

WEB DESIGN WITH HTML

A Complete Beginner To Expert
Guide To Designing Responsive &
Dynamic Websites With Html
(Tricks, Tips & Hacks)

SMART WEBB

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HOW TO START IN HTML AND WEB DESIGN

Getting started

HTML (Hypertext Markup Language) is the primary building block of creating a website. HTML is a very basic markup language and requires memorization of a few dozen HTML commands that structure the look and layout of a web page. Before writing any HTML code or designing your first web page, you must decide on an HTML editor or text editor, such as Notepad or WordPad.

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After installing an HTML editor and are ready to begin setting up your website, think about how you want the site to look and be set up. Consider even drawing out your ideas, to help visualize the site and pages on the site. Below are some considerations to think about when designing your web page.

1. How are you going to store all the files? Are all the files going to be in the same folder or directory? If you plan on having lots of different

pictures and files, we recommend you store the pages, files, and pictures in separate directories.

2. Are the HTML files going to be stored as .HTM or .HTML files? There is no advantage or disadvantage of going with .htm or .html. However, it is a good idea to stick with the same extension.

3. Do you plan on having a template for the pages? Are all the pages going to have the same overall look and feel?

4. How is the navigation going to be handled? Do you feel its better for the navigation menu to be on the left, bottom, or top of each page?

Realize your web page is going to change over time as you find things that do not work. Over the lifetime of the Computer Hope website, we have changed our complete site several dozen times.

Writing basic HTML

After installing an HTML editor and setting up a folder, you are ready to begin creating your page. Begin by creating a file named `index.htm` or `index.html` as your start page. All servers on the Internet look for an index file if no file is specified. For example, when typing `https://www.computerhope.com`, the server is accessing the `https://www.computerhope.com/index.htm` address.

Once you've created the index.htm or index.html file and it's open in your HTML editor, we recommend inserting the below source code into your page. If your HTML editor automatically places HTML code into your page or you have a WYSIWYG editor, you can skip this step.

```
<html>
```

```
<head>
```

```
<title>My first web page</title>
```

```
</head>
```

```
<body>
```

Your web page content goes here.

```
</body>
```

```
</html>
```

The above code is a very basic example of the code that helps make up every web page. As you can see, the code starts with `<html>`, which is defining that everything within `<html>` is HTML code. Next, you have `<head>`, which is defining the heading of your HTML document. Third, we have the `<title>` section within `<head>`, which defines the web

page title that is displayed at the top of the Internet browser window. Finally, the `<body>` section contains what is shown on the web page.

Below is additional code for the `<body>` section of the code to help familiarize you with some of the most commonly used HTML commands.

```
<center><h1>Welcome to my web  
page</h1></center>
```

```
<hr>
```

```
<br>
```


<p>Hello and welcome to my first
website.

These are my favorite
links:

<a

href="https://www.computerhope.co
m">Computer Hope

Goog
le

</p>

As you can see from looking at the above code, you will realize that the basic HTML commands are fairly simple to use. First, we start off with `<center>`, which is telling the browser to center the information in these tags. Next, the `<h1>` or heading one statement tells the browser to display the text in the largest heading style. Next, the `<hr>` tag tells the browser to display a line straight across the screen. The third line contains `
` that creates a line break on the page. Next, the `<p>` is short for

"paragraph" and helps separate the text on the page. Next, the `` tag is short for bold and will bold the text contained in the tag. Next, the `` starts a bullet list and each bullet is represented by the `` tag. Finally, the `<a href` tag is a method of creating a link to another location. In this example, we are creating a bulleted list of links to Computer Hope and Google.

Viewing the web page

After creating a basic website, you may want to verify how the website looks. With the files stored locally on your computer, you don't need to connect to the Internet to view your web page.

Open the computer browser and type the location of your web page. For example, if you have placed the index.htm or index.html file within a "website" folder, you would type in the browser `c:\website\index.htm`

or `c:\website\index.html` on a Windows PC. If you have Microsoft Windows or Apple, you can also double-click the web page file to open the page in a browser.

Tip: Some HTML editors also allow you to preview the page by clicking the preview button in the HTML editor.

Viewing a web page locally allows you to experiment and make sure the page works before taking the time to upload the page to the server.

Viewing a page this way is also useful if you do not have a place to store your web page.

Displaying images

After creating a basic website, you can improve the look and feel of the website by adding images. There are two methods of displaying images on your web page. The first method is linking to another website to display the images using the following code.

```

```

Using the above HTML tag, you can display images on other websites, which is also called a hotlink. However, we advise against using this type of link, as it can cause your web page to load slower and could cause missing images to occur if the other site removes the images. The alternate and recommended method would be to use the below code.

```

```

Or if you have an "images" folder:

```

```

If the mypic.gif file exists on the computer, the picture is shown on your website. Adding pictures is an excellent way to spruce up the website. However, do not get carried away by adding several images (especially animated images), as it can look tacky and increase the

amount of time it takes to load the web page. Remember, the average time someone looks at a website is 10 seconds, so you want your web pages to load as quickly as possible.

Finally, never place large sized images on your homepage. Large images will slow down the loading of the web page dramatically and may cause a visitor to leave. If you would like a large picture on your website, we recommend you create a smaller version of that image, called a thumbnail.

If the user is interested in viewing the full-size image, they can click the thumbnail to view the larger image.

Understanding directories

When creating other directories (folders) on the computer that contain images or HTML files, you need to understand the directory structure. Many times, users mistakenly create a bad link that allows the page to work offline but not on the Internet or from another computer.

When accessing files in other directories that are ahead of the current directory, first specify the directory and then the file name. For example, if you are trying to access or display the image file mypic.gif in the image folder, create the link as shown below.

image/mypic.gif

Notice in the above line that the directory is first specified and then the file.

Next, if you wanted to access the image file mypic.gif that is back one directory, you would want to use the example below.

```
../mypic.gif
```

In this example, notice the two dots (..) these tell the browser you want to go back one directory. If you wanted to go back one directory and then into another directory, you would first do ../ and then the directory as shown in the example below.

```
../other/mypic.gif
```

This rule can be applied to as many directories back as possible. For example, if you wanted to go back three directories and then go into the images directory, then you would use the example below.

```
../../../image/mypic.gif.
```

A common mistake with PC (Windows) users is that the HTML editor may specify the file to be located in the computer hard drive such as
c:\mywebpage\image\mypic.gif.

A local path works fine on the computer hard drive (locally); however, when posted on the Internet, no one but the person with the file locally can display the file.

Finally, remember when specifying the directory you're using a forward slash (/) and not a backslash.

Case sensitive

It is important to remember that many of the Internet servers are utilizing Linux or a *nix variant. With Linux and Unix, file names are case sensitive.

If you link to the file "Mypage.htm," and the file on the server is "mypage.htm," the page will not load because of the capital "M." We always recommend creating all web pages, images, and files in all lowercase.

Posting the website

Posting the website files to the Internet is one of the most complicated steps of setting up a website for most people. For the web page to be viewable by other users, the files must be posted on a server connected to the Internet.

Because of the wide diversity of methods of posting a website, we will explain one of the most commonly used methods of posting your website.

ISPs (Internet service providers) and web hosting companies provide FTP (File Transfer Protocol) access that allows the users to copy files from your computer to the server. PC users have two possibilities; one is to use the FTP program included with Windows, and the other recommended solution is to download

an FTP program. Using one of these tools should enable the user to send his or her files, providing the server allows FTP access.

Once connected to the server, locate the folder or directory containing your web page. Usually, this folder is `public_html`. If you are using Windows FTP, type `cd public_html` or type `dir` to see what the folder is named. Or open the folder through CuteFTP or the FTP client program you're opening. Once in this folder, you can send your HTML files to the server to

access them over the Internet. Windows FTP users to send your files, for example, type send index.htm.

Your web host should have steps for posting your website and sometimes may even use a web-based client to transfer files to their server. If, after following the above recommendations, you cannot post to your website, check with your ISP's support department.

ADVANTAGE AND DISADVANTAGE OF HTML

Hypertext Markup Language, a standardized system for tagging text files to achieve font, colour, graphic, and hyperlink effects on World Wide Web pages.

HTML is the standard markup language for creating Web pages.

HTML stands for Hyper Text Markup Language

HTML describes the structure of Web pages using markup

HTML elements are the building blocks of HTML pages

HTML elements are represented by tags

HTML tags label pieces of content such as "heading", "paragraph", "table", and so on

Browsers do not display the HTML tags, but use them to render the content of the page.

