HTML: Hypertext markup language Notes for Beginners

For university students

The guide is for helping students of web development to achieve best in their course.

By Syeda shajiah Zahra Zaidi

Owner of Zahra's dynamics

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HTML

Introduction

HTML stands for hypertext markup languages. It is a language that is used to develop web pages and websites. In this writing we will discuss the practical implementation of HTML besides discussing why we use it as most of the writings do. HTML is the basic map you give to your website before jumping into the first code there are some points that should be in your mind.

- The content we create using HTML is used to be a simple text just, it is CSS we use with html that add color to it but for now our main focus will be simple HTML writing
- The latest version of HTML is HTML5
- HTML is very easy language to learn
- HTML required just simple editors that are free on internet
- Learning HTML is the fundamental step towards web development
- HTML is not case sensitive language that means it does not matter that you use small alphabets or capital alphabets.

History

HTML was first created by Tim Berners-Lee, Robert Cailliau, and others starting in **1989**. It stands for Hyper Text Markup Language. Actually it was first created to share documents by the researcher by **1986** and then it was thought to use it over internet and that practically was done in **1989**. That was the point when web pages became common for public having internet.

If we talk about versions then to make the long story short the latest version used today in market is HTML5. I don't think you need to know something more about versions as a beginner.

Important Elements of HTML

So **yes**, HTML mainly consist of elements there are two basic elements of HTML that are **tags** and **Attribute**.

HTML Tags

If we want to add an html element then tags help us doing that. In html tags perform the tasks we want from browser the uses angle brackets and tags name for that purpose let me show you how you can write a tag in HTML.

<Tag Name> content goes here!!!! </tag name>

<Tag Name>: this tells the browser that tag is started and browser is bound to perform that task or implement that element for which this particular tag is been used for.

</tag name>: this is the ending of the tag. In typical HTML manner we call it a closing tag. The **/** tells that tag is closing browser.

Types of tags

There are two types of tags

1. **Closing tag: -** it works the same way we have described above in introducing tags to you.
   <Tag> content </tag>
2. **Self-closing tag:-**it does not have any closing tag.
   <Tag>content

HTML Attributes

Attributes are used inside tags to provide some additional information; the information is placed inside opening tag. The syntax looks like this

<tag attribute_name='value'> content goes here </tag>

So that's the simple syntax but it sometimes the most essential part of HTML, and most of the time tag does not work properly if we don't use attribute with it.

Code Editor for HTML

There are many editors you can use to code html the list of some is given below

- Nodepad++
- Visual studio
- Sublime text 3
- Notepad
- Komodo edits

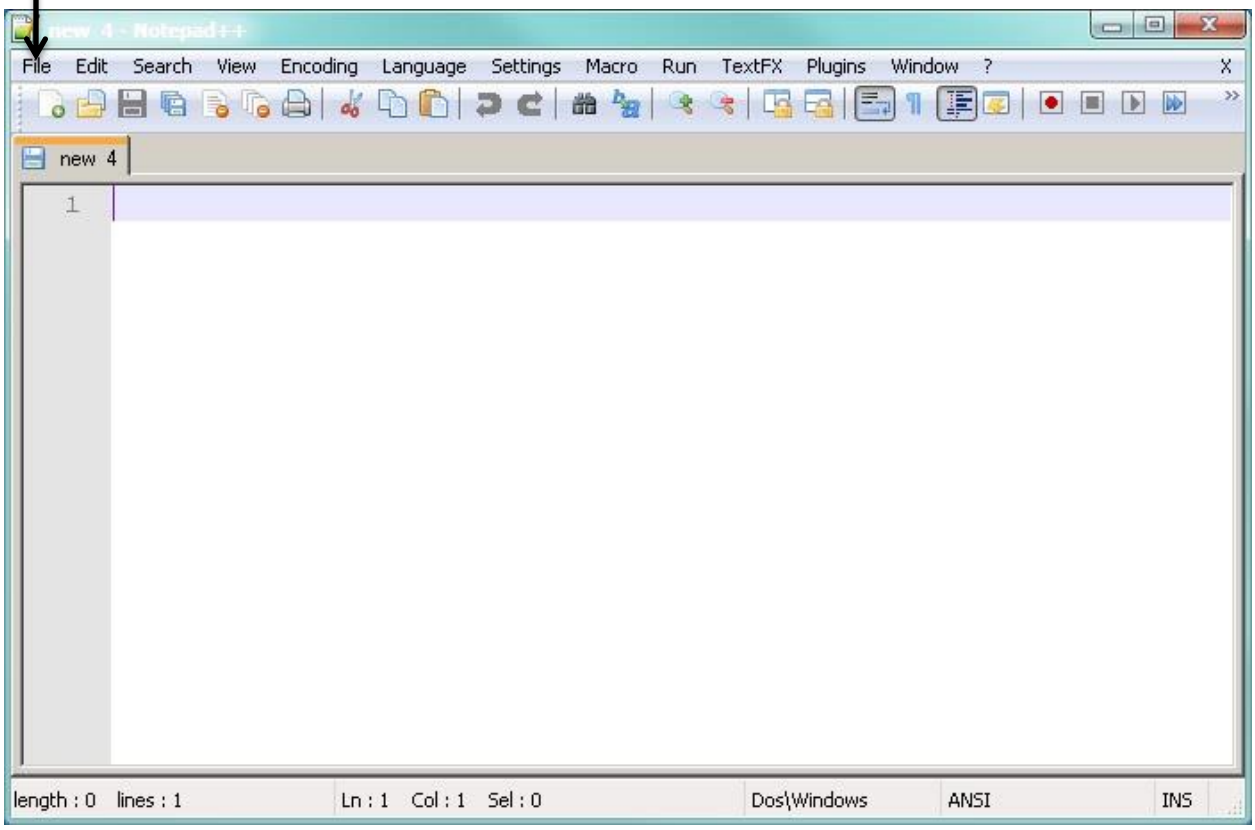
Initial setup to start coding HTML

For starting Html code you need an editor download following software:

- Any editing software you like from official website and make sure to download latest version
- Then make sure you have browser downloaded in your computer you can use any browser i.e. Chrome, Opera, Safari, Firefox etc.

- After installing editor open a new file and save that file with .html extension and start writing code in HTML.
- After writing code you can open file in browser to see your output.

