

HTML: Hyper-Text Markup Language



How does Web work

- 1. A user enters a URL into a browser (for example, <u>Google.com</u>. This request is passed to a domain name server.
- 2. The domain name server returns an IP address for the server that hosts the Website (for example, 68.178.157.132).
- 3. The browser requests the page from the Web server using the IP address specified by the domain name server.
- 4. The Web server returns the page to the IP address specified by the browser requesting the page. The page may also contain links to other files on the same server, such as images, which the browser will also request.
- 5. The browser collects all the information and displays to your computer in the form of Web page.



What is a website

What is a Website?

A website is a group of globally accessible, interlinked web pages which have a single domain name. It can be developed and maintained by an individual, business or organization. The website aims to serve a variety of purposes. Example: Blogs. A website is hosted on a single or multiple web server. It is accessible via a network like the Internet or a private local area network via IP address.



What is a web application

What is a Web Application?

A web application is a software or program which is accessible using any web browser. Its frontend is usually created using languages like HTML, CSS, Javascript, which are supported by major browsers. While the backend could use any programming stack like LAMP, MEAN, etc. Unlike mobile apps, there is no specific SDK for developing web applications.



Characteristics of website and web application

Characteristics Of Website

- •Quality and relevant Web Content is which richly displayed.
- User-friendly navigation and web design
- •Can be easily searched using search engines like Google.

Characteristics Of Web Application

- Cloud-hosted and highly scalable
- Mostly Cross-platform
- Modular and loosely coupled
- •It is easily tested with automated tests.



Web application Vs Website

Parameter	Web Application	Website
Created for	A web application is designed for interaction with the end user	A website mostly consists of static content. It is publicly accessible to all the visitors.
User interaction	In a web application, the user not only read the page content but also manipulate the restricted data.	A website provides visual & text content which user can view and read, but not affect it 's functioning.
Authentication	Web applications need authentication, as they offer a much broader scope of options than websites.	Authentication is not obligatory for informational websites. The user may ask to register to get a regular update or to access additional options. This features not available for the unregistered website visitors.
Task and Complexity	Web application functions are quite higher and complex compared to a website.	The website displays the collected data and information on a specific page.
Type of software	The web application development is part of the website. It is itself not a complete website.	The website is a complete product, which you access with the help of your browser.
Compilation	The site must be precompiled before deployment	The site doesn't need to be pre-compiled
Deployment	All changes require the entire project to be re-compiled and deployed.	Small changes never require a full re-compilation and deployment. You just need to update the HTML code.

