# Making Websites for Beginners

Clarissa Littler

- The basic technology that goes into a webpage
- Simple examples of how to use HTML and CSS and a little JavaScript
- Resources to continue your learning

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- How to program in JavaScript in general
  - Though there are free supplements for that
- A majority of CSS and HTML

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Two pieces that talk to each other to make a site

#### Server

- Sends data to the browser
- Saves information for long term use
- Receives requests from the client

- Receives data from the server
- Renders server data into a usable page
- Handles the user interface

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# How do you share a site?

- You can load a site locally in your browser
- To share a site you need a server to host
- Free hosting option: neocities.org

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# The three pieces of a web page

- HTML
- CSS
- JavaScript

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### **HTML**

### What does HTML do?

HTML describes the content of the page, but not how it looks

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HTML describes the content of the page, but not how it looks

## **CSS**

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# **JavaScript**

## What does JavaScript do?

The dynamics and the user interface of the page

## What is HTML?

## HyperText Markup Language

- HyperText
- Markup

## What is HTML?

## HyperText Markup Language

- HyperText
- Markup

```
<body>
<h1>This is a heading</h1>
>
    This is a paragraph of text,
  where some of the text is <b>bold</b>, and
    after this paragraph, there will be a numbered list
<01>
  lists are made of "list items"
  like these
</body>
```

```
<body>
</body>
```

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

```
>
```

```
This is a paragraph of text,
where some of the text is <b>bold</b>, and
  after this paragraph, there will be a numbered list
```

```
where some of the text is <b>bold</b>, and
```

```
<01>
```

### Tags and Elements

```
lists are made of "list items"
like these
```

```
<body>

        This is a list
        but
        there's ambiguity here

        where does this part go?
        is it a sublist or a second list?
```

```
<body>
 <01>
  This is a list
  but
  there's ambiguity here
 <01>
 vhere does this part go?
 is it a sublist or a second list?
```

```
<body>
 <01>
  This is a list
  but
  there's ambiguity here
 <01>
 vhere does this part go?
 is it a sublist or a second list?
```

- 1. This is a list
- 2. but
- 3. there's ambiguity here
- where does this part go?
   is it a sublist or a second list?

- 1. This is a list
- 2. but
- 3. there's ambiguity here
  - 1. where does this part go?
  - 2. is it a sublist or a second list?

```
<!doctype html>
<html>
  <head>
  </head>
  <body>
  </body>
</html>
```

```
<html>
</html>
```

```
<head>
</head>
```

```
<body>
</body>
```

### Headings

```
<!doctype html>
<html>
  <body>
    <h1>Big heading</h1>
    <h2>Smaller</h2>
    <h3>Smaller</h3>
    <h4>Even smaller</h4>
    <h5>Smallller</h5>
    <h6>Smallest</h6>
  </body>
</html>
```

# Big heading

#### Smaller

Smaller

Even smaller

Smallller

Smallest

#### Lists

```
<!doctype html>
<html>
 <body>
   <01>
    This is an ordered list
    And here we have a nested list
      ul>
       and this is an unordered list
       which is by default
       a bulleted list
      </body>
</html>
```

#### Lists

- 1. This is an ordered list
- 2. And here we have a nested list
  - · and this is an unordered list
  - o which is by default
  - a bulleted list

- Right-click on the file FirstEx.html
- Select "open in notepad++"
- Type along the instructions
- Save the file
- Right click and open in the browser

Let's try making a simple web page ourselves!

- Right-click on the file FirstEx.html
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<!doctype html>

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<!doctype html> <html>

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```
<!doctype html>
<html>
<body>
```

- Right-click on the file FirstEx.html
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```
<!doctype html>
<html>
  <body>
    <h1>This is our heading</h1>
```

- Right-click on the file FirstEx.html
- Select "open in notepad++"
- Type along the instructions
- Save the file
- Right click and open in the browser

```
<!doctype html>
<html>
  <body>
    <h1>This is our heading</h1>
    Here is our text.
```

- Right-click on the file FirstEx.html
- Select "open in notepad++"
- Type along the instructions
- Save the file
- Right click and open in the browser

```
<!doctype html>
<html>
  <body>
    <h1>This is our heading</h1>
    Here is our text.
    Here's more <b>text</b>
```

- Right-click on the file FirstEx.html
- Select "open in notepad++"
- Type along the instructions
- Save the file
- Right click and open in the browser

```
<!doctype html>
<html>
  <body>
    <h1>This is our heading</h1>
    Here is our text.
    Here's more <b>text</b>
</body>
```

- Right-click on the file FirstEx.html
- Select "open in notepad++"
- Type along the instructions
- Save the file
- Right click and open in the browser

Try making your own simple page using

- •
- <h1>
- •
- •
- >

tags, following the process of the last example

#### Anchors and Attributes

 $\angle A href="https://multcolib.org">This is a link</a>$ 

Create your own page that uses at least two links and test them to ensure they work