Open up the file tab and click on new file save that file with .html extension and start writing html code



HTML Boilerplate (starting syntax)

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="css/style.css" rel="stylesheet">
    </head>
    <body>

    </body>
</html>
```

I had told you that we are going to practice latest version of HTML and this is the starting syntax of **html5.**

<!DOCKTYPE html>:- this tag is used to specify the editor that which type of document we are going to code.

<html> </html>:- This is the starting tag of html all the html coding work when it is in this tag. It is a closing tag and its closing tag is closed at the end of all tags.

<title> </title>:- In title tag we can give a title to the document that would show on the title bar in the bowser on the tab in which we open the document.

<meta>:- This is where information *about* the document is stored: character encoding, name (page context), description.

<link>:- initially you don't need this tag because it is used to include CSS file to your html document. You may or may not remove this line for now because we are only practicing HTML. Removal of this tag won't affect our code and output for now.

<body> </body>:- all the content we see on web page the nav bars, pages, posts, links are coded in this body tag.

Head tag

Head tag includes the files and content that describes the html documents properties and includes style sheets in it more over stuff of head can only be used by the developer itself.

Body tag

This tag is the part of html coding that is used to show output on the screen of the browser this portion is used by the developer as well as the users later on after the webpage is being published.

The image represents that how HTML basic structure looks like

HTML basic tags

Html has hundreds of tags but for now we will discuss the most important tag that are repeatedly used by the developer and html coders.

Heading tag

The heading tag is used to give heading inside HTML document. Basically there are 6 heading tag and they differ on the basis of the size of headings.

Now let us write code for adding tags inside html documents.

<H1> My first heading </H1>

<H2> My Second heading </H2>

<H3> My Third heading </H3>

<H4> My fourth heading </H4>

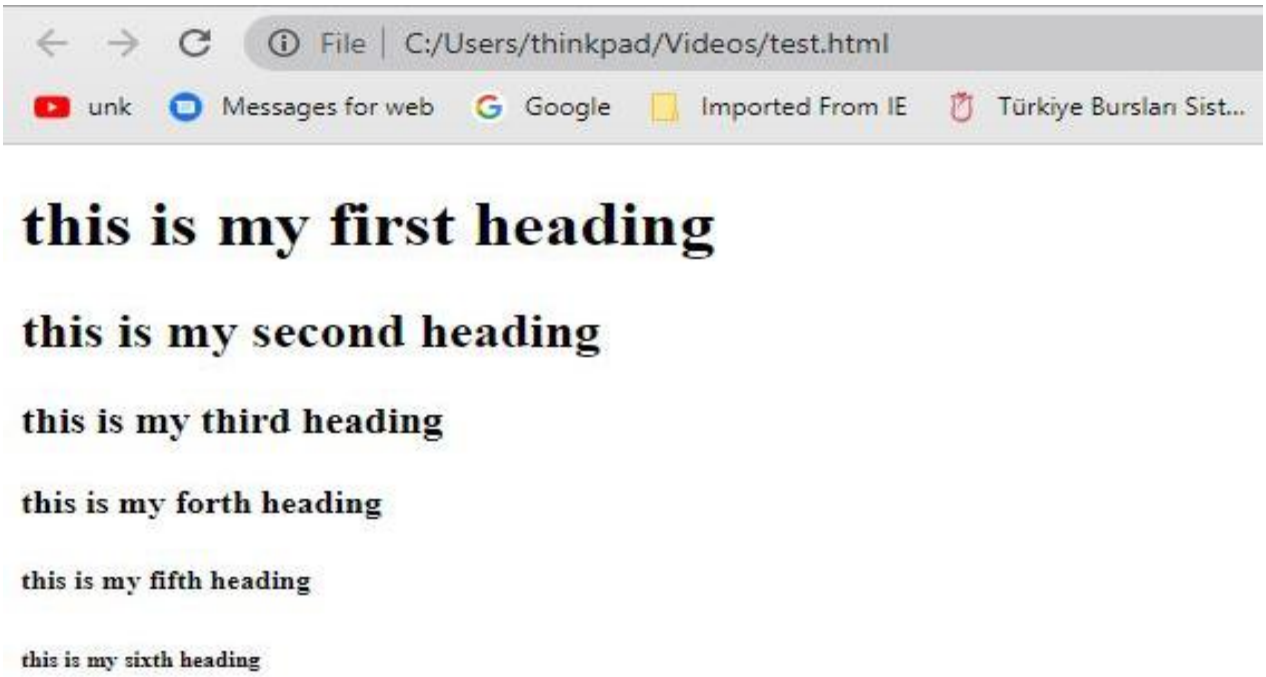
<H5> My fifth heading </H5>

<H6> My sixth heading </H6>

Let us put all these heading inside the body tag of boiler plate.

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="css/style.css" rel="stylesheet">
    </head>
    <body>
        <H1> My first heading </H1>
        <H2> My Second heading </H2>
        <H3> My Third heading </H3>
        <H4> My fourth heading </H4>
        <H5> My fifth heading </H5>
        <H6> My sixth heading </H6>

    </body>
</html>
```

Now **Save** the file and **open** it **inside browser**



This is the output and you can observe the difference between these tags.

Paragraph tag

Paragraph tag also known as P tag is basically used to enter text inside the body of HTML. Any paragraph text is added inside the HTML using **<P>** tag. It is a closing tag.

Syntax we can follow to use <P> tag inside HMTL is:

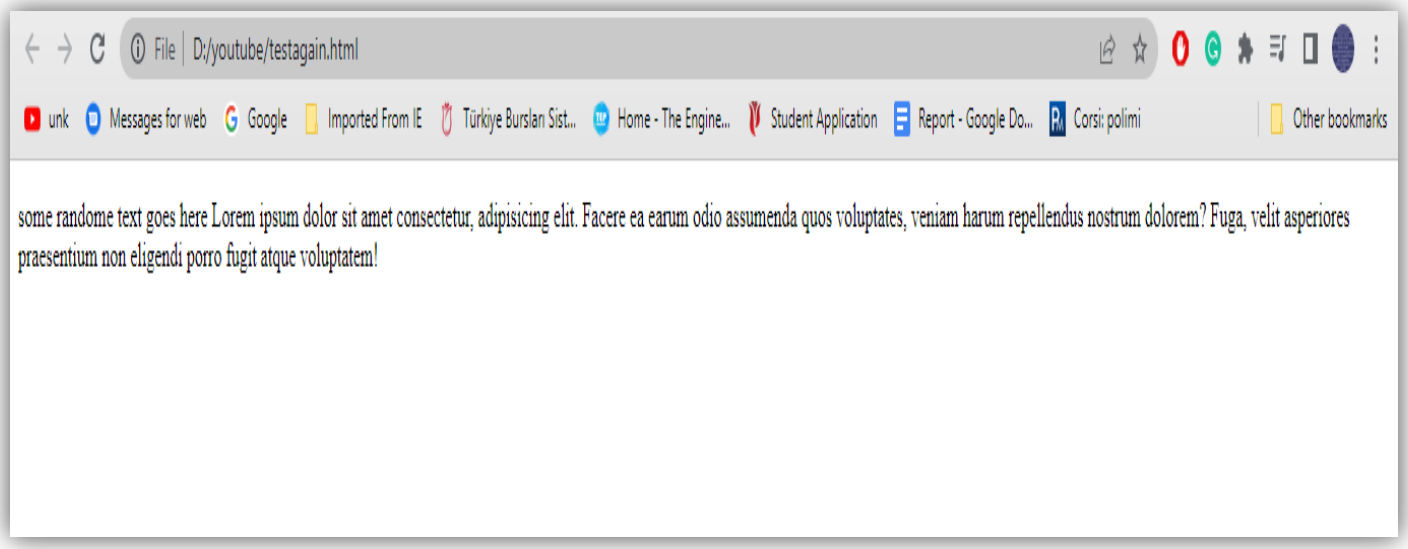
<P> all the paragraph writing goes here. You can write as long as you want inside paragraph tag …… </p>

```
<!DOCTYPE html>

<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="css/style.css" rel="stylesheet">
    </head>
    <body>
        <p>some randome text goes here Lorem ipsum dolor sit amet consectetur,
adipisicing elit.
        Facere ea earum odio assumenda quos voluptates, veniam harum repellendus
        um dolorem?
```

This is the <P> tag

```
        Fuga, velit asperiores praesentium non eligendi porro fugit atque
voluptatem!
      </p>

    </body>
</html>
```

Result of the above code.



Strong and b tag

****tag is used to make text bold. **Bold or B** tag works same as strong tag but most of the developers use strong tag more likely to make text bold. We use strong tag inside other tags mostly like paragraph tag

Let see the code for it

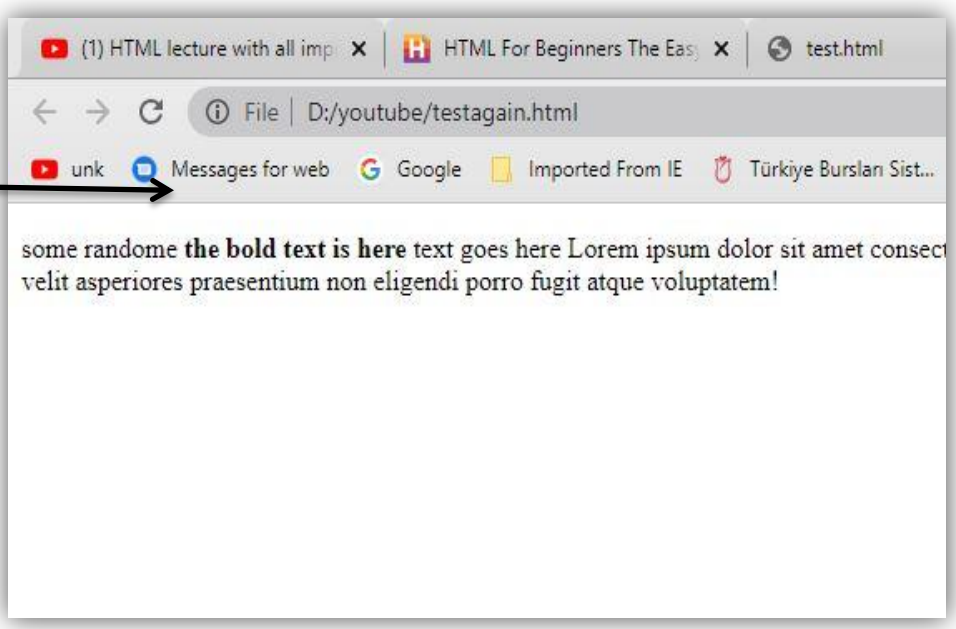
```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="css/style.css" rel="stylesheet">
    </head>
    <body>
```

Strong tag is here

```
<p>some randome <strong > the bold text is here </strong>text goes here Lorem
ipsum dolor sit amet consectetur, adipisicing elit.
        Facere ea earum odio assumenda quos voluptates, veniam harum repellendus
nostrum dolorem?
         Fuga, velit asperiores praesentium non eligendi porro fugit atque
voluptatem!
      </p>

    </body>
</html>
```

Result of the above code.

Bold text is here



EM and I tag

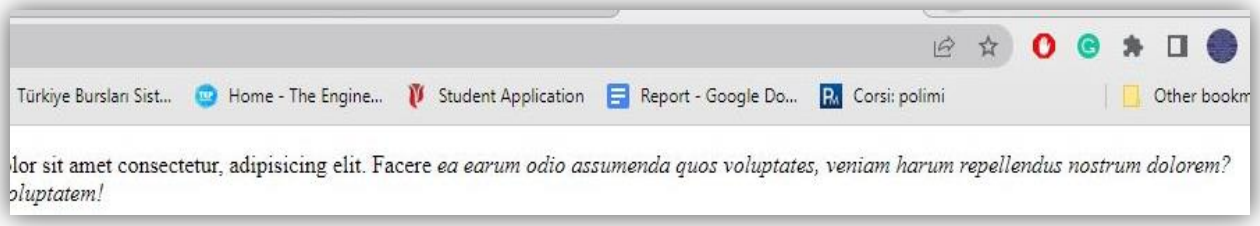
** and <I>** both work same and are used to make text italic or is used to italicizes the text. It's better to use tag because it is included in the latest version of html.

