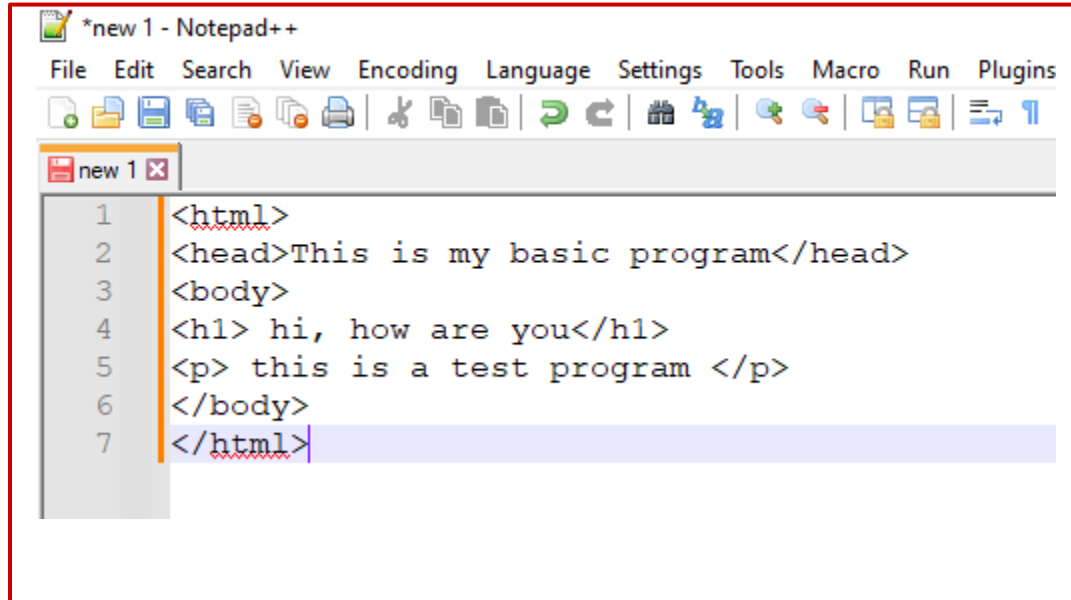
<h1>My First Heading</h1>

<p>My first paragraph.</p>

</body>
</html>
```

A very simple HTML program.

# Kick start the web programming- Program Writing



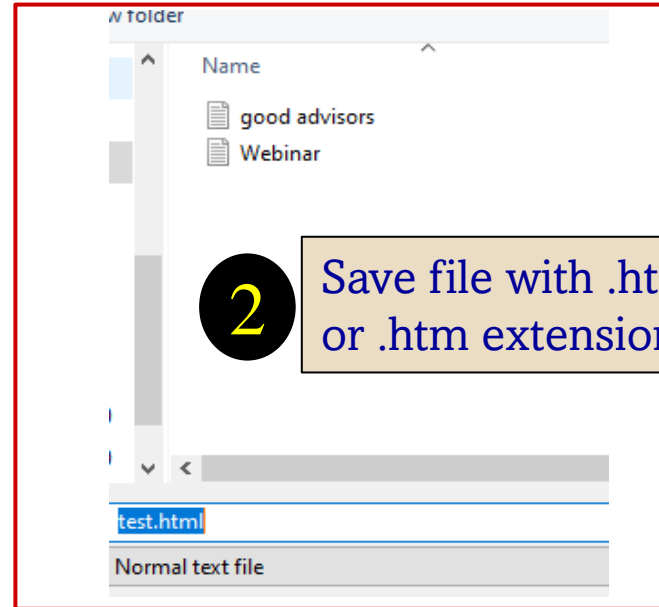
\*new 1 - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run Plugins

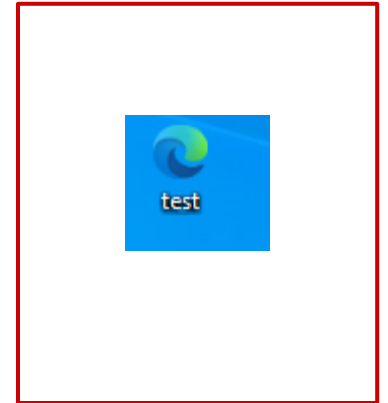
new 1

```
1 <html>
2 <head>This is my basic program</head>
3 <body>
4 <h1> hi, how are you</h1>
5 <p> this is a test program </p>
6 </body>
7 </html>
```

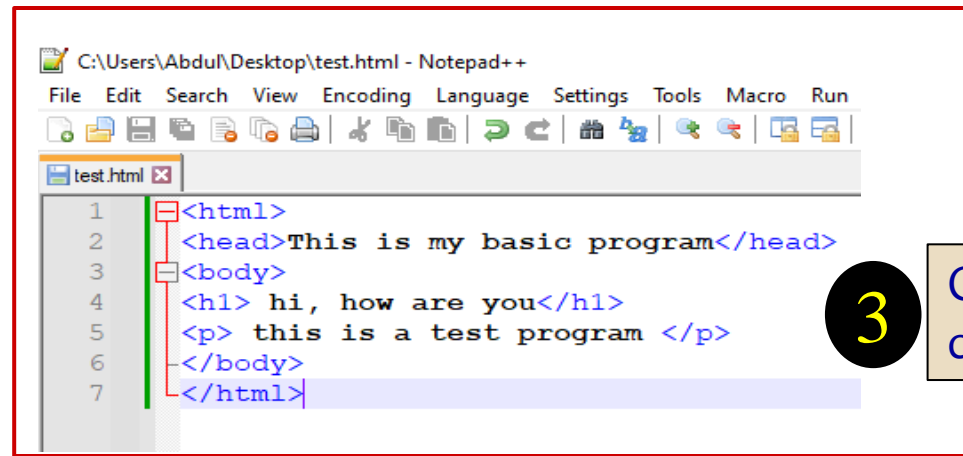
1 Open notepad & write code.



2 Save file with .html or .htm extension



4 Saved file.



C:\Users\Abdul\Desktop\test.html - Notepad++

File Edit Search View Encoding Language Settings Tools Macro Run

test.html

