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CSCI 165
Introduction to the Internet and the World Wide Web
Lecture 3: CSS 2

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2024 Spring Semester (S1)

Overview

- Focus: Course Introduction
- Architecture: WWW
- Core Ideas:
    1. CSS Boxes
    2. More Selectors
    3. Positioning

P0
Validator

HTML Validator

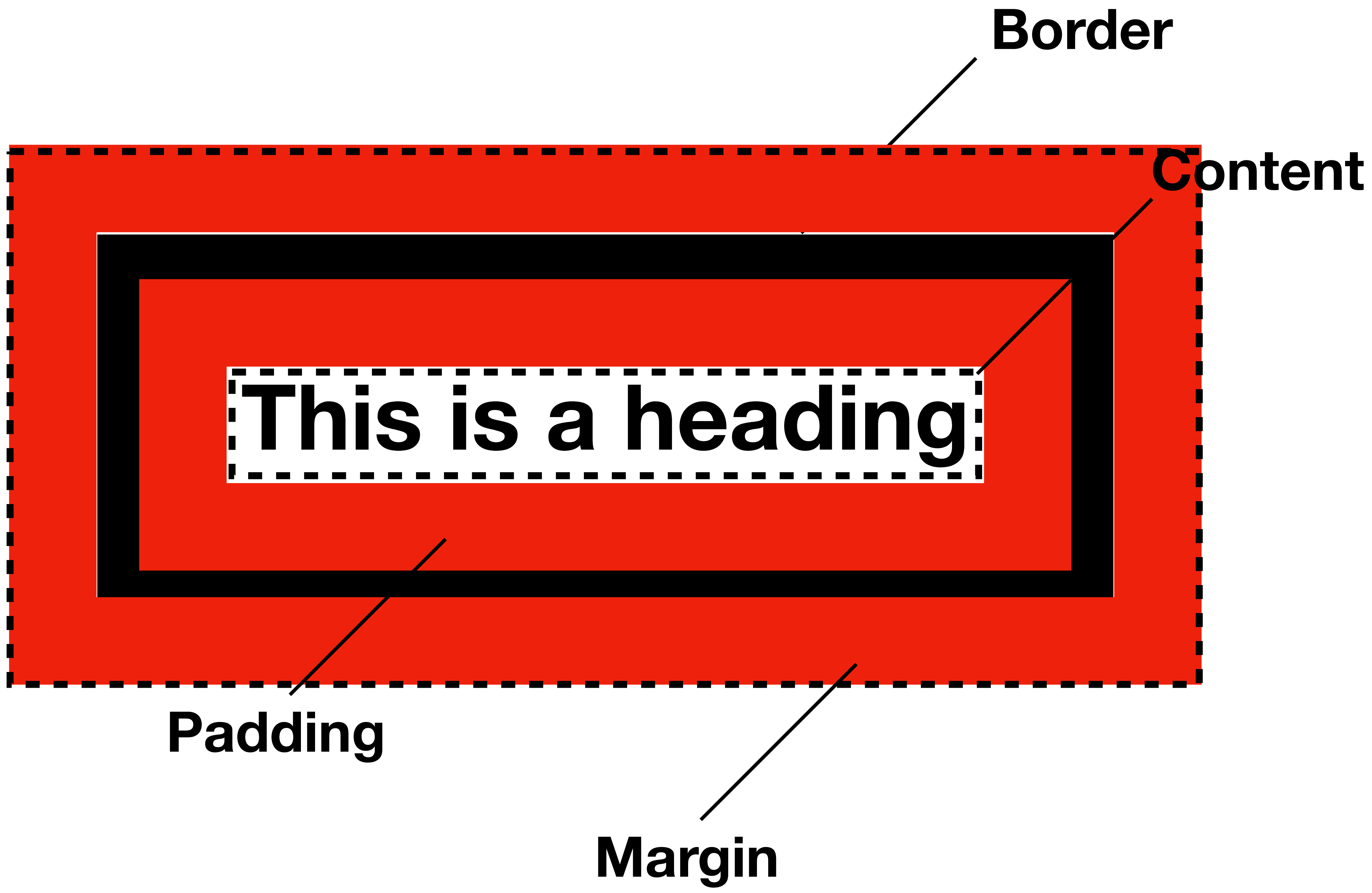
- In quiz1, I asked you to find a usable HTML validator
  - Use it please, for your submissions
- Some warnings are less important, especially those associated with metadata
- Others must be fixed from Lab 4 onwards

Review

P1
Box

CSS Boxes

- Everything is boxed
- For example, an <h1> tag
  - **Content**
    Where text and images are
  - **Padding**
    Gap between content and border, transparent
  - **Border**
  - **Margin**
    Gap between boxes, transparent

