

HTML & CSS

Basic HTML

How is an HTML5 document structured?

All HTML documents have a required structure that includes the following declaration and elements: `<!DOCTYPE html>`, `<html>`, `<head>`, and `<body>`.

```
<!DOCTYPE html>
<html lang="en">
  <head>
    { invisible content }
  </head>
  <body>
    { visible content }
  </body>
</html>
```

What are elements/tags?

1. Elements are designators that define the structure and content of objects within a page: `<h1>...`, `<p>`, ``, ...
2. The use of less-than and greater-than angle brackets surrounding an element creates what is known as a tag.

What are element attributes?

Attributes are properties used to provide additional information about an element. Ids, classes, src, href...

How do you link to external files?

```
<a href="http://website.com">Website name</a>
```

When should you use IDs vs Classes?

Id's for elements, that appear only once on the website. Classes for elements, that appear multiple times.

What attributes are required by image and link tags for them to be effective and accessible?

href, src, alt, target

Where should your CSS live?

Within a separate file, linked to html document via `<link rel="stylesheet" href="stylesheet.css" />`

What is a "container <div>"?

"container <div>" usually contains other elements in its container.

When should you use vs <div>?

 is an inline element so it is useful for things like changing style of a text within <p> tags.

<div> is a block element so it is useful for separating content on the web page.

What is the basic list syntax?

```
<ol><ul>
  <li></li>
  <li></li>
</ol></ul>
```

How do you nest lists inside each other?

```
<ol><ul>
  <li></li>
  <ol><ul>
    <li></li>
    <li></li>
  </ol></ul>
  <li></li>
</ol></ul>
```

What's the difference between and ?

 = Ordered list.

 = Unordered list.

When should you use tables?

Tables are used specifically for organizing data Tables are useful for writing html emails.

What is the structure of a table?

```
<table>
  <caption> { table name } </caption>
  <thead>
    <tr>
      <th> { table header } </th>
      <th> { table header } </th>
    </tr>
  </thead>
  <tbody>
    <tr>
      <td> { table data } </td>
      <td> { table data } </td>
    </tr>
  </tbody>
  <tfoot>
    <tr>
      <td> { table results } </td>
      <td> { table results } </td>
    </tr>
  </tfoot>
</table>
```

What are the special tags that dictate certain parts of a table, e.g. headers or captions?

<caption> = table name; <th> = table header

How can you combine cells in a table?

We can use the colspan and rowspan attributes. These two attributes work on either the <td> or <th> elements. Each attribute accepts an integer value with 1 being the default value.

Why do you need to be careful about your padding and borders in tables?

When styling table borders with CSS there are two properties that will quickly come in handy:

- border-collapse: separate (default), inherit, collapse;
- border-spacing - the border-spacing property works only when the border-collapse property value is separate, its default value. Additionally, the border-spacing property may accept two length values: the first value for horizontal spacing and the second value for vertical spacing. The declaration border-spacing: 5px 10px;

Borders cannot be applied to <tr> elements or table structural elements. When adding a border, we need to make sure that the table's border-collapse property value is set to collapse, and then we'll add a bottom border to each table cell, regardless of whether it's a <th> or <td> element.

How do you align text within cells in a table?

The vertical-align property works only with inline and table-cell elements—it won't work for block, inline-block, or any other element levels. The vertical-align property accepts a handful of different values; the most popular values are top, middle, and bottom.

CSS Basics

What are selectors?

Selectors are patterns used to select the element(s) I want to style. The type, class, and ID selectors.

In general, how specific should you be when targeting elements using selectors?

ID selector has a higher specificity weight than the class selector, and the class selector has a higher specificity weight than the type selector. I use them accordingly based on my needs.

What's the difference between using %, em and rem to specify sizes?

- px
 - on each device a pixel is always the same. 16px on your laptop monitor is not the same as 16px on your iPad. Pixels are absolute but not consistent.
- em
 - em is relative to the font-size of its parent element.
 - If you have a <div> with the font size is set to 16px, and a <p> element inside that div with a font-size set to 2em, the font-size of text in the <p> will be 32px
- rem
 - Rems, root ems, are always relative to the font-size of the <html> element. It doesn't matter how deeply nested an element is, its rem lengths will always be a proportion of the font-size of <html>.
 - <div> with a font-size of 22px containing a <p> with an font-size of 0.5 em but add a <blockquote> inside the <p> with a font size of 0.5em too, the result might not be what we want. The font-size in the <p> will be equal to 11px, but the font-size inside the <blockquote> would be half of that again, because em is relative the immediate ancestor (the paragraph), not the div.
- vh & vw
 - 100vh = 100% viewport height; covers the whole page based on the size of the device screen.
 - 100vw = 100% viewport width;
- %
 - Percent is a measurement unit relative to the containing block. It's great for images.

How do you select an element inside another element?

child selector = article h2 { };

How do you target the immediate child of an element?

direct child selector = article > h2 { };

How do you target a class inside a class?

```
.looklikearticle .looklikeh2 { };
```

How do you target a class inside an ID?

```
#specialarticle #specialh2 { };
```

How would you target "all the links inside li elements that have the class axes which are inside the unordered list with the id tools-listing"?

```
#toolslisting li .axes { };
```

What are the three ways to include CSS in your project?

