

Lesson 01: What is Full Stack?

A full stack web developer is a person who can develop both **client** and **server** software.

In addition to mastering HTML and CSS, he/she also knows how to:

- Program a **browser** (like using JavaScript, jQuery, Angular)
- Program a **server** (like using PHP, ASP, Python, or Node)
- Program a **database** (like using SQL, SQLite, or MongoDB)

Client Software

(Front End – Programming Language)

- [HTML](#)
- [CSS](#)
- [Bootstrap](#)
- [W3.CSS](#)
- [JavaScript](#)
- [ES5](#)
- [HTML DOM](#)
- [JSON](#)
- [XML](#)
- [jQuery](#)
- [Angular](#)
- [React](#)
- Backbone.js
- Ember.js
- Redux
- [Storybook](#)
- GraphQL
- Meteor.js
- Grunt
- Gulp

Server Software

(Back End - – Programming Language)

- [PHP](#)
- [ASP](#)
- [C++](#)
- [C#](#)
- [Java](#)
- [Python](#)
- [Node.js](#)
- Express.js
- Ruby
- REST
- [Go](#)
- [SQL](#)
- [MongoDB](#)
- [Sass](#)
- Less
- Firebase.com
- Parse.com
- PaaS (Azure and Heroku)

Popular Stacks

Front End:

- HTML
- CSS
- JavaScript

Back End

- MySQL
- SQL SERVER
- MongoDB
- PHP
- Python
- JAVA
- C#
- VB Net
- C++

What is HTML?

- With HTML you can create your own Web site.
- This tutorial teaches you everything about HTML.
- HTML is easy to learn - You will enjoy it.
- HTML is a language for describing web pages.
- HTML stands for **H**yper **T**ext **M**arkup **L**anguage
- HTML is a **markup** language
- A markup language is a set of markup **tags**
- The tags **describe** document content
- HTML documents contain HTML **tags** and plain **text**
- HTML documents are also called **web pages**

HTML Tags:

- HTML markup tags are usually called HTML tags
- HTML tags are keywords (tag names) surrounded by **angle brackets** like `<html>`
- HTML tags normally **come in pairs** like `` and ``
- The first tag in a pair is the **start tag**, the second tag is the **end tag**
- The end tag is written like the start tag, with a **forward slash** before the tag name
- Start and end tags are also called **opening tags** and **closing tags**

`<tagname>content</tagname>`

HTML Elements

"HTML tags" and "HTML elements" are often used to describe the same thing. But strictly speaking, an HTML element is everything between the start tag and the end tag, including the tags:

HTML Element:

`<p>`this is a paragraph. `</p>`

Web Browsers

The purpose of a web browser (such as Google Chrome, Internet Explorer, Firefox, Safari) is to read HTML documents and display them as web pages.

The browser does not display the HTML tags, but uses the tags to determine how the content of the HTML page is to be presented/displayed to the user:

The `<!DOCTYPE>` Declaration

- The `<!DOCTYPE>` declaration helps the browser to display a web page correctly.
- There are many different documents on the web, and a browser can only display an HTML page 100% correctly if it knows the HTML type and version used.

HTML BASIC

Writing HTML Using Notepad or TextEdit

HTML can be edited by using a professional HTML editor like:

- Visual Studio Code
- Adobe Dreamweaver
- Microsoft Expression Web
- CoffeeCup HTML Editor

However, we are using this course Visual Studio Code Application.

Download VSCODE from [Google.com](https://www.google.com)

Follow the 4 steps below to create your first web page with VSCode.

- Step 1: Start VSCode
- Step 2: Edit Your HTML with VSCode
- Type your HTML code into your VSCODE:
- Step 3: Save Your HTML
- Select **Save as..** in the file menu.
- When you save an HTML file, you can use either the `.htm` or the `.html` file extension. There is no difference, it is entirely up to you.
- Save the file in a folder that is easy to remember, like **Sahalsoftware**.
- Step 4: Run the HTML in Your Browser
- Start your web browser and open your html file from the **File, Open** menu, or just browse the folder and double-click your HTML file.