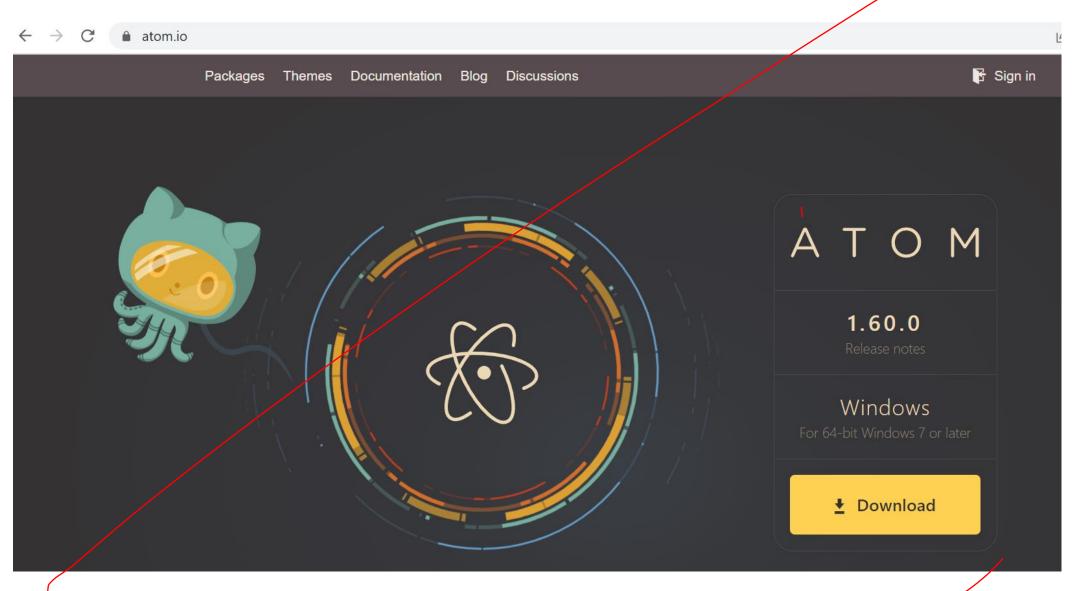


What is HTML

HTML stands for Hyper Text Markup Language
HTML is the **standard markup** language for Web pages
HTML **elements** are the building blocks of HTML pages
HTML elements are represented by **<> tags**

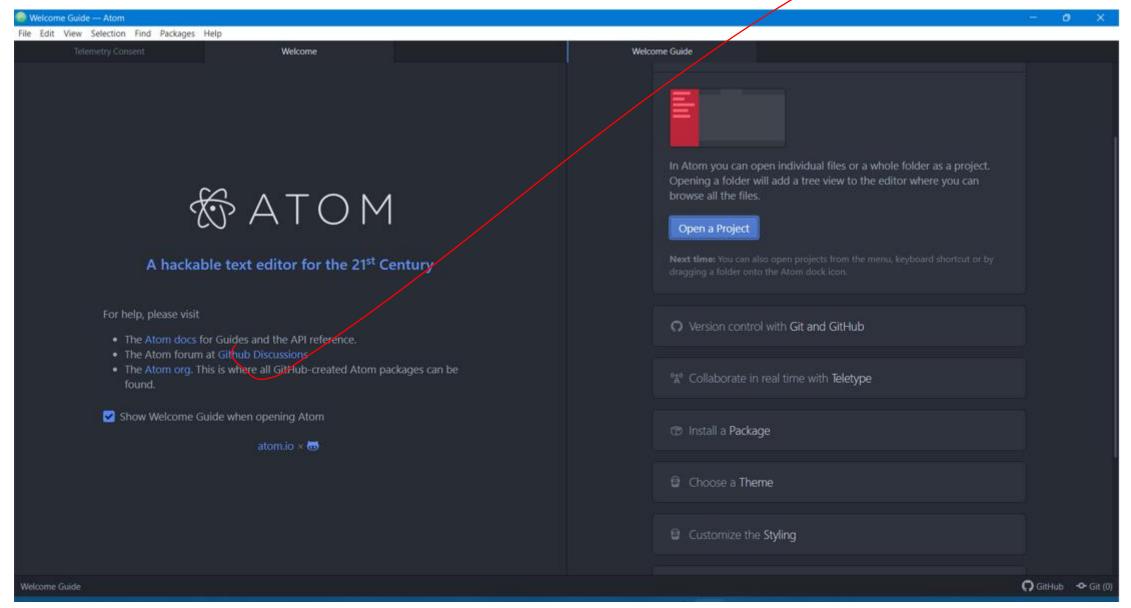


Installing Atom text editor





Creating a New Project





Structure of an HTML file

```
PI_B3_HTML.html
    <!DOCTYPE html>
    <html lang="en" dir="1tr">
      <head>
        <meta charset="utf-8">
        <title></title>
      </head>
      <body>
      </body>
    </html>
10
```



Basic HTML Document

In its simplest form, following is an example of an HTML document:

```
<!DOCTYPE html>
<html>
<head>
<title>This is document title</title>
</head>
<body>
<h1>This is a heading</h1>
Document content goes here....
</body>
</html>
```



The <!DOCTYPE> Declaration

The <!DOCTYPE> declaration tag is used by the web browser to understand the version of the HTML used in the document. Current version of HTML is 5 and it makes use of the following declaration:

<!DOCTYPE html>

There are many other declaration types which can be used in HTML document depending on what version of HTML is being used.



Heading Tags

HTML also has six levels of headings, which use the elements <h1>, <h2>, <h3>, <h4>, <h5>, and <h6>. While displaying any heading, browser adds one line before and one line after that heading.

