

HTML

Carnegie Mellon University | ScottyLabs | Portfolio Development Friday

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What you've seen

By now you should have learned about:

- ❑ Different types of content to include in your web page (with some brainstorming)
- ❑ Designing your web page

Overview

We're here to give you the who, what, where, when, why, and how of HTML

Everything you need for today's event:

- ❑ How to set it up (VS Code and HTML file demo)
- ❑ How to break it down (HTML structure and formatting)
- ❑ What tags are and what they can do for your web page

What's to come?

- ❑ HTML lab activity during the presentation for you to implement what you learn here
- ❑ CSS talk and lab after!

What is HTML?

- ❑ HyperText Markup Language
- ❑ Front-end web development
- ❑ From text file to web browser
- ❑ In conjunction with CSS and JS making everything look pretty



Who/What uses HTML?

Every Web Page*

*almost



Setting Up Your HTML File

Setting it all up

How do you set up VS Code?

What about creating files?

A quick demonstration...

How Do I Set Up HTML?

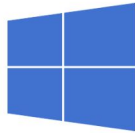
Step 1: Downloading VS Code



<https://code.visualstudio.com/download>

Download Visual Studio Code

Free and built on open source. Integrated Git, debugging and extensions.



↓ Windows

Windows 8, 10, 11

User Installer 64 bit 32 bit ARM
System Installer 64 bit 32 bit ARM
.zip 64 bit 32 bit ARM



↓ .deb

Debian, Ubuntu

↓ .rpm

Red Hat, Fedora, SUSE

.deb 64 bit ARM ARM 64
.rpm 64 bit ARM ARM 64
.tar.gz 64 bit ARM ARM 64

Snap Store



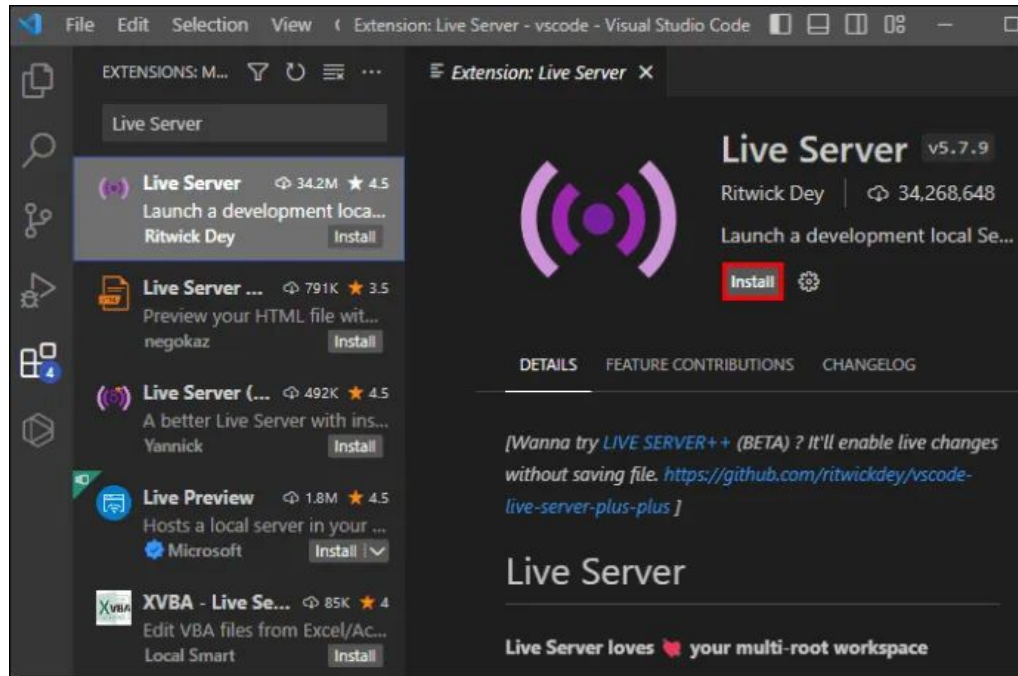
↓ Mac

macOS 10.11+

.zip Universal Intel Chip Apple Silicon

How Do I Set Up HTML?