The code for inserting em tag :

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="css/style.css" rel="stylesheet">
    </head>
    <body>
      <p>some randome <strong > the bold text is here </strong>text goes here
Lorem ipsum dolor sit amet consectetur, adipisicing elit.
        Facere <em>ea earum odio assumenda quos voluptates, veniam harum
repellendus nostrum dolorem?
         Fuga, velit asperiores praesentium non eligendi porro fugit atque
voluptatem!</em>
      </p>

    </body>
</html>
```

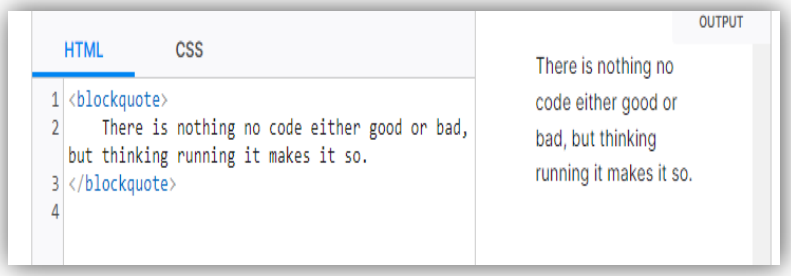
The em tag is here!

Result of above code



Some other tags

There are thousands of tags that we can use to edit text such as **<small>** to make size of text small "small", **<sup>** to superscript text "superscript" , **<sub>** to subscript text "subscript", **<u>** to underline text "underline", **<strike>** to mark a line over text "~~strike~~", **<del>** is also used to delete a text by marking line over it. **<blockquote>** to write a quote inside a block.



Container

Container is used to group things together i.e when we see a navigation bar and rest of the body of website separate then we must know that they have been divided through containers.

<DIV> tag

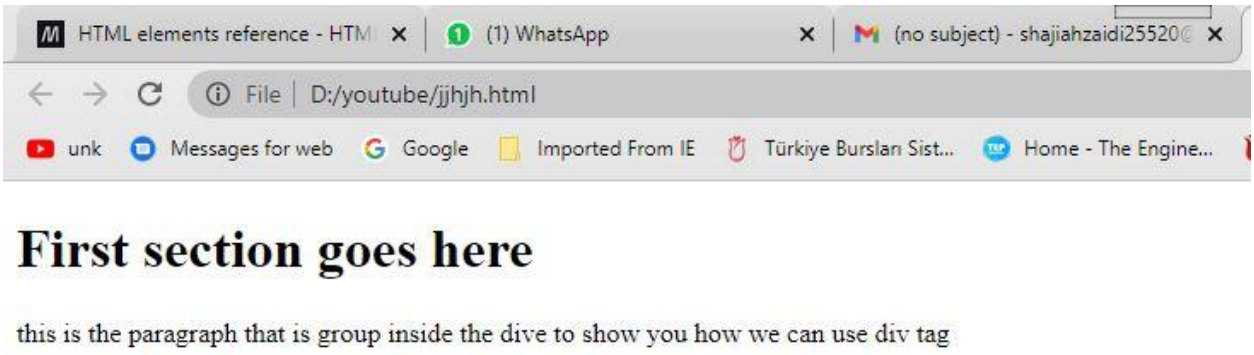
Div is a tag that is used to group different tags. It is not an inline tag. This tag is readily used in web pages. There is a specific way to style div tag. It is a generic container.

Code for using div tag

```
<!DOCTYPE html>

<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <!-- <link href="css/style.css" rel="stylesheet"> -->
    </head>
    <body>

        <div><h1>First section goes here </h1>
    <p>this is the paragraph that is group inside the dive to show you how we can
use div tag </p>
</div>
    </body>
</html>
```

You can see here that first heading and paragraph are put inside div to group them together.

Output of the above code



You might not feel much difference but these containers are really very helpful in styling document of html. You will be clearer when you will learn CSS.

<Span> tag

Span tag is also a container just like div tag but it is an inline container that means we can group things of span within one or more lines without affecting spacing.

Code for inserting a span inside the HTML document

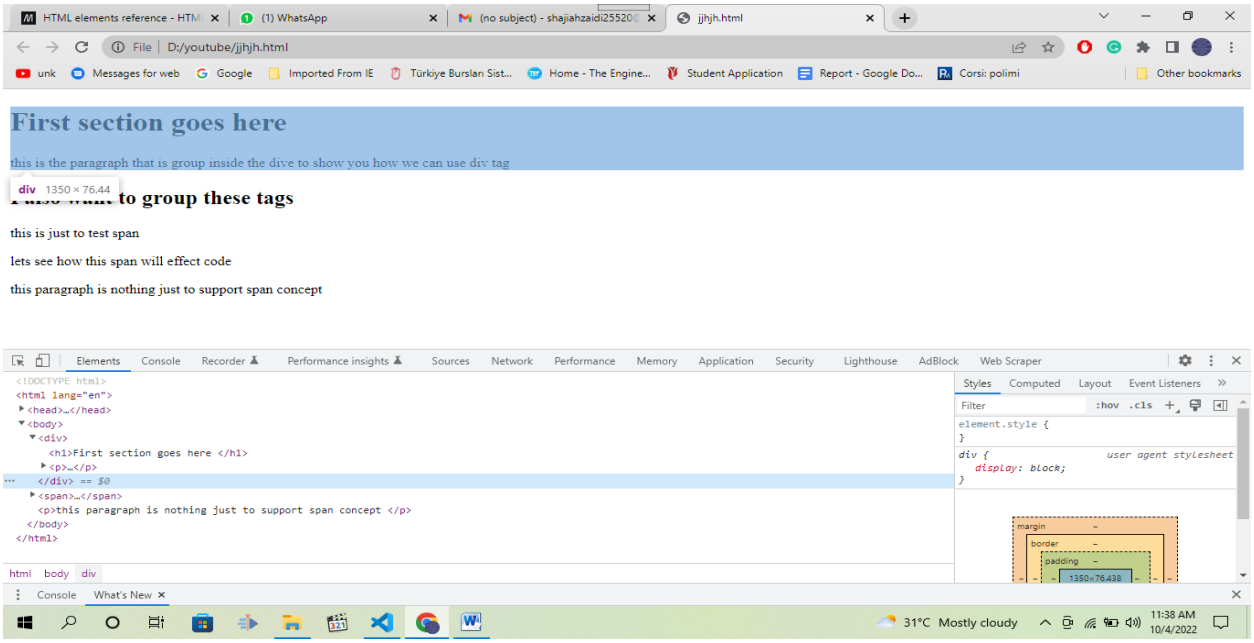
```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <!-- <link href="css/style.css" rel="stylesheet"> -->
    </head>
    <body>