External style sheet - separate file linked to our html document

Internal style sheet - styles inside the html document surrounded by <style> tag.

Inline style - styling inside the tags. <div style=""></div>

How do you import an external stylesheet?

```
<head>  
  <link rel="stylesheet" type="text/css" href="mystyle.css">  
</head>
```

What is the browser's default stylesheet?

Each browser has its own styles for html elements.

What is a "CSS Reset" file and why is it helpful?

It's a stylesheet that resets default browser stylesheet. Only rules written in my own stylesheet apply - no unexpected styling.

Which stylesheet has preference if you import multiple ones and there are overlapping styles?

```
<link rel="old stylesheet" href="path/to/style.css" />  
<link rel="newer stylesheet" href="path/to/style.css" />  
<link rel="newest stylesheet" href="path/to/style.css" />
```

What is the order of priority of selectors (e.g. if you specify that the <body> has color black but <h1> tags have the color blue but class main-title has the color red, which will be used by <body style="color:yellow"><h1 class="main-title" style="color:green">Howdy!</h1><body>?)

```
<style>
  .main-title {
    color: red;
  }
</style>
<body style="color:black">
  <h1 class="main-title" style="color:blue">Howdy!</h1>
</body>
```

blue -> red -> black. The last one in the code applies, in this case blue.

The Box Model

What's the difference between margin and padding?

Padding is a space inside the element, margin is the space outside the element.

How do borders affect the size of the box?

Border adds to the size of the box.

How can margins be used to center an element horizontally on the page?

margin: 0 auto;

What does it mean that "margins are collapsed"?

When the bigger margin eats the smaller one. Element on top has margin-bottom: 20px, the element under has margin-top: 50px; .The margin is going to be 50px.

What is the difference between block, inline-block and inline elements when thinking about the box model?

- display: inline;
 - default of all elements.
 - An inline element will accept margin and padding - margin and padding will only push other elements horizontally away, not vertically.
 - Won't accept height and width.
- display: inline-block;
 - Characteristics of block, but sits on a line with other elements.
 - I can set width and height.
- display: block;
 - nothing next to it.

When are you required to specify the width of an element vs letting the browser figure it out for you?

To set a specific width for a non-inline element.

How can you check an element's box model in your developer tools (it's a helpful graphic)?

Inspect element -> there is this nice picture.

Positioning

What is the DOM?

Document Object Model (DOM) is an application programming interface (API) for valid HTML. The DOM is a programming API for documents. It defines the logical structure of documents and the way a document is accessed and manipulated. With the Document Object Model, programmers can build documents, navigate their structure, and add, modify, or delete elements and content.

How do elements get placed in the DOM by default?

Browser reads the dom from the top to bottom.

How can you override element positioning using the position attribute?

By default every element has a position value of static, which means that it exists in the normal flow of a document and it doesn't accept any box offset properties. The static value is most commonly overwritten with a relative or absolute value.

When are you able to use the top left right and bottom attributes?

When the position is set to "relative" or "absolute".

What is the difference between float and position?

With float and inline-block I can't precisely position an element, with "position", I can.

Which element acts as the parent for a floated element?

When an element is floated, it will float all the way to the edge of its parent element. If there isn't a parent element, the floated element will then float all the way to the edge of the page.

What is the difference between floating right and floating left?

float: left is the default value, float: right puts the element on the right side of its parent.

If you have a bunch of elements floated next to each other and you make the browser narrower, what happens?

They stack on top of each other.

What's the practical difference between relative and absolute positioning?

- position: relative;
 - "relative to itself", I can set offset values like top: 10px; or left: 20px;
 - ability to set z-index making it to appear on top of any statically positioned element.
 - It also limits the scope of "position: absolute;" elements.
- position: absolute;
 - it will be placed relatively to the page itself.
 - Or within the "position: relative;" container.

Which element acts as the parent for an absolutely or relatively positioned element?

- position: absolute;
 - it will be placed relatively to the page itself.
 - Or within the "position: relative;" container.
- position: relative;
 - parent is the one they are inside.

How would you set up a grid of 20x20 boxes on the page using floats? Using lists?

Using emmet: `ul*20>li.box*20.`

```
<style>
  ul {
    margin: 0;
  }
  .box {
    display: inline-block;
    width: 20px;
    height: 20px;
    background-color: aquamarine;
  }
</style>
```

What are negative margins useful for?

It does not break the flow of the page if applied to elements without floats. So if you use a negative margin to nudge an element upwards, all succeeding elements will be nudged as well.

Forms

Why are forms probably the most important part of your site?

They are the things that can cause most of the friction. They provide a way for websites to capture information from users and to process requests.

How do you construct a basic form?

```
<form action="/login" method="post">
</form>
```

How do you specify which path the form gets submitted to?

The action attribute specifies where to send the form-data.

When would you want to submit using GET vs POST requests?