Step 2: Install the Live Server Extension (in VSCode)



To use this extension,
click "Go Live"
(in bottom right)



This shows you what your site
looks like up to this point!

How Do I Set Up HTML?

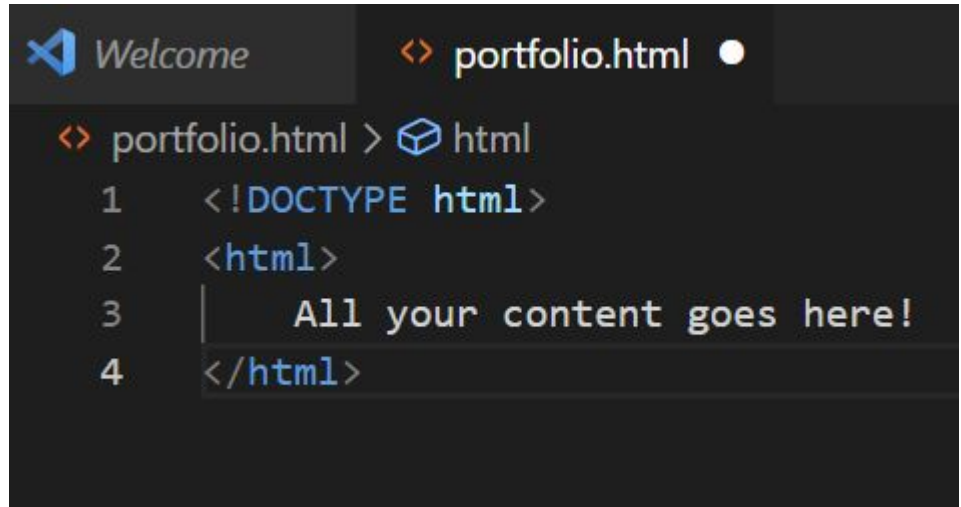
Step 3: Open the document

1. Create a folder on your computer named "PDF"
2. In VS Code, click "File" (top left), click "Open Folder", and then select "PDF"
3. Now, click "File" (top left again), "New File", and enter name "portfolio.html"

Now you're ready to begin!

Step 4: Set up your document!

How to let computer know you're creating in HTML



```
Welcome    <> portfolio.html ●  
  
<> portfolio.html > 📦 html  
1  <!DOCTYPE html>  
2  <html>  
3      All your content goes here!  
4  </html>
```



Setting Up Your Website

Structure and formatting

`<head>`

All the metadata for your document

`<title>`

The title for the page (shown on the browser's title bar)

`</title>`

`<style>`

Defines styles (CSS) for a document

`</style>`

`<meta>`

Defines metadata (author, description, view, keywords)

`<link>`

Connect to external resource (external CSS documents)

`<script>`

JavaScript

`</script>`

`</head>`

Structure and formatting

<code><body></code>	Body	
<code><h#></code>	Heading	<code></h#></code>
<code><p></code>	Paragraph	<code></p></code>
<code><footer></code>	Footer	<code></footer></code>
<code><script></code>	JavaScript	<code></script></code>
<code></body></code>		

An Example

Test Portfolio

About

Hey PDF 2023! My name is Ted and I am an Information Systems student here at

This is my [resume](#)



This is me

Headings

Come In

Different

Sizes Too


```
<> portfolio.html ●
<> portfolio.html > html > body > h6
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>My HTML Portfolio</title>
5  </head>
6  <body>
7    <h1>Test Portfolio</h1>
8    <h2>About</h2>
9    <p>Hey PDF 2023! My name is Ted and I am an Information
10   Systems student here at CMU. Nice to meet y'all!</p>
11   <p>This is my <a href="https://www.resume.com/">resume</a></p>
12   <p>This is me </p>
15   <h3>Headings</h3>
16   <h4>Come In</h4>
17   <h5>Different</h5>
18   <h6>Sizes Too</h6>
19
20 </body>
21 </html>
```