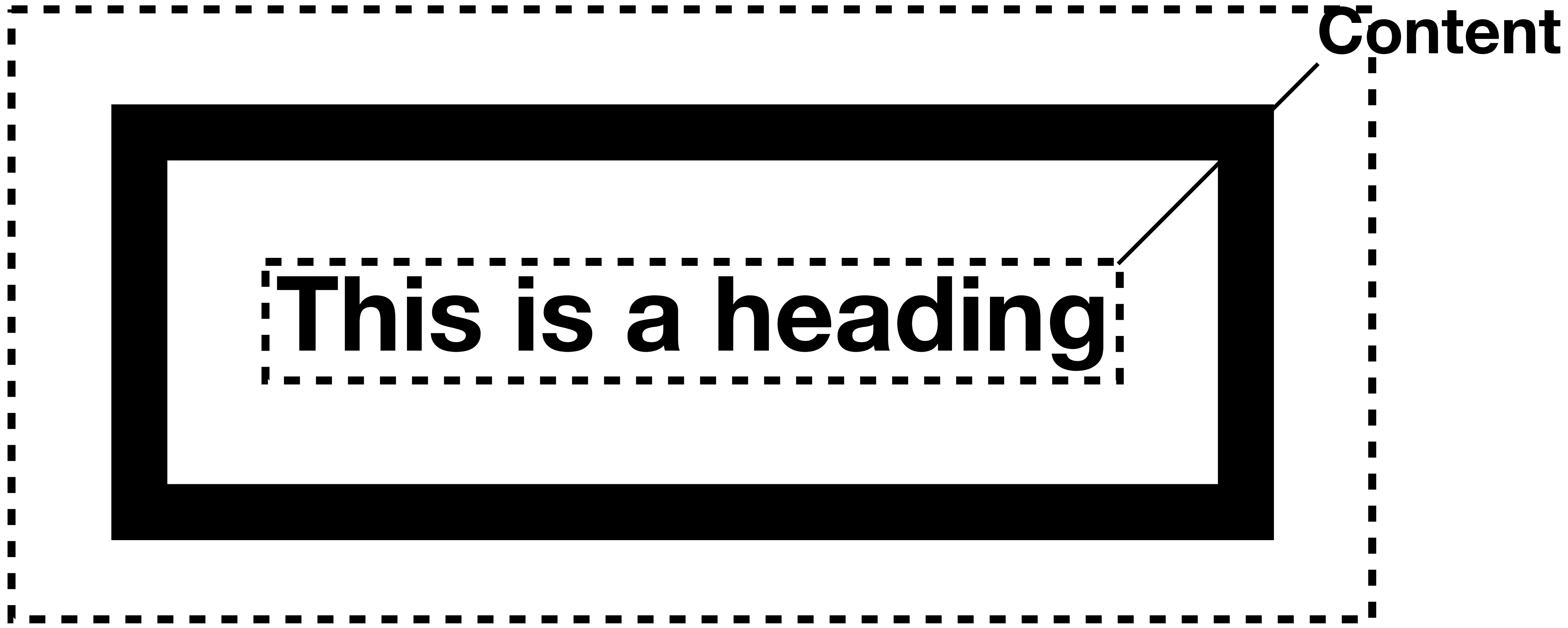


Concept

P1
Box

CSS Boxes

- Content has
  - `height` and `width`
  - `color` and `background-color`
  - e.g.
```
div {
    height: 200px;
    width: 50%;
}
```
  - The `50%` here means 50% of its containing box[1]'s total width



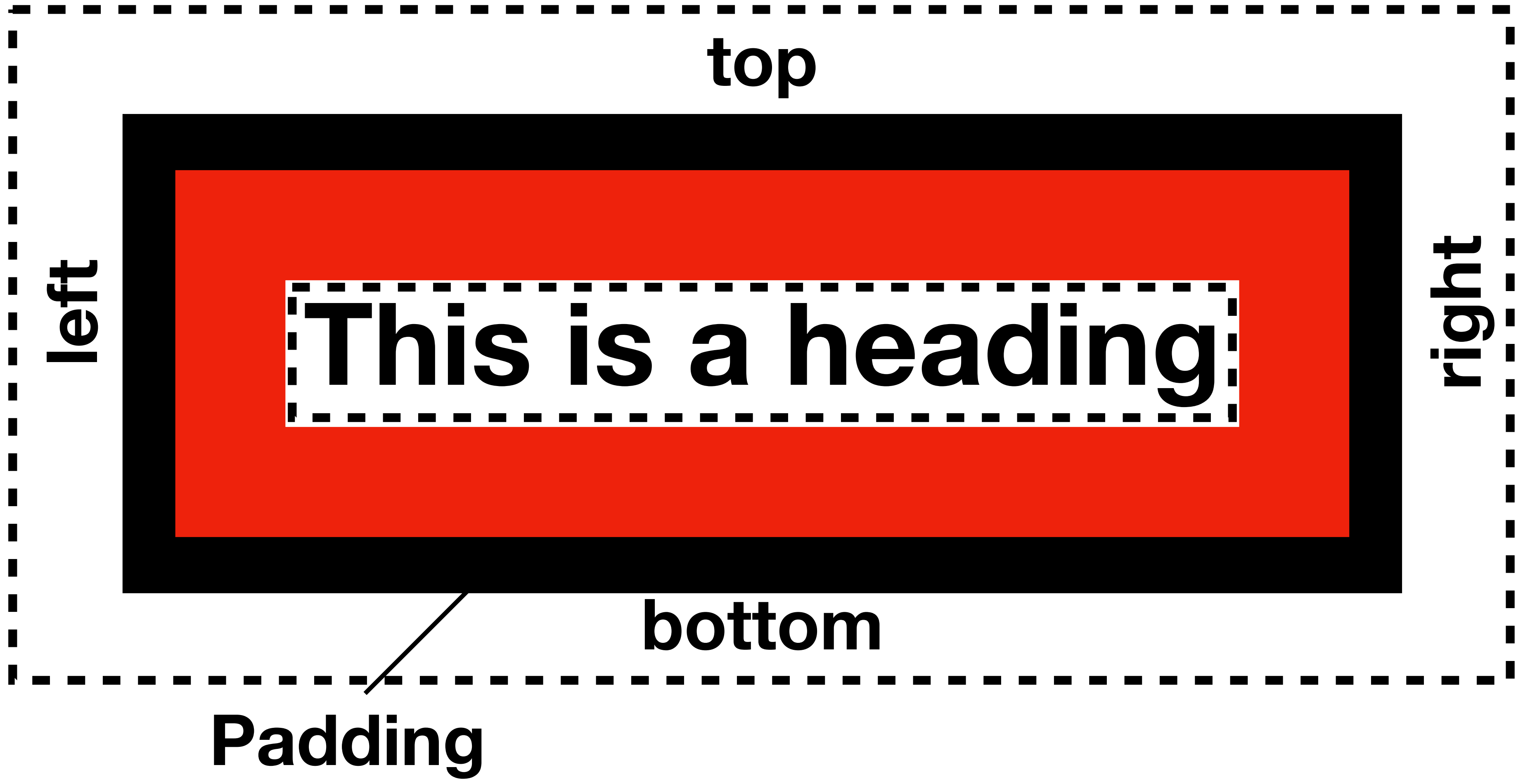
Technical

[1] Parent box

P1
Box

CSS Boxes

- Padding has
  - `padding-top`
  - `padding-left`
  - `padding-right`
  - `padding-bottom`
  - values to use: length, or `inherit` (default)