```
1 <html>
2 <head>This is my basic program</head>
3 <body>
4 <h1> hi, how are you</h1>
5 <p> this is a test program </p>
6 </body>
7 </html>
```

3 Code layout will change

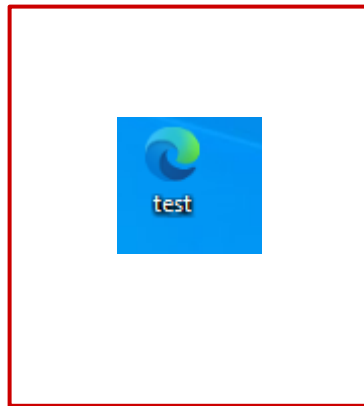




# Executing the Web Codes

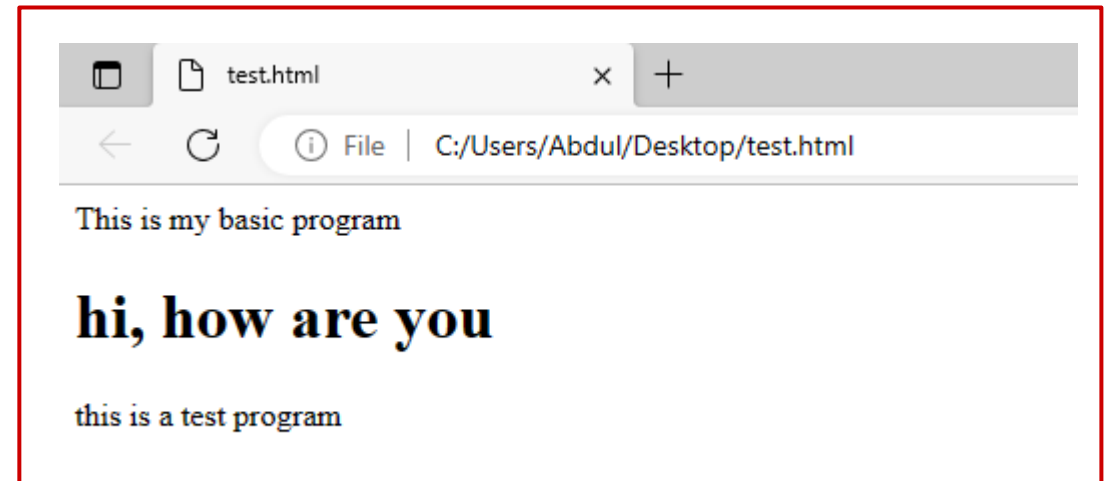
Two ways to execute!!!

# Kick start the web programming-1<sup>st</sup> Way



5

Double click on file



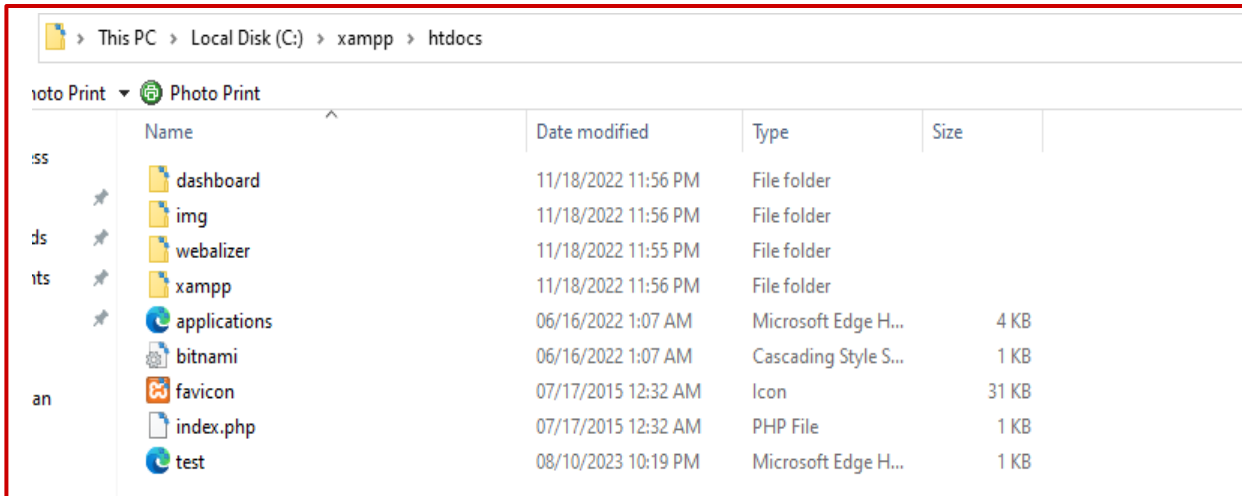
6

Output of the web program

Web page

**Congratulations!** You have written and developed your first web page.

# Automated Execution of the Web code- 2<sup>nd</sup> Way

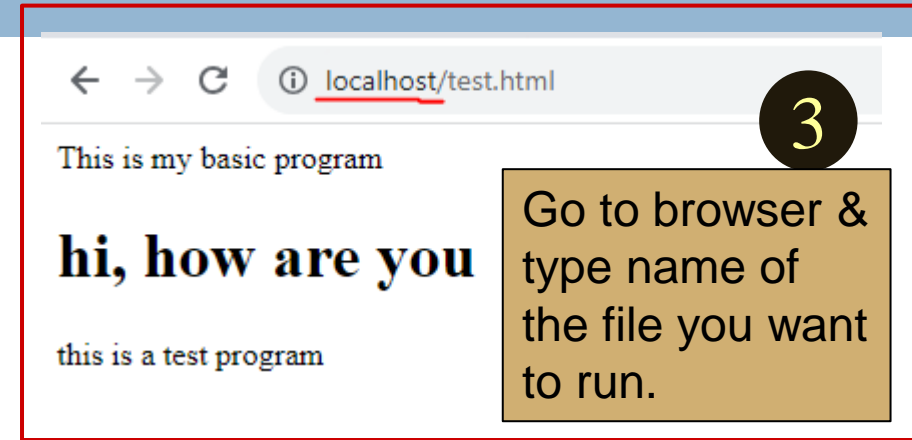


1

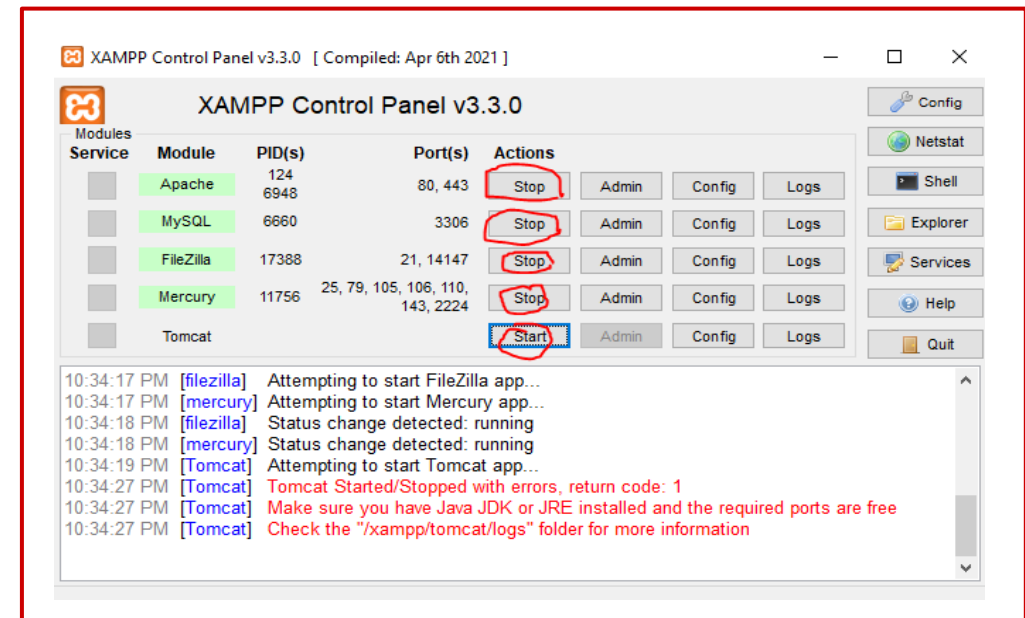
Save code in htdocs folder of xamp.

2