Lesson 02. HTML HEADING

HTML Headings are defined with the **<h1>** to **<h6>** tags Example:

- ❖ `<h1> This a heading </h1>`
- ❖ `<h2> This a heading </h2>`
- ❖ `<h3> This a heading </h3>`
- ❖ `<h4> This a heading </h4>`
- ❖ `<h5> This a heading </h5>`
- ❖ `<h6> This a heading </h6>`

Lesson 05. HTML Paragraphs

`<h1> This is a Heading </h>`

`<p> This is a first Pragraph </p>`

`<p> This is a second Pragraph </p>`

`<p> This is a third Pragraph </p>`

Lesson 06. HTML Lines

The `<hr>` tag creates a horizontal line in an HTML page.

The `<hr>` tag can be used to separate content:

Example:

- `<h1> This is a Heading </h>`
- `<hr> <p> This is a first Pragraph </p>`
- `<hr> <p> This is a second Pragraph </p>`
- `<p> This is a third Pragraph </p>`

Note: some HTML tag only they have start tag.

HTML Tag Reference

- `<! Doctype html>` “declaration helps the browser to display a web page correctly.”
- `<html>` “Defines an HTML document”
- `<body>` “Defines the document’s body”
- `<h1>` to `<h6>` “Defines HTML Heading”
- `<! -- >` “Defines a comment”
- `<p>` “Defines a paragraph”
- `
` “Inserts a single line break”

Lesson 03. VS Code – Shortcut

Short Cut Keyboard:

Tips and Tricks:

- ✓ CTRL + C = Copy
- ✓ CTRL + V = Past
- ✓ CTRL + X = Cut
- ✓ CTRL + P = Show Files and Folders
- ✓ CTRL + F = Find
- ✓ CTRL + H = Replace
- ✓ CTRL + D = Find Match Words - Then Press Enter (Edit or Delete)
Multiple Line
- ✓ CTRL + L = Select Line
- ✓ CTRL + / = Comment All Lines

More Shortcuts -> Setting / Keyboard Shorts

Add Extensions:

- ✓ Auto Rename Tag = Open Tag then Automatic Closing tag
- ✓ Live Server = Automatic Refresh
- ✓ Tabnine Autocomplete = suggestion: JavaScript, Python, PHP.....
- ✓ GitLens = Support Git
- ✓ Code Spell Checker = Spell Checker
- ✓ Custom CSS and JS Loader = CSS and JS Support
- ✓ Emoji = Emoji
- ✓ ES7 React/Redux/GraphQL/React-Native snippets = Support React
- ✓ HTML CSS Support = HTML ID & Class, Linked/Template
inheritance/Additional Style/valid CSS Selector on demand
- ✓ Live Share = Live Share
- ✓ Rest Client = allows you sent HTTP and view the
response in Visual Studio Code directly. (API)
- ✓ TODO Highlight = Highlight
- ✓ VSCode-styled-components = React

Lesson 04. HTML Formatting Tags

- ✓ `` “Defines bold text”
- ✓ `` “Defines emphasized text”
- ✓ `<i>` “Defines italic text”
- ✓ `<small>` “Defines smaller text”
- ✓ `` “Defines important text”
- ✓ `<sub>` “Defines subscripted text”
- ✓ `<sup>` “Defines superscripted text”
- ✓ `<ins>` “Defines inserted text”
- ✓ `` “Defines deleted text”

HTML Hyperlinks

- The `<a>` tag defines a hyperlink.
- A hyperlink (or link) is a word, group of words, or image that you can click on to jump to another document.
- When you move the cursor over a link in a web page, the arrow will turn into a little hand.
- The most important attribute of the `<a>` tag is the **href** attribute, which indicates the link’s destination.

HTML link syntax

The HTML code for a link is simple. It looks like this:

```
<a href="URL"> link text </a>
```

Try:

```
<!Doctype HTML>  
<html>  
<body>  
<a href="http://www.sahalsoftware.com"> Halkan Riix si aad cilmi uga baratid  
Sahalsoftware</a> <br>  
<a href="http://www.sahalsoftware.com" target="_blank">Hoyga Aqoonta  
Computerka!</a> <br> <br>  
</body>  
</html>
```

Lesson 05. Background color

The background-color property defines the background color for an element:

Try:

```
<!DOCTYPE html>
<html>
<body style="background-color:yellow;">
<h1 style="background-color:green;">This is a Heading </h1>
</body>
</html>
```