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
   <meta charset="utf-8">
   <title>My First HTML Class</title>
 </head>
  <body>
<h1>This is heading one </h1>
<h2>This is heading two </h2>
<h3>This is heading three</h3>
<h4>This is heading four</h4>
<h5>This is heading five</h5>
<h6>This is heading six</h6>
Life as lived only gets impacted by actions
 </body>
</html>
```

This is heading one

This is heading two

This is heading three

This is heading four

This is heading five

This is heading six

Life as lived only gets impacted by actions



Paragraph Tags

The tag offers a way to structure your text into different paragraphs. Each paragraph of text should go in between an opening and a closing tag as shown below

```
<!DOCTYPE html>
<html lang="en" dir="ltr">
  <head>
   <meta charset="utf-8">
   <title>My First HTML Class</title>
 </head>
  <body>
<h1>Paragraph Tag example </h1>
 1. Life as lived only gets impacted by actions
 2. no pain no gain
 3. In the long run discipline overtakes talent
  </body>
</html>
```



Paragraph Tag example

- 1. Life as lived only gets impacted by actions
- 2. no pain no gain
- 3. In the long run discipline overtakes talent



Line Break Tags

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. The **
br />** tag has a space between the characters **br** and the forward slash. If you omit this space, older browsers will have trouble rendering the line break, while if you miss the forward slash character and just use **
br>** it is not valid in XHTML.

```
<h1>Paragraph Tag example </h1>
 1. Life as lived only <br />gets impacted by actions
 2. no pain <br />no gain
 3. In the long run discipline <br />overtakes talent
</body>
</html>
```

Paragraph Tag example

- 1. Life as lived only gets impacted by actions
- 2. no pain no gain
- 3. In the long run discipline overtakes talent



Centering Content

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

```
 1. Life as lived only gets impacted by actions
<center>
 2. no pain no gain
</center>
 3. In the long run discipline <br />overtakes talent
</body>
</html>
```

Paragraph Tag example

1. Life as lived only gets impacted by actions

2. no pain no gain

3. In the long run discipline overtakes talent



Horizontal lines

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.

Paragraph Tag example

1. Life as lived only gets impacted by actions

2. no pain no gain



HTML Elements

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.

Start Tag	Content	End Tag
	This is paragraph content.	
<h1></h1>	This is heading content.	
<div></div>	This is division content.	

There are some HTML elements which don't need to be closed, such as <img.../>, <hr /> and
 elements. These are known as void elements.



attribute: left, center and right

HTML Attributes

We have seen few HTML tags and their usage like heading tags <h1>, <h2>, paragraph tag and other tags. We used them so far in their simplest form,</h2></h1>
but most of the HTML tags can also have attributes, which are extra bits of
information.
An attribute is used to define the characteristics of an HTML element and is placed inside the element's opening tag. All attributes are made up of two parts:
a name and a value:
\Box The name is the property you want to set. For example, the paragraph < p> element in the example carries an attribute whose name is align , which you can use to indicate the alignment of paragraph on the page.
☐ The value is what you want the value of the property to be set and always put within quotations. The below example shows three possible values of align



HTML Attributes

Paragraph Tag example

1. Life as lived only gets impacted by actions

2. No pain No gain

3. In the long run discipline overtakes talent



Core Attributes

The four core attributes that can be used on the majority of HTML elements (although not all) are:

- ✓ Id
- ✓ Title
- ✓ Class
- ✓ Style

The **id** attribute of an HTML tag can be used to uniquely identify any element within an HTML page,

The **title** attribute gives a suggested title for the element.

The **class** attribute is used to associate an element with a style sheet, and specifies the class of element.

The **style** attribute allows you to specify Cascading Style Sheet (CSS) rules within the element.



Formatting

Bold Text

Anything that appears within < b>... element, is displayed in bold

Italic Text

Anything that appears within <i>...</i> element is displayed in italicized

Underlined Text

Anything that appears within **<u>... </u>** element, is displayed with underline

Strike Text

Anything that appears within **<strike>...</strike>** element is displayed



Phrase

The phrase tags have been desicolgned for specific purposes, though they are displayed in a similar way as other basic tags like **, <i>, , and <tt>**

Emphasized Text

Anything that appears within **...** element is displayed as emphasized text.

The following word uses a emphasized typeface.

Marked Text

Anything that appears with-in <mark>...</mark> element, is displayed as marked with yellow ink.

The following word has been <mark>marked</mark> with yellow



Phrase

The phrase tags have been desicolgned for specific purposes, though they are displayed in a similar way as other basic tags like **, <i>, , and <tt>**

Strong Text

Anything that appears within **...** element is displayed as important text.

The following word uses a strong typeface.

Text Abbreviation

You can abbreviate a text by putting it inside opening <abbr> and closing </abbr> tags. If present, the title attribute must contain this full description and nothing else.

My best friend's name is <abbr title="Abhishek">Abhy</abbr>.



Phrase

The phrase tags have been desicolgned for specific purposes, though they are displayed in a similar way as other basic tags like $\langle b \rangle$, $\langle i \rangle$, $\langle pre \rangle$, and $\langle tt \rangle$

Acronym Element

The **<acronym>** element allows you to indicate that the text between <acronym> and </acronym> tags is an acronym.

At present, the major browsers do not change the appearance of the content of the <acronym> element.

This chapter covers marking up text in <acronym>XHTML</acronym>.



Comments

Comment is a piece of code which is ignored by any web browser. It is a good practice to add comments into your HTML code, especially in complex documents, to indicate sections of a document, and any other notes to anyone looking at the code.

HTML comments are placed in between <!-- ... --> tags. So, any content placed with-in <!-- ... --> tags will be treated as comment and will be completely ignored by the browser.