Start relevant services from the control panel of xamp.



3



# Basic HTML Coding Examples



# HTML- Main Component of This Course

## Hyper Text Markup Language

HTML stands for **H**yper **T**ext **M**arkup **L**anguage

HTML is the **standard markup** language for Web pages

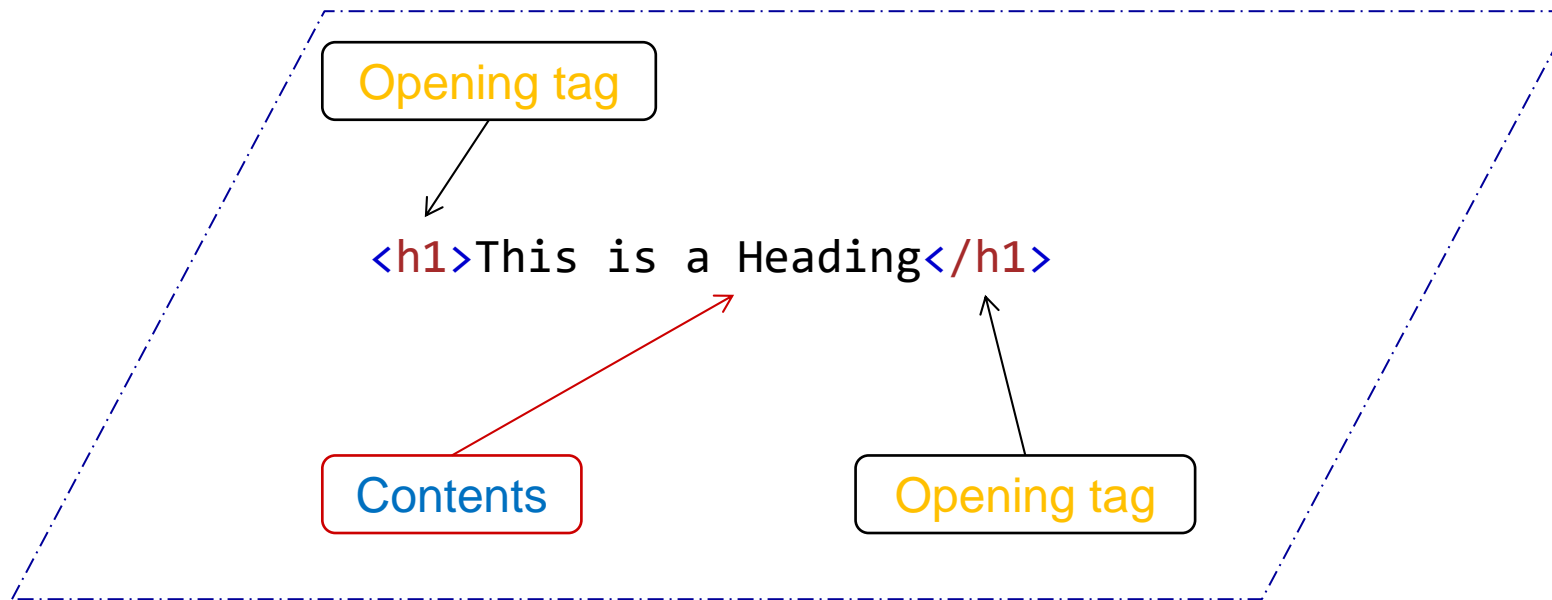
HTML **elements** are the building blocks of HTML pages

HTML elements are represented by **<> tags**



# Kick start the HTML Programming- Basics

An HTML element is a **start** tag and an **end** tag with content in between.



Start tag	Element content	End tag
<code>&lt;h1&gt;</code>	This is a Heading	<code>&lt;/h1&gt;</code>
<code>&lt;p&gt;</code>	This is paragraph.	<code>&lt;/p&gt;</code>

# Kick start the HTML- Basic Syntax

## Basic example