Changing Font (Font name, Color & Size)

Try:

```
<!DOCTYPE>

<html>
<body >
<p style="font-family:arial; color:red; font-size:80px; "> Sheeko Kooban
</p>
<p> Sheeko Taxane ah </p>
</body>
</html>
```

Text Alignment

```
<!DOCTYPE>
<html>
<body >
<h1 style="text-align:left;"> This is a Heading </h1>
<h1 style="text-align:center;"> This is a Heading </h1>
<h1 style="text-align:right;"> This is a Heading </h1>
</body>
</html>
```

HTML Images

HTML images are defined with the `` tag.

```

```

Note: The filename and the size of the image are provided as attributes.

Lesson 6. HTML Forms

HTML forms are used to pass data to a server.

An HTML form can contain input elements like

- text fields
- checkboxes
- radio buttons
- submit buttons
- and more.

A form can also contain

- select lists
- texarea, fieldset
- label elements.

The <form> tag is used to create an HTML form:

.

Input elements

.

</form>

HTML forms – The Input Element

- The most important form element is the **<input>** element.
- The <input> element is used to select user information.
- An <input> element can vary in many ways, depending on the type attribute.

An <input> element can be:

1. text field
2. checkbox
3. password
4. radio button
5. submit button
6. and more.

```
<html>
<body>

  <form action="received.html" method="get">
    <label>First name:</label><br>
    <input type="text" name="fname"><br>
    <label >Last name:</label><br>
    <input type="text" name="lname"> <br>

    <input type="submit" value="Submit">
  </form>
</body>
</html>
```

HTML Password Field

`<input type="password">` defines a password field:

```
<form>
  <label >Password:</label><br>
  <input type="password" name="password">
</form>
```

HTML Email Field

`<input type="email">` defines email field:

```
<form>
  <label >Email:</label><br>
  <input type="email" name="email"><br>
</form>
```

HTML Radio Buttons

`<input type="radio">` defines a radio button.

Radio buttons let a user select ONLY ONE of a limited number of choices:

```
<form>
  <input type="radio" name="sex" value="male">Male<br>
  <input type="radio" name="sex" value="female">Female
</form>
```

HTML Checkboxes

`<input type="checkbox">` defines a checkbox button.

Checkbox let a user select ZERO or MORE options of a limited number of choices.

```
<form>
<input type="checkbox" name="course" value="IT">Full Stack
Developer<br>
<input type="checkbox" name=" course " value="English">English
<input type="checkbox" name=" course " value="Forex">Forex

</form>
```

Required:

```
<label>First name:</label><br>
<input type="text" name="fname" required><br>
```

Placeholder:

```
<label>First name:</label><br>
<input type="text" name="fname" required placeholder="Enter First
Name"><br>
```

The Action Attribute

The **action** attribute defines the action to be performed when the form is submitted.

Usually, the form data is sent to a file on the server when the user clicks on the submit button.

Lesson 7. HTML Tables

A table is divided into rows (with the `<tr>` tag), and each row is divided into data cells (with the `<td>` tag). `td` stands for "table data," and holds the content of a data cell. A `<td>` tag can contain text, links, images, lists, forms, other tables, etc. also Header information in a table are defined with the `<th>` tag.

All major browsers display the text in the `<th>` element as bold and centered.

Try:

```
<DOCTYPE html>
<html>
<body>
<table>
<tr>
<th>Header 1</th>
<th>Header 2</th>
</tr>
<tr>
<td>row 1, cell 1</td>
<td>row 1, cell 2</td>
</tr>
<tr>
<td>row 2, cell 1</td>
<td>row 2, cell 2</td>
</tr>
</table>
</body>
</html>
```

HTML div Tag

The HTML `<div>` element is a block level element that can be used as a container for grouping other HTML elements.

The `<div>` element has no special meaning. Except that, because it is a block level element, the browser will display a line break before and after it.

When used together with CSS, the `<div>` element can be used to set style attributes to large blocks of content.

Another common use of the `<div>` element, is for **document layout**. It replaces the "old way" of defining layout **using tables**. Using `<table>` elements for layout is not the correct use of `<table>`. The purpose of the `<table>` element is to display tabular data.

