Introduction to HTML5/CSS3

TECH LECTURE

JULY 20, 2017

Web Terms

- **Web design**

The process of planning, structuring and creating a website

- **Web development**

The process of programming dynamic web applications

- **Front end**

The outwardly visible elements of a website or application

- **Back end**

The inner workings and functionality of a website or application.

History of HTML5

- Invented by Tim Berners-Lee
- Created "hypertext" to share scientific papers
- First web page August 6, 1991
- Standardized by w3 Consortium (pack of super nerds)

HTML5

- HTML = HyperText Markup Language
- framework for the web
  - paragraphs, headings, links (HyperText), and images
- Chrome → more tools → developer tools

CSS3

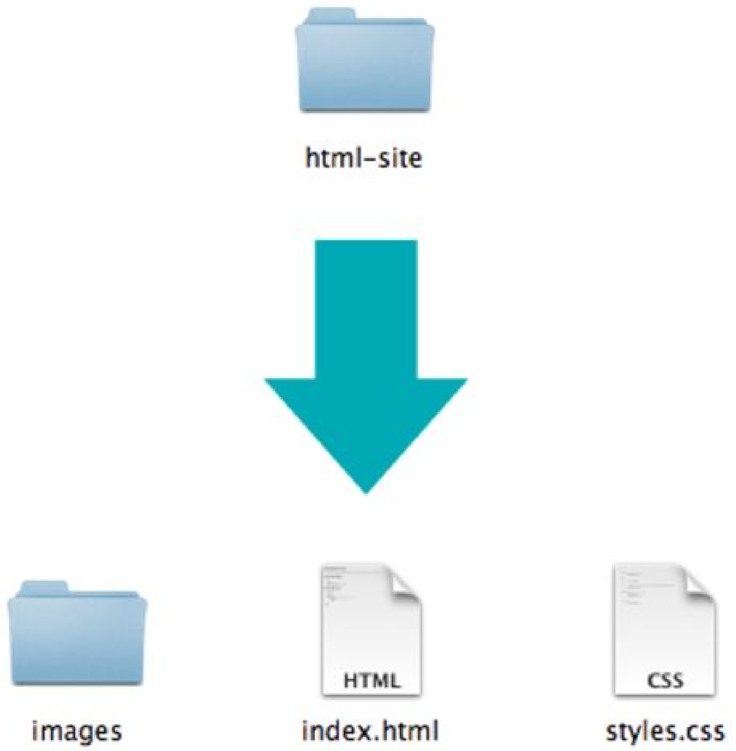
- CSS = Cascading Style Sheets
- present a document written in markup language
- separates content from presentation, like colors, fonts, and layout
- cascade with weights

Tools

- You can use:
  - Atom - Windows, Mac
  - Notepad++ - Windows
  - Sublime Text - Windows, Mac, Linux
  - TextWrangler - Mac
  - Brackets - Mac, Linux

Structure

- HTML files
- CSS files
- images
- script files
- anything else that will appear on the site



Anatomy of HTML

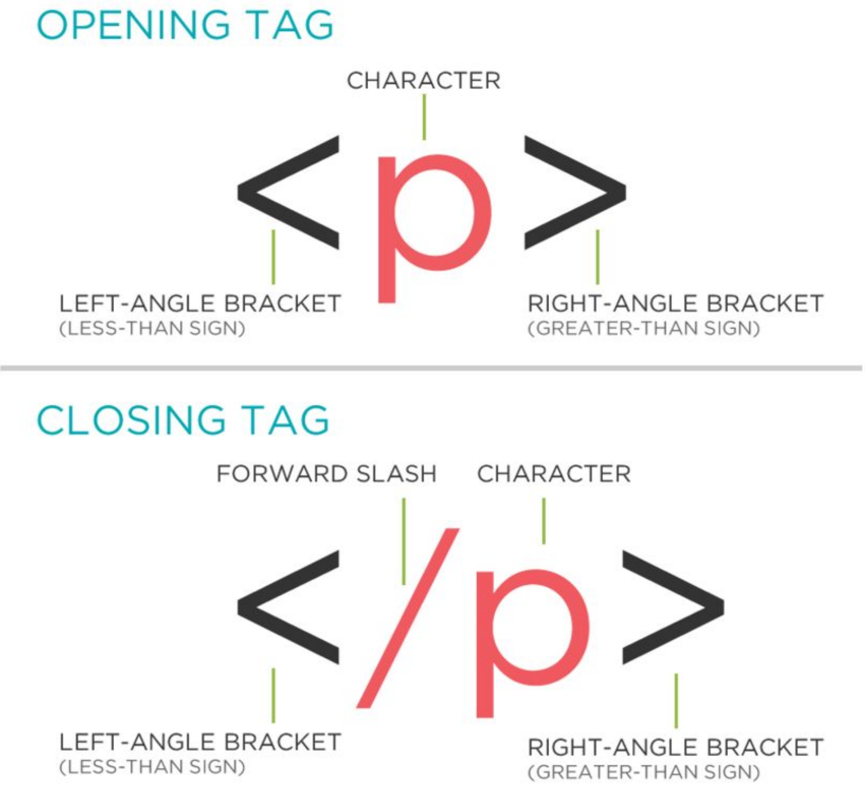
Element

- An individual component of HTML
- Paragraph, heading, table, list, div, link, image, etc.

Tag

- Marks the beginning & end of an element
- Opening tag and Closing Tag
- Tags contain characters that indicate the tag's purpose

HTML Tag


OPENING TAG
CHARACTER
<p>
LEFT-ANGLE BRACKET
(LESS-THAN SIGN)
RIGHT-ANGLE BRACKET
(GREATER-THAN SIGN)
CLOSING TAG
FORWARD SLASH
CHARACTER
</p>
LEFT-ANGLE BRACKET
(LESS-THAN SIGN)
RIGHT-ANGLE BRACKET
(GREATER-THAN SIGN)