```
<!DOCTYPE html>
<html lang="en">

<meta charset="utf-8">
<title>Page Title</title>

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

</html>
```



## Explanation of the example

HTML elements are the building blocks of HTML pages.

- The `<!DOCTYPE html>` declaration defines this document to be HTML5
- The `<html>` element is the root element of an HTML page
- The `lang` attribute defines the language of the document
- The `<meta>` element contains meta information about the document
- The `charset` attribute defines the character set used in 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

# Kick start the HTML- Basic Syntax

```
<!DOCTYPE html>  
<html lang="en">
```

```
<meta charset="utf-8">  
<title>Page Title</title>
```

```
<body>  
  <h1>This is a Heading</h1>  
  <p>This is a paragraph.</p>  
  <p>This is another paragraph.</p>  
</body>
```

```
</html>
```



Output of the code

## **This is a Heading**

This is a paragraph.

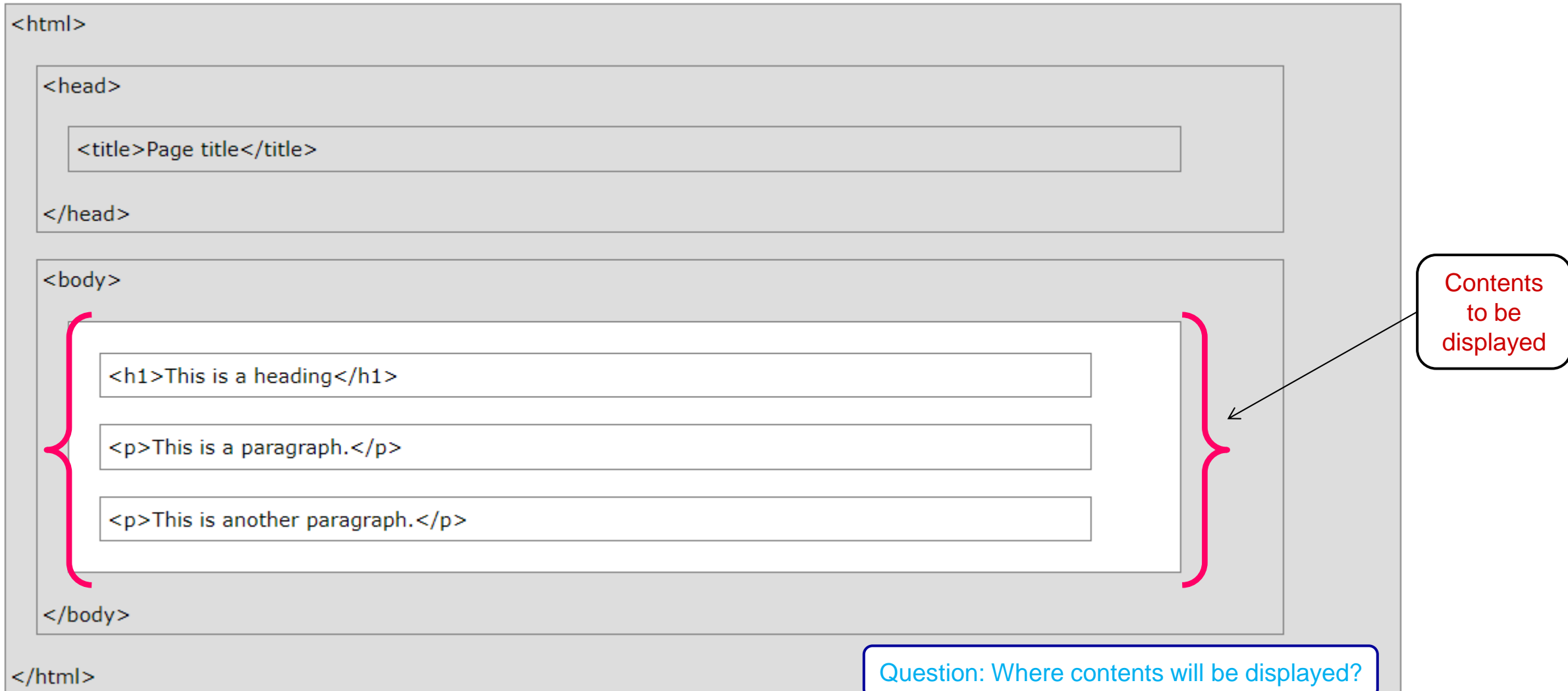
This is a another paragraph.



# Kick start the HTML- Things to Remember

- ❑ 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>`.

# Kick start the HTML- Illustration of the example



# HTML Coding Example

```
1  <!DOCTYPE html>
2  <html>
3    <head>
4      <meta charset="UTF-8">
5      <title>Title goes here</title>
6    </head>
7    <body>
8
9    </body>
10 </html>
```

# HTML Coding Example-Heading Size

- ⌘ HTML headings are defined with `<h1>` to `<h6>` tags.
- ⌘ `<h1>` defines the most important heading. `<h6>` defines the least important heading.
- ⌘ SIX levels of heading in HTML language.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1>This is heading 1</h1>
```

```
<h2>This is heading 2</h2>
```

```
<h3>This is heading 3</h3>
```

```
<h4>This is heading 4</h4>
```

```
<h5>This is heading 5</h5>
```

```
<h6>This is heading 6</h6>
```

```
</body>
```

```
</html>
```

Output of the code

**This is heading 1**

**This is heading 2**

**This is heading 3**

**This is heading 4**

**This is heading 5**

**This is heading 6**

# HTML Coding Example- Paragraphs

⌘ HTML paragraphs are defined with <p> tags.

## HTML code

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

<h2>HTML Paragraphs</h2>

