Lesson 1

Date: Saturday, July 8, 2017 **Time**: 10:00 am - 12:00 pm

Location: York Woods Public Library, 1785 Finch Ave W, North York, ON M3N 1M6

Instructor: Dexter Rivera

What you will learn in this lesson

- What is coding?
- Why learn coding?
- What is web development?
- How to use Thimble
- HTML:
 - Tags
 - Hello World!
 - Elements
 - Paragraphs
 - Bold and Italics
 - Lists
 - Images
 - Links
- More resources

What is coding?

Coding, also know as **computer programming**, is just writing a set of instructions, or commands, that a computer will follow so you can get it to do what you want to do.

For example, let's say that we want to tell our computer to create a website for us with the words *Hello World!* in blue. How would we do this? We can't just type Please create a web page with the words Hello World in blue". We need to give the computer instructions which we call **code**.

How do we write code? Computers only understand code written in a **language**. For example, if we wanted to create the website we talked about above, we would write:

```
<h1 style="color: blue;">Hello World!</h1>
```

The resulting website would look like this:

Hello World!

If the code above looks scary and complicated, don't panic! The h1 in the code means to make the text Hello World! really big. You can also see the words color: blue, which must have something to do with making the text look blue! If you still don't understand don't worry, we will get in more detail later!

The language the code is written in is **HTML** and **CSS**. These are the languages we will be learning throughout these 7 weeks in our bootcamp.

Coding is great because we can get computers to do things very quickly that us humans cannot. However, unlike us humans, computers can only understand code if we write it *exactly* the way the language tells us to. For example, u cn stll undrstnd ths, even if it is not proper English. But if we tell the computer this:

```
<h1 style="color: blue;">Hello World!<h1>
```

You will see nothing on the website because the last / was missing! Coding can be frustrating because of these small little things, but it's worth it cause we can do a lot of cool stuff like build cool looking websites or fun games!

Why learn coding?

With coding we can learn to build cool things like games! For example, the game Angry Birds is written using HTML and CSS, the language you will be learning!

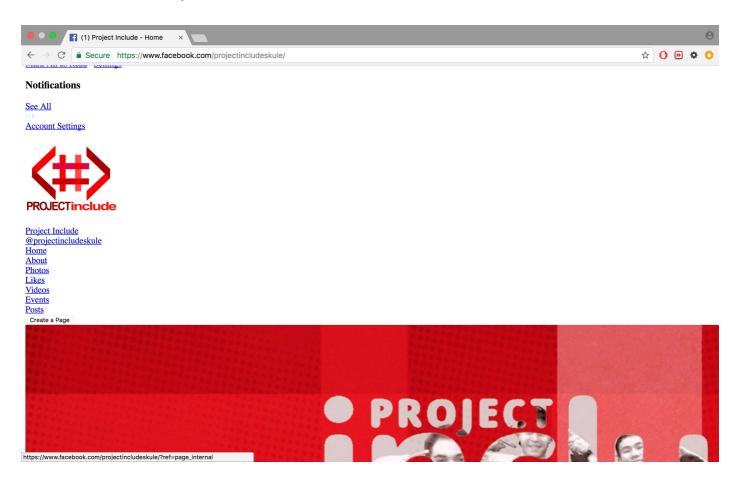
With coding we can also build big websites that other people around the world can use! For example, Mark Zuckerberg created Facebook, which 1 billion people use and now he is a billionaire!

For our final project, you will be building a social media website just like Facebook!

What is Web Development?

In order to make cool website, we need to write code in HTML and CSS. But what is HTML and CSS?

Let's think of building a website like building a house! To build a house, we need to build the walls and roof. This is similar to HTML. HTML lets us put the text on the website. But just like a house without furniture, carpets or the walls painted, only HTML on a website looks boring. For example, this is how Facebook looks with only HTML:



It looks very boring and unrecognizable! This is where CSS comes in! CSS is similar to all the furniture and carpets that we add to our house to make it look pretty! With CSS, we can make the page we see above look like how you normally see Facebook when you login!

There is also a third important language to make cool websites called **Javascript**. This is similar to all the appliances like the stove, furnace, toilets, etc. Javascript helps our website do cool things. Unfortunately, we will not have time to learn Javascript, but I encourage you to learn it on your own time after our bootcamp is over because you will need it if you want to build cool games like Angry Birds!