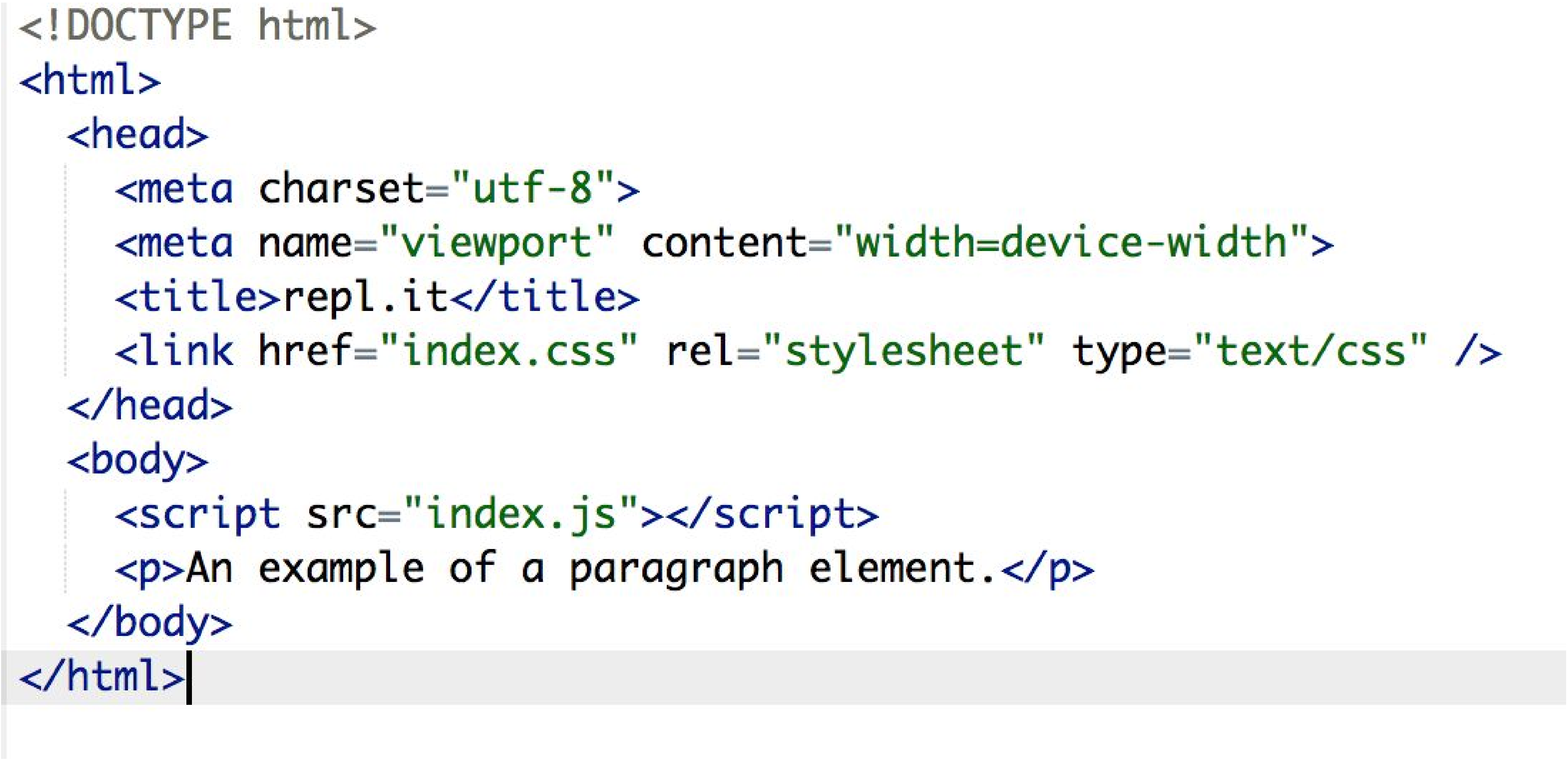
Anatomy of HTML Element

Attribute

- Provides additional information about the HTML element
- Class, ID, language, style, identity, source
- Placed inside an opening tag, before the right angle bracket.

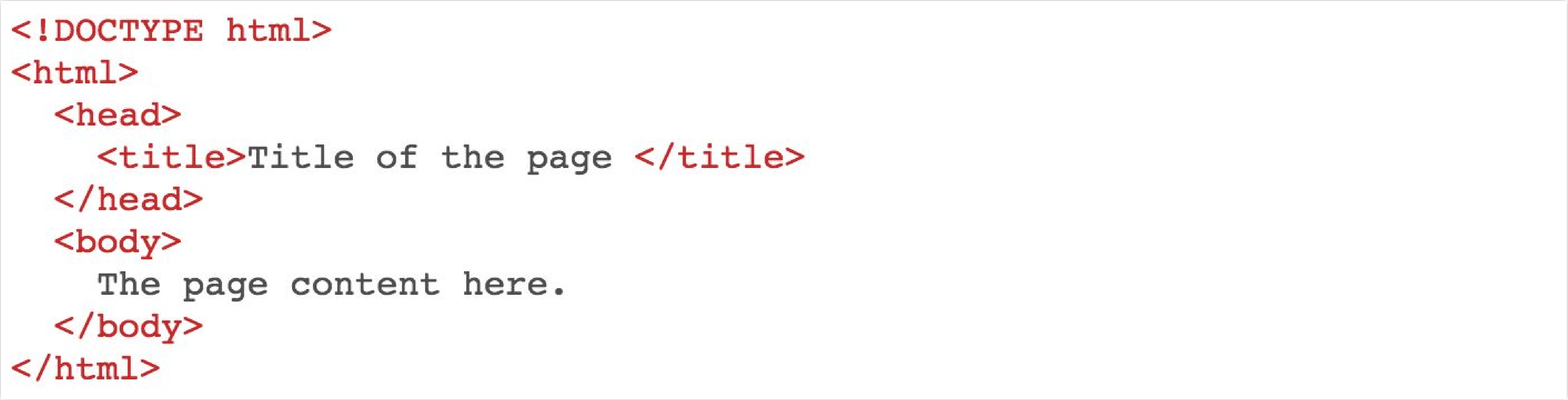
Value

- Value is the value assigned to a given attribute.
- Values must be contained inside quotation marks.

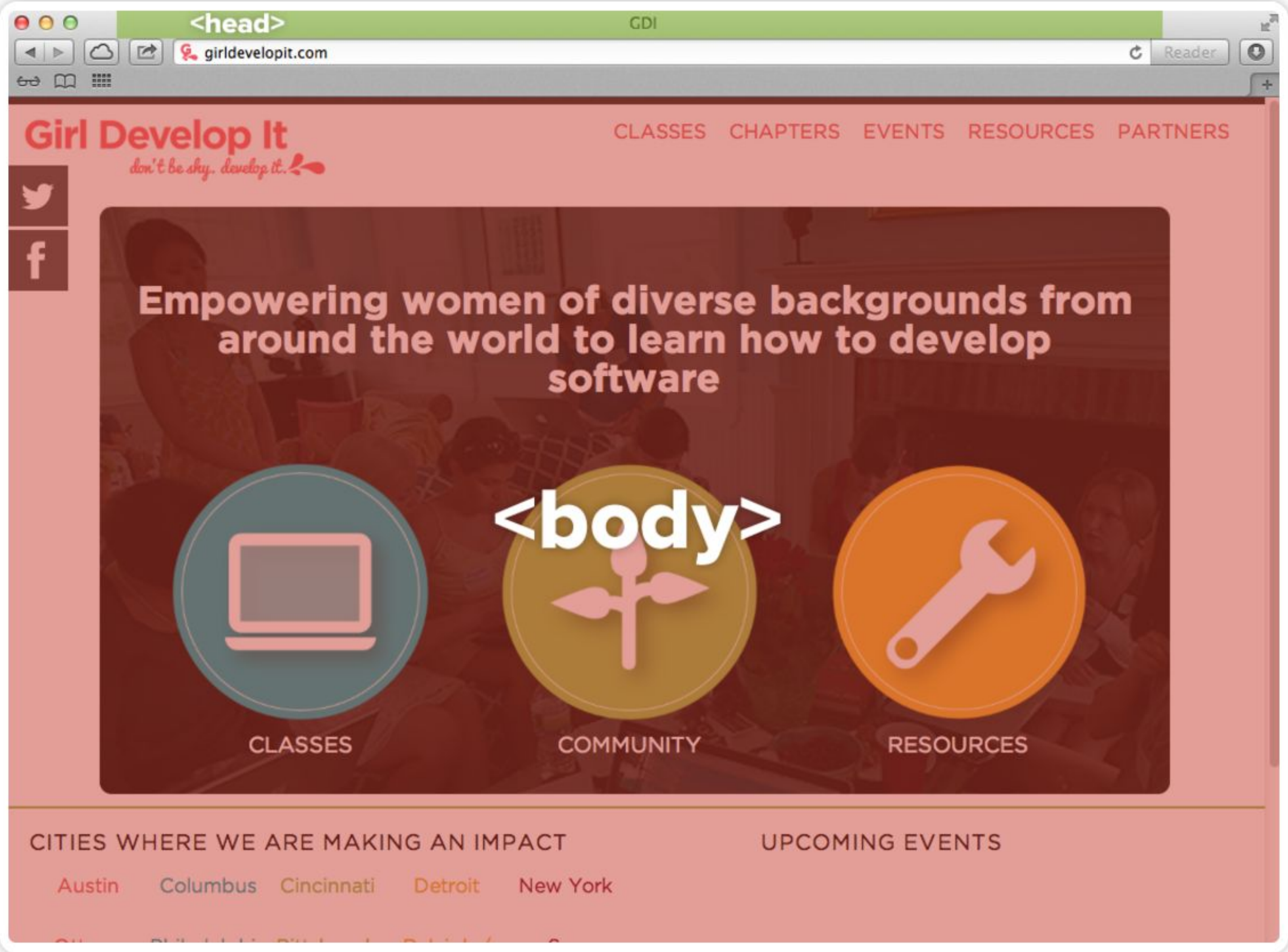


```html
<!DOCTYPE html>
<html>
  <head>
    <meta charset="utf-8">
    <meta name="viewport" content="width=device-width">
    <title>repl.it</title>
    <link href="index.css" rel="stylesheet" type="text/css" />
  </head>
  <body>
    <script src="index.js"></script>
    <p>An example of a paragraph element.</p>
  </body>
</html>
```

