Background and Overview:

The Internet and World Wide Web Domain Names:

The Internet is based on the fundamental concept that all computers should be able to reach each other using an address. Much like your home, apartment, or school has a street address where the post office or courier service can reach you, or you have a phone number where someone can call you, all Internet connected computers have an address known as a TCP/IP address. The TCP/IP stands for Transmission
Control Protocol/Internet Protocol, but that's not critically important. What you need to know is that TCP/IP allows packets of digital information, such as your website, to be sent across networks and then reassembled once it reaches its destination. TCP/IP addresses are commonly referred to as IP addresses.

Domain Names and Hosting:

Domain names help users find their way around the Internet. You already know domain names because they are commonly surrounded by www on the front and .com on the end. Domains can also include various endings such as .org, .edu, and .gov. Domain names exist because it's not very convenient for you to use or remember IP addresses. Domain Name Servers (DNS) translate easy-to-understand domain names into IP addresses. A DNS converts a familiar string of letters, the "domain name," to the numbered IP address. Instead of typing the IP address 72.32.147.166 into a web browser, you can type the domain name, such as www.digitalclassroombooks.com. A DNS on the Internet converts your requested domain into the appropriate IP address, which routes your request to the appropriate web server.

Most companies want their web servers to be available all day, every day, they are often maintained by web hosting companies. These fi rms are paid to maintain your web server so that it is always accessible and running. If you run a small website, they may put your site on a server that is shared with other sites. For more demanding sites, or sites with sensitive information, a business will pay higher fees for a dedicated server. Even large companies will often turn to hosting businesses to maintain their web servers, although some companies may elect to place their web servers within their own company.

What is a Web Server?

The term web server can refer to hardware or software, or both of them working together.

On the hardware side, a web server is a computer that stores web server software and a website's component files (for example, HTML documents, images, CSS stylesheets, and JavaScript files). A web server connects to the Internet and supports physical data interchange with other devices connected to the web.

On the software side, a web server includes several parts that control how web users access hosted files. At a minimum, this is an HTTP server. An HTTP server is software that understands URLs (web addresses) and HTTP (the protocol your browser uses to view webpages). An HTTP server can be accessed through the domain names of the websites it stores, and it delivers the content of these hosted websites to the end user's device.

At the most basic level, whenever a browser needs a file that is hosted on a web server, the browser requests the file via HTTP. When the request reaches the correct (hardware) web server, the (software) HTTP server accepts the request, finds the requested document, and sends it back to the browser, also through HTTP. (If the server doesn't find the requested document, it returns a 404 response instead.) To publish a website, you need either a static or a dynamic web server.

A static web server, or stack, consists of a computer (hardware) with an HTTP server (software). We call it "static" because the server sends its hosted files as-is to your browser.

A dynamic web server consists of a static web server plus extra software, most commonly an application server and a database. We call it "dynamic" because the application server updates the hosted files before sending content to your browser via the HTTP server.

The Language of the Web:

Hypertext Markup Language, or HTML, is the code that is used to structure a web page and its content. In HTML tags are used which enclose plain text. The tags describe how the text should appear and the function of the text. The web browser looks at the tags and displays them accordingly. A simple example of HTML text is: Do you want to have lunch? .

HTML is the most basic building block of the Web. Using HTML Web pages could be designed. It defines the meaning and structure of web content. Other technologies besides HTML are generally used to describe a web page's appearance/presentation (CSS) or functionality/behavior (JavaScript).

"Hypertext" refers to links that connect web pages to one another, either within a single website or between websites. Links are a fundamental aspect of the Web. By uploading content to the Internet and linking it to pages created by other people, you become an active participant in the World Wide Web.

Content of HTML:

HTML uses "markup" to annotate text, images, and other content for display in a Web browser. HTML markup includes special "elements" such as <head>, <title>, <body>, <header>, <footer>, <article>, <section>, , , , <img>, <aside>, <audio>, <canvas>, <datalist>, <details>, <embed>, <nav>, <output>, <progress>, <video>, <ul>, <ol>, <li> and many others.

An HTML element is set off from other text in a document by "tags", which consist of the element name surrounded by "<" and ">". The name of an element inside a tag is case insensitive. That is, it can be written in uppercase, lowercase, or a mixture. For example, the <title> tag can be written as <Title>, <TITLE>, or in any other way.