Using Thimble to Code

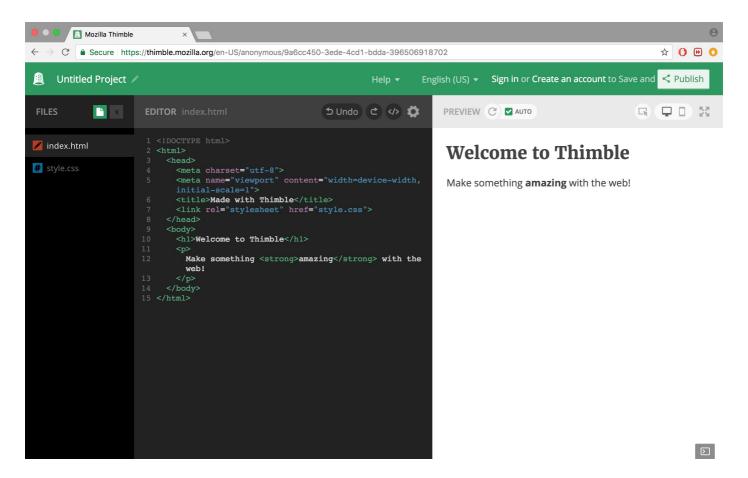
As I said in the previous section, HTML is the like the walls and roof of our house we are trying to build. This lesson on HTML may seem a bit boring and pointless, but bare with me because we need to learn HTML to build cool websites!

So I want to start building my website, where do I get started? As we talked about in the previous section on coding, we need to give the commands to the computer. But where do we give those commands?

We write our code, or list of commands, in a file with the extension .html . Just like if you have ever worked with Microsoft Word, those file names have extensions .doc . We need to create a file with an extension .html .

To create our files, we will use a tool called Thimble. Once you click the link, press the "Start a project from scratch" button.

You should arrive at the following screen below:



As you can see on the screen above, there are three main sections. In the left most section you will see all of the files that belong to your project. Just like I mentioned earlier, there is a file with the extension .html, where the computer will read all of the instructions we give it in code so that it can put what we want on our website.

In the middle section you will see the editor. This is where we will write our code.

In the right most section, you will a preview of what the website looks like based on the code you write in the editor. You can see that all of the code in the editor right now will produce the website in the preview. If you click the rightmost button that looks like four arrows pointing outward, you can expand the preview to make it fit the whole webpage.

Now you are ready to write code and build cool websites! As you are reading through this lesson, type in the code you see here on Thimble so you can follow along.

Tags

Now that we have a place to write our code, we can get started! First, let's delete all of the code currently in the editor so we can start from scratch.

Like I said before, in order to write code, we need to write it exactly as the language tells us to. For HTML, if we want to put something on a web page, we need to create tags.

To create a tag, we need three things:

- 1. Opening Tag
- 2. Closing Tag
- 3. Element name

If we can remember these easy things, we can write HTML!

In order to create the opening tag, we need to put the element name inside these brackets <> like this:

```
<ELEMENT>
```

To create a closing tag, we do the exact same thing as we did with the opening tag, expect this time we will add a / in front of the element name. like this:

```
</ELEMENT>
```

Finally, the element will tell the computer what to do with what is inside the opening and closing tag. We will talk about elements more in the upcoming sections.

Hello World!

As a time honored tradition of coding, every coder's first **program** is Hello World! . A **program** is just another name for a set of instructions.

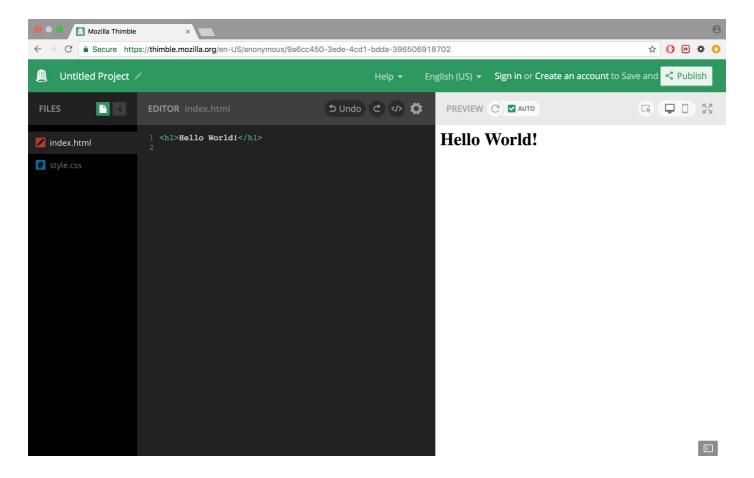
In order to put *Hello World!* on our website, we need to create a tag! In the editor in Thimble, write an opening tag followed by a closing tag, and for the element name, swap ELEMENT with h1 . Your code should look like this:

```
<h1></h1>
```

h1 stands for "Header 1". This element will make any text inside the two tags nice and big on our website. So if we want the words "Hello World!" on our website, we need to write them inside the two h1 tags, as shown below:

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

As you can see on your preview screen, the words "Hello World!" will appear as such:



Congrats, you just wrote your first program!