1. Parent box

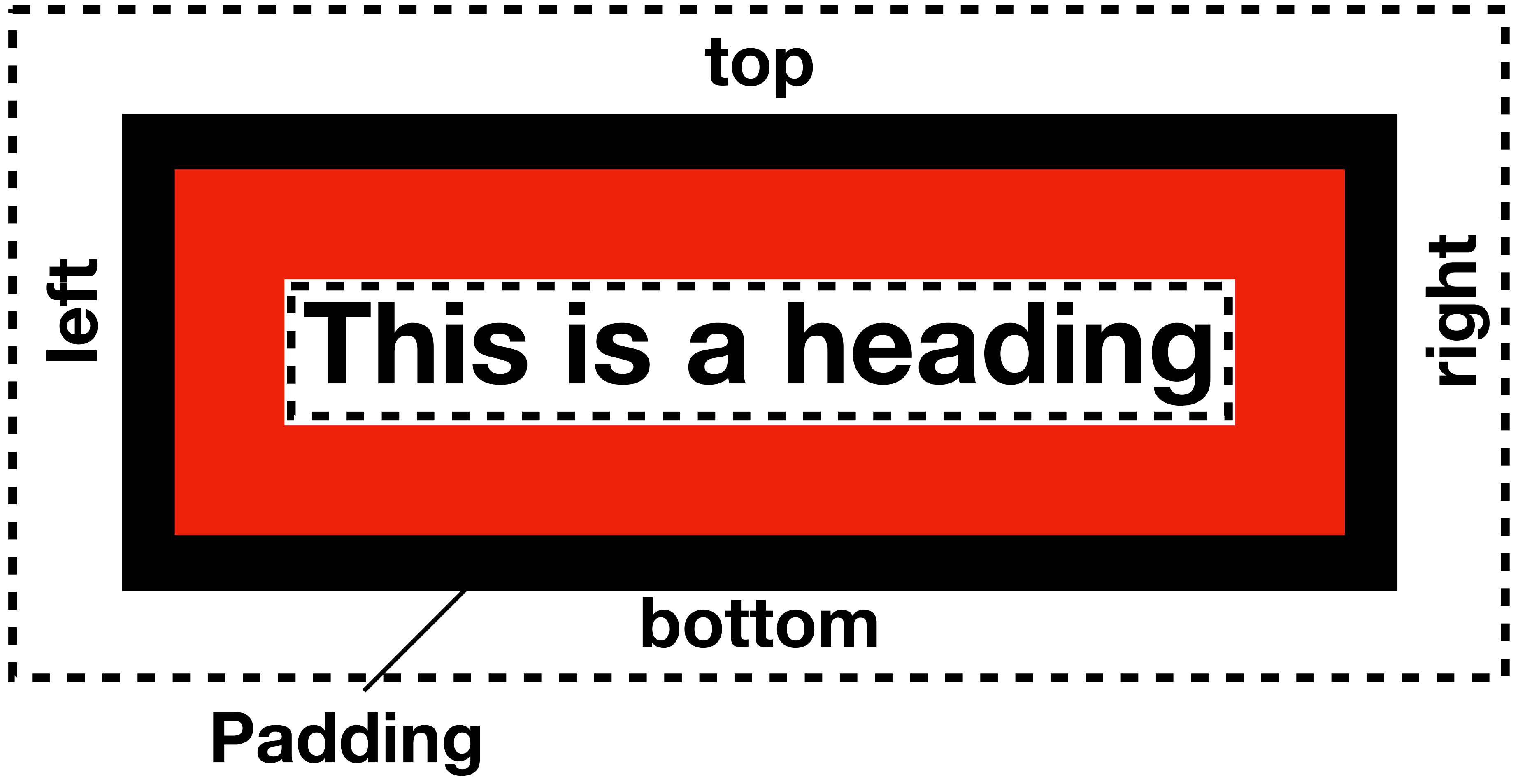
Technical

P1
Box

CSS Boxes

- Example

```
  h1 {
     padding-top: 10px;
     padding-bottom:
     10px;
     padding-left: 15px;
     padding-right: 15px;
  }
```



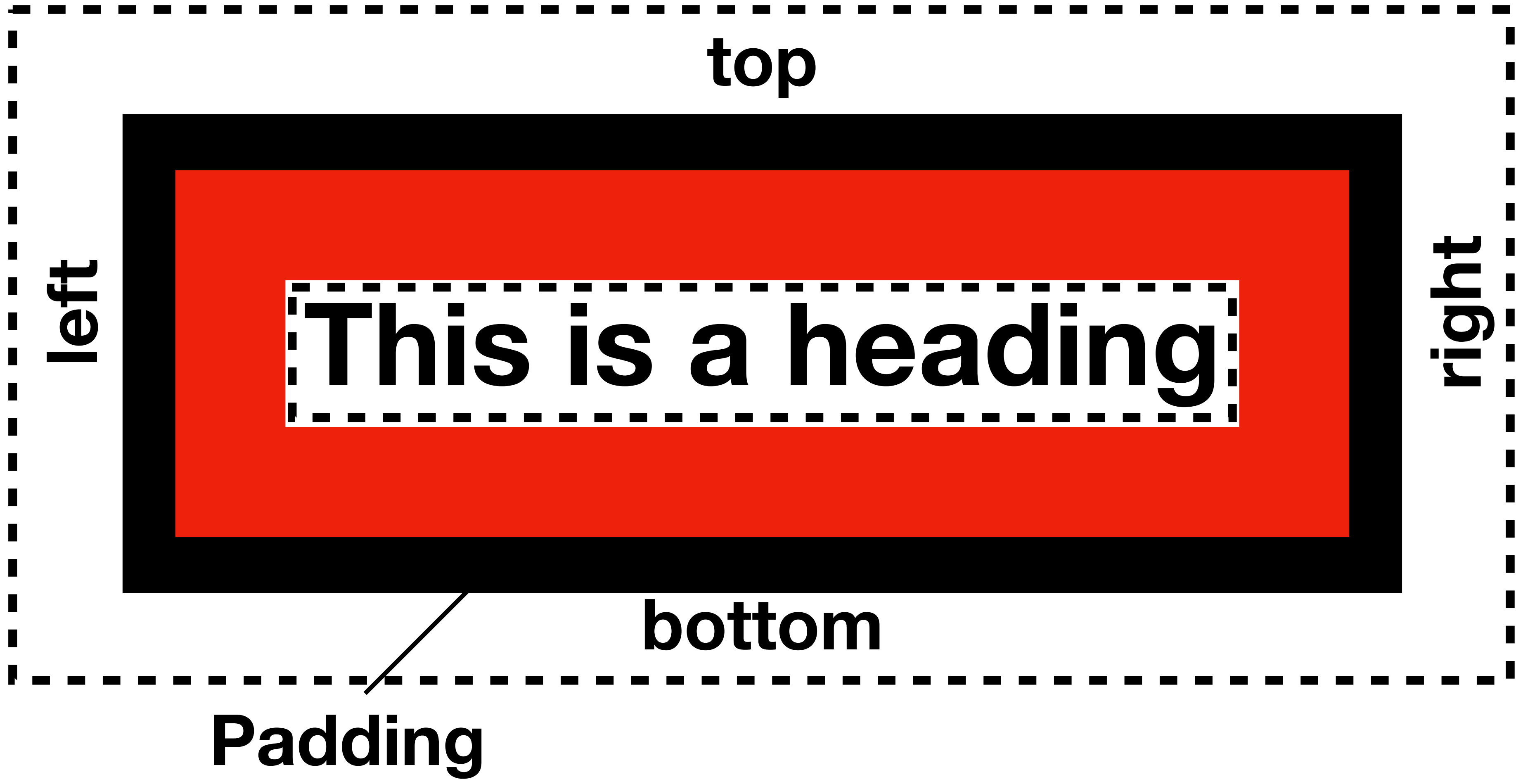
Technical

1. Parent box

P1
Box

CSS Boxes

- Padding also has
  - `padding: 25px;`
    - All four `padding`s are 25px
    - This is OK