HTML `` Tag

The HTML `` element is an inline element that can be used as a container for text.

The `` element has no special meaning.

When used together with CSS, the `` element can be used to set style attributes to parts of the text.

HTML Layouts

Web page layout is very important to make your website look good. Design your webpage layout very carefully.

Website Layouts

Most websites have put their content in multiple columns (formatted like a magazine or newspaper).

Multiple columns are created by using <div> or <table> elements. CSS are used to position elements, or to create backgrounds or colorful look for the pages.

HTML Layouts – Using <div> Elements

The div element is a block level element used for grouping HTML elements. The following example uses five div elements to create a multiple column layout, creating the same result as in the previous example:

Try:

```
<!DOCTYPE html>
<html>
<body>
<div id="container" style="width:500px">
<div id="header" style="background-color:#FFA500;">
<h1 style="margin-bottom:0;">Main Title of Web Page</h1>
</div>
<div id="menu" style="background-
color:#FFD700;height:200px;width:100px;float:left;">
<b>Menu</b>
<br>
HTML<br>
CSS<br>
JavaScript
</div>
<div id="content" style="background-
color:#EEEEEE;height:200px;width:400px;float:left;"> Content goes here
</div>
```

```
<div id="footer" style="background-color:#FFA500;clear:both;text-align:center;">
Copyright © Sahalsoftware.com</div>
</div>
</body>
</html>
```

Lesson 08. HTML Layouts – Using Table and HTML Tips

A simple way of creating layouts is by using the HTML <table> tag.

Multiple columns are created by using <div> or <table> elements. CSS are used to position elements, or to create backgrounds or colorful look for the pages.

The following example uses a table with 3 rows and 2 columns - the first and last row spans both columns using the colspan attribute:

```
<!DOCTYPE html>
<html>
<body>
<table style="margin-left:180px; margin-top:50px; " width="1000" border="10">
<tr>
<td colspan="2" style="background-color:#FFA500;">
<h1>Main Title of Web Page</h1> </td> </tr>
<tr>
<td style="background-color:#FFD700;width:100px;">
<b>Menu</b>
<br> HTML
<br> CSS
<br> JavaScript </td>
<td style="background-color:#EEEEEE;height:200px;width:400px;"> Content
goes here</td>
</tr>
<tr>
<td colspan="2" style="background-color:#FFA500;text-align:center;"> Copyright
© Sahalsoftware.com
</td>
</tr>
</table>
</body>
</html>
```

HTML Attributes

- HTML links are defined with the <a> tag. The link address is specified in the href attribute:

- This is a link

“ ‘ , . ; :

Always Quote Attribute Values

- Attribute values should always be enclosed in quotes.

Double style quotes are the most common, but single style quotes are also allowed.

Tip: In some rare situations, when the attribute value itself contains quotes, it is necessary to use single quotes: name='John "ShotGun" Nelson'

HTML Tip: Use Lowercase Attributes

Attribute names and attribute values are case-insensitive.

However, Sahalsoftware Web Development Team recommends lowercase attributes/attribute values in their HTML.

HTML Output - Useful Tips

- 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 output by adding extra spaces or extra lines in your HTML code.

- The browser will remove extra spaces and extra lines when the page is displayed. Any number of lines count as one line, and any number of spaces count as one space.

Note: Browsers automatically add an empty line before and after a paragraph.

Don't Forget the End Tag:

Most browsers will display HTML correctly even if you forget the end tag:

Example

```
<p> this is a paragraph
```

```
<p> this is another paragraph
```

The example above will work in most browsers, but don't use it. Forgetting the end tag can produce unexpected results or errors.

Note: Future version of HTML will not allow you to skip end tags.

The HTML <meta> Element

The metadata can be used by browsers (how to display content or reload page), search engines (keywords), or other web services.

<meta> tags always go inside the <head> element.

Refresh document every 30 seconds:

```
<meta http-equiv="refresh" content="30">
```

Lesson 09. Lists

The most common HTML lists are **ordered** and **unordered** lists:

HTML Lists An ordered list An unordered list

1. The first list item
2. The second list item
3. The third list item

HTML Un-ordered Lists

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

HTML Ordered Lists

An ordered list starts with the `` tag. Each list item starts with the `` tag. The list items are marked with numbers.

```
<ol>  
  <li>Coffee</li>  
  <li>Milk</li>  
</ol>
```

HTML Entities

HTML Entities

Some characters are reserved in HTML.