GET - Requests data from a specified resource

POST - Submits data to be processed to a specified resource

What are all the possible form element types?

<form>	Defines an HTML form for user input
<input>	Defines an input control
<textarea>	Defines a multiline input control (text area)
<label>	Defines a label for an <input> element
<fieldset>	Groups related elements in a form
<legend>	Defines a caption for a <fieldset> element
<select>	Defines a drop-down list
<optgroup>	Defines a group of related options in a drop-down list
<option>	Defines an option in a drop-down list
<button>	Defines a clickable button
<datalist>	Specifies a list of pre-defined options for input controls
<keygen>	Defines a key-pair generator field (for forms)
<output>	Defines the result of a calculation

When should you use check boxes instead of radio buttons?

Check boxes - I can check multiple.

```
<input type="checkbox" name="day" value="Friday" checked> Friday  
<input type="checkbox" name="day" value="Saturday"> Saturday  
<input type="checkbox" name="day" value="Sunday"> Sunday
```

Radio buttons, I can check only one.

```
<input type="radio" name="day" value="Friday" checked> Friday  
<input type="radio" name="day" value="Saturday"> Saturday  
<input type="radio" name="day" value="Sunday"> Sunday
```

When should you use a combobox/dropdown instead of a text field?

- text field
 - One of the primary elements used to obtain text from users is the <input> element.
 - type: color, date, datetime, email, month, number, range, search, tel, time, url, week
- Drop-down lists are a perfect way to provide users with a long list of options in a practical manner.

```
<select name="day">  
  <option value="Friday" selected>Friday</option>  
  <option value="Saturday">Saturday</option>  
  <option value="Sunday">Sunday</option>  
</select>
```

How do you make a very large text field?

By giving it more columns and rows.

How do you link elements with their labels?

Matching up the for and id attribute values ties the two elements together, allowing users to click on the <label> element to bring focus to the proper form control.

```
<label for="username">Username</label>  
<input type="text" name="username" id="username">
```

How do you link element selections together (e.g. check boxes) so they are nicely formatted when your server receives them?

By using <fieldset> element.

What should your "submit" button probably say instead of "submit"?

Send.

Media Elements

What are common attributes of image tags?

src, alt

How do you load a smaller version of an image?

By creating a thumbnail.

How do you get an image to fill up an element?

width: 100%

How can you save load times by using appropriately sized images?

Lower their resolution, color depth (32bit -> 16bit) or use an image optimization tool.

When should you store images externally vs on your server?

Storing image locally might slow down my website loading time, with external links, I depend on someone else not to change these links.

What are the main types of image files and how are they different?

- .png
 - an image can have transparent background, useful for simple graphics
 - with few colors, lower sizes than .jpg with the same resolution.
- .jpg
 - image can't have transparent background.
 - useful format for pictures with many colors, like photos.
- .gif
 - useful for simple graphics or animations, supports 256 colors only.
- .svg
 - great for icons or logos, scales without affecting size of the image
 - can edit colors and look by css.
 - Every element and every attribute in SVG files can be animated

Which file types let you use animation?

.gif, .svg

Which file types let you use transparent colors?

GIF, PNG, BMP, TIFF, .svg

Which file types are best for photos? Graphics?

photos: .jpg

graphics: .gif, .png, .svg

Which file type lets you scale an image as big as you want without affecting file size (and why)?

.svg, scalable vector graphic. A vector image is made up of paths, each with a mathematical formula (vector) that tells the path how it is shaped and what color it is bordered with or filled by.

What's the difference between raster and vector images?

A raster image is made of up pixels, each a different color, arranged to display an image.

A vector image is made up of paths, each with a mathematical formula (vector) that tells the path how it is shaped and what color it is bordered with or filled by.

Links

What's the difference between internal links (/somepage) and external links (http://www.somesite.com/somepage)?

- Internal link
 - is one that goes to other areas within your site
 - links that starts with your domain name
- External link
 - is one that goes to another URL outside of your site, or links from other sites to yours.
 - links that does not start with your domain name

When on a webpage should you use the full URI (with the http://yoursite.com/somepath) and when should you use the relative path (/somepath)?

Linking to other websites outside of the current one requires an absolute path.
Links pointing to other pages of the same website will have a relative path.

How do you navigate the document tree with links (../../someotherpage)?

An example in the brackets shows two folders up.

How do you open links in external windows?

```
<a href="link.com" target ="_blank">Website name</a>
```

What are all the possible pseudo-states (e.g. :hover) of a link and when are they actually activated? How do you change styles based on them?

```
a:hover {  
    styles;  
}
```

:visited (when they are visited), :active (when they are selected, link in the menu), :focus (when they are selected)

Intermediate CSS

How do you round corners of a box?

```
border-radius: 5px 10px 15px 20px; /* top left, top right, bottom right, bottom left */
```

How do you add a shadow to a box?

```
box-shadow: [horizontal offset] [vertical offset] [blur radius] [optional spread radius] [color];
```

How do you rotate an element a specified amount?

```
transform: rotate(25deg);
```