        <div><h1>First section goes here </h1>
    <p>this is the paragraph that is group inside the dive to show you how we can
use div tag </p>
</div>
<span><h2> I also want to group these tags </h2>
<p>this is just to test span</p>
<p>lets see how this span will effect code </p></span>
<p>this paragraph is nothing just to support span concept </p>
    </body>
</html>
```

In the above code we can see that I have grouped H2 and two paragraph tag inside span.

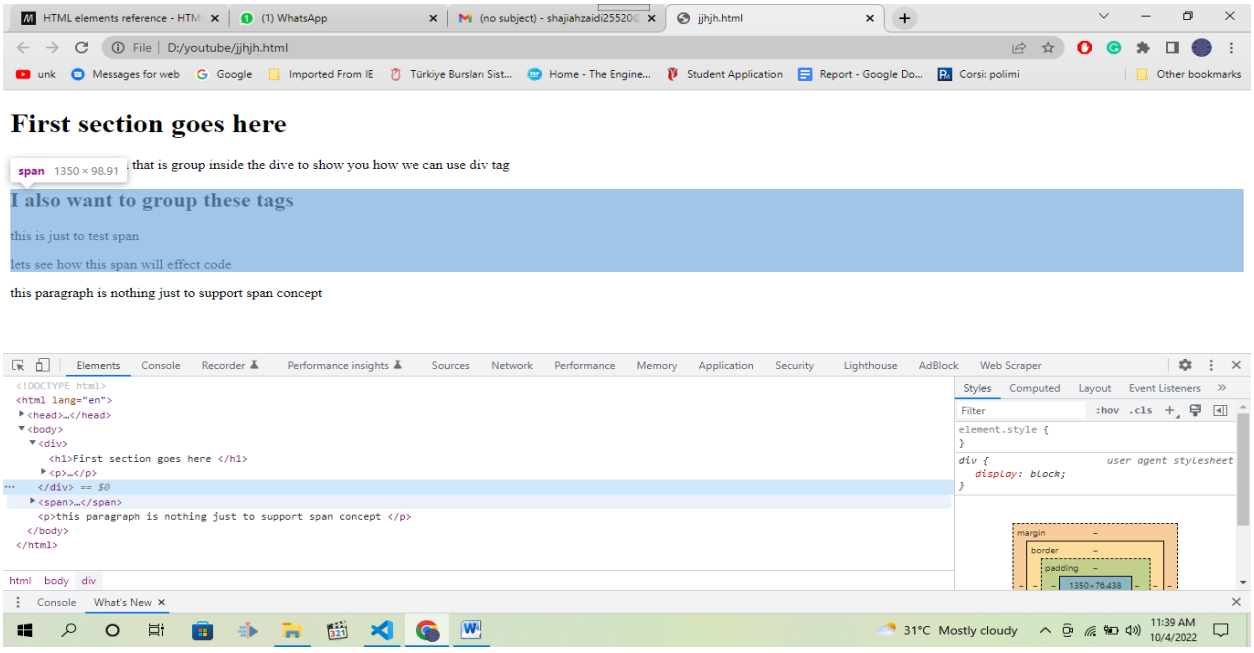
Output of the above code will be:

You might be wondering that output of both does not make much difference. Yes that's true but greater sections are mostly grouped in divs and small elements of web pages are grouped inside span mostly for styling purposes. It is difficult to control div when styling so span helps us there.

If we inspect the output of both containers we can see that how they are grouping things together.



In this window you can see that the highlighted portion represents the div



And you can see span also in this highlighted portion. You can inspect your output by right click on the output window and select inspect button in the last of the menu that appears.

LIST tags

List tags are used to code a list or in easy language we can say that they are used to give bullet points inside the HTML document. Thus list are divided in **two types of lists** that are ordered list and unordered lists. In **ordered list <OL>** bullet points are represented through some numbers, alphabets or sequences and in **unordered list <UL>** the shapes are used to represent the bullet points.

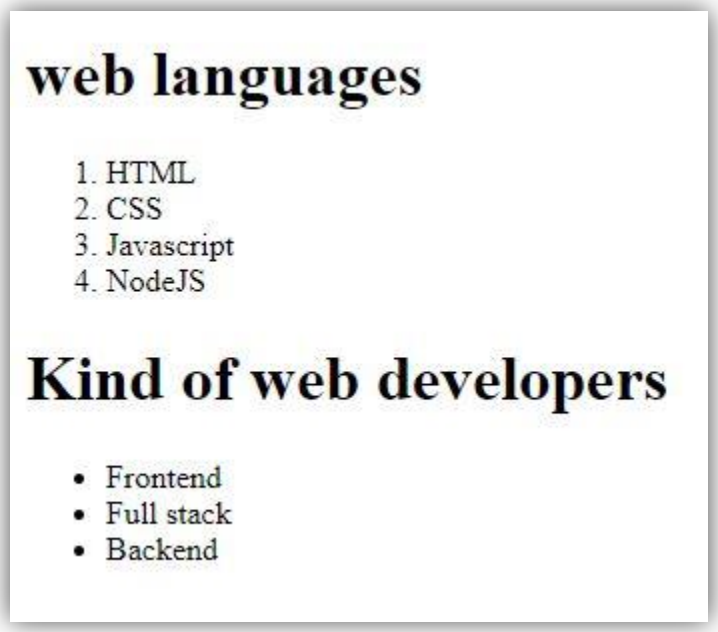
There are two types of tags we used to code a list that is**[<OL> OR <UL>]** for instructing which type of list we want to use to browser and ** tags** they gives the elements to the list.

See the below code that how we can give a list in HTML document.

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <!-- <link href="css/style.css" rel="stylesheet"> -->
    </head>
    <body>
        <h1>web languages</h1>

        <ol>
            <li>HTML</li>
            <li>CSS</li>
            <li>Javascript</li>
            <li>NodeJS</li>
        </ol>

        <h1>Kind of web developers</h1>

        <ul>
            <li>Frontend </li>
            <li>Full stack </li>
            <li>Backend</li>
        </ul>
    </body>
</html>
```

In the above code you can see that I have given ordered list and un ordered list both of them contains <li> tag to but its elements. Both ordered and unordered tag does not works alone they always work together.