Basics



```
<!DOCTYPE html>
<html>
  <head>
    <title>Title of the page </title>
  </head>
  <body>
    The page content here.
  </body>
</html>
```



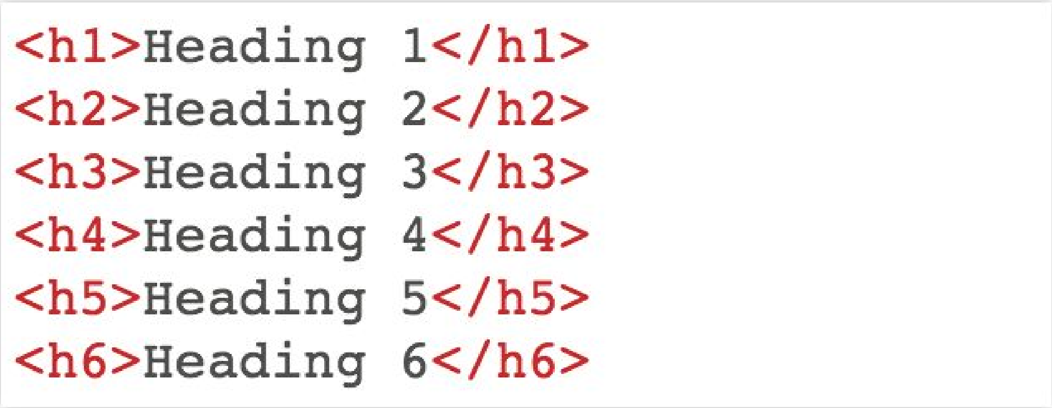
Empowering women of diverse backgrounds from around the world to learn how to develop software

CITIES WHERE WE ARE MAKING AN IMPACT

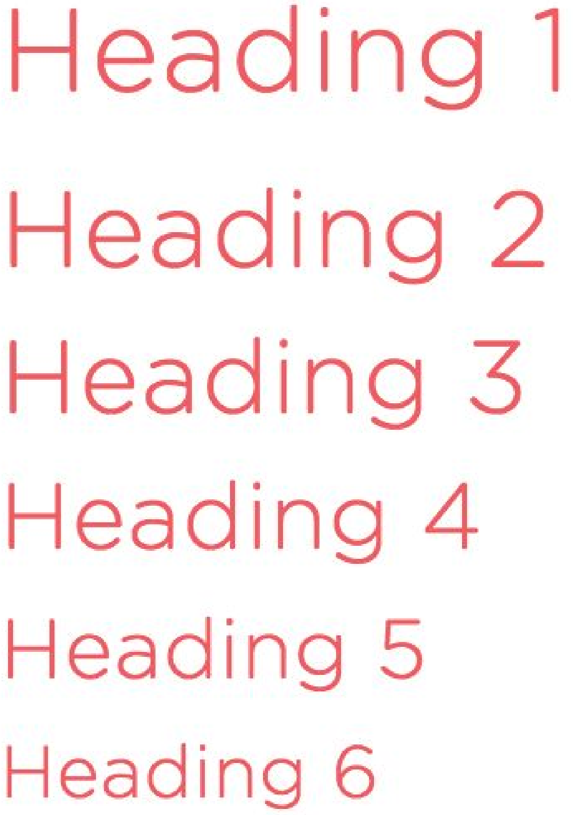
Austin Columbus Cincinnati Detroit New York

UPCOMING EVENTS

Headings



```
<h1>Heading 1</h1>
<h2>Heading 2</h2>
<h3>Heading 3</h3>
<h4>Heading 4</h4>
<h5>Heading 5</h5>
<h6>Heading 6</h6>
```