Lab Resources

To follow our official step-by-step template (and see exactly what code we used to create our portfolio), go here:

go.scottylabs.org/html-template 

The html code used to produce our site is commented by part in this template

- To see this code in action, simply uncomment the code and copy + paste it into your VS code terminal. Then click "Go Live"  (in bottom right)

Additional Lab Resources

If you'd prefer to follow along on your own as we complete these steps:

1. This current slide deck → go.scottylabs.org/html-ppt
2. The HTML Lab (TW: latex ) → go.scottylabs.org/html-lab

Also:

3. W3Schools HTML Tutorial → <https://www.w3schools.com/html/>

(W3Schools contains many useful html templates to consult if stuck on a step)

Sections: YOUR Turn!

Step #1

Now, format the sections of your portfolio website:

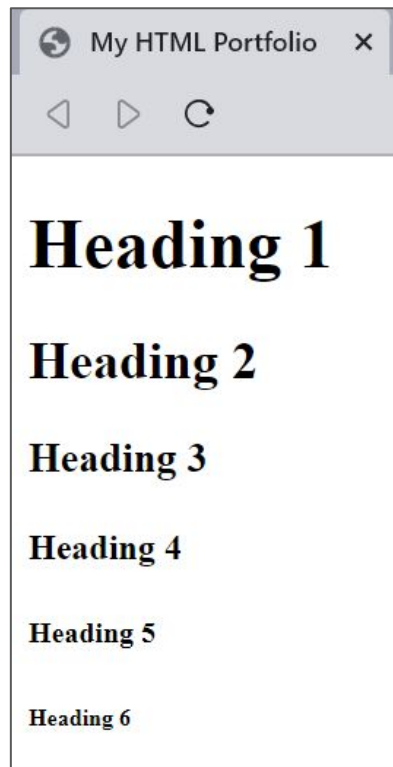
Sections:

1. About
 - a. Biography
 - b. Interests
 - c. Contact Information
 - d. Links
 - e. Resume
2. Education
3. Work Experience
4. Projects and Activities

ex. Code:

```
portfolio.html • # style.css
portfolio.html > link
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>My HTML Portfolio</title>
5 </head>
6 <body>
7   <h1>Heading 1</h1>
8   <h2>Heading 2</h2>
9   <h3>Heading 3</h3>
10  <h4>Heading 4</h4>
11  <h5>Heading 5</h5>
12  <h6>Heading 6</h6>
13 </body>
14 </html>
15
```

Output:



Our Site:

HTML Code:

#1

Test Portfolio

About

Biography

Interests

Contact Information

Links

Resume

Education

Work Experience

Projects and Activities

```
<> portfolio.html > ...
1  <!DOCTYPE html>
2  <html>
3  <head>
4  <title>My HTML Portfolio</title>
5  </head>
6  <body>
7      <h1>Test Portfolio</h1>
8      <h2>About</h2>
9          <h3>Biography</h3>
10         <h3>Interests</h3>
11         <h3>Contact Information</h3>
12         <h3>Links</h3>
13         <h3><a href="https://www.resume.com">Resume</a></h3>
14     <h2>Education</h2>
15     <h2>Work Experience</h2>
16     <h2>Projects and Activities</h2>
17 </body>
18 </html>
```



Tags

What are tags?