<p>HTML paragraphs are defined with the &ltp&gt; tag.</p>

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

</body>
</html>
```



## Output of the code

### HTML Paragraphs

HTML paragraphs are defined with the <p> tag.

This is a paragraph.

This is another paragraph.

# HTML Coding Example- Links

⌘ HTML links are defined with `<a>` tags.

⌘ Also known as anchor tag.

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

<h2>HTML Links</h2>

<p>HTML links are defined with the &lt;a> tag.</p>

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

</body>
</html>
```



Output of the code

## HTML Links

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

[This is a link](https://www.w3schools.com)

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

# HTML Coding Example- Images

- ⌘ HTML images are defined with <img> tags.
- ⌘ The source file (src), alternative text (alt), width, and height are provided as attributes

Output of the code

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

<h2>HTML Images</h2>

<p>HTML images are defined with the &lt;img> tag.</p>



</body>
</html>
```



## HTML Images

HTML images are defined with the <img> tag.



# HTML Coding Example- Images [Width + Height]

- ⌘ You can set image width and height based on your requirement using width and height attributes.
- ⌘ You can specify width and height of the image in terms of either pixels or percentage of its actual size.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Set Image Width and Height</title>
  </head>

  <body>
    <p>Setting image width and height</p>
    <img src = "/html/images/test.png" alt = "Test Image" width = "150" height = "100"/>
  </body>

</html>
```

Please modify the path  
as per your system

Output of the code

This will produce the following result –





# HTML Coding Example- Images [Border]

⌘ By default, image will have a border around it, you can specify border thickness in terms of pixels using border attribute. A thickness of 0 means, no border around the picture.

```
<!DOCTYPE html>
<html>

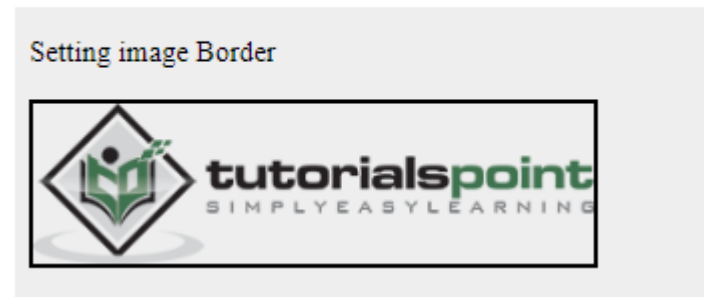
  <head>
    <title>Set Image Border</title>
  </head>

  <body>
    <p>Setting image Border</p>
    <img src = "test.png" alt = "Test Image" border = "3"/>
  </body>

</html>
```