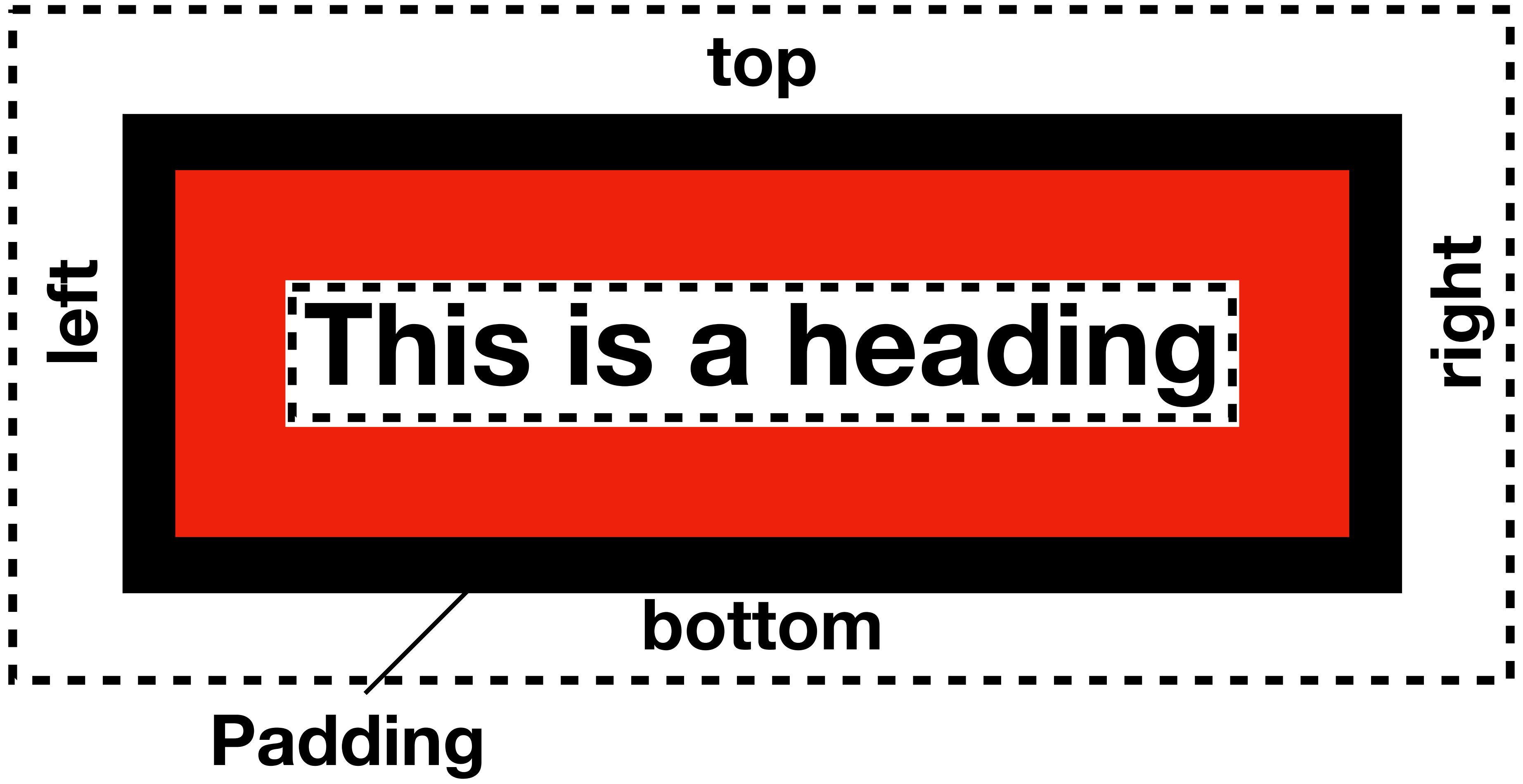
Technical

1. Parent box

P1
Box

CSS Boxes

- Padding also has
  - `padding: 25px 50px 75px 100px;`
    - This goes: top, right, bottom, left
    - This is not a good approach
    - Defining paddings like this can be visually difficult to debug and change
    - sometimes you just want to do Ctrl-F (or Command-F)



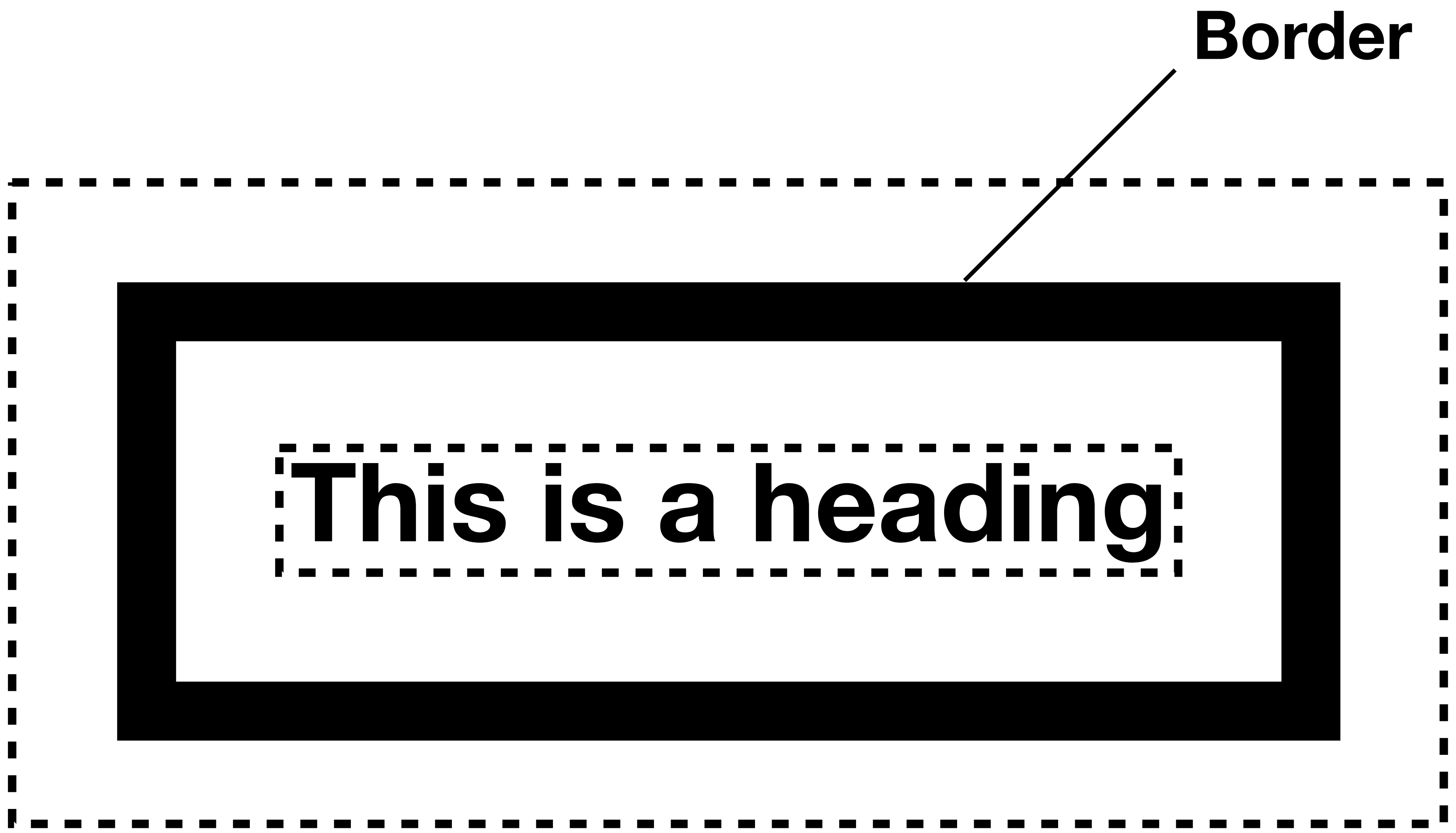
1. Parent box

Technical

P1
Box

CSS Boxes

- Border has
  - `border-width`
    Thickness, use unit of measurements here
    - Can be defined like padding (top, right, bottom, left)
  - `border-style`
    - `dotted`, `dashed`, `solid`, `double`, `hidden`, `none`, etc.
  - `border-color`