Simple HTML Document:

```
<!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 that this document is an HTML5 document.

The **<html>** element is the root element of an HTML page.

The **<head>** element contains meta information about the HTML page.

The **<title>** element specifies a title for the HTML page (which is shown in the browser's title bar or in the page's tab).
The **<body>** element defines the document's body, and is a container for all the visible contents, such as headings, paragraphs, images, hyperlinks, tables, lists, etc.

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

The ** ** element defines a paragraph.

What is an HTML Element?

An HTML element is defined by a start tag, some content, and an end tag:

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

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

<h1>My First Heading</h1>

My first paragraph.

Create HTML Document:

Open Notepad.

Search “notepad” in Windows task bar.

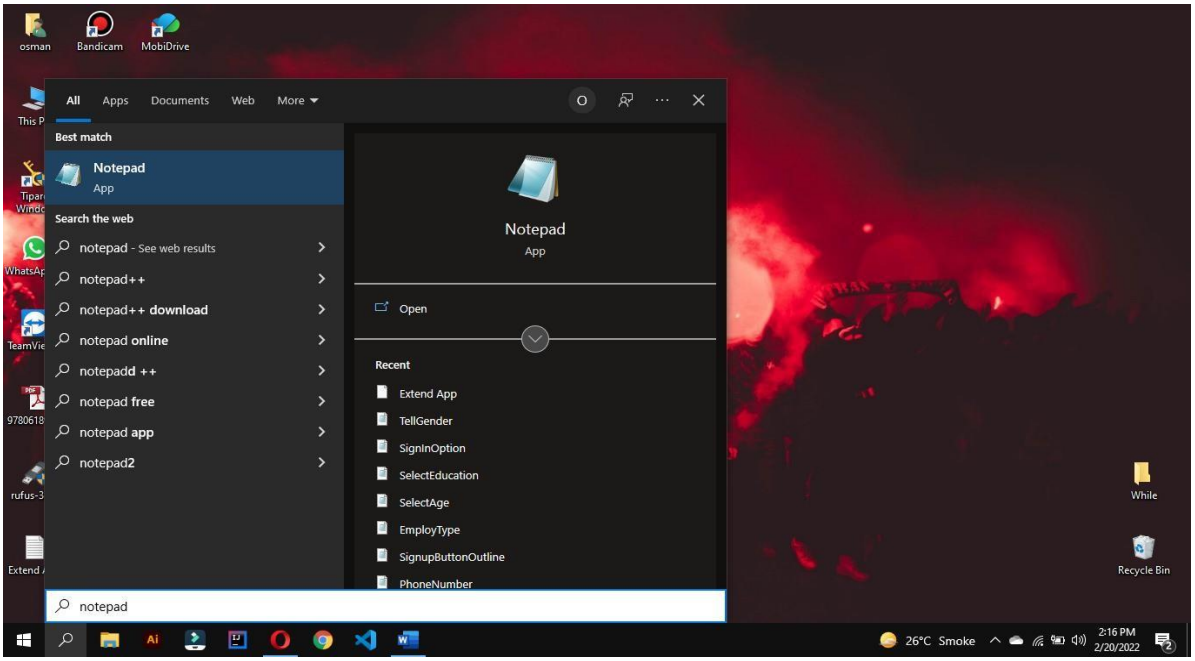

Fig. 1 (Open Notepad)

Write HTML code in the notepad.

Fig. 2 (Notepad HTML Code)

After saving your file, you will see a file in file explorer.

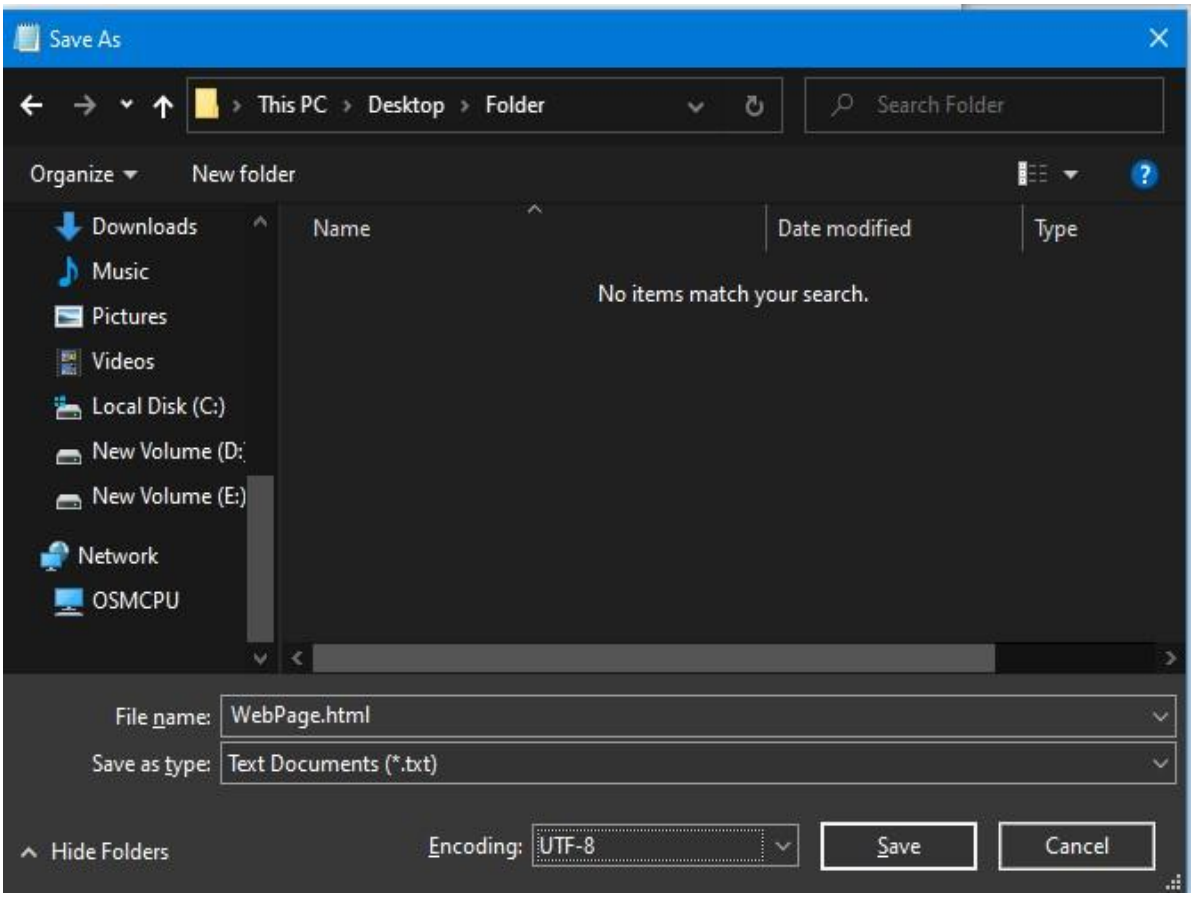

Fig. 3 (Save HTML File)

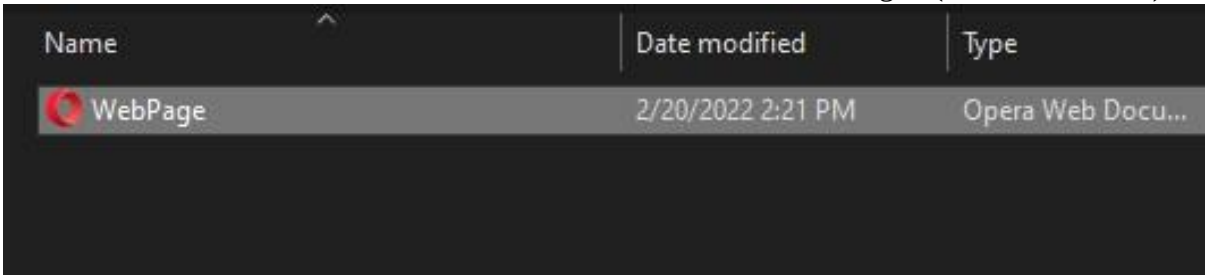

Fig. 4 (HTML File)

Open file by using double click or by right click. This page will be open in your browser you're using.

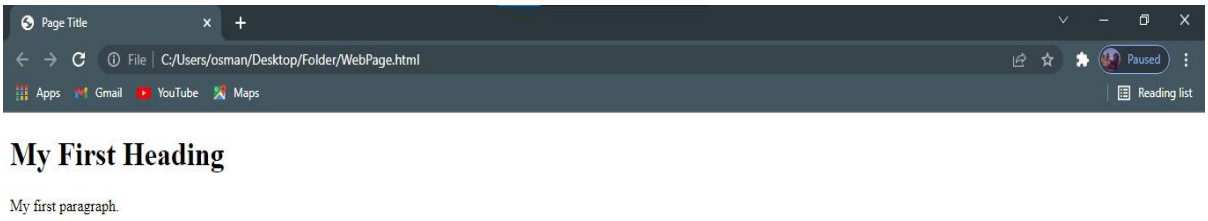

Fig. 5 (Browser Output)

HTML:

Let's start learning HTML elements one by one in detail.

HTML Elements:

An HTML element is defined by a start tag, some content, and an end tag. The HTML element is everything from the start tag to the end tag. **<tagname>** Content goes here...**</tagname>** Examples of some HTML elements:

<h1> My First Heading **</h1>**