Output of the code

This will produce the following result –



# HTML Coding Example- Images [Alignment]

⌘ By default, image will align at the left side of the page, but you can use align attribute to set it in the middle or right side of the web page.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Set Image Alignment</title>
  </head>

  <body>
    <p>Setting image Alignment</p>
    <img src = "test.png" alt = "Test Image" border = "3" align = "right"/>
  </body>

</html>
```

This will produce the following result –

Setting image Alignment

Output of the code



# HTML Coding Example- Buttons

⌘ HTML buttons are defined with <button> tags.

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

<h2>HTML Buttons</h2>

<p>HTML buttons are defined with the &ltbutton&gt; tag.</p>

<button>submit</button>

</body>
</html>
```



Output of the code

## HTML Buttons

HTML buttons are defined with the <button> tag.

submit

# HTML Coding Example- List

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

```
<!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>
```



Output of the code

## An Unordered HTML List

- Coffee
- Tea
- Milk

## An Ordered HTML List

1. Coffee
2. Tea
3. Milk

# HTML Coding Example- Line Break

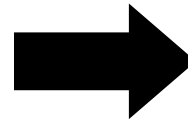
- ⌘ Whenever you use the `<br />` element, anything following it starts from the next line.
- ⌘ This tag is an example of an **empty** element, where you do not need opening and closing tags, as there is nothing to go in between them.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Line Break  Example</title>
  </head>

  <body>
    <p>Hello<br />
      You delivered your assignment ontime.<br />
      Thanks<br />
      Mahnaz</p>
  </body>

</html>
```



Output of the code

This will produce the following result –

```
Hello
You delivered your assignment on time.
Thanks
Mahnaz
```

# HTML Coding Example- Centering Content

⌘ You can use `<center>` tag to put any content in the center of the page or any table cell.

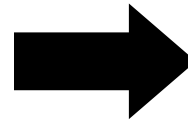
```
<!DOCTYPE html>
<html>

  <head>
    <title>Centring Content Example</title>
  </head>

  <body>
    <p>This text is not in the center.</p>

    <center>
      <p>This text is in the center.</p>
    </center>
  </body>

</html>
```



Output of the code

This will produce following result –

This text is not in the center.

This text is in the center.

# HTML Coding Example- Horizontal Line

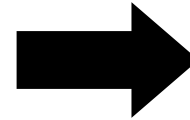
- ⌘ Horizontal lines are used to visually break-up sections of a document. The `<hr>` tag creates a line from the current position in the document to the right margin and breaks the line accordingly.
- ⌘ For example, you may want to give a line between two paragraphs as in the given example below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Horizontal Line Example</title>
  </head>

  <body>
    <p>This is paragraph one and should be on top</p>
    <hr />
    <p>This is paragraph two and should be at bottom</p>
  </body>

</html>
```



Output of the code

This will produce the following result –

This is paragraph one and should be on top

---

This is paragraph two and should be at bottom

# HTML Coding Example-Nonbreaking Spaces

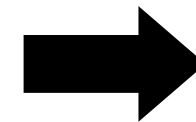
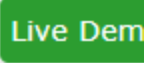
⌘ Suppose you want to use the phrase "12 Angry Men." Here, you would not want a browser to split the "12, Angry" and "Men" across two lines.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Nonbreaking Spaces Example</title>
  </head>

  <body>
    <p>An example of this technique appears in the movie "12&nbsp;Angry&nbsp;Men."</p>
  </body>

</html>
```



Output of the code

This will produce the following result –

An example of this technique appears in the movie "12 Angry Men."



# HTML Concepts- Elements vs Tags

An **HTML element** is defined by a starting tag. If the element contains other content, it ends with a closing tag, where the element name is preceded by a forward slash as shown below with few tags –

Start Tag	Content	End Tag
<code>&lt;p&gt;</code>	This is paragraph content.	<code>&lt;/p&gt;</code>
<code>&lt;h1&gt;</code>	This is heading content.	<code>&lt;/h1&gt;</code>
<code>&lt;div&gt;</code>	This is division content.	<code>&lt;/div&gt;</code>
<code>&lt;br /&gt;</code>		

So here `<p>....</p>` is an HTML element, `<h1>...</h1>` is another HTML element. There are some HTML elements which don't need to be closed, such as `<img.../>`, `<hr />` and `<br />` elements. These are known as **void elements**.

For example, `<p>` is starting tag of a paragraph and `</p>` is closing tag of the same paragraph but `<p>This is paragraph</p>` is a paragraph element.

# HTML Coding Example- Nested Elements

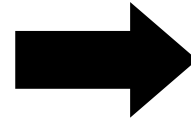
- ⌘ An HTML element is defined by a *starting tag*. If the element contains other content, it ends with a *closing tag*.
- ⌘ For example, `<p>` is starting tag of a paragraph and `</p>` is closing tag of the same paragraph but `<p>This is paragraph</p>` is a paragraph element.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Nested Elements Example</title>
  </head>

  <body>
    <h1>This is <i>italic</i> heading</h1>
    <p>This is <u>underlined</u> paragraph</p>
  </body>

</html>
```