Advantages and Disadvantages of HTML

Advantages

Easy to use

Loose syntax (although, being too flexible will not comply with standards)

HTML is easy enough to write

HTML is that it is easy to code.

HTML also allows the use of templates, which makes designing a webpage easy.

Very useful for beginners in web designing field.

Supported on almost every browser, if not all browsers.

Widely used; established on almost every website, if not all websites.

Very similar to XML syntax, which is increasingly used for data storage

Free - You need not buy any software

Easy to learn & code even for novice programmers

Disadvantages

It cannot produce dynamic output alone, since it is a static language

Sometimes, the structuring of HTML documents is hard to grasp

Errors can be costly.

The time it takes to choose the color scheme of a page and to create lists, tables and forms.

It can create only static and plain pages so if we need dynamic pages then HTML is not useful.

Need to write lot of code for making simple webpage.

You have to keep up with deprecated tags, and make sure not to use them. Deprecated tags appear because another language that works with HTML has replaced the original work of the tag; thus the other language needs to be learned (most of the time, it is CSS).

Security features offered by HTML are limited.

What is an HTML File?

HTML is a format that tells a computer how to display a web page.

The documents themselves are plain text files with special "tags" or codes that a web browser uses to interpret and display information on your computer screen.

HTML stands for Hyper Text Markup Language

An HTML file is a text file containing small markup tags

The markup tags tell the Web browser how to display the page

An HTML file must have an htm or HTML file extension

Example Explained

The declaration defines this document to be HTML

The element is the root element of an HTML page

The element contains meta information about the document

The element specifies a title for the document

The element contains the visible page content

The element defines a large heading

The element defines a paragraph

SETTING UP A DOMAIN NAME

If you are deciding to use a blog or website, whether it is for business or personal reasons then in most cases you will need to set up a domain name for your blog. To get a domain you can follow these steps:

Step 1

Find a domain registering company:

There are many of these available on the net. For example, well known companies are GoDaddy and Namecheap.

These companies can offer a range of services however, their main aim is helping you find a domain and registering it.

Step 2

If you have already thought of a domain name and you are on the name registration site you will see a domain name search facility. This facility will find if your choice of name is available. Type in your preferred name and the search facility will come up with the results of what names are available.

If the name that you have your heart set on is not available the registration company should automatically provide you with similar alternatives to choose from.

Step 3

When you have selected your preferred choice you will then be asked how long you want to register the name for. The usual length of time is one year however, some companies may offer shorter periods or longer than 1 year.

Usually if you register for a longer period you will receive a discount on the cost of the registration fee.

Step 4

When you have selected how long you want to register the name you can now proceed to the payment section and enter in your credit card details to pay the registration. Before making payment make sure the details are correct and check the terms and conditions. One of the great benefits of having an online business or

presence is the relative low cost to run it. The average price to register a domain name for a website or blog is at the time of print less than \$10. Compare that cost to renting a real brick and mortar business.

Step 5

When you have put in the necessary payment details, pressed the payment button and your details have been accepted a confirmation will be sent to the email address that you registered with the domain registration company.

Save the email confirmation in a file for future reference and print out a paper copy and file it safely.

That is it. Once you have your domain name purchased the next stage is to find a web host as you will need one in order for your blog to have a presence on the web.

WEB HOSTING

Web hosting allows for users to have another company store and maintain your website for you or your company.

A web hosting company may or may not be needed depending on what is available through your Internet service provider. Check with your Internet service provider to see if they offer a comparable solution to other web hosting companies. When setting up with a web hosting company, we recommend you verify the below information with them before setting the page up.

- Domain Registration - Verify that the company allows your company to

have a domain (e.g.,
www.computerhope.com).

- E-Mail forwarding - See if the company offers e-mail forwarding to forward e-mail from username@yourdomain.com to another e-mail address. For instance, you can have the @yourdomain.com e-mail forwarded to a @yahoo.com or @gmail.com address.

- Support - Verify the hours of operation for phone support and check to see if the number is a toll-free number.

- Changing companies - Verify their policy and how easy it will be for changing to another company if the time comes.
- Site Statistics - While not a necessity, it's a nice feature to see if the company can give you statistics to tell you how well your website is doing.
- Business Account - See if the company charges you additional fees if you begin to sell something on your website.

- **Bandwidth Limitations** - Verify that the company does not have a strict bandwidth limitation, which may limit the amount of traffic you are capable of receiving. Realize that all companies have a limit but verify it is something that is not expected to be broken.

- **FrontPage Extensions** - If you are using FrontPage, verify FrontPage Extensions are supported. Although not all FrontPage users use these features, it is still a good idea to verify this is available.

- CGI, Perl, and PHP Scripts - While you may not immediately set up a page with CGI, Perl, or PHP script, it's important for future use you verify your server supports this. These scripts allow you to set up counters, message boards, guest books and other various features.

Beyond the basics

Designing web pages goes much deeper than this basic introduction of web pages. Once you have got a good understanding of HTML and FTP familiarize yourself with CSS to

properly format and layout your web pages. To do more advanced features on your website such as forums, web page counters, or e-mail form you need to become familiar with CGI programming languages such as PHP or Perl.

If the basics are too overwhelming, there are several CMS services such as WordPress and blog services to make the process easier. However, keep in mind that many of these services only offer templates and plugins that allow you to customize

your site. If you want to truly customize your site, you are going to need to know some of the basics.

HTML text fundamentals

One of HTML's main jobs is to give text structure so that a browser can display an HTML document the way its developer intends. This article explains the way HTML can be used to structure a page of text by adding headings and paragraphs, emphasizing words, creating lists, and more.

Prerequisites: Basic HTML familiarity, as covered in Getting started with HTML.

Objective: Learn how to mark up a basic page of text to give it structure and meaning—including paragraphs, headings, lists, emphasis, and quotations.

The basics: headings and paragraphs

Most structured text consists of headings and paragraphs, whether you are reading a story, a newspaper, a college textbook, a magazine, etc.

Structured content makes the reading experience easier and more enjoyable.

In HTML, each paragraph has to be wrapped in a `<p>` element, like so:

```
<p>I am a paragraph, oh yes I am.</p>
```

Each heading has to be wrapped in a heading element:

```
<h1>I am the title of the story.</h1>
```

There are six heading elements:

```
<h1>, <h2>, <h3>, <h4>, <h5>,
```

and `<h6>`. Each element represents a different level of content in the document; `<h1>` represents the main heading, `<h2>` represents subheadings, `<h3>` represents sub-subheadings, and so on.

Implementing structural hierarchy

For example, in this story, the `<h1>` element represents the title of the story, the `<h2>` elements represent the title of each chapter, and the `<h3>` elements represent sub-sections of each chapter:

<h1>The Crushing Bore</h1>

<p>By Chris Mills</p>

<h2>Chapter 1: The dark night</h2>

<p>It was a dark night. Somewhere,
an owl hooted. The rain lashed down
on the ...</p>

<h2>Chapter 2: The eternal
silence</h2>

<p>Our protagonist could not so
much as a whisper out of the
shadowy figure ...</p>

<h3>The specter speaks</h3>

<p>Several more hours had passed, when all of a sudden the specter sat bolt upright and exclaimed, "Please have mercy on my soul!"</p>

Copy to Clipboard

It's really up to you what the elements involved represent, as long as the hierarchy makes sense. You just need to bear in mind a few best practices as you create such structures:

- Preferably, you should use a single <h1> per page—this is the top level

heading, and all others sit below this in the hierarchy.

- Make sure you use the headings in the correct order in the hierarchy. Don't use `<h3>` elements to represent subheadings, followed by `<h2>` elements to represent sub-subheadings—that doesn't make sense and will lead to weird results.
- Of the six heading levels available, you should aim to use no more than three per page, unless you feel it is necessary. Documents with many

levels (i.e., a deep heading hierarchy) become unwieldy and difficult to navigate. On such occasions, it is advisable to spread the content over multiple pages if possible.

Why do we need structure?

To answer this question, let's take a look at `text-start.html`—the starting point of our running example for this book (a nice hummus recipe). You should save a copy of this file on your local machine, as you'll need it for the exercises later on. This document's body currently contains multiple

pieces of content. They aren't marked up in any way, but they are separated with linebreaks (Enter/Return pressed to go onto the next line).