** ** My first paragraph. ** **

**
 is a tag** which **is use to add line break.**

Some HTML elements have no content (like the
 element). These elements are called empty elements. Empty elements do not have an end tag!

Nested HTML Elements:

HTML elements can be nested (this means that elements can contain other elements). All HTML documents consist of nested HTML elements. The following example contains four HTML elements (<html>, <body>, <h1> and)

Fig. 6 (Nested HTML Elements)

Explanation:

The <html> element is the root element and it defines the whole HTML document. It has a start tag <html> and an end tag </html>. Then, inside the <html> element there is a <body> element:

<body>
*<h1>*My First Heading*</h1>*
* *My first paragraph. * *
</body>

The **<body>** element defines the document's body. It has a start tag **<body>** and an end tag **</body>**.
Then, inside the <body> element there are two other elements: **<h1>** and ** **:

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

The **<h1>** element defines a heading. It has a start tag **<h1>** and an end tag **</h1>.** The ** ** element defines a paragraph. It has a start tag ** ** and an end tag ** **:

HTML is Not Case Sensitive:

HTML tags are not case sensitive: <P> means the same as . The HTML standard does not require lowercase tags, but developers recommend lowercase in HTML, and demands lowercase for stricter document types like XHTML.

HTML Headings:

HTML headings are titles or subtitles that you want to display on a webpage. HTML headings are defined with the <h1> to <h6> tags. <h1> defines the most important heading. <h6> defines the least important heading.

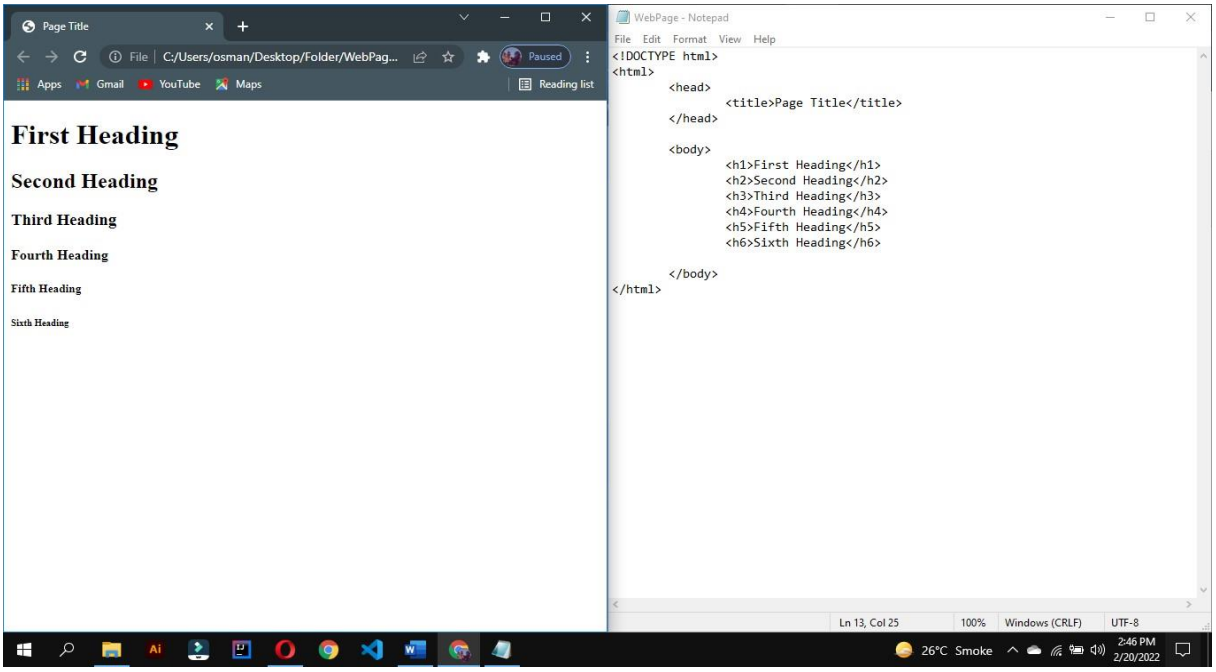

Fig. 7 (HTML Heading)

Browsers automatically add some white space (a margin) before and after a heading.

Headings are Important:

Search engines use the headings to index the structure and content of your web pages. Users often skim a page by its headings. It is important to use headings to show the document structure. <h1> headings should be used for main headings, followed by <h2> headings, then the less important <h3>, and so on.
Note: Use HTML headings for headings only. Don't use headings to make text BIG or bold.

HTML Paragraph:

A paragraph always starts on a new line, and is usually a block of text. The HTML element defines a paragraph. A paragraph always starts on a new line, and browsers automatically add some white space (a margin) before and after a paragraph.

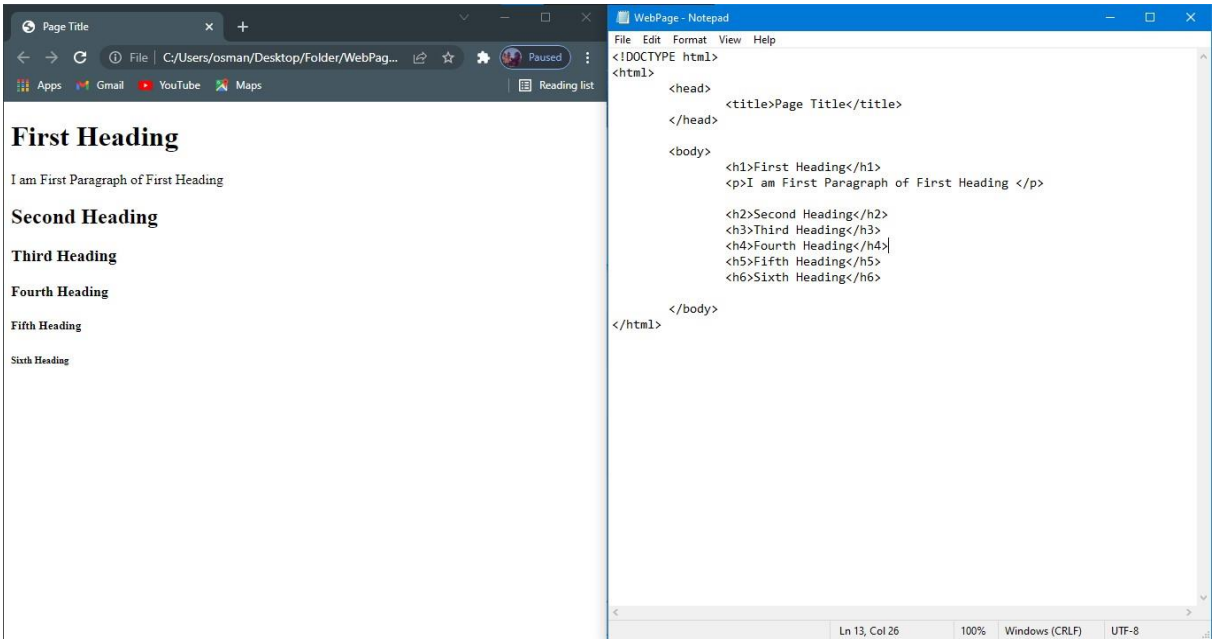

Fig. 8 (HTML Paragraph)

HTML Display:

You cannot be sure how HTML will be displayed. Large or small screens, and resized windows will create different results. With HTML, you cannot change the display by adding extra spaces or extra lines in your HTML code. The browser will automatically remove any extra spaces and lines when the page is displayed**.**

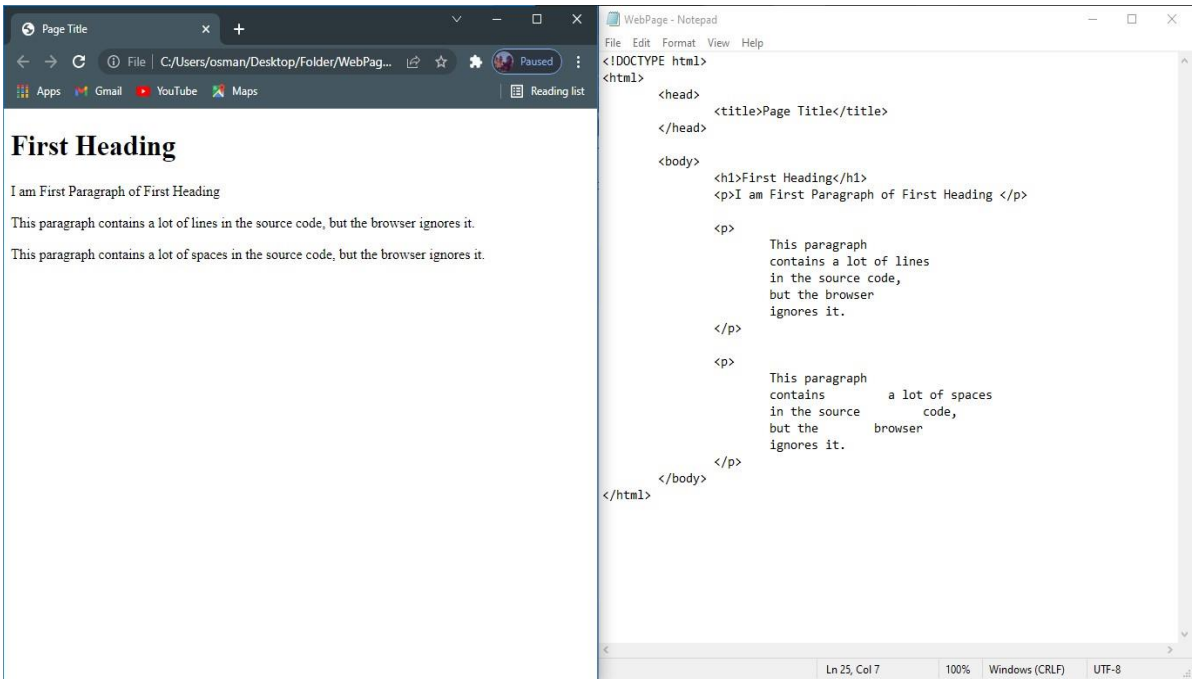

Fig. 9 (HTML Display)

HTML Horizontal Rules

The <hr> tag defines a thematic break in an HTML page, and is most often displayed as a horizontal rule. The <hr> element is used to separate content (or define a change) in an HTML page:

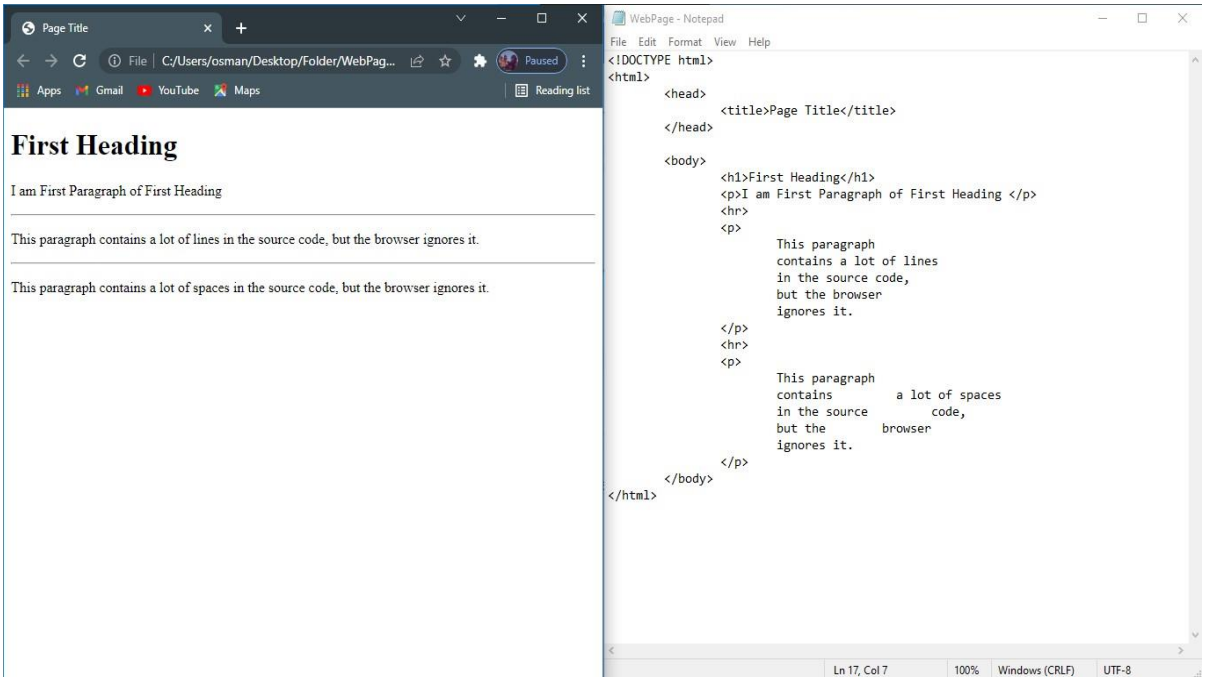

Fig. 10 (HTML Horizontal Rules)

HTML Styles:

The HTML style attribute is used to add styles to an element, such as color, font, size, and more.

The HTML Style Attribute

Setting the style of an HTML element, can be done with the style attribute. The HTML style attribute has the following syntax:

<tagname style="property: value;">

The property is a Cascade Style Sheet (CSS) property and the value is a CSS value.

Background Color:

The CSS background-color property defines the background color for an HTML element. Let's set the background color for a page to **blue**:

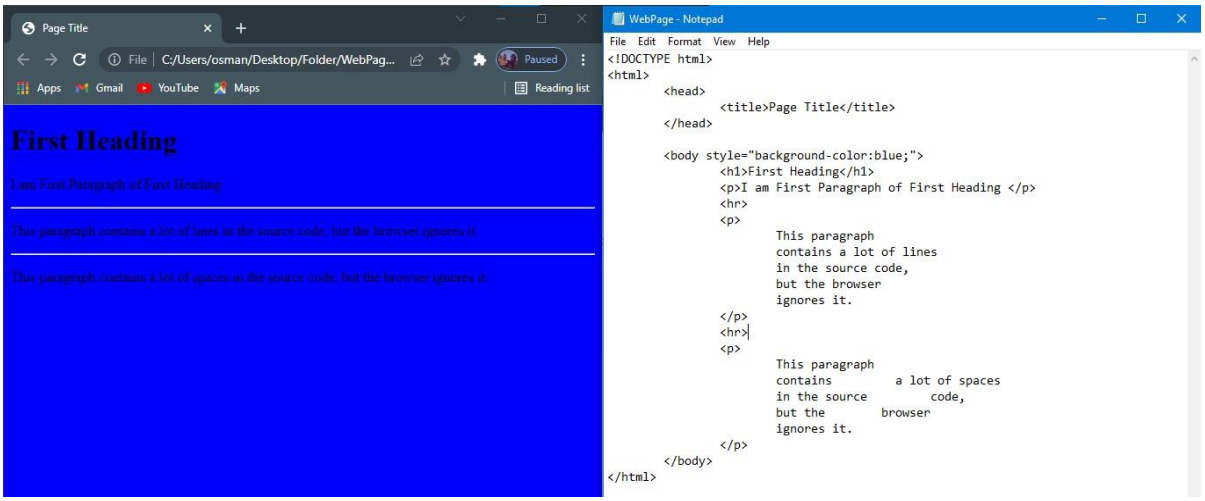

Fig. 11 (HTML Styles)

Set background color for two different elements:

Set the background color for a second paragraph to **red**:

Set the background color for a third paragraph to **green**:

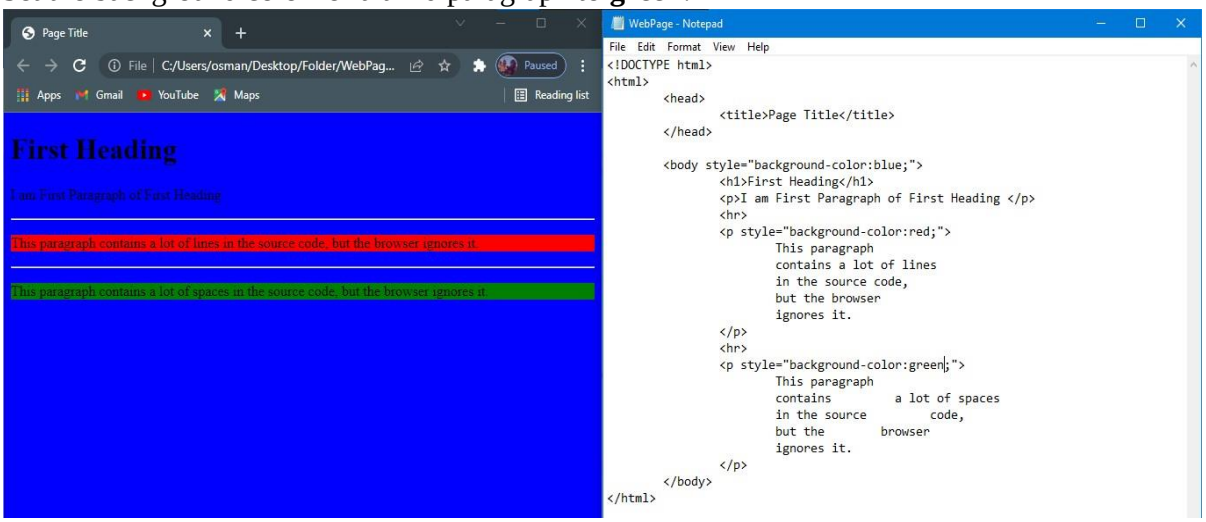

Fig. 12 (HTML Color Styles)

Text Color:

The CSS color property defines the text color for an HTML element: Same as we set background color, text can be easily set to any color.

Example:

<h1 style="color: white;" >First Heading</h1>

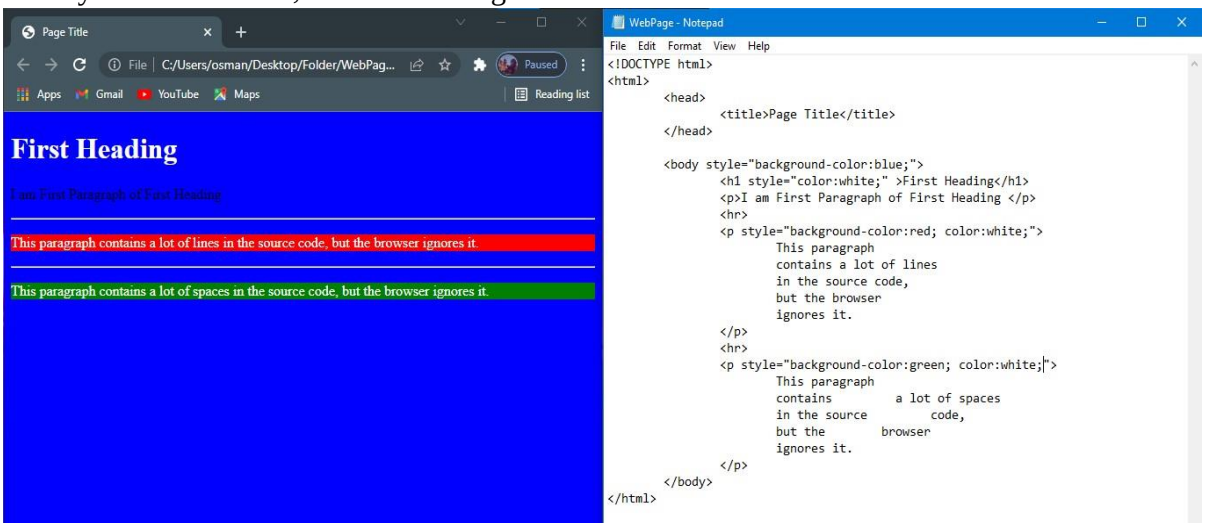

Fig. 13 (HTML Text Color)

Fonts:

The CSS font-family property defines the font to be used for an HTML element:

Example:

<h1 style="font-family: verdana;">This is a heading</h1>

This is a paragraph.

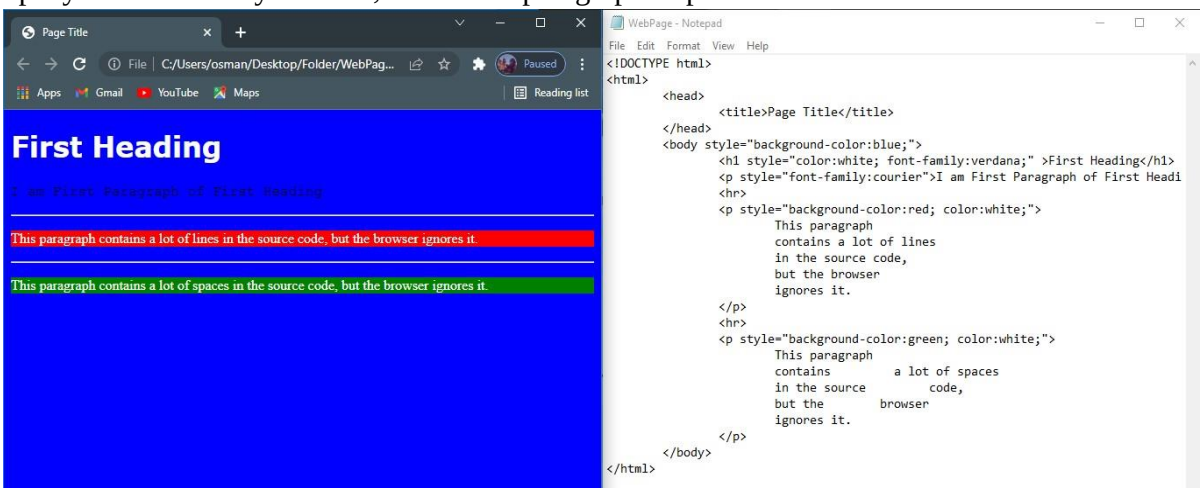

Fig. 14 (HTML Font Family)

You can see change in font family has been reflected.

Text Size:

The CSS font-size property defines the text size for an HTML element.

Example:

<h1 style="font-size:300%;">This is a heading</h1>

This is a paragraph.

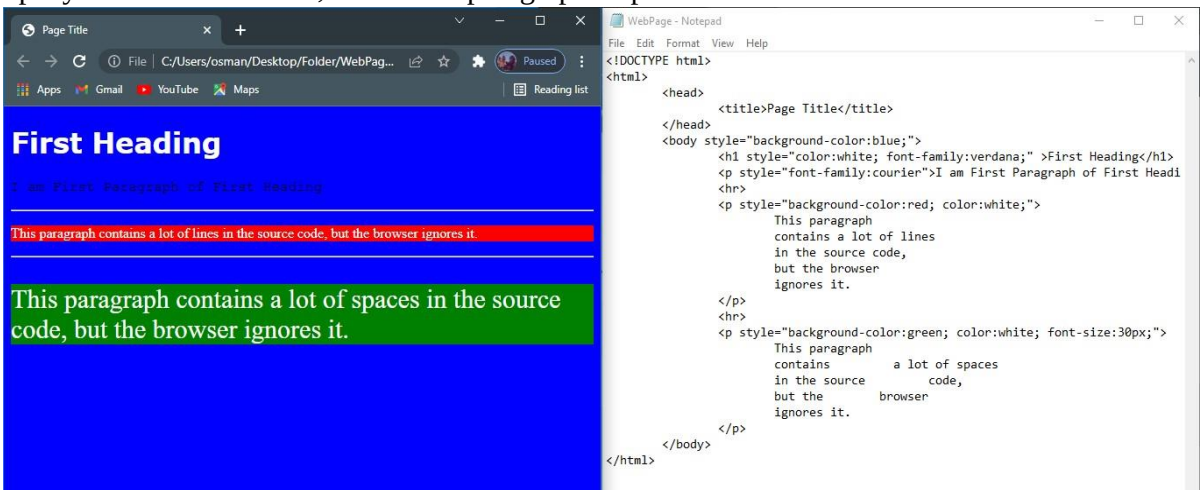

Fig. 15 (HTML Text Styles)

Text Alignment:

The CSS text-align property defines the horizontal text alignment for an HTML element.

Example:

Centered paragraph.

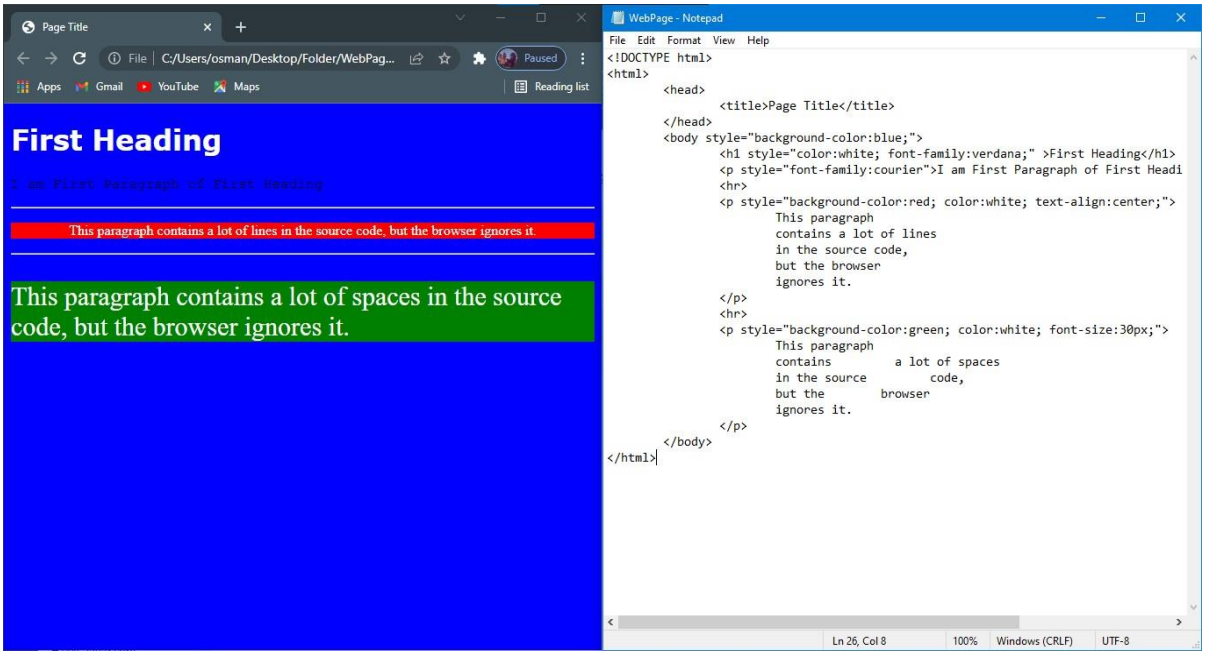

Fig. 16 (HTML Text Alignment)

You can see second paragraph is now centered.

HTML Comment Tag:

HTML comments are not displayed in the browser, but they can help document your HTML source code. You can add comments to your HTML source by using the following syntax: <! -- Write your comments here --> Example:

<! -- This is a comment -->

This is a paragraph.

<! -- Remember to add more information here -->

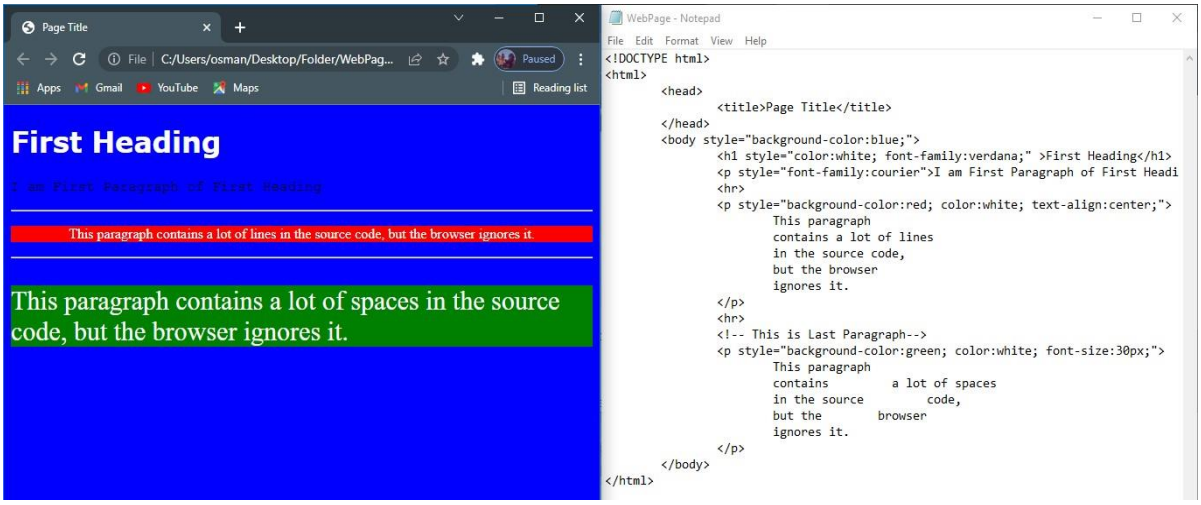

Fig. 17 (HTML Comment Tag)