Output of the code

This will display the following result –

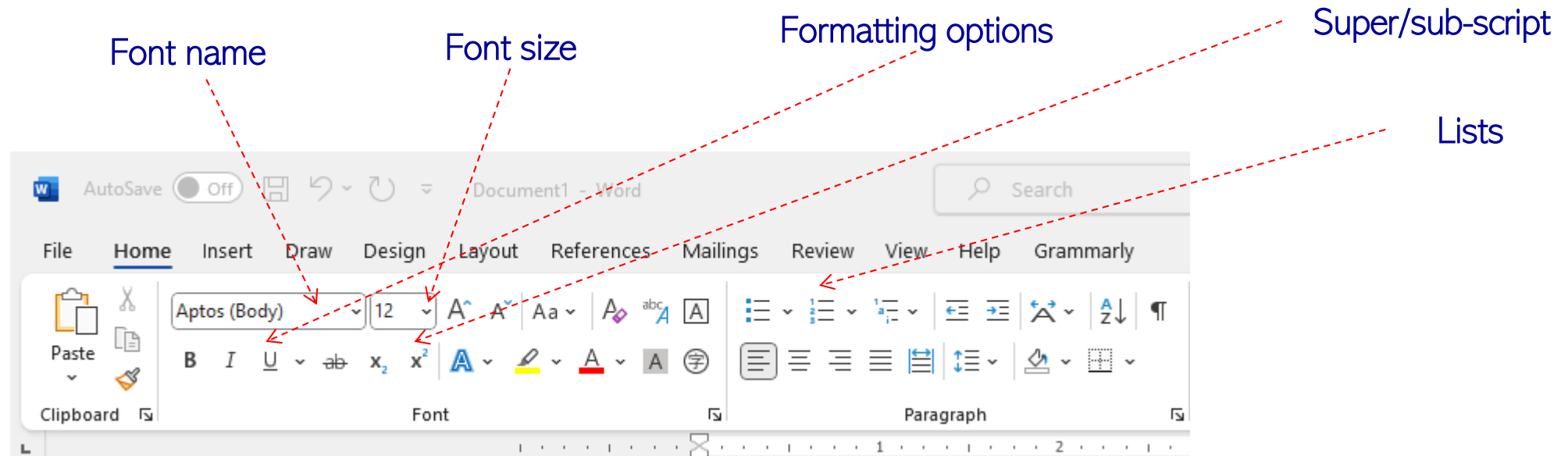
**This is *italic* heading**

This is underlined paragraph

[illegible]

# HTML Concepts- HTML Formatting

- ⌘ If you use a word processor, you must be familiar with the ability to make text bold, italicized, or underlined; these are just three of the ten options available to indicate how text can appear in HTML and XHTML.



# HTML Coding Example- Formatting-Bold Text

⌘ Anything that appears within `<b>...</b>` element, is displayed in bold as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Bold Text Example</title>
  </head>

  <body>
    <p>The following word uses a <b>bold</b> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a **bold** typeface.

# HTML Coding Example- Formatting-Italic Text

⌘ Anything that appears within `<i>...</i>` element is displayed in italicized as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Italic Text Example</title>
  </head>

  <body>
    <p>The following word uses an <i>italicized</i> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses an *italicized* typeface.

# HTML Coding Example- Formatting-Underlined Text

⌘ Anything that appears within `<u>...</u>` element, is displayed with underline as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Underlined Text Example</title>
  </head>

  <body>
    <p>The following word uses an <u>underlined</u> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses an underlined typeface.

# HTML Coding Example- Formatting-Strike Text

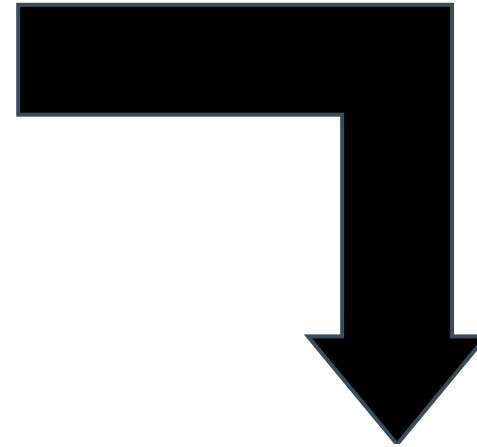
⌘ Anything that appears within `<strike>...</strike>` element is displayed with strikethrough, which is a thin line through the text as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Strike Text Example</title>
  </head>

  <body>
    <p>The following word uses a <strike>strikethrough</strike> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a ~~strikethrough~~ typeface.



# HTML Coding Example- Formatting-Mono-Spaced Font

- ⌘ The content of a `<tt>...</tt>` element is written in monospaced font. Most of the fonts are known as variable-width fonts because different letters are of different widths (for example, the letter 'm' is wider than the letter 'i').
- ⌘ In a monospaced font, however, each letter has the same width.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Monospaced Font Example</title>
  </head>

  <body>
    <p>The following word uses a <tt>monospaced</tt> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a monospaced typeface.