```
<head> <!-- Document Header Starts -->
<!-- The best thing to happen-->
```

Multiline Comments

You can comment multiple lines by the special beginning tag <!-- and ending tag --> placed before the first line and end of the last line

```
<!-
The best thing to happen
In year, I am happy
-->
```



Images

Insert Image

You can insert any image in your web page by using tag.

HTML comments are placed in between <!-- ... --> tags. So, any content placed within <!-- ... --> tags will be treated as comment and will be completely ignored by the browser.

The tag is an empty tag, which means that, it can contain only list of attributes and it has no closing tag.

```
<img src="test.png" alt="Test Image" />
<img src="Prime Intuit - Banner Image.jpg">
<img src="https://www.kindpng.com/picc/m/23-237381_java-html-language-logo-png-transparent-png.png" alt="">
```

You can use PNG, JPEG or GIF image file based on your comfort but make sure you specify correct image file name in **src** attribute. Image name is always case sensitive.



Images

The **alt** attribute is a mandatory attribute which specifies an alternate text for an image, if the image cannot be displayed.

Create a subdirectory **images** inside the home directory where we will keep our image test.png.

```
<img src="images/test.png" alt="Test Image" />
```

Set Image 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.

```
<img src="test.png" alt="Test Image" width="150" height="100"/>
```



Images

Set Image 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.

```
<img src="test.png" alt="Test Image" border="3"/>
```

Set Image Alignment

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

```
<img src="test.png" alt="Test Image" border="3" align="right"/>
```



Lists

HTML offers web authors three ways for specifying lists of information. All lists must contain one or more list elements. Lists may contain:

- An unordered list. This will list items using plain bullets.
- An ordered list. This will use different schemes of numbers to list your items.
- <dl> A definition list. This arranges your items in the same way as they are arranged in a dictionary



Unordered Lists

An unordered list is a collection of related items that have no special order or sequence. This list is created by using HTML **ul>** tag. Each item in the list is marked with a bullet.

```
Beetroot
Ginger
Potato
Radish
```



Unordered Lists

An unordered list is a collection of related items that have no special order or sequence. This list is created by using HTML **ul>** tag. Each item in the list is marked with a bullet.

```
Beetroot
Ginger
Potato
Radish
```



The type Attribute

You can use **type** attribute for tag to specify the type of bullet you like. By default, it is a disc. Following are the possible options:

</body>



Ordered Lists

If you are required to put your items in a numbered list instead of bulleted, then HTML ordered list will be used. This list is created by using **tag.** The numbering starts at one and is incremented by one for each successive ordered list element tagged with .