Heading 1

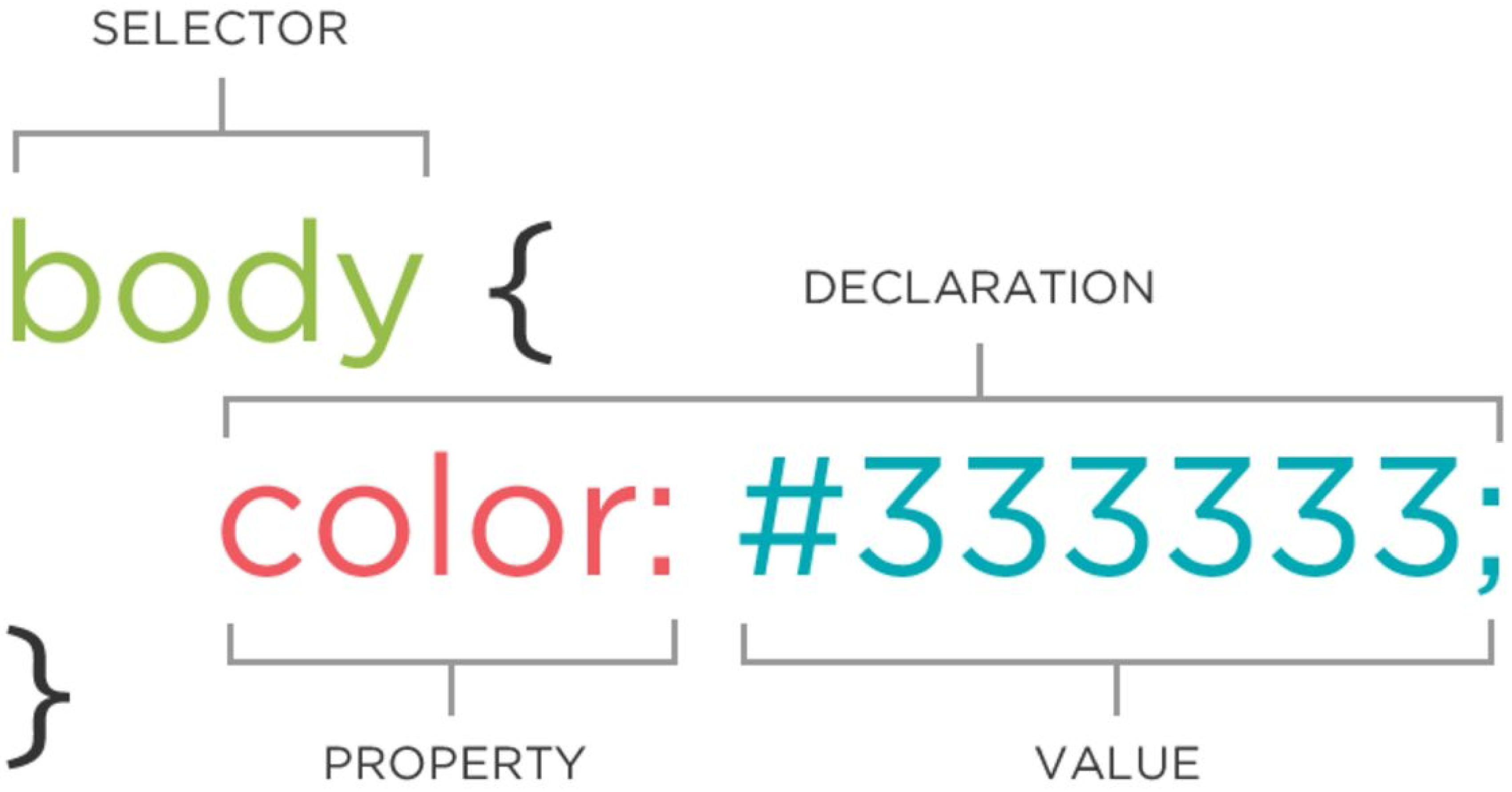
Heading 2

Heading 3

Heading 4

Heading 5

Heading 6

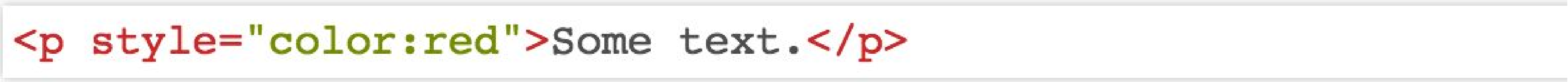


```
body {
    color: #333333;
}
```

HTML to CSS

- Inline
- Embedded
- External

Inline

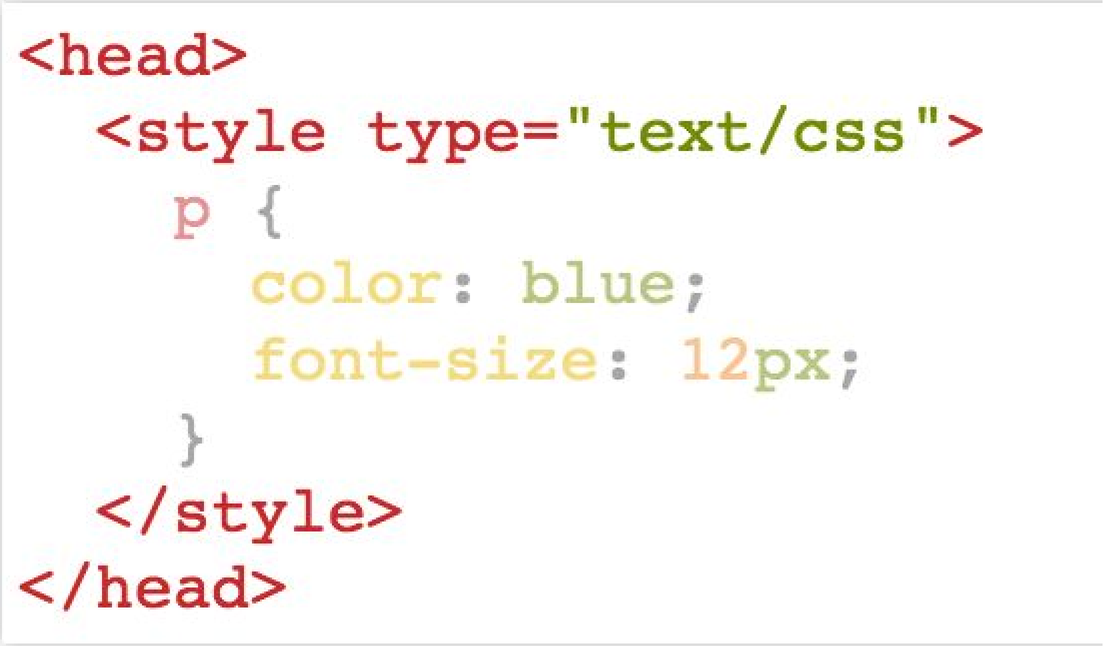


```
<p style="color:red">Some text.</p>
```

- HTML attribute style
- Difficult to use in large projects
- Not preferred

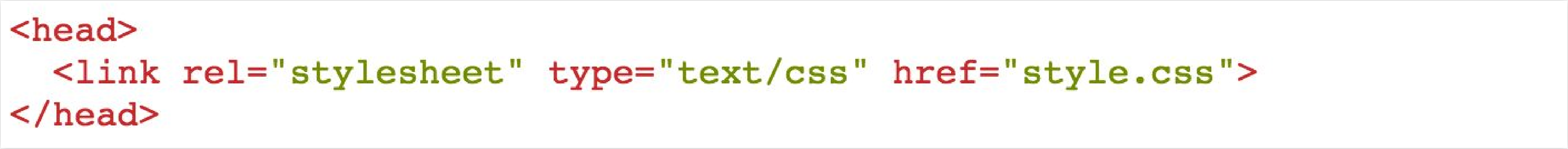
Embedded

- Inside <head> element
- uses <style> tag
- can only be used in one html file



```
<head>
  <style type="text/css">
    p {
      color: blue;
      font-size: 12px;
    }
  </style>
</head>
```

Linked



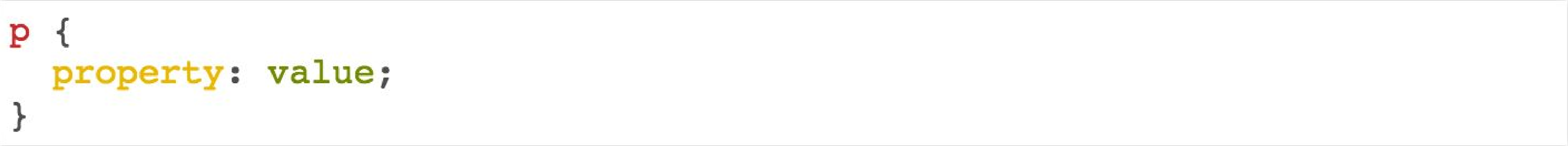
```
<head>
  <link rel="stylesheet" type="text/css" href="style.css">
</head>
```

- shared resource for several pages
- reduced file size and bandwidth
- easy to maintain in larger projects
- preferred by nerds everywhere!

Selectors

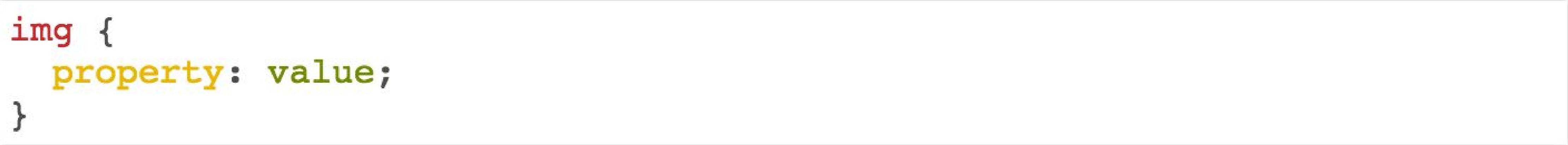
- Element
- Position
- ID
- Class

Selector: Element



```
p {
  property: value;
}
```

Selects all paragraph elements.



```
img {
  property: value;
}
```

Selects all image elements.