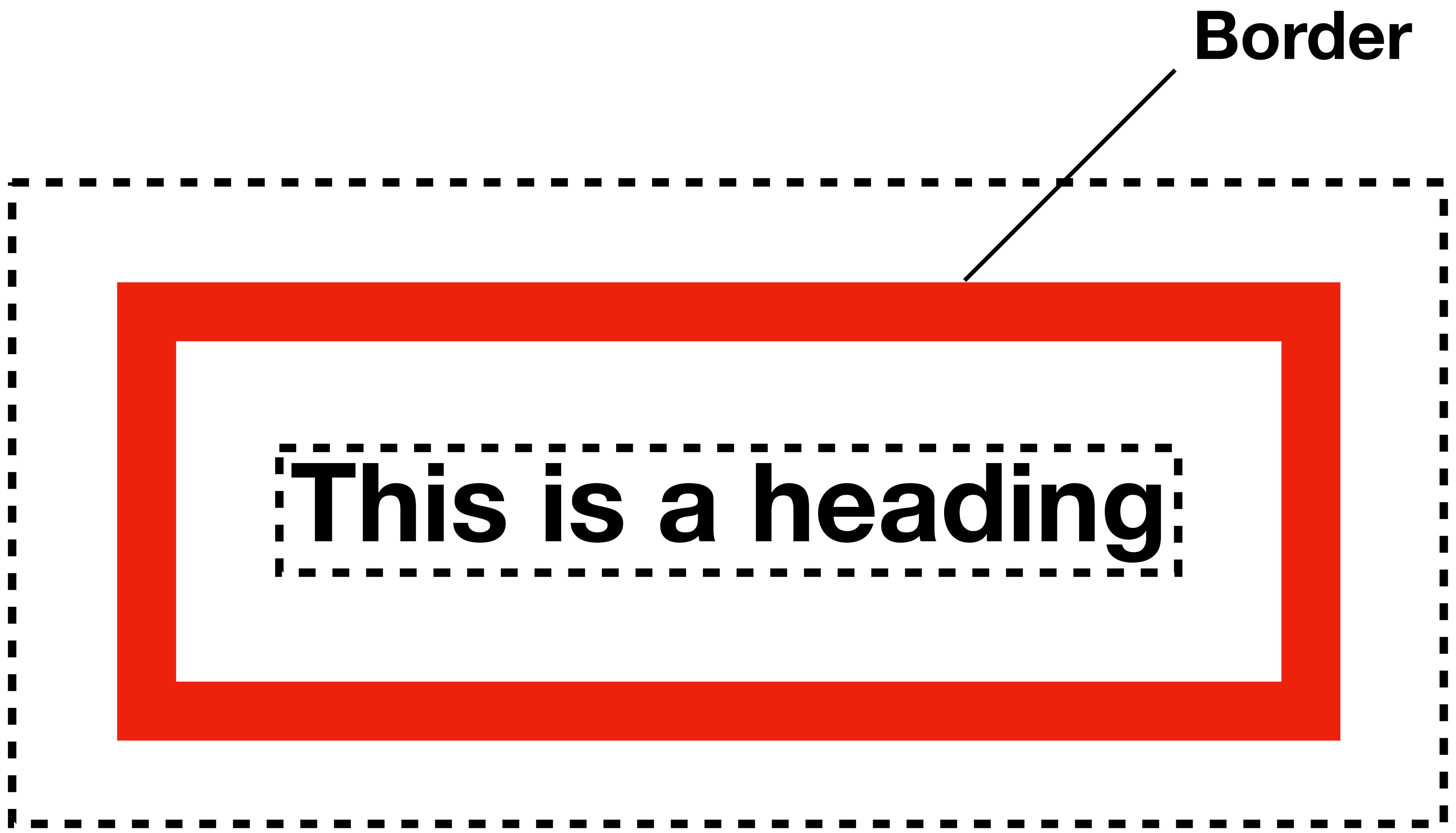
Technical

P1
Box

CSS Boxes

- Example:

```
h1 {
    border-style: solid;
    border-width: 20px;
    border-color: red;
}
```