### Cascading Style Sheets

#### What is CSS?

Cascading style sheets control the appearance of elements

### **CSS Entries**

```
selector {
   property: value;
   property: value;
   property: value;
}
```

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```
selector {
    property: value;
    property: value;
    property: value;
}
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### **CSS Entries**

```
selector {
   property: value;
   property: value;
   property: value;
}
```

### Adding CSS to a page

```
Style tags
<!doctyle html>
<html>
  <head>
    <style>
    </style>
  </head>
  <body>
  </body>
</html>
```

# Adding CSS to a page

```
Style tags
    <style>
    </style>
```

```
<!doctype html>
<html>
 <head>
   <style>
     #para {
        color: blue;
   </style>
 </head>
 <body>
   This is the text within our paragraph.
 </body>
</html>
```

```
<style>
  #para {
     color: blue;
</style>
```

```
#para {
   color: blue;
```

```
color: blue;
```

This is the text within our paragraph.

#### Exercise 4

#### Let's use CSS

- Right click the file "exer4.html"
- Fill in the style element within the <head> tags
- Turn the middle heading green

```
<!doctype html>
<html>
  <head>
    <style>
      fill this in
    </style>
  </head>
  <body>
    <h1 id="heading1">First</h1>
    <h2 id="heading2">Second</h2>
    <h3 id="heading3">Third</h3>
  </body>
</html>
```

# Selecting elements by ID

This is the text within our paragraph.

## Selecting elements by class

```
.ourClass {
    color: red;
    width: 200px;
    font-weight: bold;
}
```

### Selecting elements by class

```
Here's the
text in one paragraph.
There's going to be a fair
decent length of text here so we
can see that the width
restriction causes the text to wrap around.
Here's a list here that's
 also going to have an item
 with at least a moderately long
 single element
 in order to show the
 effects of the width property
```

# Selecting elements by class

Here's the text in one paragraph. There's going to be a fair decent length of text here so we can see that the width restriction causes the text to wrap around.

Here's a list here that's also going to have an item with at least a moderately long single element in order to show the effects of the width property

#### Exercise 5

Open the file exer5.html and then add in CSS declarations to make both paragraphs have width: 200px and the first paragraph have a color of blue

```
<!doctype html>
<html>
 <head>
 </head>
 <body>
  This is a paragraph that has some text in it
  and, y'know, stuff and things
  This is the second paragraph by gum
 </body>
</html>
```

## Selecting elements by type

```
p {
    font-size: large;
    background-color: green;
    color: blue;
    width: 200px;
}
```

## Selecting elements by type

```
Our first paragraph is here.
 There's some text and things of that ilk.
This is our second paragraph,
  beholden to no one but itself.
 A wild rebel of a paragraph
Our third paragraph lies here,
 relentless in its comformity.
 There's not much to say about ol' thirdy,
 they're simply stoic and
 resolute in their paragraphness.
```

# Selecting elements by type

Our first paragraph is here. There's some text and things of that ilk.

This is our second paragraph, beholden to no one but itself. A wild rebel of a paragraph

Our third paragraph lies here, relentless in its comformity. There's not much to say about of thirdy, they're simply stoic and resolute in their paragraphness.

```
combining type and class
p {
    font-size: large;
    background-color: green;
    color: blue;
    width: 200px;
}
p.rebel {
    width: 300px;
    background-color: white;
```

```
<h1 class="rebel">This time we also have a rebellious heading
which should be unchanged</h1>
Our first paragraph is here.
 There's some text and things of that ilk.
This is our second paragraph,
 beholden to no one but itself.
 A wild rebel of a paragraph
Our third paragraph lies here,
 relentless in its comformity.
 There's not much to say about ol' thirdy,
 they're simply stoic and resolute
 in their paragraphness.
</div>
```

#### This time we also have a rebellious headline, which should be unchanged

Our first paragraph is here. There's some text and things of that ilk.

This is our second paragraph, beholden to no one but itself. A wild rebel of a paragraph

Our third paragraph lies here, relentless in its comformity. There's not much to say about ol' hirdy, they're simply stoic and resolute in their paragraphness.

### Div and span

- Div and span are used to group related elements together
- But they don't have an appearance themselves

#### choosing children of an element

```
#divvy p{
  width: 200px;
  font-weight: bold;
}
```

#### choosing children of an element

```
<div id="divvy">
   Here we're going to have some text 
   and a little more even, in a separate paragraph. 

     >ul>
        >but this shouldn't be effected by our code at all

  </div>
  Neither should anything in here, either
```

Here we're going to have some text

and a little more even, in a separate paragraph.

but this shouldn't be effected by our code at all

Neither should anything in here, either

#### Exercise 6

Using the following skeleton, found in exer6.html, add CSS declarations so that the first paragraph has *blue* text, the second paragraph has *red* text, and the third paragraph has *green* text.

```
<body>
  our first paragraph
  <div>
      our second paragraph
      <div>
            our third paragraph 
      </div>
  </body>
```

## What is JavaScript?

JavaScript is a programming language that runs in the browser and provides the dynamics, the interaction in any web site

#### Evaluation of code

- Syntax doesn't do anything
- Saying "I have a trillion dollars" doesn't make it so
- An interpreter runs (or evaluates) code

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### **Arithmetic**

### Numbers

- 1
- 0.5
- -20
- . . .