Here, added comment <! – This is last Paragraph -- > is not being display in the browser.

HTML Links:

Links are found in nearly all web pages. Links allow users to click their way from page to page. HTML links are hyperlinks. You can click on a link and jump to another document. When you move the mouse over a link, the mouse arrow will turn into a little hand. Note: A link does not have to be text. A link can be an image or any other HTML element!

HTML Links – Syntax:

The HTML ***<a>*** tag defines a hyperlink. It has the following syntax:

link text

The most important attribute of the ***<a>*** element is the ***href*** attribute, which indicates the link's destination. The link text is the part that will be visible to the reader. Clicking on the link text, will send the reader to the specified URL address.

Example

This example shows how to create a link to Google:

Visit Google!

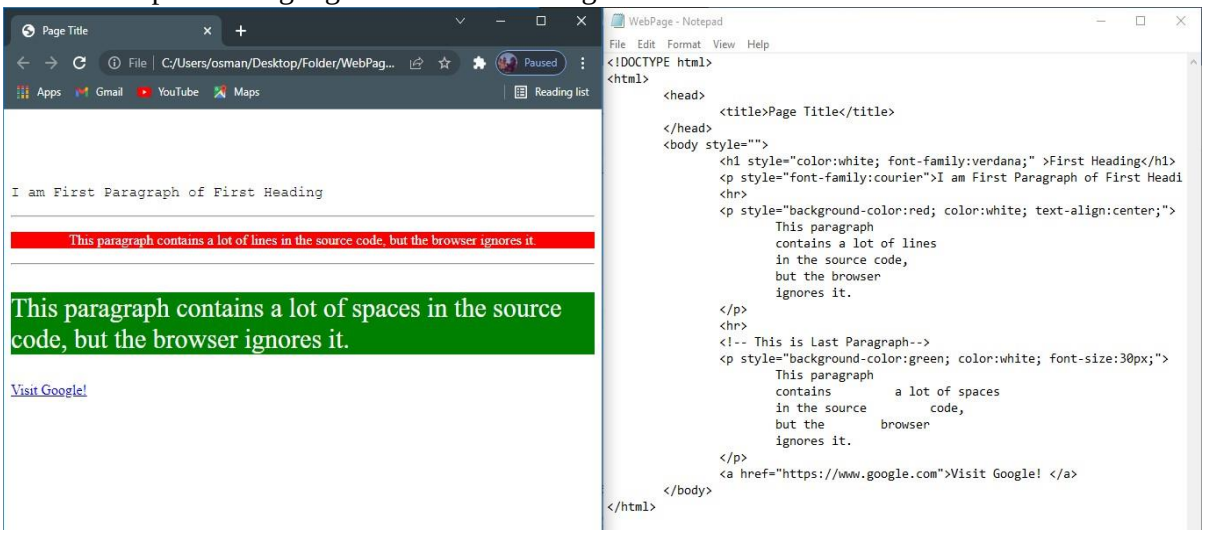

Fig. 18 (HTML Links)

By Clicking link you can go to the link. Here www.google.com was specified so there we go. By default, links will appear as follows in all browsers:

- An unvisited link is underlined and blue
- A visited link is underlined and purple
- An active link is underlined and red

Tip: Links can of course be styled with CSS, to get another look!

HTML Images:

Images can improve the design and the appearance of a web page.

<img src="picture.jpg" alt="Image Not Available">

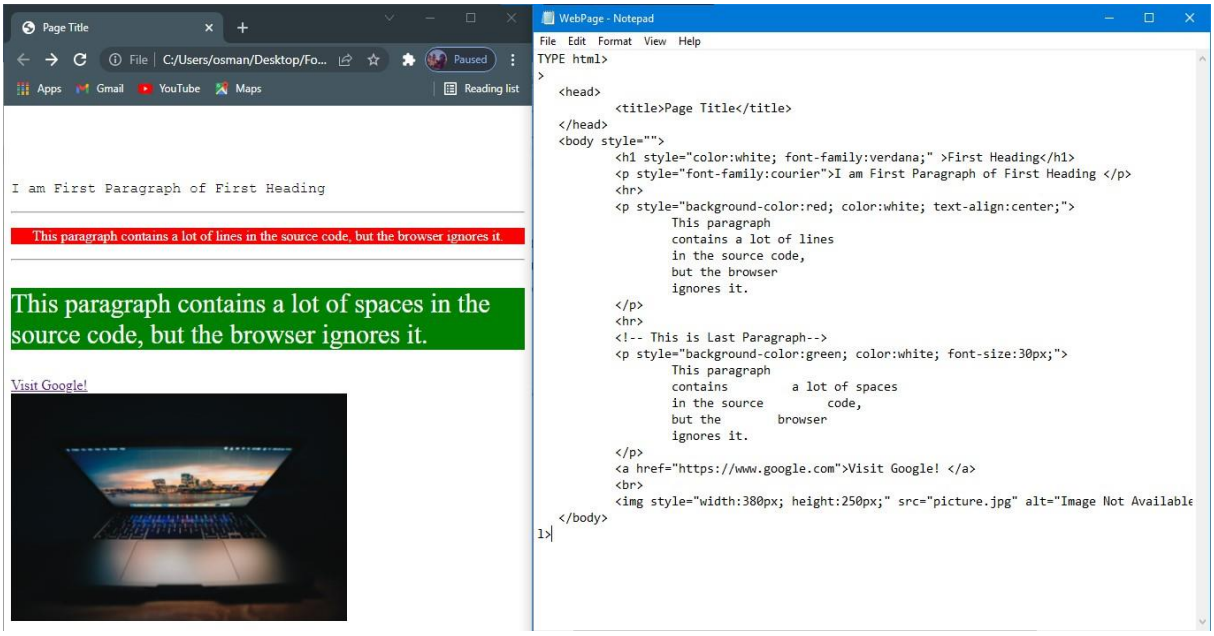

Fig. 19 (HTML Images)

First, place this picture in the folder where is html document is saved. Then display image by using html tag. There height and width of the image can also be specified.

HTML Tables:

HTML tables allow web developers to arrange data into rows and columns. A table in HTML consists of table cells inside rows and columns. A simple HTML table is as follows,