Output of the above code



Tables

As its name represents table tags are used to insert tables inside HTML documents. There are some other tags also other that table tag that support table tag itself. Table tags are very helpful in representing data in tabular form.

Syntax of table :

```
<table>
          <caption>  </caption>
           <thead>
              <tr>
                 <TH> for bold heading </th>
                        <th> for second bold heading </th>
                  </tr>
          </thead>
          <tbody>
                <tr>
                  <td> this is simple entity or data</td>
```

```
                <td> second data entry </td>
            </tr>
        </tbody>
        <tfoot>
            <tr>
                <TH> data want to add in footer</TH>
                <td> another data want to add in footer of tables</td>
        </tr>
        </tfoot>
    </table>
```

The tags which represent and Support table tags are following:

<table>---------it is the starting tag of tables

<caption>-----inside caption we can define that what kind of data is represented inside table </caption>

<thead>--------it represents that all the entities that are inside it should be consider as a heading of table. Only first row is normally considered as heading so it is wrap around first row of the table.

<tr> --------<TR> means table rows.it is used to add rows inside the table.

<td>---------<td> represent table data means every row has entity or data and td is used to enter that. it is always used inside <tr> tag.

<th> ---------- for giving a bold heading to the text we use table heading tag. It is also used inside <tr> tag. There is no restriction to use this tag only in header or footer tags of table you can also use it inside body of table.

<tbody>------- all the values or data you want to include inside the table is included inside this body tag. It consists of all the rows of the table except first and last row of the table.

<tfoot>-------- the last row of table is known as footer and this tag is used to represent that footer row.

Important points to be noticed in the table tags

There are few things that you must know while using tables.

- Except caption tag all the other tags are only used inside table tag
- If you will write <td> before <tr> it won't work.

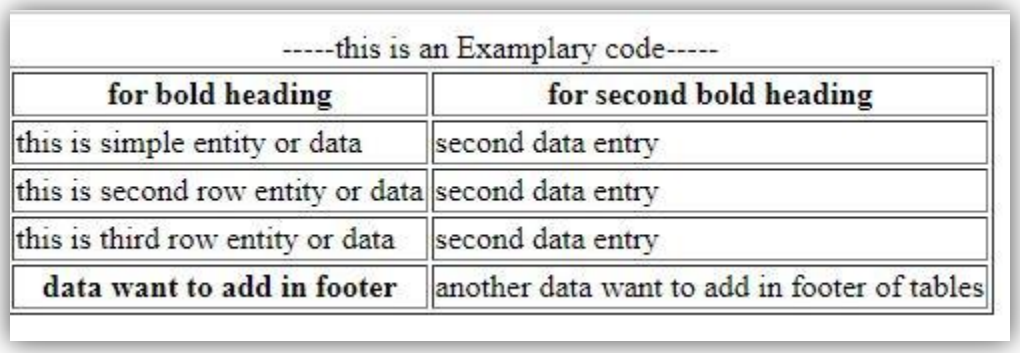
- <thead> , <tbody>, <tfoot> tag are used to notify browser that what is kind of data we are going to put inside html. If you exclude these tag table won't get effected or your output will remain same but browser will remain clueless that why are you making these table rows and columns for.
- <thead>,<tbody>,<tfoot> tags help screen reader to understand the code and its type.
- You can create as many rows as you want inside <tbody> tag.

Exemplary code of Table

```
<table border="1" >
            <caption>-----this is an Examplary code-----</caption>
             <thead>
                <tr>
                   <TH> for bold heading </th>
                    <th> for second bold heading </th>
                    </tr>
            </thead>
            <tbody>
                  <tr>
                     <td> this is simple entity or data</td>
                      <td> second data entry </td>
                    </tr>
                    <tr>
                        <td> this is second row entity or data</td>
                         <td> second data entry </td>
                       </tr>
                       <tr>
                        <td> this is third row entity or data</td>
                         <td> second data entry </td>
                       </tr>
            </tbody>
            <tfoot>
                  <tr>
                            <TH> data want to add in footer</TH>
                            <td> another data want to add in footer of tables</td>
            </tr>
            </tfoot>
```

In this code I have used an attribute **border="1"** this attribute is just to demonstrate the entities or to give the border to the table. Normally we use to give borders to the tables through css, and this attribute is not use readily but here I have use it to differentiate all entities wit border. Until you learn CSS you can use this attribute to give borders.

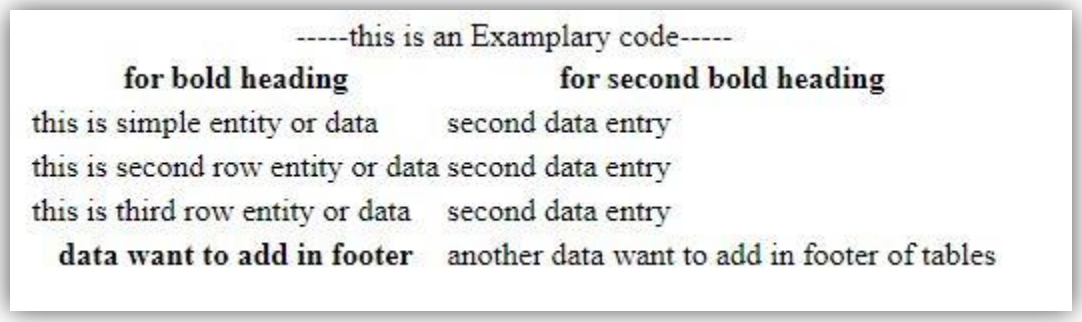
How it look likes with border attribute



-----this is an Examplary code-----

for bold heading	for second bold heading
this is simple entity or data	second data entry
this is second row entity or data	second data entry
this is third row entity or data	second data entry
data want to add in footer	another data want to add in footer of tables

How it look likes without border attribute



-----this is an Examplary code-----

for bold heading	for second bold heading
this is simple entity or data	second data entry
this is second row entity or data	second data entry
this is third row entity or data	second data entry
data want to add in footer	another data want to add in footer of tables

Forms

Forms are used to store or fetch data on data base, taken from user or displayed to user respectively. You must have filled online form in your life, either educational forms or the forms you fill on social media like Facebook log in form.