- ❑ Keywords that define elements to display HTML content

Syntax: `<tag> content </tag>`

Tag Syntax

Self-Closing Tags (Void Elements):

```

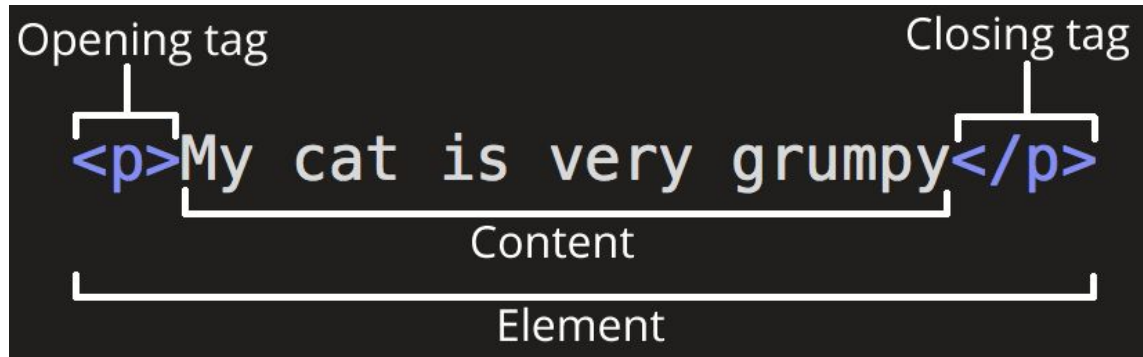
```

Opening and Closing Tags:

```
<p>
```

Code

```
</p>
```



Self-Closing Tags and Attributes

Attributes:

- ❑ Information about an element that doesn't appear in the content

Examples:

- ❑ ``
- ❑ `Best website`

Tags for Text Type

`<h#>`

Headings (useful for styling distinctions)

`<p>`

Paragraphs

`<a>`

Links

`<footer>`

Footer

Tags for Text Format

- `` Bold Text
- `<i>` Italic Text
- `<mark>` Highlighted Text (automatically yellow but can be changed with CSS)
- `<s>` Crossed-out Text
- `<u>` Underlined Text
- `<sub>` Subscript Text
- `<sup>` Superscript Text

Nesting Tags/Elements

Using the aforementioned formatting tags:

<p> normal text bold text normal text </p>

normal text **bold text** normal text

<p> normal text <i>italic text</i> normal text </p>

normal text *italic text* normal text

<p> normal text <mark>highlighted text</mark> normal text </p>

normal text highlighted text normal text

<p> normal text <s>strike-through text</s> normal text </p>

normal text ~~strike-through text~~ normal text

<p> normal text <u>underlined text</u> normal text </p>

normal text underlined text normal text

<p> normal text _{subscript} normal text </p>

normal text subscript normal text

<p> normal text ^{superscript} normal text </p>

normal text superscript normal text

Style Attribute

- ❑ Used to add styles to an HTML element
- ❑ Formatted using `<[tag] style="[property]:[value];"><\[tag]>`
- ❑ These are CSS properties and values, and usually are defined in the CSS document

Examples:

`<p style="text-align: center">` Center-aligned Text `</p>`

`<p style="background-color: red">` Red Background `</p>`

`<p style="color:blue">` Blue Text Color `</p>`

`<p style="font-size:20px">` Changes Font size to 20 pixels `</p>`

Text Formatting: YOUR Turn!

Step #2

Now, format the text of your portfolio website:

Do:

1. Center your headers
2. Format subheadings in the color of your choice
3. Add `<p>` descriptions as necessary (i.e. add a short bio)

ex. Code:

```
<? portfolio.html • # style.css
<? portfolio.html > html > body > p
1  <!DOCTYPE html>
2  <html>
3  <head>
4  |   <title>My HTML Portfolio</title>
5  </head>
6  <body>
7  |   <h1 style="text-align:center;">Title 1</h1>
8  |   <h2 style="text-align:center;">Heading 1</h2>
9  |   <h3 style="color: navy;">Subheading 1</h3>
10 |   <p>This description tells you about subheading 1.</p>
11 |   <h3 style="color: navy;">Subheading 2</h3>
12 |   <h2 style="text-align:center;">Heading 2</h2>
13 |   <p>This description tells you a TON about heading 2.</p>
14 </body>
15 </html>
```

Output:

Title 1

Heading 1

Subheading 1

This description tells you about subheading 1.

Subheading 2

Heading 2

This description tells you a TON about heading 2.

Our Site:

Test Portfolio

About

Biography

Hey PDF 2023!! My name is Ted and I am an Information Systems student here at CMU. Nice to meet y'all!

Interests

Contact Information

You can reach me at tgershon@andrew.cmu.edu or come find me at Mudge!