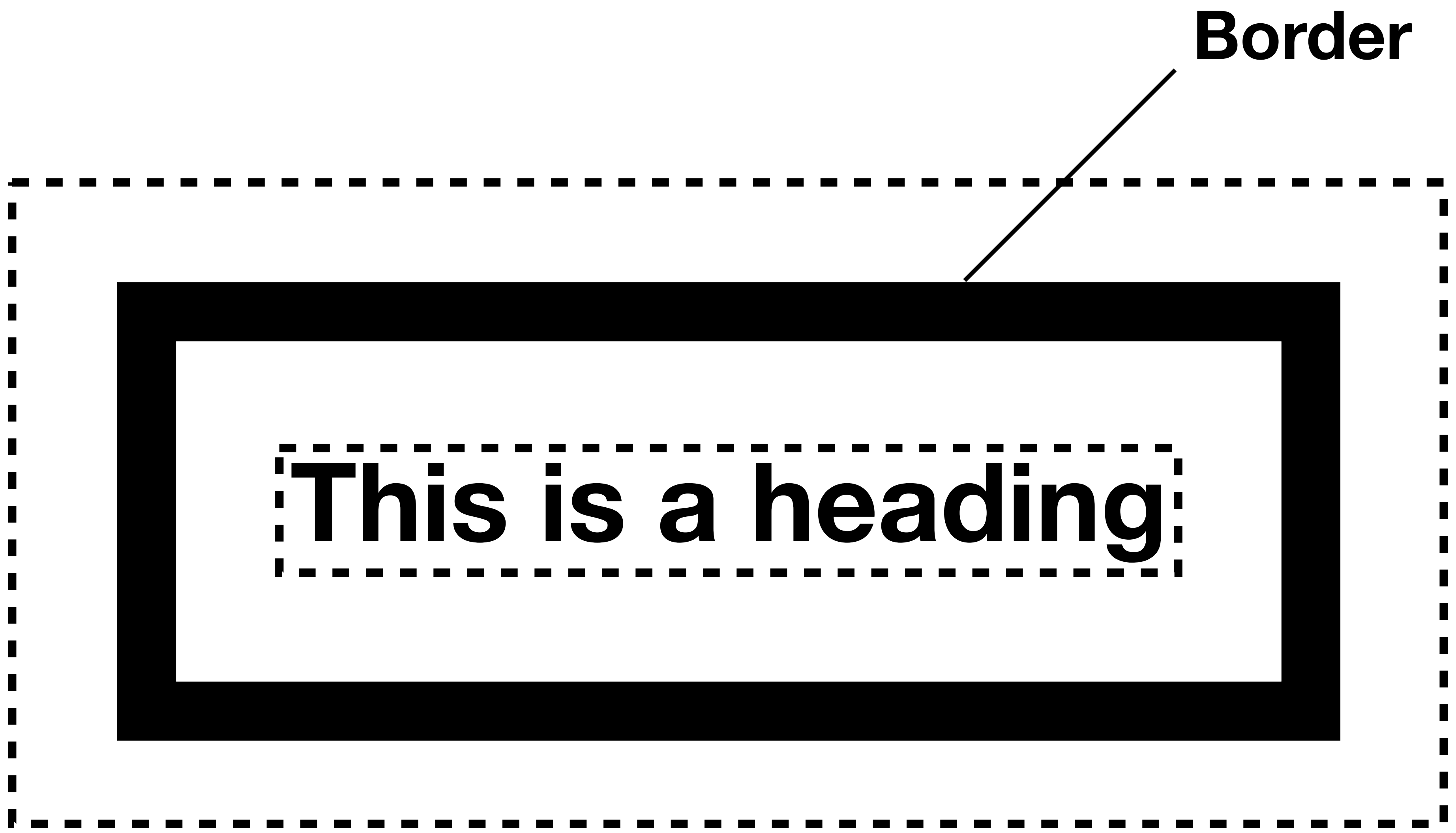


Technical

P1
Box

CSS Boxes

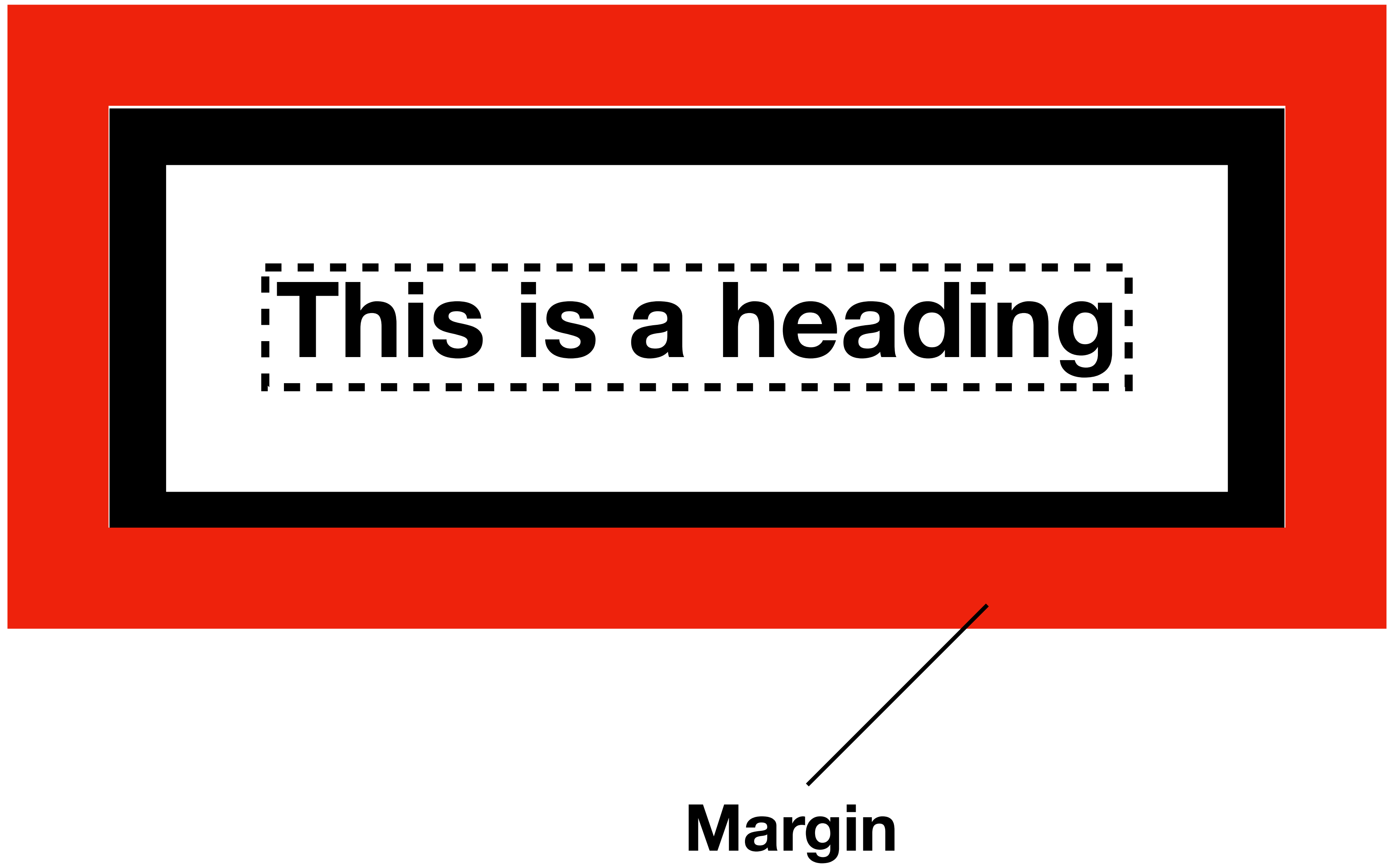
- Each side can be changed differently. e.g.
  - `border-top-style`
  - `border-left-style`
  - …