### Operations

- +
- -
- \*
- ..

## Sequences

- Need to do more than a single step of code at a time
- List the steps line by line separate by semicolons

### Sequences<sup>1</sup>

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#### **Variables**

I have a friend, let's call her "Cassandra"...

Variables function both as storage containers and pronouns

## Creating Variables

```
var nameOfVariable = initialValueInIt;
var numberOfToes = 10;
```

### Assigning variables

```
var musicalsThatShouldExist = "The Walking Dead on Ice";
musicalsThatShouldExist = "Werner Herzog Sings The Blues";
```

#### Mini-exercise

#### Test yourself

Go to your console and try to

- create a variable
- change a variable

- Phone books
- Contact lists
- Mall directories
- Dictionaries

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- Contact lists
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- Dictionaries

## Making Objects

```
var obj = {prop1 : 0, prop2 : 1};
var otherObject = {};
```

```
Type the following in your console

var obj = {prop1 : 0, prop2 : 1, prop3 : "thing"};
obj.prop1;
obj.prop2;
obj.prop3;
```

### Type the following in your console

```
var obj = {};
obj.numberOfChickens = 2;
obj.numberOfChickens;
```

### **Functions**

#### Functions in math

$$f(x) = x + 10$$

#### **Functions**

# Functions in JavaScript

```
function f(x) {
    return x + 10;
}
```

# Using functions

First example of a function, a function that writes data to the console

console.log

### Example

Navigate to the file consoleExample.html and then check the console to see what happened

### Example

```
<!doctype html>
<ht.ml>
  <head>
    <script>
      console.log("we're printing one message");
      console.log("and another message!");
    </script>
  </head>
  <body>
    Check your console!
  </body>
</html>
```

# Multi-argument functions

```
function moreFun (anArgument, anotherArgument) {
   console.log(anArgument + anotherArgument);
}
moreFun(10, 20);
```

# Functions with no arguments

```
function noArgs () {
   return 10;
}
```

# What is the Document Object Model?

#### The DOM

The document object model (DOM) is the representation of the web page as JavaScript objects

### Putting the document in DOM

document is the object that holds most of the important methods

#### When to load code

```
window.onload = function () {
    ...
};
```

- o document.createElement
- document.createTextNode
- document.body
- appendChild

- document.createElement
- document.createTextNode
- document.body
- .appendChild

- document.createElement
- document.createTextNode
- document.body
- .appendChild

- document.createElement
- document.createTextNode
- document.body
- appendChild

- o document.createElement
- document.createTextNode
- document.body
- .appendChild

### Creating elements

```
<!doctype html>
<html>
  <head>
    <script>
      window.onload = function () {
         var newHeading = document.createElement("h1");
         var textNode = document
           .createTextNode("This is a heading!");
         newHeading.appendChild(textNode);
         document.body.appendChild(newHeading);
      };
    </script>
  </head>
  <body>
  </body>
</html>
```

#### Exercise 4

#### Exercise

use the document.createElement function to make a single

- document.getElementById
- .firstChild
- .nodeValue

# getElementByld

```
<body>

      This is a list

      This is our second list

</pre
```

# getElementByld

```
window.onload = function () {
   var newItem =
        document.createElement("li");
   var newText =
        document
        .createTextNode("item in the second list");
   newItem.appendChild(newText);
   var secondList = document.getElementById("list2");
   secondList.appendChild(newItem);
};
```

# Changing CSS properties

```
<!doctype html>
<html>
  <head>
    <script>
      window.onload = function () {
        var h = document.getElementById("heading");
        h.style.color = "red";
    </script>
  </head>
  <body>
    <h1 id="heading">This is a heading!</h1>
  </body>
</html>
```

#### Exercise 5

#### Exercise

use document.getElementById and the .style property to change the text color of the paragraph to green

- What a webpage is
  - HTML
  - CSS
  - JavaScript

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#### HTML

- Elements
- Tags
- Semantic markup
- Content, not appearance

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  - Elements
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- CSS
  - Style, not substance
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### JavaScript

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- Can be run by every browser
- Connects to HTML via Document Object Model

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- More HTML tags
- So much more CSS
- Frameworks for styling
  - Bootstrap is a very popular one
- JavaScript programming

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## Thanks for attending!

# Thanks for being in this class