It is not possible to use the less than (<) or greater than (>) signs in your text, because the browser will mix them with tags.

To actually display reserved characters, we must use **character entities** in the HTML source code.

A character entity looks like this:

- 1. &entity_name;** OR
- 2. &#entity_number;**

To display a less than sign we must write: < or <

Tip: The advantage of using an entity name, instead of a number, is that the name is easier to remember.

However, the disadvantage is that browsers may not support all entity names (the support for entity numbers is very good).

Non-breaking Space

A common character entity used in HTML is the non-breaking space ().

Browsers will always truncate spaces in HTML pages. If you write 10 spaces in your text, the browser will remove 9 of them, before displaying the page. To add spaces to your text, you can use the ` `; character entity.

HTML Useful Character Entities

Note: Entity names are case sensitive!

Result

	Description	Entity Name	Entity Number
	non-breaking space	<code>&nbsp;</code>	<code>&#160;</code>
<code><</code>	less than	<code>&lt;</code>	<code>&#60;</code>
<code>></code>	greater than	<code>&gt;</code>	<code>&#62;</code>
<code>&</code>	ampersand	<code>&amp;</code>	<code>&#38;</code>
¢	cent	<code>&cent;</code>	<code>&#162;</code>
£	pound	<code>&pound;</code>	<code>&#163;</code>
¥	yen	<code>&yen;</code>	<code>&#165;</code>
€	euro	<code>&euro;</code>	<code>&#8364;</code>
§	section	<code>&sect;</code>	<code>&#167;</code>
©	copyright	<code>&copy;</code>	<code>&#169;</code>
®	registered trademark	<code>&reg;</code>	<code>&#174;</code>
™	trademark	<code>&trade;</code>	<code>&#8482;</code>

Reference Links:

- Visit sahalsoftware.com
- Click Links

Lesson 10. Audio tag, Video tag, and PDF tag | HTML

Audio tag:

```
<audio controls>  
  <source src="horse.ogg" type="audio/ogg">  
  <source src="horse.mp3" type="audio/mpeg">  
  Your browser does not support the audio element.  
</audio>
```

Video tag:

```
<video width="320" height="240" controls>  
  <source src="movie.mp4" type="video/mp4">  
  <source src="movie.ogv" type="video/ogg">  
  Your browser does not support the video tag.  
</video>
```

PDF Read tag:

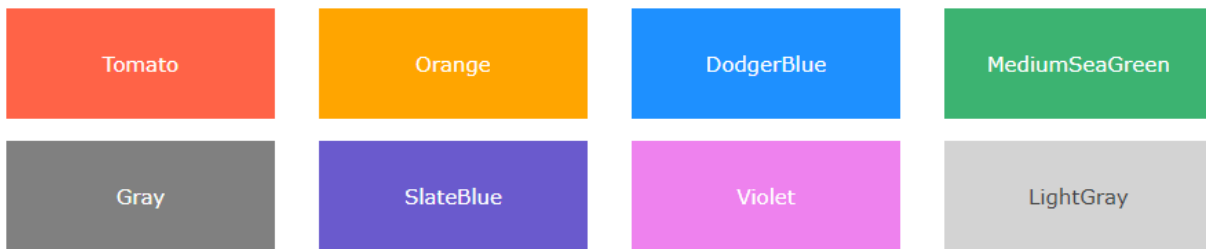
```
<iframe src="html5.pdf" frameborder="0" width="853"  
height="480"></iframe>
```

Lesson 11. HTML Colors

HTML colors are specified with predefined color names, or with RGB, HEX, HSL, RGBA, or HSLA values.