```
<body>

Beetroot
Ginger
Potato
Radish

</body>
```



The type Attribute

You can use **type** attribute for tag to specify the type of numbering you like. By default, it is a number. Following are the possible options:

```
 - Default-Case Numerals.
 - Upper-Case Numerals.
 - Lower-Case Numerals.
 - Lower-Case Letters.
 - Upper-Case Letters.
 < Upper-Case Letters.
<ol type="i"> Beetroot Ginger Radish
```

The start Attribute

You can use **start** attribute for tag to specify the starting point of numbering you need. Following are the possible options:

```
 - Numerals starts with 4.
 - Numerals starts with IV.
 - Numerals starts with iv.
 - Letters starts with d.
 - Letters starts with D.
```

```
<body>

Beetroot
Ginger
Potato
Radish

<br/>
```



Lists

Definition Lists

HTML and XHTML supports a list style which is called **definition lists** where entries are listed like in a dictionary or encyclopedia. The definition list is the ideal way to present a glossary, list of terms, or other name/value list. Definition List makes use of following three tags.



Tables

Creating Tables

The HTML tables are created using the tag in which the tag is used to create table rows and tag is used to create data cells.

Tag	Description
	Defines a table
<u>></u>	Defines a header cell in a table
<u></u>	Defines a row in a table
<u>></u>	Defines a cell in a table
<caption></caption>	Defines a table caption

```
Name
   Age
   Gender
 Raja 
    43 
   male
 Rekha
   34
   Female
```



Tables

HTML Table Width

```
Firstname
 Lastname
 Age
Jill
 Smith
 50
Eve
          HTML Table Height
 Jackson
 94
```



Tables

Vertical Table Heads

To use the first column as table headers, define the first cell in each row as a th element:

```
Firstname
 Guru
 Jay
Lastname
 Dev
 Dev
Age
 55
 56
```



Div and Span attributes

Div Tag

The <div> tag defines a division or a section in an HTML document.

The <div> tag is used as a container for HTML elements

The <div> tag is easily styled by using the class or id attribute.

Any sort of content can be put inside the <div> tag!

Use

Used to Style session of the HTML Document with CSS or manipulated with JavaScript.



Div and Span attributes

Span Tag

The tag is an inline container used to mark up a part of a text, or a part of a document. The tag is easily styled by CSS or manipulated with JavaScript using the class or id attribute. The tag is much like the <div> element, but <div> is a block-level element and is an inline element.



ID and Class Attributes

ID Attribute

The id attribute specifies a unique id for an HTML element. The value of the id attribute must be unique within the HTML document.

The id attribute is used to point to a specific style declaration in a style sheet. It is also used by JavaScript to access and manipulate the element with the specific id.

The syntax for id is: write a hash character (#), followed by an id name. Then, define the CSS properties within curly braces {}. An id attribute is used to specify a unique id for an HTML element.

```
</style>
  <style media="screen">
   #Header {
background-color: lightblue;
color: black;
padding: 40px;
text-align: center;
 </style>
  <meta charset="utf-8">
  <title></title>
</head>
<body>
  <h1 id="Header">Heading with ID attribute</h1>
```



ID and Class Attributes

Class Attribute

Class attribute is used to assign a class name to an HTML element, multiple elements can be assigned same class name.

Class name is used to link the HTML element to CSS sheet and Java Script. CSS and Java Script can alter / manipulate the HTML elements using class names

The HTML class attribute specifies one or more class names for an element Classes are used by CSS and JavaScript to select and access specific elements The class attribute can be used on any HTML element

The class name is case sensitive

Different HTML elements can point to the same class name

JavaScript can access elements with a specific class name with the getElementsByClassName() method.



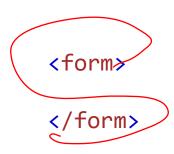
Forms

An HTML form is used to collect user input

Log in Page

Enter Email ID Enter email here
Enter Password
Enter Text Enter text here

The <form> Element



The <form> element is a container for different types of input elements, such as: text fields, checkboxes, radio buttons, submit buttons, etc.



The <input> Elements

<input> element is the most used form element.

Туре	Description
<input type="text"/>	Displays a single-line text input field
<input type="radio"/>	Displays a radio button (for selecting one of many choices)
<input type="checkbox"/>	Displays a checkbox (for selecting zero or more of many choices)
<input type="submit"/>	Displays a submit button (for submitting the form)
<input type="button"/>	Displays a clickable button

The <input> Element

The <input> element can be displayed in many ways, depending on the type attribute.

<button>Click me</button>



Text Fields