Links

Resume

Education

Work Experience

Projects and Activities

HTML Code:

#2

```
<> portfolio.html • # style.css
<> portfolio.html > html > body > h1 > h2
1  <!DOCTYPE html>
2  <html>
3  <head>
4  |   <title>My HTML Portfolio</title>
5  </head>
6  <body>
7  |   <h1 style="text-align:center;">Test Portfolio</h1>
8  |   |   <h2 style="text-align:center;">About</h2>
9  |   |   |   <h3 style="color: navy;">Biography</h3>
10 |   |   |   <p>Hey PDF 2023!! My name is Ted and I am an Information
11 |   |   |   Systems student here at CMU. Nice to meet y'all!</p>
12 |   |   |   <h3 style="color: navy;">Interests</h3>
13 |   |   |   <h3 style="color: navy;">Contact Information</h3>
14 |   |   |   <p>You can reach me at tgershon@andrew.cmu.edu or come
15 |   |   |   find me at Mudge!</p>
16 |   |   |   <h3 style="color: navy;">Links</h3>
17 |   |   |   <h3 style="color: navy;">Resume</h3>
18 |   |   <h2 style="text-align:center;">Education</h2>
19 |   |   <h2 style="text-align:center;">Work Experience</h2>
20 |   |   <h2 style="text-align:center;">Projects and Activities</h2>
21 |   </body>
22 </html>
```

The <a> tag

- ❑ Defines a hyperlink
- ❑ Uses the href attribute to create a hyperlink
- ❑ Can use the target attribute to specify where to open the link

Example:

```
<a href="https://scottylabs.org/" title="The ScottyLabs Website!" target="_blank">Best website</a>
```

Produces → [Best website](https://scottylabs.org/) (clickable)

The tag

- ❑ Allows you to insert an image into your webpage
- ❑ Attributes:
 - ❑ src - tells your computer where to get your image, can be a filename or URL
 - ❑ Make sure to save your HTML file and any images you use in the same folder
 - ❑ alt - if there is an error viewing/retrieving your image, image description will be displayed
 - ❑ alt also used for accessibility with screen-readers
 - ❑ width and height - formatting images in your web page, how many pixels wide and tall

```

```

More on

To caption images:

```
<figure>
```

```

```

```
<figcaption>Write your caption here!</figcaption>
```

```
</figure>
```



"missing"

Write your caption here!

Adding Links & Images: YOUR Turn!

Step #3

Now, add links and images to your portfolio website:

Do: ex. Code: Output:

1. Add (and right-justify) an image in your "interests" section
2. Add links to your "Resume" and "Contact" sections

```
olio.html • # style.css
folio.html > ...
<!DOCTYPE html>
<html>
<head>
  <title>My HTML Portfolio</title>
</head>
<body>
  <h1>Title 1</h1>
  <h2><a href="http://headings.com/">I'm a link!</a></h2>
  <h3>Subheading 1</h3>
  
  <p>Right-aligned bear!</p>
  <p><a href="https://coolsite.com/">I'm a link too!</a>
  <h3>Subheading 2</h3>
  <h2>Heading 2</h2>
</body>
</html>
```

Title 1

I'm a link!

Subheading 1

Right-aligned bear!

I'm a link too!

Subheading 2

Heading 2

-->



Our Site:

HTML Code:

#3

Test Portfolio

About

Biography

Hey PDF 2023!! My name is Ted and I am an Information Systems student here at CMU. Nice to meet y'all!

Interests

Contact Information

You can reach me at tgershon@andrew.cmu.edu or come find me at Mudge!