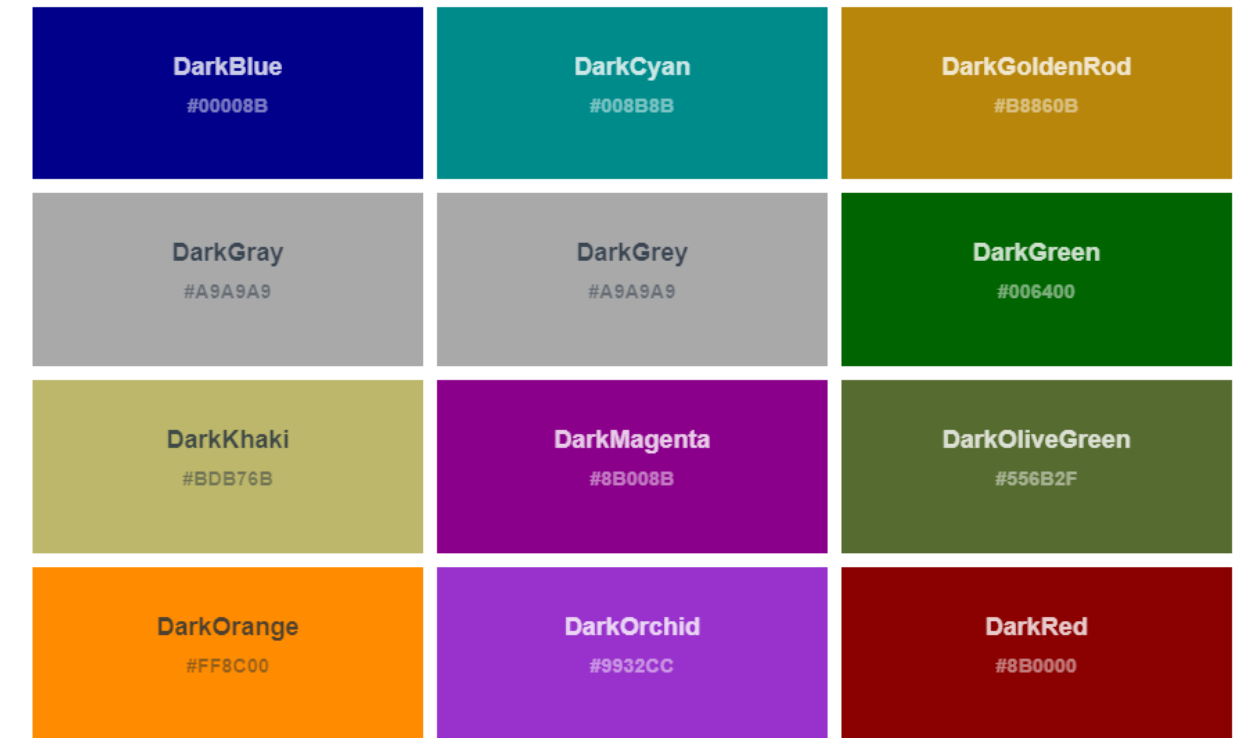
Color Names

In HTML, a color can be specified by using a color name:



HTML supports **140 standard color names**.

Example:



Background Color

You can set the background color for HTML elements:

Hello World

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat. Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1 style="background-color:DodgerBlue;">Hello World</h1>
```

```
<p style="background-color:Tomato;">
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

```
</p>
```

```
</body>
```

```
</html>
```

Text Color

You can set the color of text:

Text Color

You can set the color of text:

Hello World

Lorem ipsum dolor sit amet, consectetur adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore magna aliquam erat volutpat.

Ut wisi enim ad minim veniam, quis nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea commodo consequat.

```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h3 style="color:Tomato;">Hello World</h3>
```

```
<p style="color:DodgerBlue;">Lorem ipsum dolor sit amet, consectetur  
adipiscing elit, sed diam nonummy nibh euismod tincidunt ut laoreet dolore  
magna aliquam erat volutpat.</p>
```

```
<p style="color:MediumSeaGreen;">Ut wisi enim ad minim veniam, quis  
nostrud exerci tation ullamcorper suscipit lobortis nisl ut aliquip ex ea  
commodo consequat.</p>
```

```
</body>
```

```
</html>
```

HTML RGB and RGBA Colors

An RGB color value represents RED, GREEN, and BLUE light sources.

An RGBA color value is an extension of RGB with an Alpha channel (opacity).

RGB Color Values

In HTML, a color can be specified as an RGB value, using this formula:

`rgb(red, green, blue)`

Each parameter (red, green, and blue) defines the intensity of the color with a value between 0 and 255.