```
<input type="text"> defines a single-line input
field for text input.
```

```
<form>
<form>
<label for="fname">First name:</label><br>
<input type="text" id="fname" name="fname"><br>
<label for="lname">Last name:</label><br>
<input type="text" id="lname" name="lname"></form>
</form>
```

Text Fields

```
<input type="text"> defines a single-line input
field for text input. The <label> tag defines a
label for many form elements
```

```
</abel for="FirstName">First Name:</label>
```

Radio Buttons

```
<input type="radio"> lets users select one of the options
```



```
<!DOCTYPE html>
<html lang="en" dir="ltr">
 <head>
  <meta charset="utf-8">
  <title>Forms</title>
 </head>
 <body>
  <h1>Forms</h1>
  <form>
   <h2>Enter your Log in Email and Password</h2>
   <br>
   <input type="email" name="Email" value="Enter your</pre>
Email">
```

```
<br>
  <input type="password" name="" value="">
  <br>
   <input type="submit" name="" value="Submit">
 </form>
 <form>
   <h2>Choose Colour</h2>
   <h2>Click on button</h2>
   <input type="color" name="color" value="">
   <br>
   <h2>Enter some text</h2>
   <input type="text" name="Enter text here" value="">
  <br>
  <input type="submit" name="" value="">
 </form>
</body>
</html>
```



```
<!DOCTYPE html>
<html lang="en" dir="ltr">
<head>
  <meta charset="utf-8">
  <title></title>
</head>
 <body>
  <!-- Labels and 4 parameters in Labels and form parameters -->
  <form>
   Enter Email
   <input type="email" name="UserEmail" value="">
   <input type="submit" name="" value="Submit">
  </form>
  <form>
   Enter Text
   <input type="text" name="UserInput" value="">
   <input type="submit" name="" value="Submit">
  </form>
  <form action ="https://www.google.com" method = 'get'>
   Enter Text and take me to google
   <input type="text" name="UserInput" value="">
   <input type="submit" name="" value="Submit">
  </form>
<br>
```

```
<!-- Labels -->
  <form>
   <label>
    Enter Text 1:
<input type="text" name="" value="">
   </label>
   <br>
   <label>
    Enter Text 2:
   <input type="text" name="" value="">
   </label>
<br /> <!-- Label using for parameter -->
  </form>
  <form class="" action="index.html" method="post">
   <label for="userinput"></label>
   <input id = "userinput" type="text" name="" value="Hello!">
   <!-- Using placeholder instead of value, also try required -->
   <input id = "userinput" type="text" name="" placeholder="Enter text"</pre>
required>
   <input type="submit" name="" value="Submit">
   <br>
  </form>
</body>
</html>
```



```
<!DOCTYPE html>
                                                                  <label for="userinput">Send promotions</label>
<html lang="en" dir="ltr">
                                                                     <input id = checkbox type="checkbox" name="Check"
 <head>
                                                                  value="check">
  <meta charset="utf-8">
                                                                     <br>
                                                                     <h3>How was your service experince</h3>
  <title>Customer Feedback form</title>
                                                                     <select_name="stars">
 </head>
 <body>
                                                                      <option value="Bad">1</option>
  <h1>Customer Feedback Form</h1>
                                                                      <option value="Ok">2</option>
  <form class="" action="index.html" method="post">
                                                                      <option value="Good">3</option>
   <h3>Enter your Name</h3>
                                                                      <option value="Very Good">4</option>
   <label for="name">Name</label>
                                                                      <option value="Excellent">5</option>
   <input id = "name" type="text" name="" placeholder="Enter your
                                                                     </select>
name">
                                                                      <br>
   <h3>Select your Country</h3>
                                                                      <h3>Any Other Feedback</h3>
   <label for="local">Indian : </label>
                                                                      <textarea name="name" rows="8" cols="80"></textarea>
   <input id = 'local 'type="radio" name="location" value="Local">
                                                                      <br>
   <br>
                                                                      <input type="submit" name="" value="Submit">
   <label for="Foreign">Foreign : </label>
                                                                     </select>
   <input id = 'Foreign 'type="radio" name="location"</pre>
                                                                    </form>
value="Foreign">
                                                                   </body>
                                                                  </html>
   <br>
```