```
<table>
        <tr>
                <th>Company</th>
                <th>Contact</th>
                <th>Country</th>
        </tr>
        <tr>
                <td>Alfreds
                Flutteriest</td>
                <td>Maria Anders</td>
        </tr>   <td>Germany</td>
        <tr>
                <td>Centro commercial Moctezuma</td>
                <td>Francisco Chang</td>
                <td>Mexico</td>
        </tr>
</table>
```

Table Cells and Rows:

Each table cell is defined by a ***<td>*** and a ***</td>*** tag. Here ***td*** stands for table data. Everything between ***<td>*** and ***</td>*** are the content of the table cell. Table data elements are the data containers of the table. They can contain all sorts of HTML elements; text, images, lists, other tables, etc.

Each table row starts with a ***<tr>*** and end with a ***</tr>*** tag. Here ***tr*** stands for table row. You can have as many rows as you like in a table, just make sure that the number of cells are the same in each row.

Table Headers:

Sometimes you want your cells to be headers, in those cases use the ***<th>*** tag instead of the ***<td>*** tag:

```
<table>
        <tr>
                <th>Student 1</th>
                <th>Student 2</th>
                <th>Student 3</th>
        </tr>
        <tr>
                <td>Emil</td>
                <td>Tobias</td>
                <td>Linus</td>
        </tr>
        <tr>
                <td>16</td>
                   <td>14</td>
                   <td>10</td>
         </tr>
</table>
```

HTML Table Borders:

HTML tables can have borders of different styles and shapes. When you add a border to a table, you also add borders around each table cell: To add a border, use the CSS border property on table, ***th***, and td elements:

```
<Table style= “border: 1px solid black;”>
        <tr>
                <th style= “border: 1px solid black;”>Student 1</th>
                <th style= “border: 1px solid black;”>Student 2</th>
                <th style= “border: 1px solid black;”>Student 3</th>
        </tr>
        <tr>
                <td style= “border: 1px solid black;”>Emil</td>
                <td style= “border: 1px solid black;”>Tobias</td>
        <td style= “border: 1px solid black;”> Linus</td>   </tr>
<Table>
```

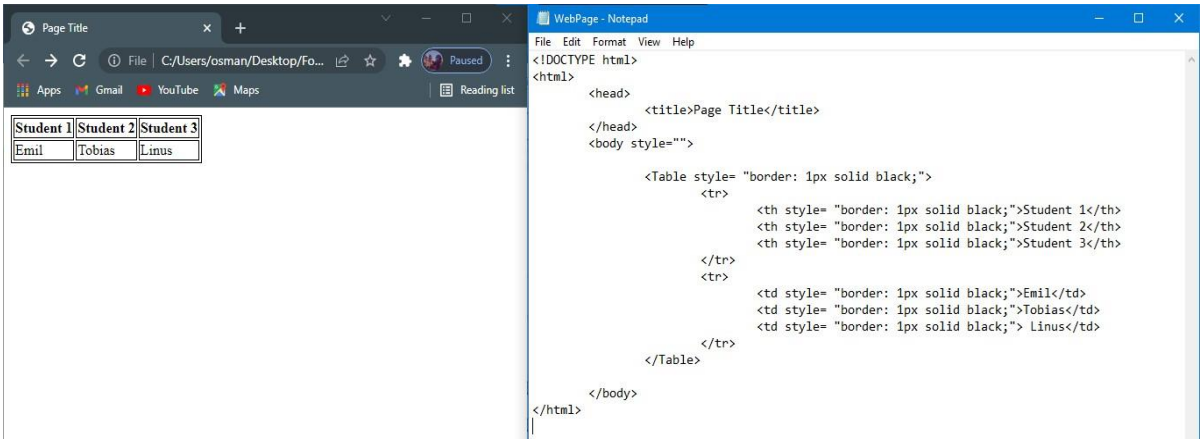

Fig. 20 (HTML Tables)

Style Table Borders

If you set a background color of each cell, and give the border a white color (the same as the document background), you get the impression of an invisible border.

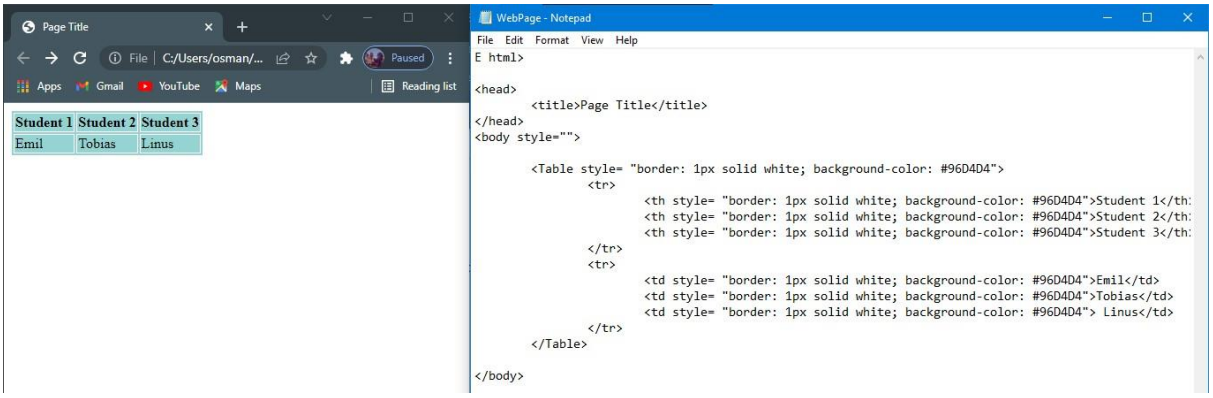

Fig. 21 (HTML Table Border)

HTML Table Padding & Spacing:

HTML tables can adjust the padding inside the cells, and also the space between the cells.

HTML Table - Cell Padding:

Cell padding is the space between the cell edges and the cell content. By default, the padding is set to 0. To add padding on table cells, use the CSS padding property:

<th style= “border: 1px solid black; padding:10px;”>Student 1</th>

<td style= “border: 1px solid black; padding:10px;”>Name</td>

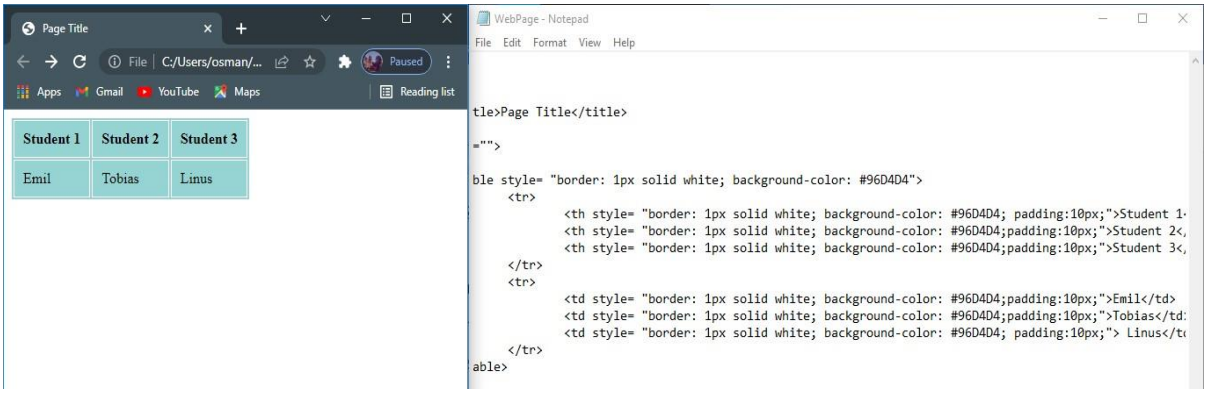

Fig. 22 (HTML Table Cell Padding)

You can add padding only above the content, use the padding-top property. And the others sides with the padding-bottom, padding-left, and padding-right properties.

HTML Table - Cell Spacing:

Cell spacing is the space between each cell. By default, the space is set to 2 pixels. To change the space between table cells, use the CSS border-spacing property on the table element:

<Table style="border: 1px solid white; background-color: #96D4D4; border-spacing: 30px;">

HTML Lists:

HTML lists allow web developers to group a set of related items in lists. There are two types of html lists, one is ordered and other is unordered.

An unordered HTML list:

- Item
- Item
- Item
- Item

An ordered HTML list:

1. First item
2. Second item
3. Third item
4. Fourth item

Unordered HTML List:

An unordered list starts with the ***<ul>*** tag. Each list item starts with the ***<li>*** tag. The list items will be marked with bullets (small black circles) by default:

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

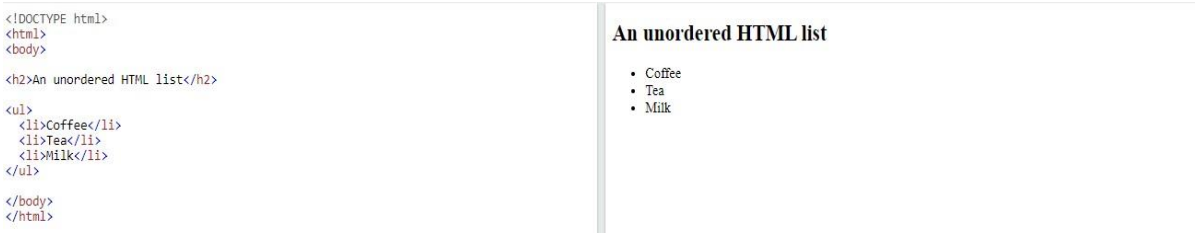

Fig. 23 (HTML Lists)

Ordered HTML List:

An ordered list starts with the <ol> tag. Each list item starts with the <li> tag. The list items will be marked with numbers by default:

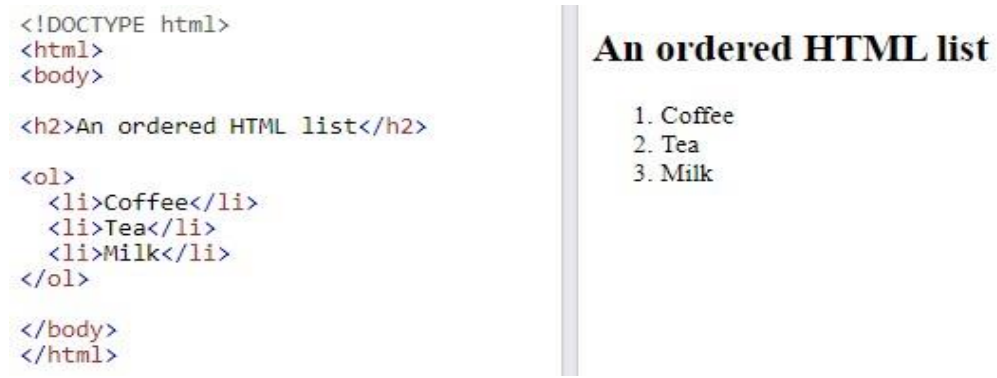

Fig. 24 (HTML Ordered List)