However, when you open the document in your browser, you'll see that the text appears as a big chunk!

This is because there are no elements to give the content structure, so the browser does not know what is a heading and what is a paragraph. Furthermore:

- Users looking at a web page tend to scan quickly to find relevant content, often just reading the headings, to begin with. (We usually spend a very short time on a web page.) If they can't see anything useful within a few seconds, they'll likely get frustrated and go somewhere else.

- Search engines indexing your page consider the contents of headings as important keywords for influencing the page's search rankings. Without headings, your page will perform

poorly in terms of SEO (Search Engine Optimization).

- Severely visually impaired people often don't read web pages; they listen to them instead. This is done with software called a screen reader. This software provides ways to get fast access to given text content. Among the various techniques used, they provide an outline of the document by reading out the headings, allowing their users to find the information they need quickly. If headings are not available, they will

be forced to listen to the whole document read out loud.

- To style content with CSS, or make it do interesting things with JavaScript, you need to have elements wrapping the relevant content, so CSS/JavaScript can effectively target it.

Therefore, we need to give our content structural markup.

Active learning: Giving our content structure

Let's jump straight in with a live example. In the example below, add elements to the raw text in the Input field so that it appears as a heading and two paragraphs in the Output field.

If you make a mistake, you can always reset it using the Reset button. If you get stuck, press the Show solution button to see the answer.

Why do we need semantics?

Semantics are relied on everywhere around us—we rely on previous experience to tell us what the function of an everyday object is; when we see something, we know what its function will be. So, for example, we expect a red traffic light to mean "stop," and a green traffic light to mean "go." Things can get tricky very quickly if the wrong semantics are applied. (Do any countries use red to mean "go"? We hope not.)

In a similar vein, we need to make sure we are using the correct elements, giving our content the correct meaning, function, or appearance. In this context, the `<h1>` element is also a semantic element, which gives the text it wraps around the role (or meaning) of "a top level heading on your page."

```
<h1>This is a top level heading</h1>
```

By default, the browser will give it a large font size to make it look like a

heading (although you could style it to look like anything you wanted using CSS). More importantly, its semantic value will be used in multiple ways, for example by search engines and screen readers (as mentioned above).

On the other hand, you could make any element look like a top level heading. Consider the following:

```
<span style="font-size: 32px; margin: 21px 0; display: block;">Is this a top level heading?</span>
```

This is a `` element. It has no semantics. You use it to wrap content when you want to apply CSS to it (or do something to it with JavaScript) without giving it any extra meaning. (You'll find out more about these later on in the course.) We've applied some CSS to it to make it look like a top level heading, but since it has no semantic value, it will not get any of the extra benefits described above. It is a good idea to use the relevant HTML element for the job.

Lists

Now let's turn our attention to lists.

Lists are everywhere in life—from your shopping list to the list of directions you subconsciously follow to get to your house every day, to the lists of instructions you are following in these tutorials! Lists are everywhere on the web, too, and we've got three different types to worry about.

Unordered

Unordered lists are used to mark up lists of items for which the order of

the items doesn't matter. Let's take a shopping list as an example:

milk

eggs

bread

hummus

Every unordered list starts off with a `` element—this wraps around all the list items:

```
<ul>
```

milk

eggs

bread

hummus

The last step is to wrap each list item in a (list item) element:

milk

eggs

bread

hummus

Active learning: Marking up an unordered list

Try editing the live sample below to create your very own HTML unordered list.

Ordered

Ordered lists are lists in which the order of the items does matter. Let's take a set of directions as an example:

Drive to the end of the road

Turn right

Go straight across the first two roundabouts

Turn left at the third roundabout

The school is on your right, 300 meters up the road

The markup structure is the same as for unordered lists, except that you have to wrap the list items in an `` element, rather than ``:

```
<ol>
```

```
  <li>Drive to the end of the  
road</li>
```

Turn right

Go straight across the first two roundabouts

Turn left at the third roundabout

The school is on your right, 300 meters up the road

Active learning: Marking up an ordered list

Try editing the live sample below to create your very own HTML ordered list.

Active learning: Marking up our recipe page

So at this point in the article, you have all the information you need to mark up our recipe page example. You can choose to either save a local copy of our text-start.html starting file and do the work there or do it in the editable example below. Doing it locally will probably be better, as then you'll get to save the work you are doing, whereas if you fill it in to the editable example, it will be lost the

next time you open the page. Both have pros and cons.

If you get stuck, you can always press the Show solution button, or check out our `text-complete.html` example on our github repo.

Nesting lists

It is perfectly OK to nest one list inside another one. You might want to have some sub-bullets sitting below a top-level bullet. Let's take the second list from our recipe example:

```
<ol>
```


Remove the skin from the garlic, and chop coarsely.

Remove all the seeds and stalk from the pepper, and chop coarsely.

Add all the ingredients into a food processor.

Process all the ingredients into a paste.

If you want a coarse "chunky" hummus, process it for a short time.

```
<li>If you want a smooth hummus,  
process it for a longer time.</li>
```

```
</ol>
```

Since the last two bullets are very closely related to the one before them (they read like sub-instructions or choices that fit below that bullet), it might make sense to nest them inside their own unordered list and put that list inside the current fourth bullet. This would look like so:

```
<ol>
```

Remove the skin from the garlic, and chop coarsely.

Remove all the seeds and stalk from the pepper, and chop coarsely.

Add all the ingredients into a food processor.

Process all the ingredients into a paste.

If you want a coarse "chunky" hummus, process it for a short time.

`If you want a smooth hummus, process it for a longer time.`

``

``

``

Try going back to the previous active learning example and updating the second list like this.

Emphasis and importance

In human language, we often emphasize certain words to alter the

meaning of a sentence, and we often want to mark certain words as important or different in some way. HTML provides various semantic elements to allow us to mark up textual content with such effects, and in this section, we'll look at a few of the most common ones.

Emphasis

When we want to add emphasis in spoken language, we stress certain words, subtly altering the meaning of what we are saying. Similarly, in written language we tend to stress

words by putting them in italics. For example, the following two sentences have different meanings.

I am glad you weren't late.

I am glad you weren't late.

The first sentence sounds genuinely relieved that the person wasn't late. In contrast, the second one sounds sarcastic or passive-aggressive, expressing annoyance that the person arrived a bit late.

In HTML we use the `` (emphasis) element to mark up such

instances. As well as making the document more interesting to read, these are recognized by screen readers and spoken out in a different tone of voice. Browsers style this as italic by default, but you shouldn't use this tag purely to get italic styling. To do that, you'd use a `` element and some CSS, or perhaps an `<i>` element (see below).

```
<p>I am <em>glad</em> you  
weren't <em>late</em>.</p>
```

Strong importance

To emphasize important words, we tend to stress them in spoken language and bold them in written language. For example:

This liquid is highly toxic.

I am counting on you. Do not be late!

In HTML we use the `` (strong importance) element to mark up such instances. As well as making the document more useful, again these are recognized by screen readers and spoken in a different tone of voice.

Browsers style this as bold text by default, but you shouldn't use this tag purely to get bold styling. To do that, you'd use a `` element and some CSS, or perhaps a `` element (see below).

```
<p>This liquid is <strong>highly  
toxic</strong>.</p>
```

```
<p>I am counting on you.  
<strong>Do not</strong> be  
late!</p>
```

You can nest strong and emphasis inside one another if desired:

<p>This liquid is highly
toxic —

if you drink it, you may
die.</p>

Active learning: Let's be important

In this active learning section, we've
provided an editable example. Inside
it, we'd like you to try adding
emphasis and strong importance to
the words you think need them, just
to have some practice.

Italic, bold, underline...

The elements we've discussed so far have clearcut associated semantics. The situation with ``, `<i>`, and `<u>` is somewhat more complicated. They came about so people could write bold, italics, or underlined text in an era when CSS was still supported poorly or not at all. Elements like this, which only affect presentation and not semantics, are known as presentational elements and should no longer be used because, as we've seen before,

semantics is so important to accessibility, SEO, etc.

HTML5 redefined ``, `<i>`, and `<u>` with new, somewhat confusing, semantic roles.

Here's the best rule of thumb: It's likely appropriate to use ``, `<i>`, or `<u>` to convey a meaning traditionally conveyed with bold, italics, or underline, provided there is no more suitable element. However, it always remains critical to keep an accessibility mindset.

The concept of italics isn't very helpful to people using screen readers, or to people using a writing system other than the Latin alphabet.