The basic syntax of forms:

<form action=”name of database ” method=”get “>

All the tags inside form goes here

</form>

OR

<form action=”name of database” method=“POST”>

All the tags inside form goes here

</form>

Important points to be notices here about Forms :

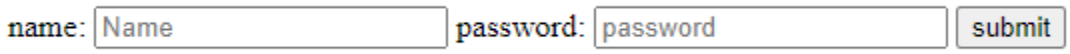
- Form tags are either used to send data to the database for that POST request is used.
- Or they are used to extract required data from the database for that GET request is used.
- Action is an attribute that tells form tag that where is data to be sent or fetched.
- An alone form tag is nothing and It does not even appeared at screen.
- <input> and other tags are used to make forms appear on screen.
- The form tag is by default work as post request.
- We must add validations to forms for improving its efficiency.

Exemplary code of Forms

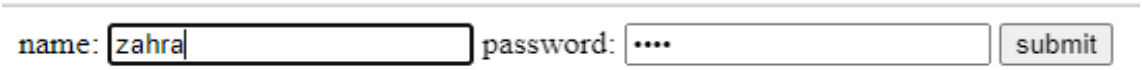
Just noticed how we code forms don't bother the tag used inside form for now we are going to discuss it later.

```
<form action="" method="post">
      <lable>name: <input type="text" placeholder="Name"> </lable>
      <lable>password: <input type="password" placeholder="password"></lable>
      <button>submit</button>
     </form>
```

Result of the above code:



This is the actual result of this form, although the code of form tag contains the tags that you have not studied yet but the things here you should notice are why is there text inside input bars and text is aslo in dull color. Moreover if I write something in these bars then you can see in the below image that in password bar only dots are appearing instead of text why is this happening. The answer to these entire questions is <input> tag and its types. So, let's study them next.



<Input> and <label> tags tag

Input and label tags are used together. Both of them could be used outside forms but that is in rear cases, mostly they are used inside forms.

<input>

As their name represents input tags are used to take inputs of different kind from users. They are not closing tags. Type is an attribute that defines that which kind of input we have to take from users. Moreover, type attribute has a great influence on the physical appearance of the inputs on browser.

Syntax of <input> tag:

<input type=”Text” >

In this syntax the thing to notice is that there is no closing tag and type attribute have value text that means that the input is going to take any type of text, it includes numbers, alphabets, special characters everything.

<Label>

This tag is used to label tags. It is used to give information about tags and what type of data is to enter to the users. There are two ways through which we can enter label tags. It is a closing tag.

Syntax of Label tag:

With **“for”** and **“Id”** method:

<label for=”name”> Name: </label>

<input type=”text” id=”name”>

In this syntax you point towards the input tag that you want to label. **For and ID** are used to attach input tag and label tag. value inside both these attributes is same. Inside the label tag you can write what you want to see on the screen of browser.

Within label tag method:

<label>Name: <input type=”text”> </label>

You can see that we don’t have to point towards any tag and that tag is enclosed inside the label tag.

Output of both these methods is same.

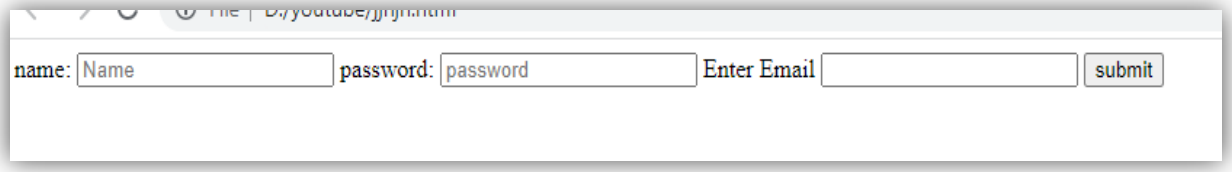
Code for Input and output tag

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

```
        <title></title>
        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <!-- <link href="css/style.css" rel="stylesheet"> -->
    </head>
    <body>
       <form action="" method="post">
        <lable>name: <input type="text" placeholder="Name"> </lable>
        <lable>password: <input type="password" placeholder="password"></lable>
        <lable for="email">Enter Email</lable>
        <input type="email" id="email">
        <button>submit</button>
       </form>
    </body>
</html>
```

I have used both the methods of adding labels now let's see the output.

Output:

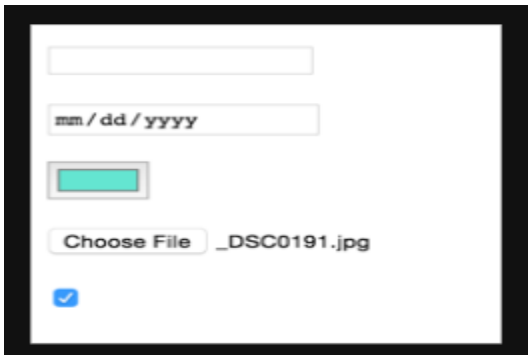


Important points:

- Placeholder is the attribute that is used to show some text with dull color inside the input bar.
- Button is the tag that is used to represent a button but because we are not using JavaScript now so It won't do anything except of reloading a page.

There are many types of inputs some them are mentioned below

- ✓ **<input type="text">**
- ✓ **<input type="date">**
- ✓ **<input type="color">**
- ✓ **<input type="file">**
- ✓ **<input type="checkbox">**



If you want to know more input types then visit MDN website.

Forms validation through input types

The types input also be used to validate forms. For example you cannot enter random text in email type input. If you try to do so It browser won't accept your submission and will yelp at you to enter email with proper syntax.

Drop down and area tag:

For entering dropdown inside the html Form we use HTML tags <select> or <datalist> both these tags are use <option> tag to give elements in drop down.