Links

Resume



Education

Work Experience

Projects and Activities

```
portfolio.html • # style.css
portfolio.html > html > body > h1 > h2 > p > a
1 <!DOCTYPE html>
2 <html>
3 <head>
4 | <title>My HTML Portfolio</title>
5 </head>
6 <body>
7 | <h1 style="text-align:center;">Test Portfolio</h1>
8 |   <h2 style="text-align:center;">About</h2>
9 |     <h3 style="color: navy;">Biography</h3>
10 |     
12 |     <p>Hey PDF 2023!! My name is Ted and I am an Information
13 |       Systems student here at CMU. Nice to meet y'all!</p>
14 |     <h3 style="color: navy;">Interests</h3>
15 |     <h3 style="color: navy;">Contact Information</h3>
16 |     <p>You can reach me at <a href="mailto:tgershon@andrew.cmu.edu">
17 |       tgershon@andrew.cmu.edu</a> or come find me at Mudge!</p>
18 |     <h3 style="color: navy;">Links</h3>
19 |     <h3 style="color: navy;"><a href="https://resume.com">Resume</a></h3>
20 |   <h2 style="text-align:center;">Education</h2>
21 |   <h2 style="text-align:center;">Work Experience</h2>
22 |   <h2 style="text-align:center;">Projects and Activities</h2>
23 </body>
24 </html>
25
```

The , , and tag

- ❏ defines an unordered list

- ❏ Listed with bullet points
- ❏ Can be used for shopping lists, notes, anything that doesn't require order

- ❏ defines an ordered list

- ❏ Listed with numbers
- ❏ Can be used for instructions, rankings, anything that requires order

- ❏ denotes each list element

 ← (or)

 list element(s)


```
<body>
<h1>Top 10 Chickens of All Time</h1>
<ol>
  <li>Leghorn</li>
  <li>Rhode Island Red</li>
  <li>Plymouth Rock</li>
  <li>Australorp</li>
  <li>Red Star</li>
  <li>Orpington</li>
  <li>Spanish (White-Faced Black Spanish)</li>
  <li>Sussex</li>
  <li>Chantecler</li>
  <li>Brahma</li>
</ol>
</body>
</html>
```

Top 10 Chickens of All Time

1. Leghorn
2. Rhode Island Red
3. Plymouth Rock
4. Australorp
5. Red Star
6. Orpington
7. Spanish (White-Faced Black Spanish)
8. Sussex
9. Chantecler
10. Brahma

Adding Ordered & Unordered Lists: YOUR Turn! Step #4

Now, add ordered and unordered lists to your portfolio website:

Do:

1. Add an ordered list of your interests
2. Add an unordered list of links to GitHub, LinkedIn
3. Add an unordered list to your section for "Education"

ex. Code:

```
portfolio.html > html > body > h3
1  <!DOCTYPE html>
2  <html>
3  <head>
4    <title>My HTML Portfolio</title>
5  </head>
6  <body>
7    <h1>Title 1</h1>
8    <h2>Heading 1</h2>
9    <h3>Ordered List 1</h3>
10   <ol>
11     <li>Item</li>
12     <li>Item</li>
13     <li>Item</li>
14   </ol>
15   <h3>Unordered List 1</h3>
16   <ul>
17     <li>Item</li>
18     <li>Item</li>
19     <li>Item</li>
20   </ul>
21 </body>
22 </html>
```

Output:

Title 1

Heading 1

Ordered List 1

1. Item
2. Item
3. Item

Unordered List 1

- Item
- Item
- Item

Our Site:

HTML Code:

#4

Test Portfolio

About

Biography

Hey PDF 2023!! My name is Ted and I am an Information Systems student here at CMU. Nice to meet y'all!

Interests

1. Adopting Puppies
2. Eating LOTS of Food
3. Playing Tennis

Contact Information

You can reach me at tgershon@andrew.cmu.edu or come find me at Mudge!

Links

- [GitHub](#)
- [LinkedIn](#)
- [Social Media](#)

Resume

- I go to Carnegie Mellon University
- GPA: 1.3/4.0
- Major: Information Systems
- Courses: 15-110