- `<i>` is used to convey a meaning traditionally conveyed by italic: foreign words, taxonomic designation, technical terms, a thought...

- `` is used to convey a meaning traditionally conveyed by bold: key words, product names, lead sentence...

- `<u>` is used to convey a meaning traditionally conveyed by underline: proper name, misspelling...

Note: People strongly associate underlining with hyperlinks. Therefore, on the web, it's best to underline only links. Use the `<u>` element when it's semantically appropriate, but consider using CSS to change the default underline to something more appropriate on the web. The example below illustrates how it can be done.

<!-- scientific names -->

<p>

The Ruby-throated Hummingbird
(<i>Archilochus colubris</i>)

is the most common hummingbird in
Eastern North America.

</p>

<!-- foreign words -->

<p>

The menu was a sea of exotic words
like <i lang="uk-
latn">vatrushka</i> ,

`<i lang="id">nasi goreng</i> and
<i lang="fr">soupe à l'oignon</i>.`

`</p>`

`<!-- a known misspelling -->`

`<p>`

`Someday I'll learn how to <u
style="text-decoration-line:
underline; text-decoration-style:
wavy;">spel</u> better.`

`</p>`

`<!-- Highlight keywords in a set of
instructions -->`

Slice two pieces of bread
off the loaf.

Insert a tomato slice and
a leaf of

lettuce between the slices of bread.

WEB DESIGN 101: HOW HTML, CSS, AND JAVASCRIPT WORK

Ever wondered how computer programming works, but haven't done anything more complicated on the web than upload a photo to Facebook?

Then you're in the right place.

To someone who's never coded before, the concept of creating a website from scratch -- layout, design, and all -- can seem really intimidating. You might be picturing

Harvard students from the movie, *The Social Network*, sitting at their computers with gigantic headphones on and hammering out code, and think to yourself, 'I could never do that.'

Actually, you can.

Anyone can learn to code, just like anyone can learn a new language. In fact, programming is kind of like speaking a foreign language -- which is exactly why they're called programming languages.

Each one has its own rules and syntax that need to be learned step by step. Those rules are ways to tell your computer what to do. More specifically, in web programming, they're ways of telling your browsers what to do.

The goal of this post is to, in plain English, teach you with the basics of HTML, CSS, and one of the most common programming languages, JavaScript. But before we begin, let's get an idea of what programming languages actually are.

WHAT IS A PROGRAMMING LANGUAGE?

Programming, or coding, is like solving a puzzle. Consider a human language, like English or French. We use these languages to turn thoughts and ideas into actions and behavior. In programming, the goal of the puzzle is exactly the same -- you're just driving different kinds of behavior, and the source of that behavior isn't a human. It's a computer.

A programming language is our way of communicating with software. The people who use programming languages are often called programmers or developers. The things we tell software using a programming language could be to make a webpage look a certain way, or to make an object on the page move if the human user takes a certain action.

Programming in Web

Development

So, when a web designer is given an end goal like "create a webpage that has this header, this font, these colors, these pictures, and an animated unicorn walking across the screen when users click on this button," the web designer's job is to take that big idea and break it apart into tiny pieces, and then translate these pieces into instructions that the computer can understand -- including

putting all these instructions in the correct order or syntax.

Every page on the web that you visit is built using a sequence of separate instructions, one after another. Your browser (Chrome, Firefox, Safari, and so on) is a big actor in translating code into something we can see on our screens and even interact with. It can be easy to forget that code without a browser is just a text file -- it's when you put that text file into a browser that the magic happens. When you open a web page, your

browser fetches the HTML and other programming languages involved and interprets it.

HTML and CSS are actually not technically programming languages; they're just page structure and style information. But before moving on to JavaScript and other true languages, you need to know the basics of HTML and CSS, as they are on the front end of every web page and application.

In the very early 1990s, HTML was the only language available on the web. Web developers had to

painstakingly code static sites, page by page. A lot's changed since then: Now there are many computer programming languages available.

In this post, I'll talk about HTML, CSS, and one of the most common programming languages: JavaScript.

BEGINNER'S GUIDE TO HTML & CSS

HTML, CSS, & JavaScript: A Tutorial

An overview:

- HTML provides the basic structure of sites, which is enhanced and modified by other technologies like CSS and JavaScript.
- CSS is used to control presentation, formatting, and layout.
- JavaScript is used to control the behavior of different elements.

Now, let's go over each one individually to help you understand the roles each plays on a website and then we'll cover how they fit together. Let's start with good ol' HTML.

HTML

HTML is at the core of every web page, regardless the complexity of a site or number of technologies involved. It's an essential skill for any web professional. It's the starting point for anyone learning how to create content for the web. And,

luckily for us, it's surprisingly easy to learn.

How does HTML work?

HTML stands for HyperText Markup Language. "Markup language" means that, rather than using a programming language to perform functions, HTML uses tags to identify different types of content and the purposes they each serve to the webpage.

Let me show you what I mean. Take a look at the article below.

If I were to ask you to label the types of content on the page, you'd probably do pretty well: There's the header at the top, then a subheader below it, the body text, and some images at the bottom followed by a few more bits of text.

Markup languages work in the same way as you just did when you labeled those content types, except they use code to do it -- specifically, they use HTML tags, also known as "elements." These tags have pretty intuitive

names: Header tags, paragraph tags, image tags, and so on.

Every web page is made up of a bunch of these HTML tags denoting each type of content on the page. Each type of content on the page is "wrapped" in, i.e. surrounded by, HTML tags.

For example, the words you're reading right now are part of a paragraph. If I were coding this web page from scratch (instead of using the WYSIWG editor in

HubSpot's CMS), I would have started this paragraph with an opening paragraph tag: `<p>`. The "tag" part is denoted by open brackets, and the letter "p" tells the computer that we're opening a paragraph instead of some other type of content.

Once a tag has been opened, all of the content that follows is assumed to be part of that tag until you "close" the tag. When the paragraph ends, I'd put a closing paragraph tag: `</p>`. Notice that closing tags look exactly the same as opening tags,

except there is a forward slash after the left angle bracket. Here's an example:

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

Using HTML, you can add headings, format paragraphs, control line breaks, make lists, emphasize text, create special characters, insert images, create links, build tables, control some styling, and much more.

To learn more about coding in HTML, I recommend checking out our guide to basic HTML, and using the free

classes and resources on codecademy
-- but for now, let's move on to CSS.

CSS

CSS stands for Cascading Style Sheets. This programming language dictates how the HTML elements of a website should actually appear on the frontend of the page.

HTML vs CSS

HTML provides the raw tools needed to structure content on a website. CSS, on the other hand, helps to style this content so it appears to the user

the way it was intended to be seen. These languages are kept separate to ensure websites are built correctly before they're reformatted.

If HTML is the drywall, CSS is the paint.

Whereas HTML was the basic structure of your website, CSS is what gives your entire website its style. Those slick colors, interesting fonts, and background images? All thanks to CSS. This language affects the entire mood and tone of a

web page, making it an incredibly powerful tool -- and an important skill for web developers to learn. It's also what allows websites to adapt to different screen sizes and device types.

To show you what CSS does to a website, look at the following two screenshots. The first screenshot is my colleague's blog post, but shown in Basic HTML, and the second screenshot is that same blog post with HTML and CSS.

EXAMPLE OF HTML (WITH NO CSS)

Notice all the content is still there, but the visual styling isn't. This is what you might see if the style sheet doesn't load on the website, for whatever reason. Now, here's what the same web page looks like with CSS added.

Example of HTML + CSS

Isn't that prettier?

Put simply, CSS is a list of rules that can assign different properties to

HTML tags, either specified to single tags, multiple tags, an entire document, or multiple documents. It exists because, as design elements like fonts and colors were developed, web designers had a lot of trouble adapting HTML to these new features.

You see, HTML, developed back in 1990, was not really intended to show any physical formatting information. It was originally meant only to define a document's structural content, like headers versus paragraphs. HTML outgrew these new design features,

and CSS was invented and released in 1996: All formatting could be removed from HTML documents and stored in separate CSS (.css) files.

So, what exactly does CSS stand for? It stands for Cascading Style Sheets - - and "style sheet" refers to the document itself. Every web browser has a default style sheet, so every web page out there is affected by at least one style sheet -- the default style sheet of whatever browser the web page visitor is using -- regardless whether or not the web designer

applies any styles. For example, my browser's default font style is Times New Roman, size 12, so if I visited a web page where the designer didn't apply a style sheet of their own, I would see the web page in Times New Roman, size 12.