# HTML Coding Example- Formatting-Super-Script Text

- ⌘ The content of a `<sup>...</sup>` element is written in superscript; the font size used is the same size as the characters surrounding it but is displayed half a character's height above the other.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Superscript Text Example</title>
  </head>

  <body>
    <p>The following word uses a <sup>superscript</sup> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a <sup>superscript</sup> typeface.

# HTML Coding Example- Formatting-Sub-Script Text

- ⌘ The content of a `<sub>...</sub>` element is written in subscript; the font size used is the same as the characters surrounding it, but is displayed half a character's height beneath the other characters.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Subscript Text Example</title>
  </head>

  <body>
    <p>The following word uses a <sub>subscript</sub> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a <sub>subscript</sub> typeface.

# HTML Coding Example- Formatting-Inserted Text

⌘ Anything that appears within `<ins>...</ins>` element is displayed as inserted text.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Inserted Text Example</title>
  </head>

  <body>
    <p>I want to drink <del>cola</del> <ins>wine</ins></p>
  </body>

</html>
```



This will produce the following result –

I want to drink ~~cola~~ wine

# HTML Coding Example- Formatting-Deleted Text

⌘ Anything that appears within `<del>...</del>` element, is displayed as deleted text.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Deleted Text Example</title>
  </head>

  <body>
    <p>I want to drink <del>cola</del> <ins>wine</ins></p>
  </body>

</html>
```



This will produce the following result –

I want to drink ~~cola~~ wine

# HTML Coding Example- Formatting-Larger Text

- ⌘ The content of the `<big>...</big>` element is displayed one font size larger than the rest of the text surrounding it as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Larger Text Example</title>
  </head>

  <body>
    <p>The following word uses a <big>big</big> typeface.</p>
  </body>

</html>
```



This will produce the following result –

The following word uses a big typeface.

# HTML Coding Example- Formatting-**Smaller Text**

- ⌘ The content of the `<small>...</small>` element is displayed one font size smaller than the rest of the text surrounding it as shown below.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Smaller Text Example</title>
  </head>

  <body>
    <p>The following word uses a <small>small</small> typeface.</p>
  </body>

</html>
```



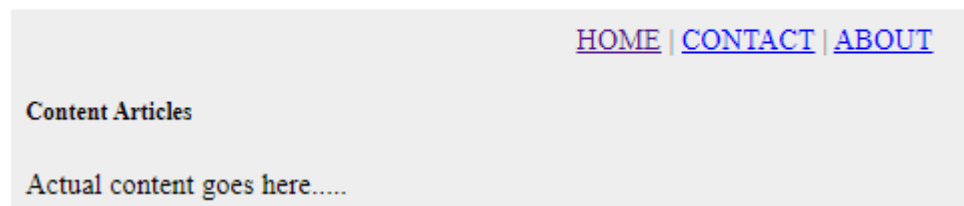
This will produce the following result –

The following word uses a small typeface.

# HTML Coding Example- Formatting-Grouping Contents

- ⌘ The `<div>` and `<span>` elements allow you to group together several elements to create sections or subsections of a page.
- ⌘ For example, you might want to put all of the footnotes on a page within a `<div>` element to indicate that all of the elements within that `<div>` element relate to the footnotes. You might then attach a style to this `<div>` element so that they appear using a special set of style rules.

This will produce the following result –



```
<!DOCTYPE html>
<html>

  <head>
    <title>Div Tag Example</title>
  </head>

  <body>
    <div id = "menu" align = "middle" >
      <a href = "/index.htm">HOME</a> |
      <a href = "/about/contact_us.htm">CONTACT</a> |
      <a href = "/about/index.htm">ABOUT</a>
    </div>

    <div id = "content" align = "left" >
      <h5>Content Articles</h5>
      <p>Actual content goes here.....</p>
    </div>
  </body>
</html>
```



# HTML Coding Example- Formatting-Grouping Inline

- ⌘ The `<span>` element, on the other hand, can be used to group inline elements only.
- ⌘ So, if you have a part of a sentence or paragraph which you want to group together, you could use the `<span>` element as follows.

```
<!DOCTYPE html>
<html>

  <head>
    <title>Span Tag Example</title>
  </head>

  <body>
    <p>This is the example of <span style = "color:green">span tag</span>
      and the <span style = "color:red">div tag</span> alongwith CSS</p>
  </body>

</html>
```



This will produce the following result –

This is the example of span tag and the div tag alongwith CSS

# Summary of the Today's Lesson

## Part II

- HTML Basics
  - ▣ HTML Heading
  - ▣ HTML Paragraphs
  - ▣ HTML Images
  - ▣ Anchor tags
  - ▣ Singular/paired tags
  - ▣ Lines
- HTML Text Formatting
  - ▣ Bold, italic, underlines
  - ▣ Strike
  - ▣ Monospaced
  - ▣ Superscript
  - ▣ Subscript
  - ▣ Inserted
  - ▣ Deleted
  - ▣ Large & smaller
  - ▣ Grouping contents
  - ▣ Div & Span

## Part I

- Web program execution
  - ▣ Double click
  - ▣ Via XAMP



**Note:** Please execute all codes at least once on your computers.