Technical

CSS Boxes

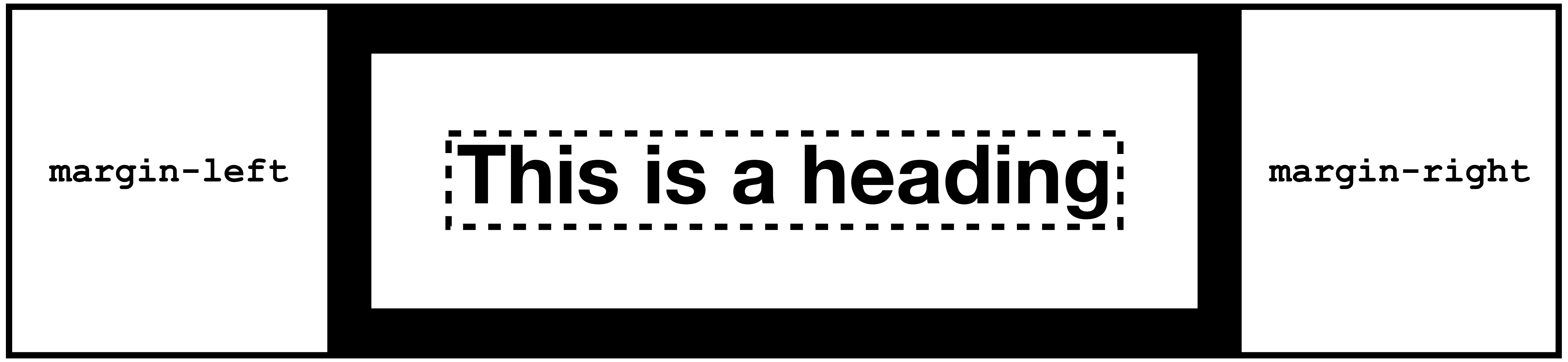
- Margin has
  - `margin-top`
  - `margin-left`
  - `margin-right`
  - `margin-bottom`
  - values to use: length, or `inherit` (default)



P1
Box

CSS Boxes

- `margin: auto;`
    - The element (border included) will take up its specified width, the rest of the space is split evenly between left and right



Technical

P2
Selectors

CSS Selectors

- Previously, we discussed **element selector**, where you used tag names to do styling

- e.g.
```
h1, h2 {
  …
}
```

Review

CSS ID selectors

- Sometimes you have a lot of elements with the same tag, but you want to adjust them individually
- This is especially the case with `<div>`, which is a common element used to create content blocks in HTML
  - `<div>` itself doesn’t offer anything except for being a block, no special abilities

P2
Selectors

CSS ID selectors

- index.html
```
<div id="nav">
  <h1><a …>link1</a></h1>
  <h1><a …>link2</a></h1>
</div>

<div>
  <h1>Q1 Answer</h1>
  <p>…</p>
</div>

<div>
  <h1>Q2 Answer</h1>
  <p>…</p>
</div>
```

- style.css
```
#nav {
  text-align: center;
  color: red;
}
```

- Here we have a navigational bar, similar to a menu bar
  - done using `<div>`, with attribute `id`
- This needs to be styled differently from the rest of the `<div>`

Technical

P2
Selectors

CSS ID selectors

- id names
  - any combination of letters, underscore, numbers, but cannot start with numbers
- in HTML
  - `id` attribute can be used on any element tags
- in CSS
  - start with `#`, then followed by id name (no space between)

Concept

P2
Selectors

CSS ID selectors

- Here are some examples in CSS
  - `#nav {…}`
  - `h1#main {…}`
    h1 elements with `id=main` attribute
  - `p#main {…}`
    p elements with `id=main` attribute
- Tip: id names should be more unique in a page

Concept

CSS Class Selectors

- index.html

```
<div id="nav">
  <h1><a …>link1</a></h1>
  <h1><a …>link2</a></h1>
</div>

<div class="answer">
  <h1>Q1 Answer</h1>
  <p>…</p>
</div>

<div class="answer">
  <h1>Q2 Answer</h1>
  <p>…</p>
</div>
```

- Here you have multiple `<div>`s that should be styled similarly

- Use the `class` attribute for multiple elements of a single class

Concept

CSS Class Selectors

- index.html

```
<div id="nav">
  <h1><a …>link1</a></h1>
  <h1><a …>link2</a></h1>
</div>

<div class="answer">
  <h1>Q1 Answer</h1>
  <p>…</p>
</div>

<div class="answer">
  <h1>Q2 Answer</h1>
  <p>…</p>
</div>
```

- style.css

```
.answer {
  text-align: center;
  color: red;
}
```

- start with period dot, then followed by class name
- all instances of the same class will be affected

CSS Special Subs

- Some elements can have special subs

```
    a:link { color: red; }
    a:visited { color: purple; }
    a:active, a:hover { text-decoration: underline; }
```

  - This changes the behaviour of a hyperlink, from when you just seen it, hover your mouse over it, or when you have clicked on it

- `hover` exists for a lot of elements, including `<div>`

Concept

P3
Positioning

CSS Positioning

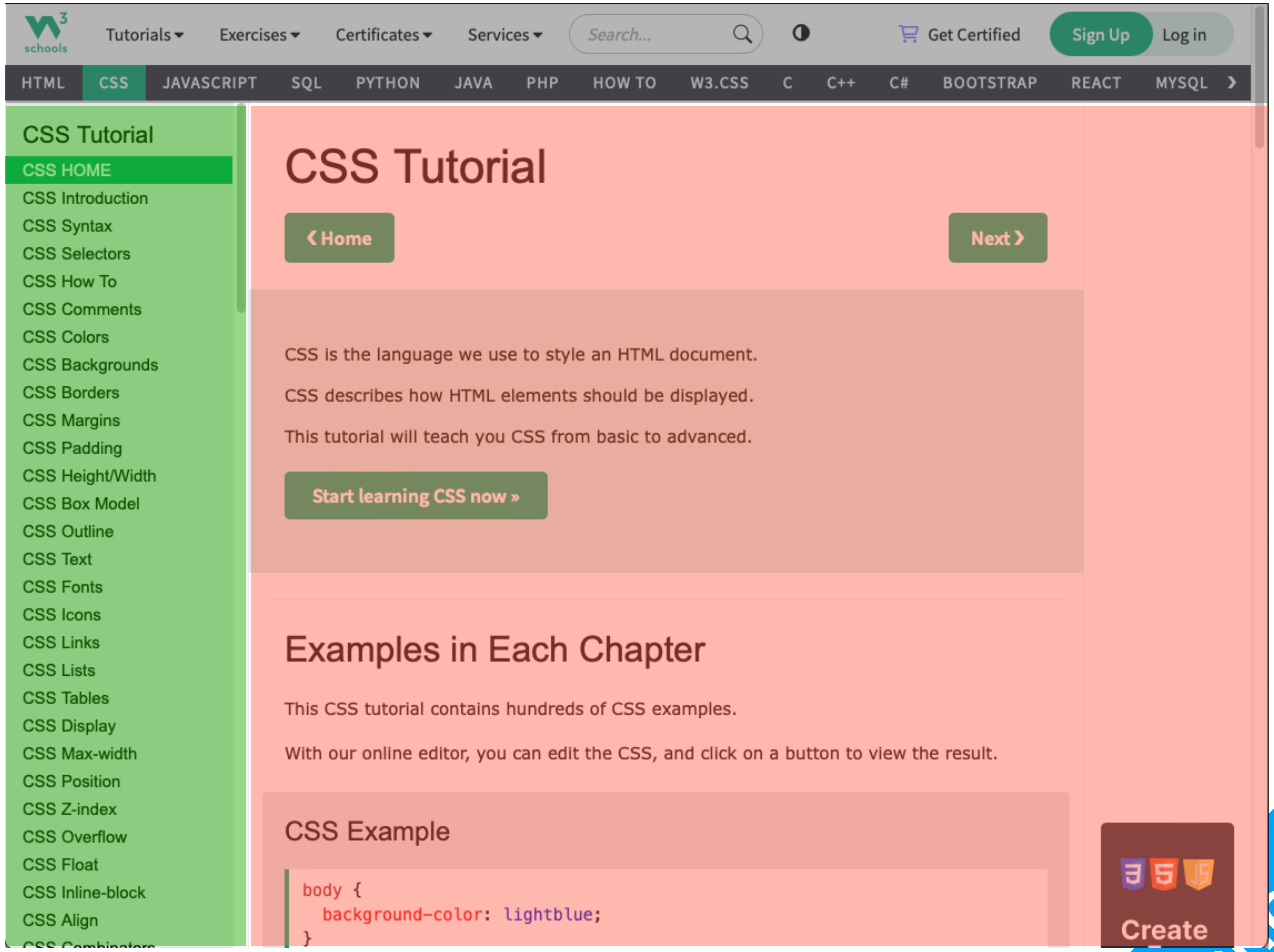
- Previously, all of the elements are rendered from top to bottom
- You didn’t really have elements next to one another on the same horizontal level
- By browser default, each element’s box will take up all of the available width of the browsing area
- What if you want something different?