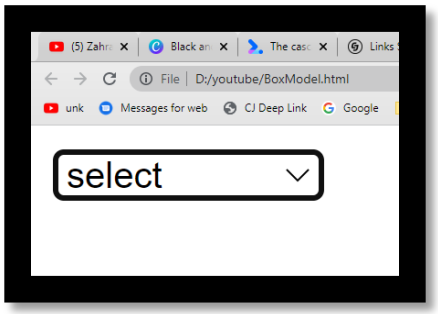
Code for entering drop downs in HMTL Forms:

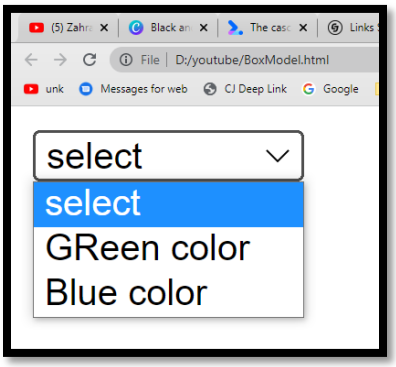
```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Cascading</title>

        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="style.css" rel="stylesheet">

    </head>
    <body>
<form>
    <select name="dropdown">
        <option value="0ne">select</option>
        <option value="Two">GReen color</option>
        <option value="Three">Blue color</option>
    </select>

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

In the above code you can see that we have use select tag with the attribute name but it is not necessary to give name to select tag, although it is a good professional practice to give name to every element. Moving on options tag inside select tags are also given value attribute so the same thing goes to those tag that it is a good practice to give value to them but it is not necessary. Moreover you can see that there are three option tags inside select tags but first is given value select that is because the first option tag always be shown on screen when screen is loaded and user may get confused that which type of data we have to select in that particular dropdown for example if we have given drop down to select age by the user and in first option we started mentioning numbers directly then user might get

confuse that what type of numbers are they and what it have to select , unless you mention age in the first option tag.

OUTPUT:





Radio button and check boxes:

Radio buttons or checkboxes are the type of input tags that are used to put checkboxes and radio buttons inside the document. Similar to input tag label tag is used to label the heading and purpose of the buttons.

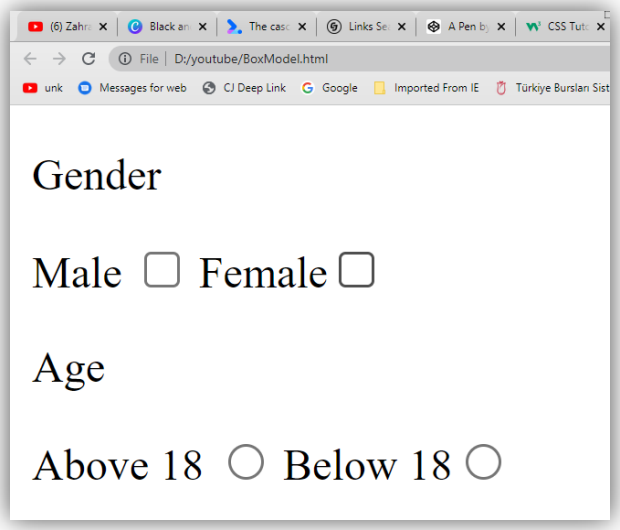
Code of radio buttons:

```
<!DOCTYPE html>
<html lang="en">
    <head>
        <title>Cascading</title>

        <meta charset="UTF-8">
        <meta name="viewport" content="width=device-width, initial-scale=1">
        <link href="style.css" rel="stylesheet">

    </head>
    <body>
<form>
```

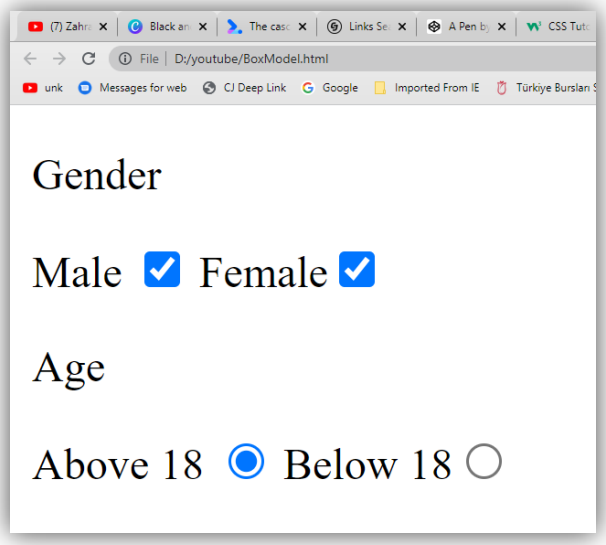
```
    <p>Gender</p>
     <label>Male <input type="checkbox" name="check" value="Male"></label>
     <label>Female<input type="checkbox" name="check" value="Female"></label>

     <p>Age</p>
     <label>Above 18 <input type="radio" name="check" value="18+"></label>
     <label>Below 18<input type="radio" name="check" value="18-"></label>


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

In the above code you can see that inside input tag we have given the type check box and radio otherwise rest is same as entering input with text or email type. But thing to notice here is I also give name and value to both the tags, It is compulsory in case of radio buttons and checkboxes. Other wise both the buttons will not work as expected.

OUTPUT:



If you will toggle check pox they will response but in radio button if you select radio button it could not make uncheck yes but other radio button can be selected. The thing is check boxes gives us opportunity to check more then one box but that's not the case in radio button.



Some more tags list h

Tag name	Start tag	End tag	How it looks
Bold	<B>	</B>	**Looks like this.**
Italic	<I>	</I>	*Looks like this.*
Underline	<U>	</U>	Looks like this.
Emphasis	<EM>	</EM>	*Looks like this.*
Strong emphasis	<STRONG>	</STRONG>	**Looks like this.**
Defined Term	<DFN>	</DFN>	*Looks like this.*
Short citation	<CITE>	</CITE>	*Looks like this.*
Code font	<CODE>	</CODE>	`Looks like this.`
Keyboard text	<KBD>	</KBD>	`Looks like this.`
Sample text	<SAMP>	</SAMP>	`Looks like this.`
Typewriter text	<TT>	</TT>	`Looks like this.`
Variable	<VAR>	</VAR>	*Looks like this.*

Some more attributes to Explore

HTML Attributes

Attribute	Description
alt	Specifies an alternative text for an image
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)
value	Specifies the value (text content) for an input element.

Conclusion

HTML is the hypertext markup language that uses tags and attributes to design document that is easily sharable on internet. It was first use by researchers now it is most commonly used web language there are many other languages that are used with HTML to make it more attractive.

Reference

- https://web.dev/learn/css/the-cascade/
- https://zahrasdynamics.blogspot.com/
- https://developer.mozilla.org/en-US/docs/Web/HTML