This means that there are $256 \times 256 \times 256 = 16777216$ possible colors!

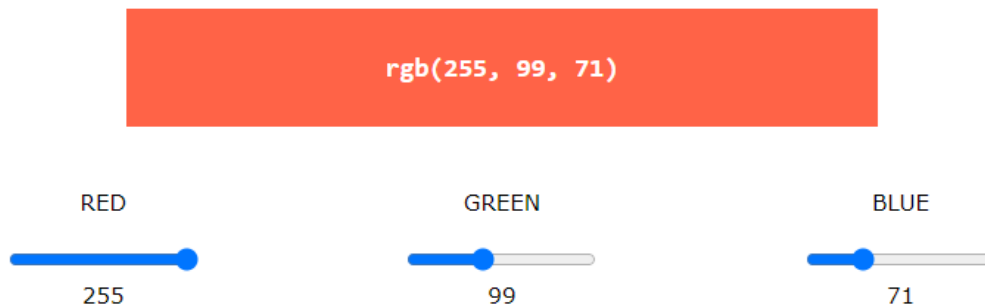
For example, `rgb(255, 0, 0)` is displayed as red, because red is set to its highest value (255), and the other two (green and blue) are set to 0.

Another example, `rgb(0, 255, 0)` is displayed as green, because green is set to its highest value (255), and the other two (red and blue) are set to 0.

To display black, set all color parameters to 0, like this: `rgb(0, 0, 0)`.

To display white, set all color parameters to 255, like this: `rgb(255, 255, 255)`.

Experiment by mixing the RGB values below:



Example



```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1 style="background-color:rgb(255, 0, 0);">rgb(255, 0, 0)</h1>
```

```
<h1 style="background-color:rgb(0, 0, 255);">rgb(0, 0, 255)</h1>
```

```
<h1 style="background-color:rgb(0, 255, 0);">rgb(0, 255, 0)</h1>
```

```
<h1 style="background-color:rgb(238, 130, 238);">rgb(238, 130,  
238)</h1>
```

```
<h1 style="background-color:rgb(255, 165, 0);">rgb(255, 165, 0)</h1>
```

```
<h1 style="background-color:rgb(106, 90, 205);">rgb(106, 90, 205)</h1>
```

```
</body>
```

```
</html>
```

HTML HEX Colors

A hexadecimal color is specified with: #RRGGBB, where the RR (red), GG (green) and BB (blue) hexadecimal integers specify the components of the color.

HEX Color Values

In HTML, a color can be specified using a hexadecimal value in the form:

#rrggbb

Where rr (red), gg (green) and bb (blue) are hexadecimal values between 00 and ff (same as decimal 0-255).

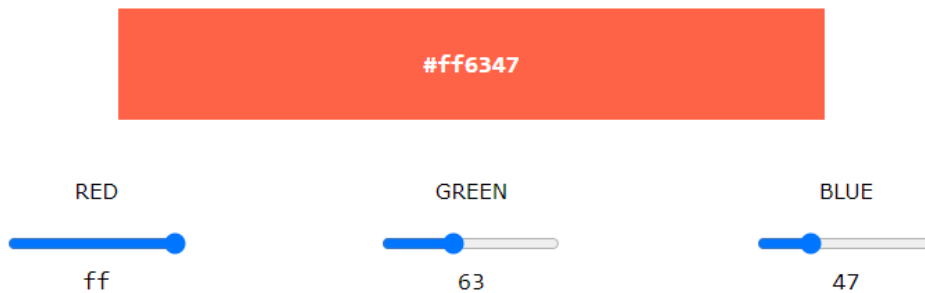
For example, #ff0000 is displayed as red, because red is set to its highest value (ff), and the other two (green and blue) are set to 00.

Another example, #00ff00 is displayed as green, because green is set to its highest value (ff), and the other two (red and blue) are set to 00.

To display black, set all color parameters to 00, like this: #000000.

To display white, set all color parameters to ff, like this: #ffffff.