Elements

Throughout this bootcamp, we will be creating an About Me page. On this page you will display everything about you that you want your friends or family to see. We will publish this website and you will be able to send a link to anyone so anyone will be able to see your page, even if they are on the other side of the world!

To get started on our about me page, let's change "Hello World!" to your name so anyone who sees the website will know its yours. All we need to do is change the text inside the h1 tags like so:

```
<h1>Dexter Rivera's Website!</h1>
```

Remember that h1 stands for "Header 1". Headers are used for titles to sections. There are 5 more header tags, h2, h3, h4, h5, and h6. They are the same as h1 except the text inside these tags are slightly smaller. Try putting the text below in Thimble and see what it looks like!

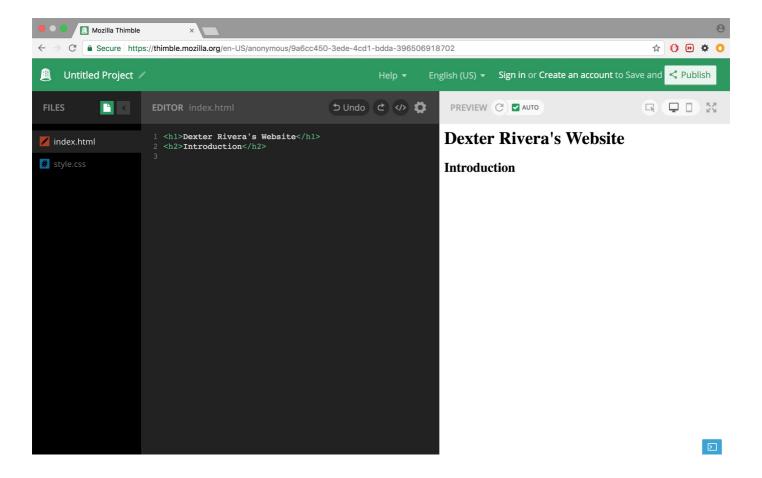
```
<h2>Dexter Rivera's Website!</h2>
<h3>Dexter Rivera's Website!</h3>
<h4>Dexter Rivera's Website!</h4>
<h5>Dexter Rivera's Website!</h5>
<h6>Dexter Rivera's Website!</h6>
```

Paragraphs

Underneath the title of our website, let's add an introduction section where we can introduce a visitor to our website. I will add a title to the section using the h2 tag, like so:

```
<h2>Introduction</h2>
```

Put this code on line 2. Your page should now look like this:



Notice how the title "Introduction" appears on the line below "Hello World!". In HTML, the order in which the code appears is the order in which you see it on the website!

Let's now write a block of text. To do this, we need to create a tag with the element name p, for paragraph! Create your opening and closing tags, and write your paragraph of text introducing your website to a visitor inside the two p tags, like so:

```
Hello Internet! On this website you can learn all about me! Have fun exploring!
```

Exercise

Now it's time for you to practise coding on your own! In this exercise, create a new section with the title "Biography" and in that section write some text to explain to the reader the following:

- · When is your birthday?
- Where were you born?
- How old are you now?
- What school do you go to?
- What city do you live in?

When you are finished, you can go to the next section below to see the answer!

Answer

To complete the exercise, add the following code:

```
<h2>Biography</h2>
My name is Dexter Rivera. I was born in the Philippines on December 20, 1997. I live in Mar
```

Since we want this section to be underneath the "Introduction" section, the code above must be placed underneath the code we wrote before. We use h2 tags for the word Biography because we want it to have stand out as this is the title of the section. Finally, we use p tags for our biography paragraph!

Comments

Comments are useful in coding to help someone reading your code know what it is doing. To create a comment, we simply put <!-- before the comment and --> after the comment. Anything in between <!-- and --> will not be seen on the website.

I have commented the code we wrote so far as such:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
<!-- p tags are used for paragraphs -->
Hello Internet! On this website you can learn all about me! Have fun exploring!
<h2>Biography</h2>
My name is Dexter Rivera. I was born in the Philippines on December 20, 1997. I live in Mar
```

If you put these comments into the editor on Thimble, you will not see the words inside the comments on the website!

I will comment the code we write a lot to help you understand it when you are looking back at it.

Bold and Italics

In order to make some text bold to stand out, we use the strong element. Let's say we wanted to make my place of birth stand out in the paragraph. I would just need to put the strong tags around the word Philippines so bold gets applied to the word!

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
<!-- p tags are used for paragraphs -->
Hello Internet! On this website you can learn all about me! Have fun exploring!
<h2>Biography</h2>
<!-- strong tag is used for bold -->
My name is Dexter Rivera. I was born in the <strong>Philippines</strong> on December 20, 19
```

Notice how the strong tags are inside the p tags. This is because I want the word 'Philippines' to be in the paragraph, but I also want it to be bold. Since the word 'Philippines' is inside both p and strong, both elements apply to it!