Obviously, the vast majority of web pages I visit don't use Times New Roman, size 12 -- that's because the web designers behind those pages started out with a default style sheet that had a default font style, and then they overrode my browser's defaults

with custom CSS. That's where the word "cascading" comes into play. Think about a waterfall -- as water cascades down the fall, it hits all the rocks on the way down, but only the rocks at the bottom affect where it will end up flowing. In the same way, the last defined style sheet informs my browser which instructions have precedence.

To learn the specifics of coding in CSS, I'll point you again to the free classes and resources on

codecademy. But for now, let's talk a bit about JavaScript.

JavaScript

JavaScript is a more complicated language than HTML or CSS, and it wasn't released in beta form until 1995. Nowadays, JavaScript is supported by all modern web browsers and is used on almost every site on the web for more powerful and complex functionality.

What is JavaScript used for?

JavaScript is a logic-based programming language that can be used to modify website content and make it behave in different ways in response to a user's actions. Common uses for JavaScript include confirmation boxes, calls-to-action, and adding new identities to existing information.

In short, JavaScript is a programming language that lets web developers design interactive sites. Most of the dynamic behavior you'll see on a web

page is thanks to JavaScript, which augments a browser's default controls and behaviors.

Creating Confirmation Boxes

One example of JavaScript in action is boxes that pop up on your screen. Think about the last time you entered your information into an online form and a confirmation box popped up, asking you to press "OK" or "Cancel" to proceed. That was made possible because of JavaScript -- in the code, you'd find an "if ... else ..." statement that tells the computer to do one

thing if the user clicks "OK," and a different thing if the user clicks "Cancel."

Triggering Slide-In CTAs

Another example of JavaScript in action is a slide-in call-to-action (CTA), like the ones we put on our blog posts, which appears on the bottom right-hand side of your screen when you scroll past the end of the sidebar. Here's what it looks like:

Storing New Information

JavaScript is particularly useful for assigning new identities to existing website elements, according to the decisions the user makes while visiting the page. For example, let's say you're building a landing page with a form you'd like to generate leads from by capturing information about a website visitor. You might have a "string" of JavaScript dedicated to the user's first name. That string might look something like this:

```
function updateFirstname() {  
  
    let Firstname = prompt('First Name');  
  
}
```

Then, after the website visitor enters his or her first name -- and any other information you require on the landing page -- and submits the form, this action updates the identity of the initially undefined "Firstname" element in your code. Here's how you might thank your website visitor by name in JavaScript:

```
para.textContent = 'Thanks, ' +  
Firstname + "! You can now download  
your ebook."
```

In the string of JavaScript above, the "Firstname" element has been assigned the first name of the website visitor, and will therefore produce his or her actual first name on the frontend of the webpage. To a user named Kevin, the sentence would look like this:

Thanks, Kevin! You can now download your ebook.

Security, Games, and Special Effects

Other uses for JavaScript include security password creation, check forms, interactive games, animations, and special effects. It's also used to build mobile apps and create server-based applications. You can add JavaScript to an HTML document by adding these "scripts," or snippets of JavaScript code, into your document's header or body.

BUILDING YOUR FIRST WEB

PAGE

If you can, imagine a time before the invention of the Internet. Websites didn't exist, and books, printed on paper and tightly bound, were your primary source of information. It took a considerable amount of effort—and reading—to track down the exact piece of information you were after.

Today you can open a web browser, jump over to your search engine of choice, and search away.

Any bit of imaginable information rests at your fingertips. And chances are someone somewhere has built a website with your exact search in mind.

Within this book I'm going to show you how to build your own websites using the two most dominant computer languages—HTML and CSS.

Before we begin our journey to learn how to build websites with HTML and CSS, it is important to understand the differences between the two

languages, the syntax of each language, and some common terminology.

What Are HTML & CSS?

HTML, HyperText Markup Language, gives content structure and meaning by defining that content as, for example, headings, paragraphs, or images. CSS, or Cascading Style Sheets, is a presentation language created to style the appearance of content—using, for example, fonts or colors.

The two languages—HTML and CSS—are independent of one another and should remain that way. CSS should not be written inside of an HTML document and vice versa. As a rule, HTML will always represent content, and CSS will always represent the appearance of that content.

With this understanding of the difference between HTML and CSS, let's dive into HTML in more detail.

Understanding Common HTML Terms

While getting started with HTML, you will likely encounter new—and often strange—terms. Over time you will become more and more familiar with all of them, but the three common HTML terms you should begin with are elements, tags, and attributes.

Elements

Elements are designators that define the structure and content of objects within a page. Some of the more frequently used elements include multiple levels of headings (identified

as `<h1>` through `<h6>` elements) and paragraphs (identified as the `<p>` element); the list goes on to include the `<a>`, `<div>`, ``, ``, and `` elements, and many more.

Elements are identified by the use of less-than and greater-than angle brackets, `<` `>`, surrounding the element name. Thus, an element will look like the following:

1

2 `<a>`

The use of less-than and greater-than angle brackets surrounding an element creates what is known as a tag. Tags most commonly occur in pairs of opening and closing tags.

An opening tag marks the beginning of an element. It consists of a less-than sign followed by an element's name, and then ends with a greater-than sign; for example, `<div>`.

A closing tag marks the end of an element. It consists of a less-than sign followed by a forward slash and

the element's name, and then ends with a greater-than sign; for example, `</div>`.

The content that falls between the opening and closing tags is the content of that element. An anchor link, for example, will have an opening tag of `<a>` and a closing tag of ``. What falls between these two tags will be the content of the anchor link.

So, anchor tags will look a bit like this:

1

2 `<a>...`

Attributes

Attributes are properties used to provide additional information about an element. The most common attributes include the id attribute, which identifies an element; the class attribute, which classifies an element; the src attribute, which specifies a source for embeddable content; and the href attribute, which provides a hyperlink reference to a linked resource.

Attributes are defined within the opening tag, after an element's name. Generally attributes include a name and a value. The format for these attributes consists of the attribute name followed by an equals sign and then a quoted attribute value. For example, an `<a>` element including an href attribute would look like the following:

1

2 `Shay
Howe`

Common HTML Terms Demo

The preceding code will display the text "Shay Howe" on the web page and will take users to <http://shayhowe.com/> upon clicking the "Shay Howe" text. The anchor element is declared with the opening `<a>` and closing `` tags encompassing the text, and the hyperlink reference attribute and value are declared with `href="http://shayhowe.com"` in the opening tag.

HTML syntax outline including an element, attribute, and tag

Now that you know what HTML elements, tags, and attributes are, let's take a look at putting together our first web page. If anything looks new here, no worries—we'll decipher it as we go.

Setting Up the HTML Document Structure

HTML documents are plain text documents saved with an .html file extension rather than a .txt file extension.

To begin writing HTML, you first need a plain text editor that you are comfortable using. Sadly this does not include Microsoft Word or Pages, as those are rich text editors. Two of the more popular plain text editors for writing HTML and CSS are Dreamweaver and Sublime Text. Free alternatives also include Notepad++ for Windows and TextWrangler for Mac.

All HTML documents have a required structure that includes the following declaration and elements:

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`<!DOCTYPE html>`, `<html>`, `<head>`,
and `<body>`.

The document type declaration, or `<!DOCTYPE html>`, informs web browsers which version of HTML is being used and is placed at the very beginning of the HTML document. Because we'll be using the latest version of HTML, our document type declaration is simply `<!DOCTYPE html>`. Following the document type declaration, the `<html>` element signifies the beginning of the document.

Inside the `<html>` element, the `<head>` element identifies the top of the document, including any metadata (accompanying information about the page). The content inside the `<head>` element is not displayed on the web page itself. Instead, it may include the document title (which is displayed on the title bar in the browser window), links to any external files, or any other beneficial metadata.

All of the visible content within the web page will fall within the <body> element. A breakdown of a typical HTML document structure looks like this:

```
<!DOCTYPE html>
```

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

```
<head>
```

```
<meta charset="utf-8">
```

```
<title>Hello World</title>
```

```
</head>
```

```
<body>
```

```
<h1>Hello World</h1>
```

```
<p>This is a web page.</p>
```

```
</body>
```

```
</html>
```

HTML Document Structure Demo

The preceding code shows the document beginning with the document type declaration, `<!DOCTYPE html>`, followed directly by the `<html>` element. Inside the `<html>` element come the `<head>` and `<body>` elements. The `<head>` element includes the character

encoding of the page via the `<meta charset="utf-8">` tag and the title of the document via the `<title>` element. The `<body>` element includes a heading via the `<h1>` element and a paragraph via the `<p>` element. Because both the heading and paragraph are nested within the `<body>` element, they are visible on the web page.