```
<!DOCTYPE html>
<html>
<head>
  <meta charset="utf-8">
  <title> Forms Assessment</title>
</head>
<body>
  <h1>Prime Intuit Student Registration form</h1>
  <img src="Prime Intuit - Banner Image.jpg" alt="">
  <b><i>*** Please Note: First Name, Last Name, Password, and Email are
                                                                               <br>
required</i></b>
    <form action="thankyou.html" method="get">
    <label for="FirstName">First Name:</label>
     <input type="text" id="FirstName" placeholder="First Name" required>
     <label for="LastName">Last Name:</label>
    <input type="text" id="LastName" placeholder="Last Name" required>
    <label for="email">Email:</label>
    <input type="email" id="email" placeholder="name@email.com">
     <label for="mobile">Mobile Number:</label>
     <input type="tel" id="mobile" >
    Have you completed your formal education?
    <label for="yes">Yes:</label>
    <input type="radio" name="Edu" id="yes" value="yes">
    <label for="no">No:</label>
                                                                          </body>
    <input type="radio" name="Edu" id="no" value="no">
                                                                         </html>
```

```
Select your branch ?
    <select name="branch">
     <option value="Mech">Mech</option>
     <option value="E&C">E&C</option>
     <option value="Civil">Civil</option>
     <option value="E&E">E&E</option>
     <option value="CS">CS</option>
     <option value="IS">IS</option>
    </select>
    <h3>Please check the subject of interest</h3>
    <label>Testing</label>
    <input type="checkbox" name="Test" value="0">
    <label>Python</label>
    <input type="checkbox" name="Test" value="1">
    <label>Machine Learning</label>
    <input type="checkbox" name="Test" value="2">
    <label>Data Science</label>
    <input type="checkbox" name="Test" value="3"> <br>
    <h3>Please add your comments</h3>
    <textarea name="name" rows="8" cols="80"></textarea>
    <q><q>
    <input type="submit" name="" value="Submit Feedback">
   </form>
```



Video

```
<video src="D:\ATOM\PI_B3_HTML\Cric.mp4" autoplay="mute"
poster="">
</video>
```

Audio

```
<audio controls autoplay>
<source src=" D:\ATOM\PI_B3_HTML\Sidi.OGG" type="audio/ogg">
</audio>
```



The <object> Element

The <object> element is supported by all browsers.

The <object> element defines an embedded object within an HTML document.

It was designed to embed plug-ins (like Java applets, PDF readers, and Flash Players) in web pages, but can also be used to include HTML in HTML:

```
<object width="100%" height="500px" data="STLC.pdf"></object>
<object data="BMW.jpeg"></object>
```



The <embed> Element

The <embed> element is supported in all major browsers.

The <embed> element also defines an embedded object within an HTML document.

The <embed> element can also be used to include HTML in HTML

```
<embed src="BMW.jpeg">
<embed width="100%" height="500px" src="Rough.html">
```



YouTube Video in HTML

To play your video on a web page:
Define an <iframe> element in your web page
Let the src attribute point to the video URL
Use the width and height attributes to specify the dimension of the player

```
<iframe width="420" height="315"
src="https://youtu.be/tbnzAVRZ9Xc">
</iframe>
```



HTML Iframe

HTML Iframe

The HTML <iframe> tag specifies an inline frame.

An inline frame is used to embed another document within the current HTML document.

```
<iframe src="https://timesofindia.indiatimes.com/" height="200" width="30
0" title="TOI"></iframe>
```