Now let's say I want my name to be italicized, like this: *Dexter Rivera*. To do this, we do the same thing as we did with the strong tags, but this time we use the element name em instead:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles --> <h1>Dexter Rivera's Website</h1>
```

Exercise

In your biography paragraph, bold the following key information it stands out to the reader:

- Place of birth
- Birthday
- · City you live in
- Age
- school

Solution

Your code should look something like this:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
<!-- p tags are used for paragraphs -->
Hello Internet! On this website you can learn all about me! Have fun exploring!
<h2>Biography</h2>
<!-- strong tag is used for bold, em for italics-->
My name is <em>Dexter Rivera</em>. I was born in the <strong>Philippines</strong> on <strong</pre>
```

Lists

The next element we will learn about is lists. There are two types of lists, ordered lists and unordered lists. Unordered lists appear as bullet points like this:

- List item 1
- List item 2

List item 3

Order lists have a number in front, like this:

- List item 1
- List item 2
- List item 3

To create a list, we need to put all of the stuff we want in the list inside two tags, ul for unordered lists and ol for ordered lists:

To add items to the list, you must put each item inside tags. This applies to both types of lists. For example, if I want to make a list of my favourite sports, I would do it like this:

```
    Basketball
    Baseball
    Tennis
    Swimming
```

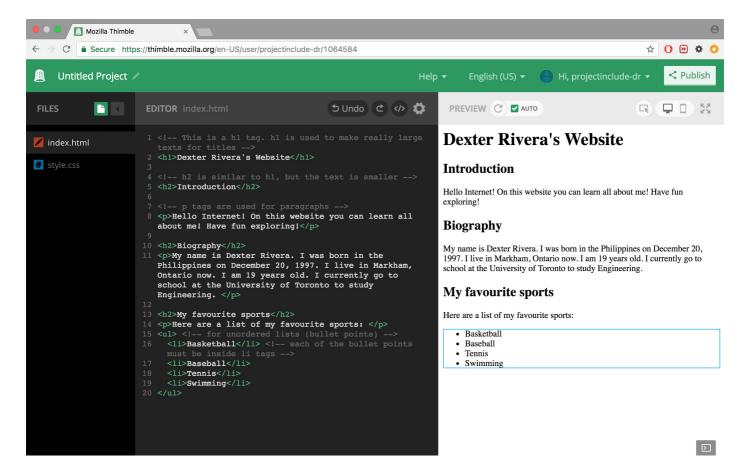
Notice how the
tags are inside the
tags. We need to put the
tags inside
tags or you will not see the bullet points! When you put tags inside other tags, it's usually good to indent each of the inner tags so it's easier for someone to read your code and know that the li elements are inside ul and not after.

Next I will add a "My favourite sports" section to my all about me page and include the list I made above:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
<!-- p tags are used for paragraphs -->
Hello Internet! On this website you can learn all about me! Have fun exploring!
<h2>Biography</h2>
My name is Dexter Rivera. I was born in the Philippines on December 20, 1997. I live in Mar
<h2>My favourite sports</h2>
Here are a list of my favourite sports: 

-- for unordered lists (bullet points) -->
```

Now my about me page looks like this:



Exercise

Add a section to your webside called "My Favourite Video Games" and make a list of your top 5 favourite video games, this time make a numbered list and order your list from your most favourite to least favourite. If you don't like any video games, make a list of your favourite movies or singers!

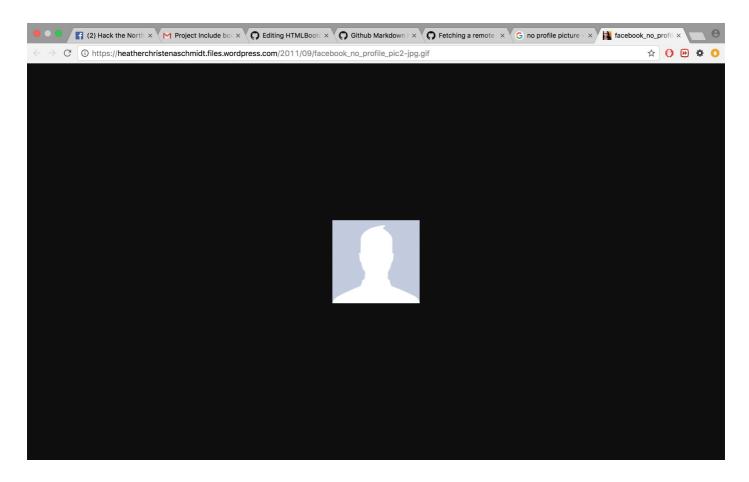
Solution

Here is my section for my favourite video games:

```
Call of Duty: Black Ops
```

Images

What's an about me page without a picture of you! To put an image on a website, you need to use the img tag. I don't have any pictures of myself, so instead I want to put this picture that I found on the internet using a quick google search:



How do I do this? We need to add an **attribute** to the <code>img</code> element. Attributes change how a specific element on a webpage looks or what it does. In this case, we will add the <code>src</code> element to tell the computer that the image will come from some place on the internet. We add an attribute by putting the attribute name inside the opening tag, putting an equals sign beside it and setting the attribute inside "". For example, if we want to set where the image will come from, we do this:

<img src="https://heatherchristenaschmidt.files.wordpress.com/2011/09/facebook no profile pic2</pre>

The img tag is special because it does not need a closing tag to work. Let's say we want to put the image after the title "Dexter Rivera's Webstie". Where would I put this tag?

Answer:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- this is an img tag. This is to put images on a website. We need to set the src attribute
<img src="https://heatherchristenaschmidt.files.wordpress.com/2011/09/facebook no profile pic2
<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
```

We need to put the img tag after our first h1 tag but before the h2 tag with the Introduction. Remember that the elements on a website appear just like you see them in your code!

This image looks to small, how would I make it bigger? We can add height and width attributes to the img tag, like this:

```
<img src="https://heatherchristenaschmidt.files.wordpress.com/2011/09/facebook no profile pic2</pre>
```

Play around with the numbers on Thimble to find the right size for you!

Links

On many websites, you can click links and go to other ones. How can we do this on our website? I want people to know what the University of Toronto is when they read my bio, so I want to send them to our school website. To do this, we use the a tag. We need to wrap the word "University of Toronto" around a tags, then add the attribute href and set the attribute to the link you want, like this:

```
<!-- a tags are used for links -->
My name is Dexter Rivera. I was born in the Philippines on December 20, 1997. I live in Mar
```

Don't forget the closing tag! Only the text in between the opening and closing tags will turn into a link. We can add the title attribute to the a tag. The title attribute makes some text pop up when someone puts their mouse over the link:

```
<!-- a tags are used for links -->
My name is Dexter Rivera. I was born in the Philippines on December 20, 1997. I live in Mar
```

When I added the title attribute above, now this shows up when I hover over the link:

We can also add links to our own website. Let's say our website is really long and I don't want people to have to scoll all the way down to just see my top 5 favourite video games! We can make a Table of Contents. We will put it right after our picture of us and use bullet points to define the sections:

```
<!-- This is a h1 tag. h1 is used to make really large texts for titles -->
<h1>Dexter Rivera's Website</h1>
<!-- this is an img tag. This is to put images on a website. We need to set the src attribute
<img src="https://heatherchristenaschmidt.files.wordpress.com/2011/09/facebook no profile pic2

<h2>Table of Contents</h2>

li>Introduction
li>Biography
li>My favourite sports
li>My favourite video games

<!-- h2 is similar to h1, but the text is smaller -->
<h2>Introduction</h2>
```

Then we put our a tags around "My top 5 favourite video games" because we want to link to that section. This time, we will set the href attribute to whatever we want, but we must put a "#" in front of it:

```
<a href="#videogames">My top 5 favourite video games</a>
```

Remember that since we want "My top 5 favourite video games" to be both a bullet point and a link, we need to put <a> tags inside the tags.

Now we must go to the section called "My top 5 favourite video games." Inside the h2 tag, we need to add the attribute id and set it to whatever we put after the "#". For me, I put "video games", so I need to set id to "videogames" like this:

```
<h2 id="videogames">My top 5 favourite video games</h2>
```

Now if we click on the link in the table of contents section, it will work!

Exercise

Create links for each of the sections in the table of contents

Learn About more Elements!

Unfortunately, I don't have enough time to show you all of the different elements you can use, but I did show you the most important ones. If you want to learn about more tags you can use, visit w3Schools. w3schools is a great place to learn more about web development! The page lists all of the different tags you can use and let you even try them!

Conclusion

I hope you are used to writing HTML code now! Our website looks really boring, but don't work! Next week we will learn CSS, the coding language used to make our websites look very pretty!