Experiment by mixing the HEX values below:



```
---  
<!DOCTYPE html>  
  
<html>  
  
<body>  
  
<h1 style="background-color: #ff0000;"> #ff0000</h1>  
<h1 style="background-color: #0000ff;"> #0000ff</h1>  
<h1 style="background-color: #3cb371;"> #3cb371</h1>  
<h1 style="background-color: #ee82ee;"> #ee82ee</h1>  
<h1 style="background-color: #ffa500;"> #ffa500</h1>  
<h1 style="background-color: #6a5acd;"> #6a5acd</h1>  
  
</body>  
</html>  
---
```

HTML HSL and HSLA Colors

HSL stands for hue, saturation, and lightness.

HSLA color values are an extension of HSL with an Alpha channel (opacity).

HSL Color Values

In HTML, a color can be specified using hue, saturation, and lightness (HSL) in the form:

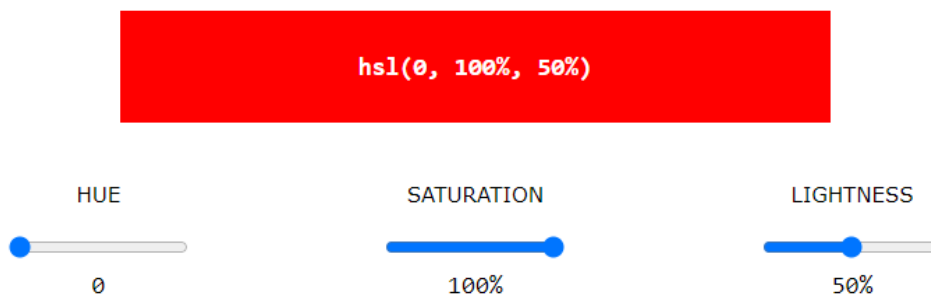
`hsl(hue, saturation, Lightness)`

Hue is a degree on the color wheel from 0 to 360. 0 is red, 120 is green, and 240 is blue.

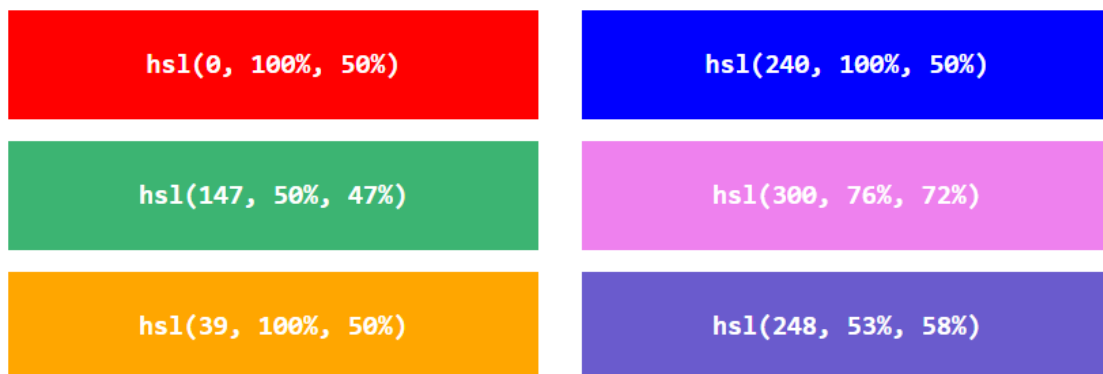
Saturation is a percentage value. 0% means a shade of gray, and 100% is the full color.

Lightness is also a percentage value. 0% is black, and 100% is white.

Experiment by mixing the HSL values below:



Example



```
<!DOCTYPE html>
```

```
<html>
```

```
<body>
```

```
<h1 style="background-color:hsl(0, 100%, 50%);">hsl(0, 100%,  
50%)</h1>
```

```
<h1 style="background-color:hsl(240, 100%, 50%);">hsl(240, 100%,  
50%)</h1>
```

```
<h1 style="background-color:hsl(147, 50%, 47%);">hsl(147, 50%,  
47%)</h1>
```

```
<h1 style="background-color:hsl(300, 76%, 72%);">hsl(300, 76%,  
72%)</h1>
```

```
<h1 style="background-color:hsl(39, 100%, 50%);">hsl(39, 100%,  
50%)</h1>
```

```
<h1 style="background-color:hsl(248, 53%, 58%);">hsl(248, 53%,  
58%)</h1>
```

```
</body>
```

```
</html>
```

END