Review

P3
Positioning

CSS Positioning

- Partitioning?
  - The whole page can be partitioned
  - Top menu: grey
  - Left menu: green
  - Main content: red



CSS Tutorial

CSS is the language we use to style an HTML document.

CSS describes how HTML elements should be displayed.

This tutorial will teach you CSS from basic to advanced.

Examples in Each Chapter

This CSS tutorial contains hundreds of CSS examples.

With our online editor, you can edit the CSS, and click on a button to view the result.

CSS Example

```
body {
  background-color: lightblue;
}
```

Technical

P3
Positioning

CSS Positioning

- Tools
  - `position` property
    - `static`: default value, not affected by other positioning properties, will just follow the rest of the elements
    - `relative`: setting the top, right, bottom, and left properties will cause it to be adjusted away from its normal position.
    - `fixed`: positioned relative to the viewport, will not be affected by scrolling
    - `absolute`: positioned relative to the nearest positioned parent, with fixed position in it

Concept

P3
Positioning

CSS Positioning

- `position: relative/fixed/absolute` options
  - `top`, `left`, `bottom`, `right`: length measurements
  - e.g.

    ```
    #nav {
      top: 0;
      left: 0;
    }
    ```

Concept

CSS Positioning

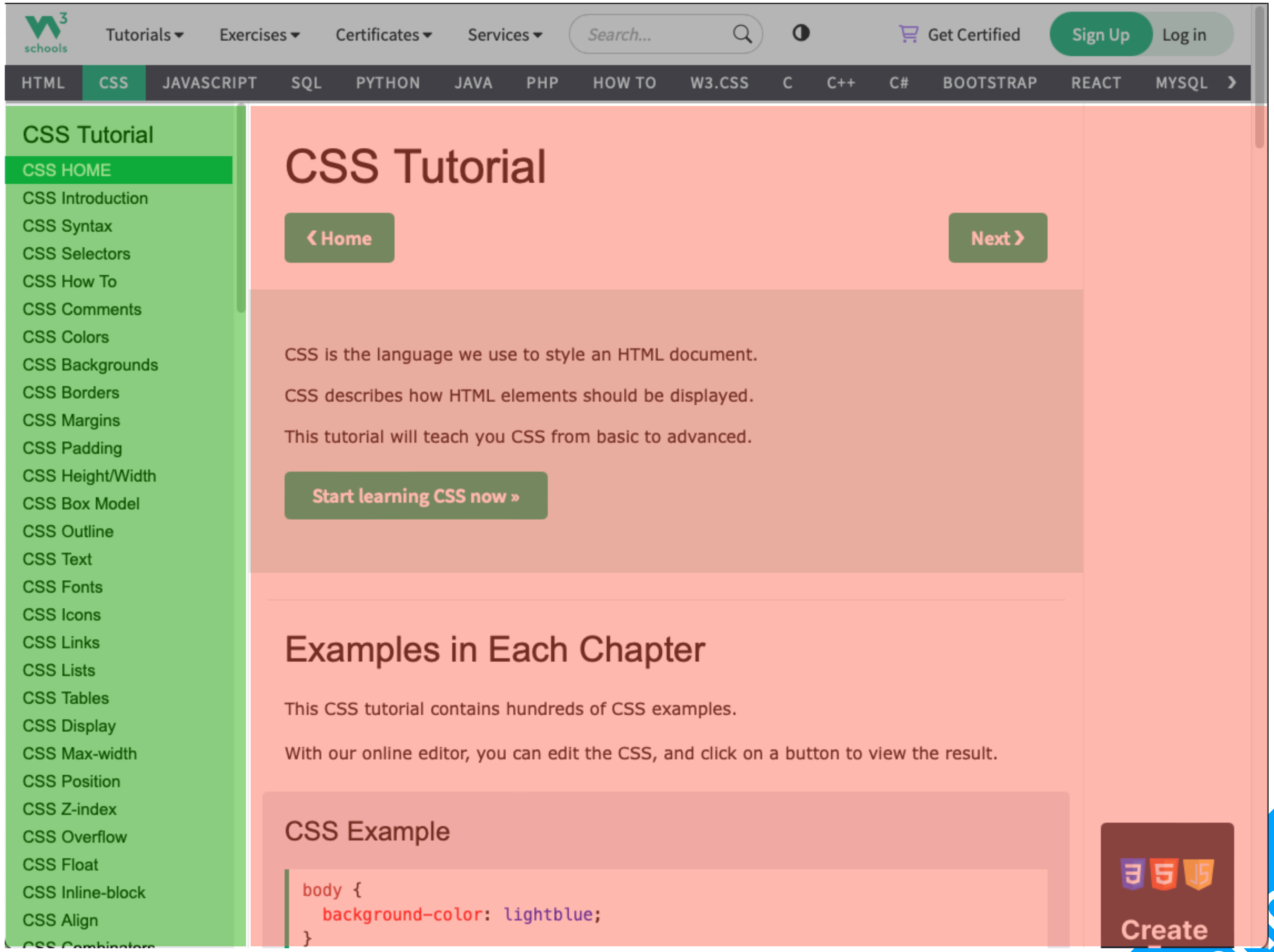
- Tools
  - `overflow` property
    - defines a scrollable box, used to create sub-content boxes
    - `visible`: default, when there's more stuff than the content box allows, it renders outside (overflows)
    - `hidden`: when there's more stuff than the content box allows, it doesn't get rendered (hidden)
    - `scroll`: adds a scroll bar
    - `auto`: adds scroll bar only when needed

Concept

P3
Positioning

CSS Positioning

- For each three parts
- Find out:
  - `id/class` of containing `<div>`
  - position?
  - overflow?
  - height and width?



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