Selector: Position

- more specific
- looks for elements inside other elements
- separate nested elements with a space

IDs vs Classes

IDs

- should only apply to one element in a webpage i.e. a footer
- #id

Classes

- lots of elements can have the same class
- .class

Cascading

Browser assigns different priorities to CSS depending on type of selector:

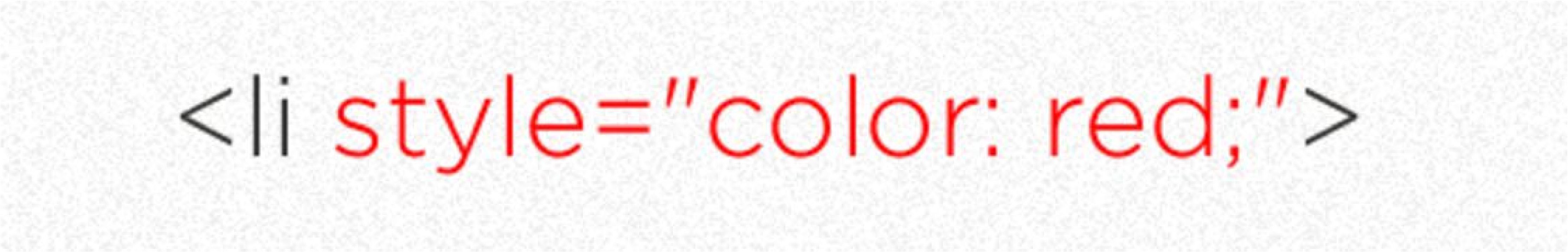
1. In line CSS - Most Important
2. ID
3. Class
4. Element - Least Important

Specificity Values

- Base 10 system
- inline element (1, 0, 0, 0)
- ID value (0, 1, 0, 0)
- class value (0, 0, 0, 1)

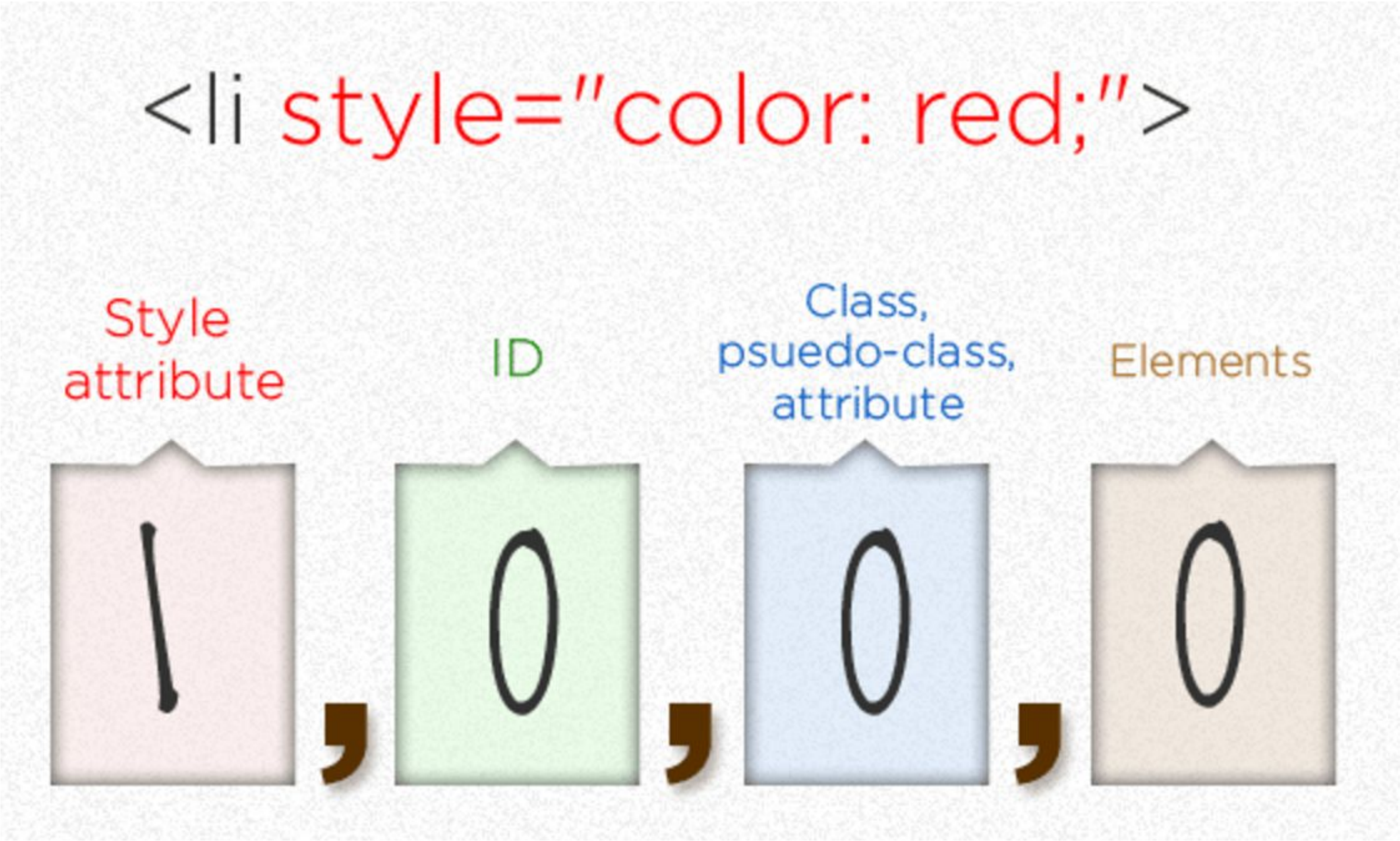
tie breakers: rules lower in the file overwrite the higher rules