When an element is placed inside of another element, also known as nested, it is a good idea to indent that

element to keep the document structure well organized and legible. In the previous code, both the `<head>` and `<body>` elements were nested—and indented—inside the `<html>` element. The pattern of indenting for elements continues as new elements are added inside the `<head>` and `<body>` elements.

Self-Closing Elements

In the previous example, the `<meta>` element had only one tag and didn't include a closing tag. Fear not, this was intentional.

Not all elements consist of opening and closing tags. Some elements simply receive their content or behavior from attributes within a single tag. The `<meta>` element is one of these elements. The content of the previous `<meta>` element is assigned with the use of the `charset` attribute and value. Other common selfclosing elements include

- `
`
- `<embed>`
- `<hr>`
- ``

- `<input>`
- `<link>`
- `<meta>`
- `<param>`
- `<source>`
- `<wbr>`

The structure outlined here, making use of the `<!DOCTYPE html>` document type and `<html>`, `<head>`, and `<body>` elements, is quite common. We'll want to keep this document structure handy, as we'll be using it often as we create new HTML documents.

Code Validation

No matter how careful we are when writing our code, we will inevitably make mistakes. Thankfully, when writing HTML and CSS we have validators to check our work. The W3C has built both HTML and CSS validators that will scan code for mistakes. Validating our code not only helps it render properly across all browsers, but also helps teach us the best practices for writing code.

In Practice

As web designers and front-end developers, we have the luxury of attending a number of great conferences dedicated to our craft. We're going to make up our own conference, Styles Conference, and build a website for it throughout the following lessons. Here we go!

1. Let's open our text editor, create a new file named `index.html`, and save it to a location we won't forget.

I'm going to create a folder on my Desktop named "styles- conference" and save this file there; feel free to do the same.

2. Within the index.html file, let's add the document structure, including the `<!DOCTYPE html>` document type and the `<html>`, `<head>`, and `<body>` elements.

```
<!DOCTYPE html>
```

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

```
<head>
```

```
</head>
```

```
<body>
```

```
</body>
```

```
</html>
```

Inside the `<head>` element, let's add `<meta>` and `<title>` elements. The `<meta>` element should include the proper `charset` attribute and value, while the `<title>` element should contain the title of the page—let's say "Styles Conference."

```
<head>
```

```
<meta charset="utf-8">
```

```
<title>Styles Conference</title>
```

```
</head>
```

Inside the `<body>` element, let's add `<h1>` and `<p>` elements. The `<h1>` element should include the heading we wish to include—let's use "Styles Conference" again—and the `<p>` element should include a simple paragraph to introduce our conference.

```
<body>
```

```
<h1>Styles Conference</h1>
```

<p>Every year the brightest web designers and front-end developers descend on Chicago to discuss the latest technologies. Join us this August!</p>

</body>

Now it's time to see how we've done! Let's go find our index.html file (mine is within the "styles-conference" folder on my Desktop). Double-clicking this file or dragging it into a web browser will open it for us to review.

Let's switch gears a bit, moving away from HTML, and take a look at CSS. Remember, HTML will define the content and structure of our web pages, while CSS will define the visual style and appearance of our web pages.

UNDERSTANDING COMMON CSS TERMS

In addition to HTML terms, there are a few common CSS terms you will want to familiarize yourself with. These terms include selectors, properties, and values. As with the HTML terminology, the more you work with CSS, the more these terms will become second nature.

Selectors

As elements are added to a web page, they may be styled using CSS.

A selector designates exactly which element or elements within our HTML to target and apply styles (such as color, size, and position) to. Selectors may include a combination of different qualifiers to select unique elements, all depending on how specific we wish to be. For example, we may want to select every paragraph on a page, or we may want to select only one specific paragraph on a page.

Selectors generally target an attribute value, such as an id or class value, or

target the type of element, such as `<h1>` or `<p>`.

Within CSS, selectors are followed with curly brackets, `{}`, which encompass the styles to be applied to the selected element. The selector here is targeting all `<p>` elements.

Properties

Once an element is selected, a property determines the styles that will be applied to that element. Property names fall after a selector, within the curly brackets, `{}`, and

immediately preceding a colon, `:`.

There are numerous properties we can use, such as background, color, font-size, height, and width, and new properties are often added. In the following code, we are defining the color and font-size properties to be applied to all `<p>` elements.

```
p {  
  
    color: ...;  
  
    font-size: ...;  
  
}
```

Values

So far we've selected an element with a selector and determined what style we'd like to apply with a property. Now we can determine the behavior of that property with a value. Values can be identified as the text between the colon, :, and semicolon, ;. Here we are selecting all <p> elements and setting the value of the color property to be orange and the value of the font-size property to be 16 pixels.

```
p {
```

```
color: orange;  
  
font-size: 16px;  
  
}
```

To review, in CSS our rule set begins with the selector, which is immediately followed by curly brackets. Within these curly brackets are declarations consisting of property and value pairs. Each declaration begins with a property, which is followed by a colon, the property value, and finally a semicolon.

It is a common practice to indent property and value pairs within the curly brackets. As with HTML, these indentations help keep our code organized and legible.

CSS syntax outline including a selector, properties, and values

Knowing a few common terms and the general syntax of CSS is a great start, but we have a few more items to learn before jumping in too deep. Specifically, we need to take a closer look at how selectors work within CSS.

Working with Selectors

Selectors, as previously mentioned, indicate which HTML elements are being styled. It is important to fully understand how to use selectors and how they can be leveraged. The first step is to become familiar with the different types of selectors. We'll start with the most common selectors: type, class, and ID selectors.

Type Selectors

Type selectors target elements by their element type.

For example, should we wish to target all division elements, `<div>`, we would use a type selector of `div`. The following code shows a type selector for division elements as well as the corresponding HTML it selects.

CSS

```
div { ... }
```

HTML

```
<div>...</div>
```

```
<div>...</div>
```

Class Selectors

Class selectors allow us to select an element based on the element's class attribute value. Class selectors are a little more specific than type selectors, as they select a particular group of elements rather than all elements of one type.

Class selectors allow us to apply the same styles to different elements at once by using the same class attribute value across multiple elements.

Within CSS, classes are denoted by a leading period, ., followed by the class attribute value. Here the class selector will select any element containing the class attribute value of awesome, including both division and paragraph elements.

CSS

```
.awesome { ... }
```

HTML

```
<div class="awesome">...</div>
```

```
<p class="awesome">...</p>
```


ID Selectors

ID selectors are even more precise than class selectors, as they target only one unique element at a time. Just as class selectors use an element's class attribute value as the selector, ID selectors use an element's id attribute value as a selector.

Regardless of which type of element they appear on, id attribute values can only be used once per page.

If used they should be reserved for significant elements.

Within CSS, ID selectors are denoted by a leading hash sign, #, followed by the id attribute value. Here the ID selector will only select the element containing the id attribute value of shayhowe.

CSS

```
#shayhowe { ... }
```

HTML

```
<div id="shayhowe">...</div>
```

Additional Selectors

Selectors are extremely powerful, and the selectors outlined here are the most common selectors we'll come across. These selectors are also only the beginning. Many more advanced selectors exist and are readily available. When you feel comfortable with these selectors, don't be afraid to look into some of the more advanced selectors.

All right, everything is starting to come together.

We add elements to a page inside our HTML, and we can then select those elements and apply styles to them using CSS. Now let's connect the dots between our HTML and CSS, and get these two languages working together.

Referencing CSS

In order to get our CSS talking to our HTML, we need to reference our CSS file within our HTML. The best practice for referencing our CSS is to include all of our styles in a single external style sheet, which is

referenced from within the `<head>` element of our HTML document. Using a single external style sheet allows us to use the same styles across an entire website and quickly make changes sitewide.

Other Options for Adding CSS

Other options for referencing CSS include using internal and inline styles. You may come across these options in the wild, but they are generally frowned upon, as they make updating websites cumbersome and unwieldy.