Education



```
portfolio.html • # style.css
portfolio.html > html > body > h1 > h2 > ul
1 <!DOCTYPE html>
2 <html>
3 <head>
4 |   <title>My HTML Portfolio</title>
5 </head>
6 <body>
7 <h1 style="text-align:center;">Test Portfolio</h1>
8 <h2 style="text-align:center;">About</h2>
9 <h3 style="color:navy;">Biography</h3>
10 
12 <p>Hey PDF 2023!! My name is Ted and I am an Information Systems student
13 |   here at CMU. Nice to meet y'all!</p>
14 <h3 style="color:navy;">Interests</h3>
15 <ol>
16 |   <li>Adopting Puppies</li>
17 |   <li>Eating LOTS of Food</li>
18 |   <li>Playing Tennis</li>
19 </ol>
20 <h3 style="color:navy;">Contact Information</h3>
21 <p>You can reach me at <a href="mailto:tgershon@andrew.cmu.edu">
22 |   tgershon@andrew.cmu.edu</a> or come find me at Mudge!</p>
23 <h3 style="color:navy;">Links</h3>
24 <ul>
25 |   <li><a href="https://github.com">GitHub</a></li>
26 |   <li><a href="https://linkedin.com">LinkedIn</a></li>
27 |   <li><a href="https://myspace.net">Social Media</a></li>
28 </ul>
29 <h3 style="color:navy;"><a href="https://resume.com">Resume</a></h3>
30 <h2 style="text-align:center;">Education</h2>
31 <ul>
32 |   <li>I go to Carnegie Mellon University</li>
33 |   <li>GPA: 1.3/4.0 </li>
34 |   <li>Major: Information Systems</li>
35 |   <li>Courses: 15-110</li>
36 </ul>
```

The <table> tag

- ❑ Creates a table, like the one pictured on the right
- ❑ Used primarily for tabular data
- ❑ Not for laying out web pages (the job of CSS)
- ❑ Built with `<table>`, `<colgroup>` (for styling), `<tr>` (table row), `<td>` (table data), and `<th>` (table header)

School timetable

	Mon	Tues	Wed	Thurs	Fri	Sat	Sun
1st period	English			German	Dutch		
2nd period	English	English		German	Dutch		
3rd period		German		German	Dutch		
4th period		English		English	Dutch		

Creating tables

- ❑ Start with the `<table>` tag
 - ❑ Add a border attribute
- ❑ Follow with `<colgroup>` to include styling information for different columns
- ❑ Use `<tr>` to create each row starting from the top
- ❑ Use `<th>` to specify column and row headers
- ❑ For every other `<tr>`, use `<td>` to specify table data

```
<body>
  <table border="1">
    <colgroup>
      <col />
      <col style="background-color: yellow" />
      <col style="background-color: pink" />
    </colgroup>
    <tr>
      <th>&nbsp;</th>
      <th>Chicken</th>
      <th>Music</th>
    </tr>
    <tr>
      <th>Meemow</th>
      <td>Leghorn</td>
      <td>Orange</td>
    </tr>
    <tr>
      <th>Meemow2</th>
      <td>WYSI</td>
      <td>727</td>
    </tr>
  </table>
```

	Chicken	Music
Meemow	Leghorn	Orange
Meemow2	WYSI	727

Adding a Table: YOUR Turn!

Step #5

Now, add tables to your portfolio website:

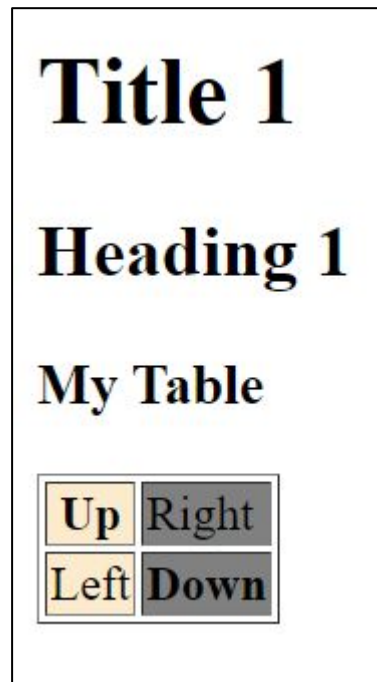
Do:

ex. Code:

Output:

1. Use a table to represent "Work Experience"
2. Include three categories in said table: "Jobs", "Internships", and "Research"

```
<> portfolio.html • # style.css
<> portfolio.html > html > body
1 <!DOCTYPE html>
2 <html>
3 <head>
4   <title>My HTML Portfolio</title>
5 </head>
6 <body>
7   <h1>Title 1</h1>
8   <h2>Heading 1</h2>
9   <h3>My Table</h3>
10  <table border="1">
11    <colgroup>
12      <col style="background-color: #blanchedalmond;"/>
13      <col style="background-color: #grey;"/>
14    </colgroup>
15    <tr>
16      <th>Up</th>
17      <td>Right</td>
18    </tr>
19    <tr>
20      <td>Left</td>
21      <th>Down</th>
22    </tr>
23  </table>
```



Our Site:

HTML Code:

#5

Work Experience

Internships	Build-A-Bear Workshop <ul style="list-style-type: none">Grew profit margins by 34% via implenting autonomous bear construction softwareDramatically reduced construction time for an additional profit of 15 cents per bearIncreased happiness of consumers by 400%Received a return offer
Research	Mary's Lamb Farm <ul style="list-style-type: none">Harvested 12x more lamb wool using deep learning algorithms than was previously poShowed 15,000 silly farmers the power of a computer is greater than that of the humaMade 160% more sweaters than was historically thought possibleEstablished myself in the Guinness Book of Wool World Records
Jobs	Unemployed <ul style="list-style-type: none">I think I would be great at any job given my flexible skills and atension to detailI'm really good with my hands; in fact, I can move my thumb a total of 45 degreesPlease hire me, I'm begging you. I'll do anything toy want of meWilling to work below minimum wage if food is provided

```
style="text-align:center;">Work Experience</h2>
<table width="100%" style="border:2px solid black">
  <colgroup>
    <col style="background-color: #blanchedalmond;" />
    <col />
  </colgroup>
  <tr>
    <th style="border:2px solid black;">Internships</th>
    <td style="border:2px solid black;"><h4>Build-A-Bear Workshop</h4>
    <ul>
      <li>Grew profit margins by <b>34%</b> via implenting autonomous bear constru
      <li>Dramatically reduced construction time for an additional profit of <b>15
      <li>Increased happiness of consumers by <b>400%</b></li>
      <li>Received a return offer</li>
    </ul></td>
  </tr>
  <tr>
    <th style="border:2px solid black;">Research</th>
    <td style="border:2px solid black;"><h4>Mary's Lamb Farm</h4>
    <ul>
      <li>Harvested <b>12x</b> more lamb wool using deep learning algorithms than
      <li>Showed <b>15,000 silly farmers</b> the power of a computer is greater th
      <li>Made <b>160%</b> more sweaters than was historically thought possible</li>
      <li>Established myself in the Guinness Book of Wool World Records</li>
    </ul></td>
  </tr>
  <tr>
    <th style="border:2px solid black;">Jobs</th>
    <td style="border:2px solid black;"><h4>Unemployed</h4>
    <ul>
      <li>I think I would be great at any job given my flexible skills and ate
      <li>I'm really good with my hands; in fact, I can move my thumb a total
      <li>Please hire me, I'm begging you. I'll do anything toy want of me</li>
      <li>Willing to work <b>below minimum wage</b> if food is provided</li>
    </ul></td>
  </tr>
</table>
```

The <div> tag

- ❑ Defines divisions in HTML usually to be styled with CSS
- ❑ The <section> tag can also be used to define sections in HTML

Example:

```
<div class="container" id="about">  
  <h2>Header</h2>  
  <p>Paragraph</p>  
</div>
```

(The class and id are for the CSS to style!)

More Information on HTML

Do the following to create HTML comments:

```
<!--This is a comment-->
```

(can do via "ctrl + /" command in VS Code)

For more information on tags, visit the following:

<https://www.w3schools.com/TAGS/>

Remember to close your tags!!!

(i.e. `<p>` must have a `</p>` to close)



You Made It!

Lab Time

Take the remaining time to go through any parts of the lab that you haven't yet gotten to

Next up...

And Please Check-In!



Adding style with CSS!!