Example 1



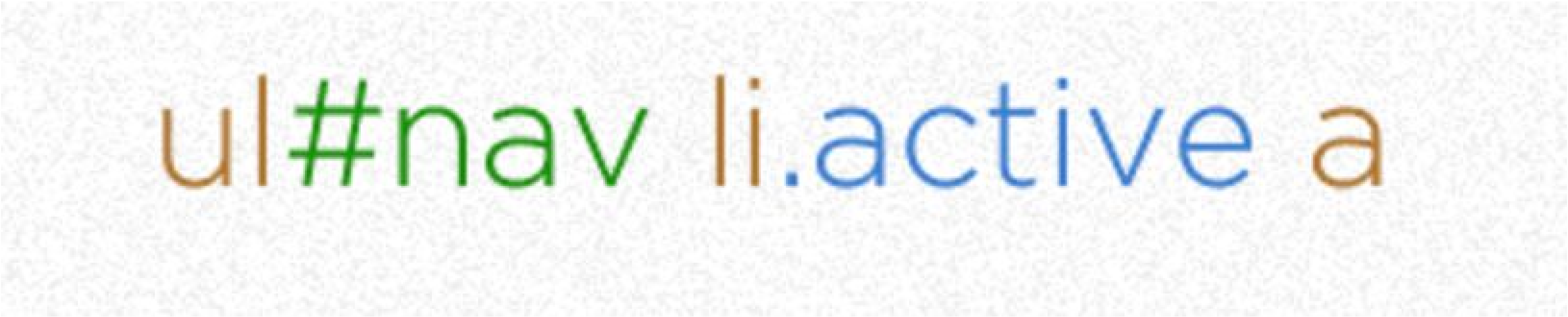
```
<li style="color: red;">
```

Example 1 - Answer



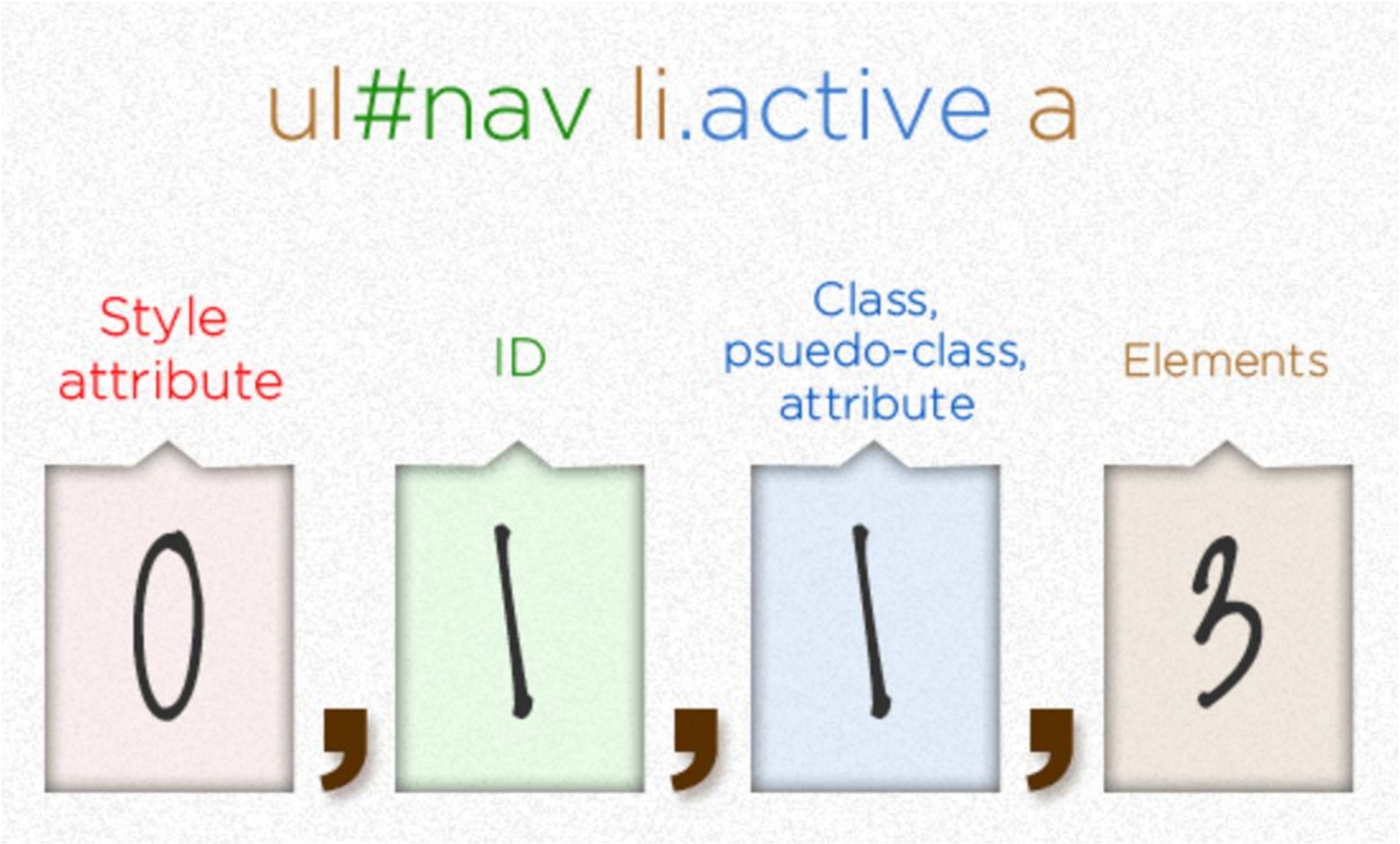
```
<li style="color: red;">
```

Example 2



```
ul#nav li.active a
```

Example 2 - Answer



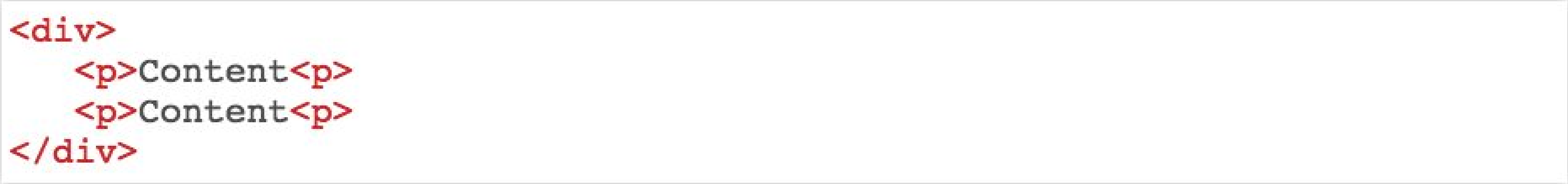
Block vs Inline Elements

- After block elements, browsers render a new line
- inline: img, a, br, em, strong
- block: p, h1, ul, li, almost everything else

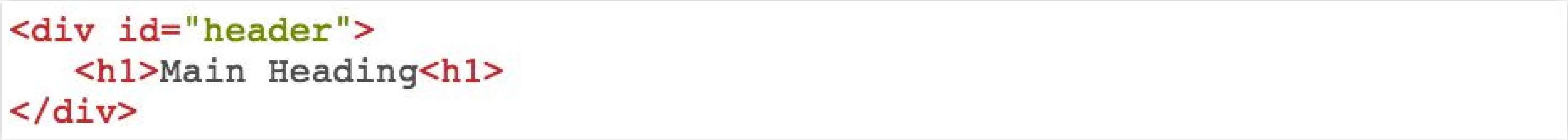
Element: Div

- Block level element, renders new line before and after
- defines a division or section in an HTML document
- group elements to format with CSS

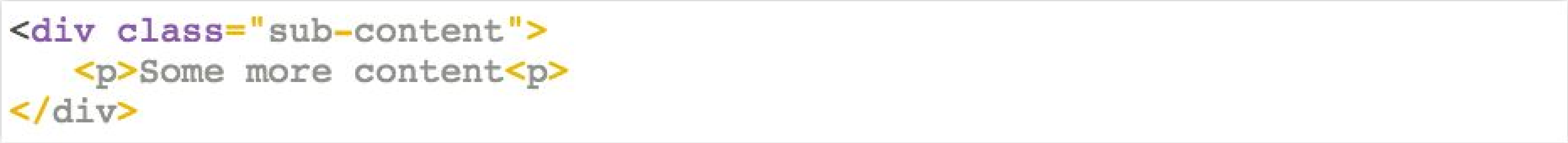
Example



```
<div>
   <p>Content<p>
   <p>Content<p>
</div>
```

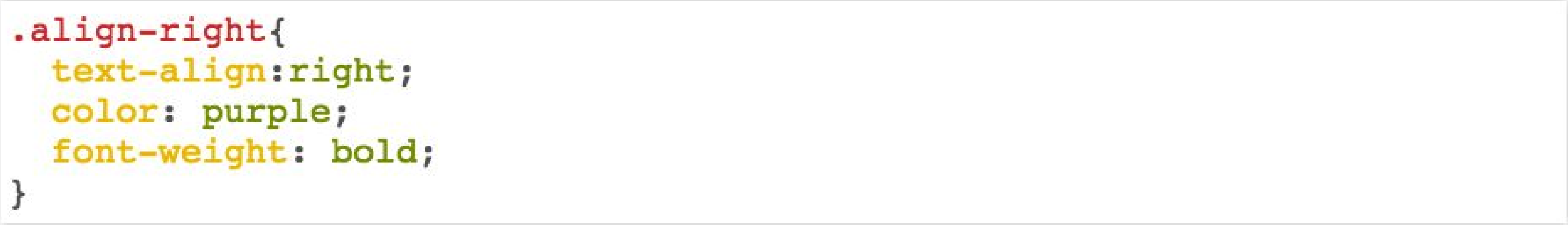


```
<div id="header">
   <h1>Main Heading<h1>
</div>
```

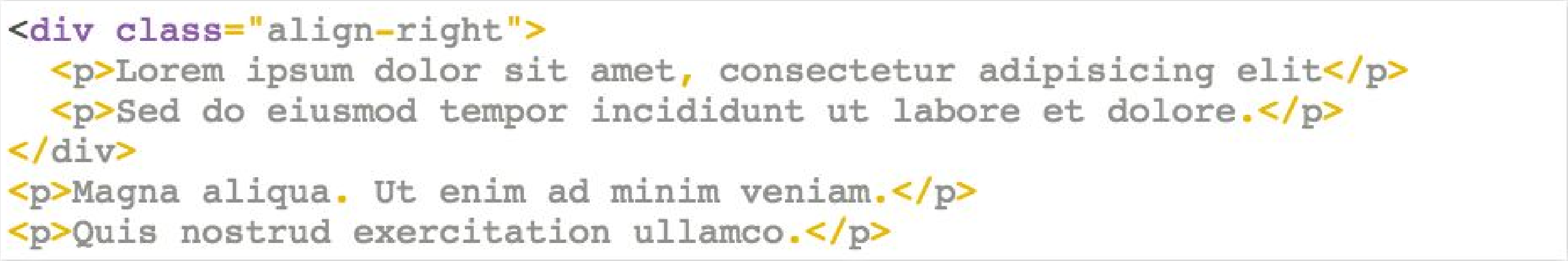


```
<div class="sub-content">
   <p>Some more content<p>
</div>
```