To create our external CSS style sheet, we'll want to use our text editor of choice again to create a new plain text file with a .css file extension. Our CSS file should be saved within the same folder, or a subfolder, where our HTML file is located.

Within the `<head>` element of the HTML document, the `<link>` element is used to define the relationship between the HTML file and the CSS file. Because we are linking to CSS, we use the `rel` attribute with a value

of stylesheet to specify their relationship. Furthermore, the href (or hyperlink reference) attribute is used to identify the location, or path, of the CSS file.

Consider the following example of an HTML document <head> element that references a single external style sheet.

```
<head>

    <link                rel="stylesheet"
href="main.css">

</head>
```

In order for the CSS to render correctly, the path of the href attribute value must directly correlate to where our CSS file is saved. In the preceding example, the main.css file is stored within the same location as the HTML file, also known as the root directory.

If our CSS file is within a subdirectory or subfolder, the href attribute value needs to correlate to this path accordingly. For example, if our main.css file were stored within a subdirectory named stylesheets, the

href attribute value would be stylesheets/main.css, using a forward slash to indicate moving into a subdirectory.

At this point our pages are starting to come to life, slowly but surely. We haven't delved into CSS too much, but you may have noticed that some elements have default styles we haven't declared within our CSS. That is the browser imposing its own preferred CSS styles for those elements.

Fortunately we can overwrite these styles fairly easily, which is what we'll do next using CSS resets.

Using CSS Resets

Every web browser has its own default styles for different elements. How Google Chrome renders headings, paragraphs, lists, and so forth may be different from how Internet Explorer does. To ensure cross-browser compatibility, CSS resets have become widely used.

CSS resets take every common HTML element with a predefined style and provide one unified style for all browsers. These resets generally involve removing any sizing, margins, paddings, or additional styles and toning these values down. Because CSS cascades from top to bottom—more on that soon—our reset needs to be at the very top of our style sheet. Doing so ensures that those styles are read first and that all of the different web browsers are working from a common baseline.

There are a bunch of different resets available to use, all of which have their own fortes. One of the most popular resets is Eric Meyer's reset, which has been adapted to include styles for the new HTML5 elements.

If you are feeling a bit more adventurous, there is also Normalize.css, created by Nicolas Gallagher. Normalize.css focuses not on using a hard reset for all common elements, but instead on setting common styles for these elements.

It requires a stronger understanding of CSS, as well as awareness of what you'd like your styles to be.

Cross-Browser Compatibility & Testing

As previously mentioned, different browsers render elements in different ways. It's important to recognize the value in cross-browser compatibility and testing. Websites don't need to look exactly the same in every browser, but they should be close. Which browsers you wish to support, and to what degree, is a decision you

will need to make based on what is best for your website.

In all there are a handful of things to be on the lookout for when writing CSS. The good news is that anything is possible, and with a little patience we'll figure it all out.

In Practice

Picking back up where we last left off on our conference website, let's see if we can add in a bit of CSS.

1. Inside of our "styles-conference" folder, let's create a new folder

named “assets.” We’ll store all of the assets for our website, such as our style sheets, images, videos, and so forth, in this folder. For our style sheets, let’s go ahead and add another folder named “stylesheets” inside the “assets” folder.

2. Using our text editor, let’s create a new file named main.css and save it within the “stylesheets” folder we just created.

3. Looking at our index.html file in a web browser, we can see that the

`<h1>` and `<p>` elements each have default CSS styles. Specifically, they each have a unique font size and spacing around them. Using Eric Meyer's reset, we can tone down these styles, allowing each of them to be styled from the same base. To do this let's head over to Eric's website, copy his reset, and paste it at the top of our main.css file.

```
/*  
  
http://meyerweb.com/eric/tools/css/r  
eset/ 2. v2.0 | 20110126
```


License: none (public domain)

*/

html, body, div, span, applet, object,
iframe,

h1, h2, h3, h4, h5, h6, p, blockquote,
pre,

a, abbr, acronym, address, big, cite,
code,

del, dfn, em, img, ins, kbd, q, s,
samp,

small, strike, strong, sub, sup, tt, var,

b, u, i, center,

dl, dt, dd, ol, ul, li,

fieldset, form, label, legend,

table, caption, tbody, tfoot, thead, tr,

th, td,

article, aside, canvas, details, embed,

figure, figcaption, footer, header,

hgroup,

menu, nav, output, ruby, section,

summary,

time, mark, audio, video {

margin: 0;

padding: 0;

```
border: 0;

font-size: 100%;

font: inherit;

vertical-align: baseline;

}

/* HTML5 display-role reset for older
browsers */

article, aside, details, figcaption,
figure,

footer, header, hgroup, menu, nav,
section {

display: block;
```

```
}
```

```
body {
```

```
    line-height: 1;
```

```
}
```

```
ol, ul {
```

```
    list-style: none;
```

```
}
```

```
blockquote, q {
```

```
    quotes: none;
```

```
}
```

```
blockquote:before, blockquote:after,
```

```
q:before, q:after {  
  
    content: "";  
  
    content: none;  
  
}  
  
table {  
  
    border-collapse: collapse;  
  
    border-spacing: 0;  
  
}
```

With our main.css file starting to take shape, let's connect it to our index.html file.

Opening the index.html file in our text editor, let's add the `<link>` element within our `<head>` element, just after the `<title>` element.

Because we'll be referencing a style sheet within the `<link>` element, let's add the relation attribute, `rel`, with a value of `stylesheet`.

We also want to include a hyperlink reference, using the `href` attribute, to our `main.css` file. Remember, our `main.css` file is saved within the "stylesheets" folder, which is inside the "assets" folder.

Therefore, the href attribute value, which is the path to our main.css file, needs to be assets/stylesheets/main.css.

```
<head>
```

```
  <meta charset="utf-8">
```

```
  <title>Styles Conference</title>
```

```
  <link          rel="stylesheet"
  href="assets/stylesheets/main.css">
```

```
</head>
```

Time to check out our work and see if our HTML and CSS are getting along.

Now opening our index.html file (or

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refreshing the page if it's already opened) within a web browser should show slightly different results than before.

EXPERIENCE HTML

In this chapter, we will go through and explore the HTML experiences. HTML experience is just like fun for developers as well as beginners. As we know HTML is the language for creating web document. So if you want to create web pages then first learn HTML language.

Experiencing HTML language is just learning and gaining your experiences from past and overcome your mistakes and errors.

HTML is the markup language to design and implement web pages. HTML is constituted by its elements called "tag", such as p tag, body tag, b tag etc. We use these tags as requirement. When we walk for experiencing HTML, we always mention these HTML tags because tags are primary unit to implement HTML in web documents. The most important tags are html, body, head title, image, table, line break, horizontal rule, paragraph, list, anchor and heading.

Generally, with the help and support of above mentioned elements, one can create web document easily but there are more elements lies in the category of HTML elements, so will taste little about above mentioned important tags.

HTML Table:

In this article, we are only for exploring the ideas with the help and assistance of our beneficial experience in HTML. So we are talking and discussing about HTML table.

To grab the ideas of table, first think and analyze for tables. "Tables are just like the container for data and information and table used to arrange data in convenient manner".

HTML Image:

If someone desire to put picture in web document then think about the HTML image. To reveal the experience in HTML, we are taking the participation in discussion about HTML images. Images are frequently used in web pages, it's easily and beneficial

way to fill the document and do not forget to mention alt attribute in HTML image for SEO purpose.

HTML Paragraph:

While experiencing HTML, it becomes a milestone to share the ideas of HTML paragraph. Generally web pages are divided into paragraph to fit predefined layout. If one want his pages are smooth for accessing the website then always use paragraph intelligently.

HTML Heading:

Now we go through HTML heading, mostly we use HTML heading to write content in bold and large font ie for heading purpose. There are six type of heading elements available and they are h1, h2, h3, h4, h5 and h6. These headings are in series and in decreasing order ie h1 used for largest font and h6 used for smallest font.

HTML Anchor:

HTML anchor used to connect one document to another document on the web. While thinking about HTML anchor and sharing the HTML experience, it is necessary to spread the idea of anchors. Internet is just like bunch of web pages connecting to each other. Web pages are connected by anchor element. So if you want to move on another page always use anchor tag in your coding.

Cascading Style Sheet:

You are not only bond for HTML but you need to explore your ideas, capabilities of CSS. Yes, CSS (cascading style sheet) used to set layout and styles of the web pages, again i would like to say that combination of HTML and CSS makes pages stylish. On the way of experiencing HTML we always move around CSS. So at this point of article I will recommend that it is always a good idea to implement CSS in HTML document.