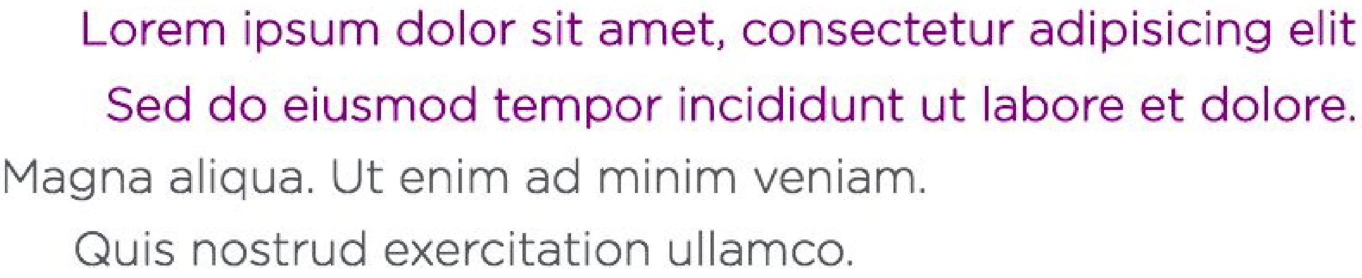
Example



```
.align-right{
  text-align:right;
  color: purple;
  font-weight: bold;
}
```



```
<div class="align-right">
  <p>Lorem ipsum dolor sit amet, consectetur adipisicing elit</p>
  <p>Sed do eiusmod tempor incididunt ut labore et dolore.</p>
</div>
<p>Magna aliqua. Ut enim ad minim veniam.</p>
<p>Quis nostrud exercitation ullamco.</p>
```



Lorem ipsum dolor sit amet, consectetur adipisicing elit

Sed do eiusmod tempor incididunt ut labore et dolore.

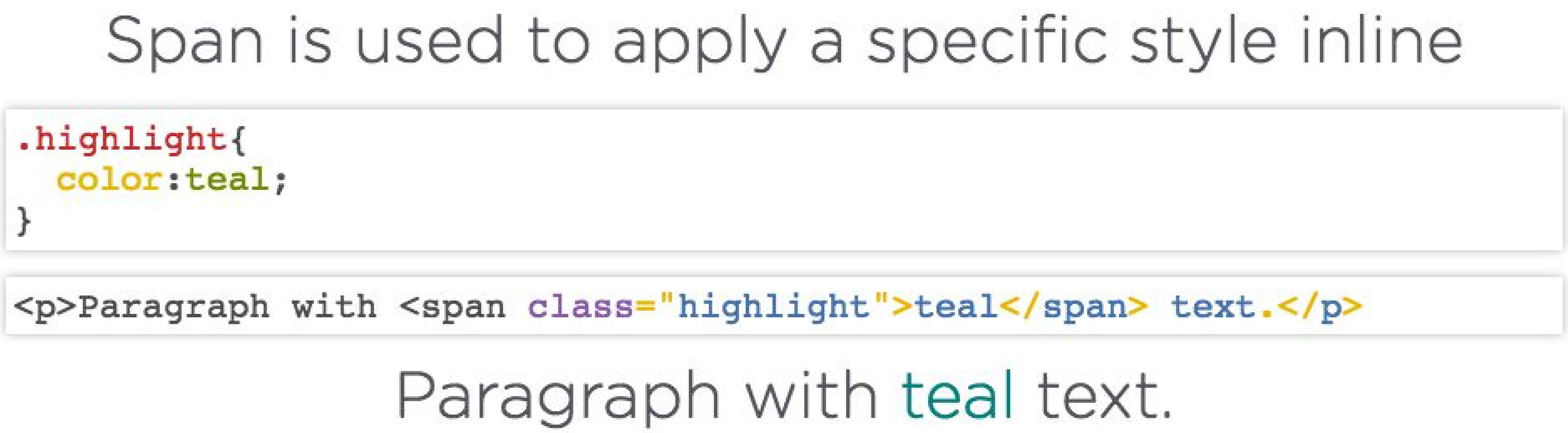
Magna aliqua. Ut enim ad minim veniam.

Quis nostrud exercitation ullamco.

Element: Span

- Inline element, renders next to each other and only wraps when it reaches the edge of the containing element
- Can be used to apply styles inline to not break flow of content

Example



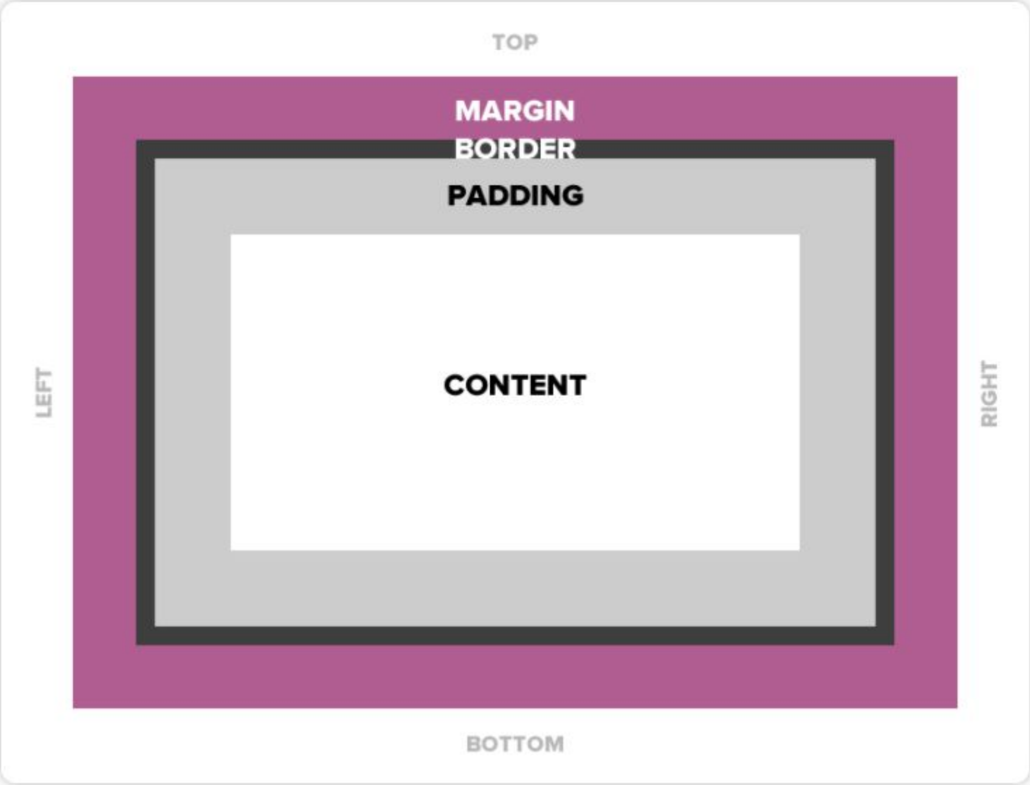
Span is used to apply a specific style inline

```
.highlight{
  color:teal;
}
```