WHAT YOU SHOULD KNOW

ABOUT HTML CODE

HTML elements form the building blocks of all websites. The html heading is defined as

`<h1> to </h6>`

tags.

Eg:

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

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

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

The paragraph is defines as

```
<p> paragraph </p>
```

HTML links are defined with the

```
<a>
```

tag.

Eg:

```
<a href="http://hello  
world.com">This is a link</a>
```

Html image is defined as

```

```

THE HTML ELEMENT SYNTAX

An HTML element starts with a

`start tag / opening tag`

An HTML element ends with an

`end tag / closing tag`

The `element content` is everything between the start and the end tag

Some HTML elements have

`empty content`

Empty elements are `closed` in the start tag ``

Most HTML elements can have
attributes

HTML EXAMPLE

```
<html>
```

```
<body>
```

```
<p>This is my first page.</p>
```

```
</body>
```

```
</html>
```

In this example

```
<body>
```

element defines the body of the HTML document. The element has a start tag

`<body>`

and an end tag

`</body>`

.

The element content is another HTML element (p element).

The

`<html>`

element defines the whole HTML document.

The element has a start tag

```
<html>
```

and an end tag

```
</html>.
```

Don't forget the end tag because forgetting the end tag can produce errors.

HTML elements with no content are called empty elements. Empty elements can be closed in the start tag.

`
` is an empty element without a closing tag (the `
` tag defines a line break).

HTML ATTRIBUTES

EXAMPLE OF HTML ATTRIBUTES:

```
<a href="http://hello
world.com">This is a link</a>
```

HTML FORMATTING TAGS

HTML uses tags like `` and `<i>` for formatting output, like `bold` or `<i>italic</i>` text.

HTML STYLE ATTRIBUTES

Styles was introduced with HTML 4, as the new and preferred way to style HTML elements. With HTML styles, styles can be added to HTML elements directly by using the style attribute, or indirectly in separate style sheets (CSS files).

EXAMPLE:

```
<html>
```

```
<body>
```

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


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

</body>

</html>

HTML TABLE

The HTML table divided into rows with
tag and each row is divided into data
cells with

<td>

tag. The

<td >

tag is stands for table data. A

<td>

tag can contain text, links, images, lists, forms, other tables, etc.

Example:

```
<table border="1">
```

```
<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>
```

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```
</table>
```

Use this code to display it own browser.

TABLE HEADER EXAMPLE

```
<table border="1">
```

```
<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>
```

HTML LISTS

There are 2 types of lists in html i.e ordered and unordered lists.

- An ordered list:

The first list item

The second list item

The third list item

- An unordered list:

List item

List item

List item

HTML FRAMES

With frames, you can display more than one HTML document in the same browser window.

Each HTML document is called a frame, and each frame is independent of the others.

The disadvantages of using frames are:

The web developer must keep track of more HTML documents

It is difficult to print the entire page

EXAMPLE:

```
<frameset cols="25%,75%">
```

```
<frame src="frame_a.htm" />
```

```
<frame src="frame_b.htm" />
```

`</frameset>`

The frameset column size can also be set in pixels (`cols="200,500"`), and one of the columns can be set to use the remaining space, with an asterisk (`cols="25%,*"`).

HTML FORMS

A form can contain input elements like text fields, checkboxes, radio-buttons, submit buttons and more. A form can also contain select lists, textarea, fieldset, legend, and label elements.

The most important form element is the input element

EXAMPLE:

```
<form>
```

```
First  name:  <input  type="text"
name="firstname" /> <br />
```

```
Last  name:  <input  type="text"
name="lastname" />
```

```
</form>
```


CHECKBOXES

EXAMPLE:

```
<form>
```

```
<input                type="checkbox"
name="vehicle" value="Bike" /> I
have a bike<br />
```

```
<input                type="checkbox"
name="vehicle" value="Car" /> I
have a car
```

```
</form>
```

Radio Buttons

EXAMPLE:

```
<form>
```

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

```
<input type="radio" name="sex"  
value="female" /> Female
```

```
</form>
```

Submit Button

EXAMPLE:

```
<form name="input"  
action="html_form_action.asp"  
method="get">
```

```
Username:    <input    type="text"
name="user" />

<input                type="submit"
value="Submit" />

</form>
```

CONCLUSION

HTML or Hypertext Markup Language is the basic language used in the creation of web pages. Hypertext refers to text stored in electronic format that can be cross-linked, and markup language refers to a set of instructions for displaying information. When HTML was initially developed in the early 1990s, web pages consisted primarily of text and the first version of HTML was primarily concerned with displaying text. However, HTML has evolved

over the years and now HTML can instruct the browser not only how to display text information but such component parts of a web page as: graphics, multimedia, scripts, etc.

In the early days of web design there were no standardized rules for HTML, and different browsers would display web pages differently. In addition, Netscape and Explorer, the two most popular web browsers at the time, started creating their own versions of HTML, meaning that a web page designed for Netscape might not

display properly in Explorer, and visa versa. To resolve these problems, the World Wide Web Consortium was founded in 1994. Its goal is to set standards that all those involved in web site creation could follow, and that would be displayed similarly no matter which browser was used. The World Wide Web Consortium was instrumental in creating and updating HTML versions, as web pages grew more sophisticated.

HTML versions have changed with the times, starting with HTML 2.0 in 1995

(there was no HTML 1.0 designation even though HTML had been in use for several years before HTML 2.0) to the most current version in production: HTML 5.0

Another key development that impacted HTML was the creation of XML, or Extensible Markup Language, which is basically a standard for the creation of Markup Languages, stricter than the standards followed by HTML. To create a version of HTML to conform to XML standards, the

World Wide Web Consortium developed XHTML, which is basically HTML with stricter guidelines.

HTML is a series of text instructions that instruct a web browser how to display a web page, as mentioned above, and therefore a web page can theoretically be designed with a text editor, such as Notepad or Word. However, in practice it is common to use software designed specifically for web page creation, such as Dreamweaver.

With this software it is possible in theory to design an advanced website without any familiarity with HTML.

The basic building block of HTML is the tag. A tag is a command used to tell a browser how to display a part of the web page. A tag consists of a word or phrase enclosed in brackets. While there are literally hundreds of tags, every webpage will generally include the following: html, head, title and body.

In addition, most web pages will include at least one paragraph, or p tag.

Some other common tags include:

h

Heading

Heading tags display text in large bold letters, with the size ranging from 1 to 6, with 1 being the largest.

li

List Item

A list item. Can be combined with the `ol` or `ul` tag for an ordered or unordered list.

b

Bold

Displays text enclosed within in bold lettering.

i

Italic

Displays text enclosed with in italic lettering.



Image

Used as a stand alone tag to display an image inside a web page.

a

Anchor

Use to create hyperlinks to other web pages within the same site or on other sites.

br

Break

Creates a line break without a space, unlike the paragraph tag.

div

Division

A generic tag used for formatting with style sheets.

The `html` tag instructs the browser to expect an `html` document, in other words a web page. The `head` and `title` tags are used to indicate text that will be displayed at the top of the browser window, and the `body` tag indicates text that will be displayed in the main browser window. The `paragraph` tag is

used to separate the text into paragraphs.

Most HTML tags consist of two parts: an opening tag and a closing tag. Tags are enclosed by brackets as mentioned above, and the closing bracket includes a slash; /. After creating the web page, the file is saved with a name, using the .htm or html extension.

Of course this is just the beginning. HTML can be used to modify fonts, create headers, insert images, create hyperlinks, etc.

Text, images, etc. can be formatted using Cascading Style Sheets, which are separate pages used to store formatting information and referenced by the HTML code. HTML can be combined with Javascript to create dynamic text effects. The possibilities are endless. Newer websites generally conform to the standards of XHTML. While similar to HTML, XHTML imposes stricter rules. A couple of key differences are:

In XHTML all tags must be lowercase.

In HTML, it doesn't matter.

Closing tags are required in XHTML.

They were also standard in HTML, but pages would often display correctly if the closing tags were omitted.

Even though XHTML is the standard now, there are still quite a few web pages written in HTML. As newer versions of browsers are developed, the older versions of HTML may no longer be supported.

It is therefore important that for those of us who learned web page design using HTML to update our skills (and our web pages!), and for newcomers to learn XHTML from beginning.