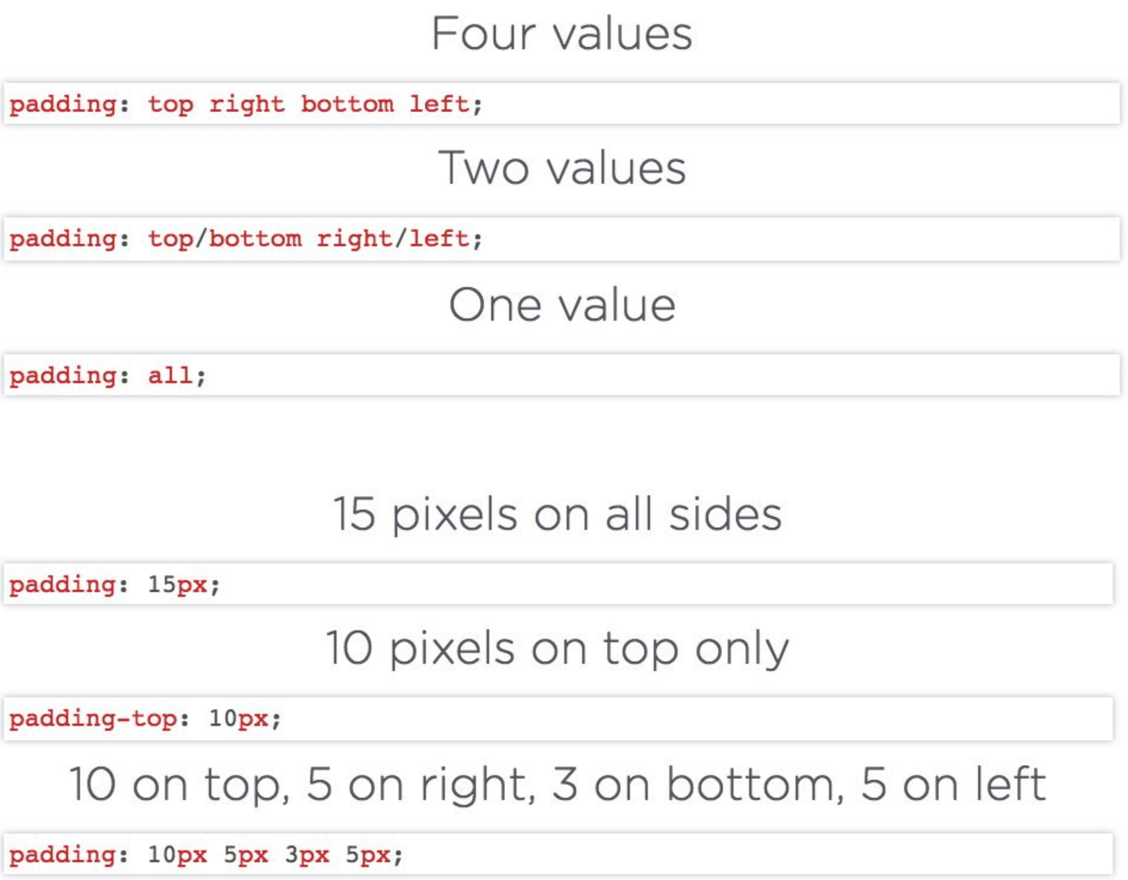
```
<p>Paragraph with <span class="highlight">teal</span> text.</p>
```

Paragraph with teal text.

Box Model



Padding



Four values

```
padding: top right bottom left;
```

Two values

```
padding: top/bottom right/left;
```

One value

```
padding: all;
```

15 pixels on all sides

```
padding: 15px;
```

10 pixels on top only

```
padding-top: 10px;
```

10 on top, 5 on right, 3 on bottom, 5 on left

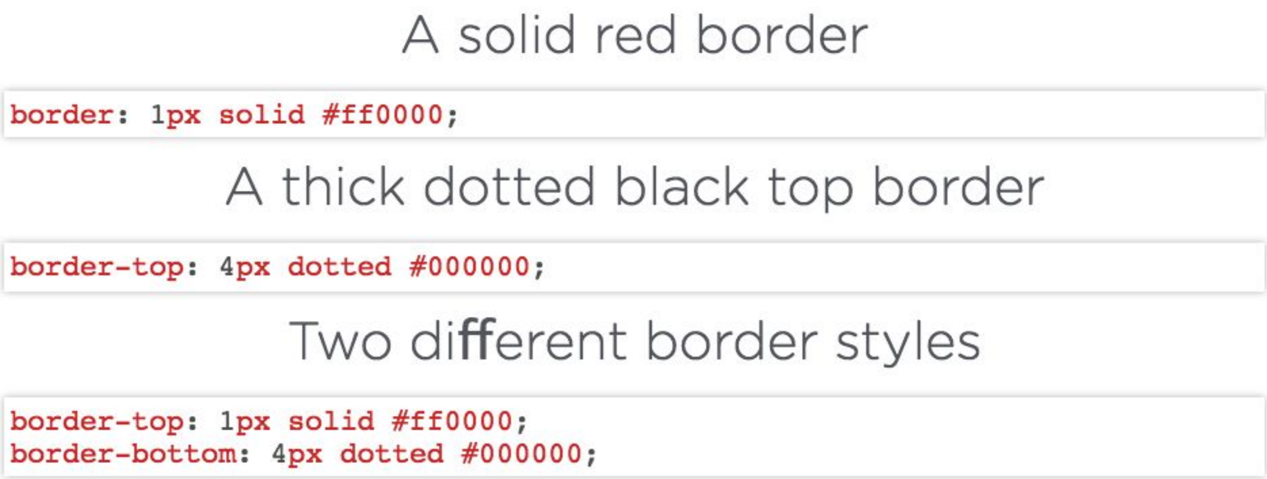
```
padding: 10px 5px 3px 5px;
```

Massachusetts
Institute of
Technology

Global Startup

Border

- border: thickness style color
- border-width
- border-style
- border-color



A solid red border

```
border: 1px solid #ff0000;
```

A thick dotted black top border

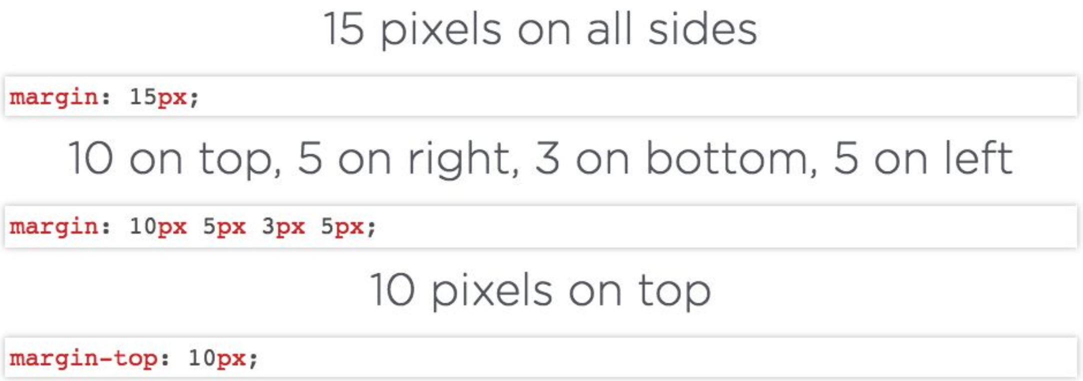
```
border-top: 4px dotted #000000;
```

Two different border styles

```
border-top: 1px solid #ff0000;
border-bottom: 4px dotted #000000;
```

Margin

- transparent area around the box separating it from other elements



15 pixels on all sides

```
margin: 15px;
```

10 on top, 5 on right, 3 on bottom, 5 on left

```
margin: 10px 5px 3px 5px;
```

10 pixels on top

```
margin-top: 10px;
```