

Cascading Style Sheets (CSS)

Jonathan Sillito

CSS Motivation and History

Browsers have styling and layout defaults for each HTML element.

- E.g., An H2 element is laid out as a block with certain margin and font size, etc

In response to designers and developers needing ways to customize their elements, browser vendors started adding new attributes to HTML elements and new elements for adding styling information directly into the markup.

- `This is some text!`

don't do this -- use CSS instead!

- `<ul type="circle">...`

For controlling the layout developers often made creative use of the HTML table element.

CSS Motivation and History (continued)

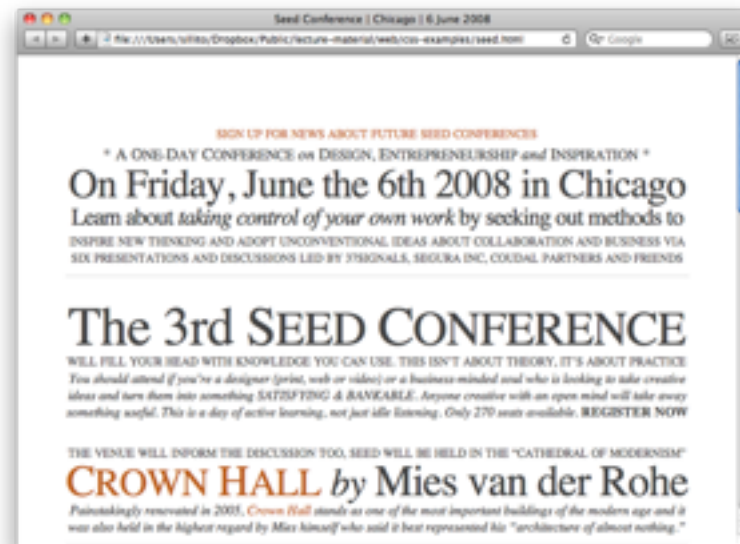
This worked (and still works more or less) but was suboptimal in many ways.

- More or less required setting properties one element at a time.
- No clean separation of concerns (mixing content and style making it hard to vary them independently).
- Was gradually making HTML more and more complicated.

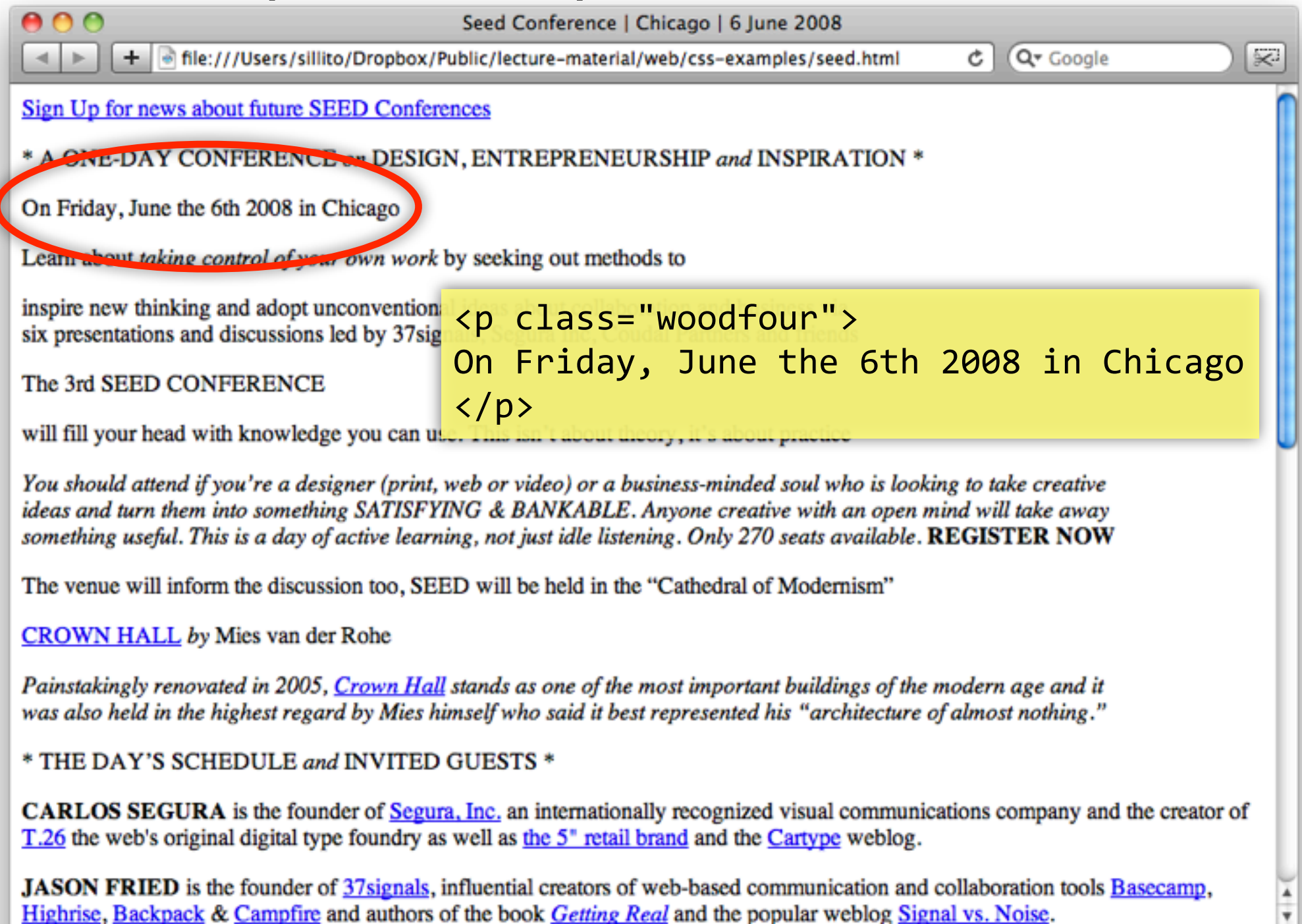
The solution was to introduce a new language specifically for style and layout information: **CSS**.

- CSS 1 - www.w3.org/TR/REC-CSS1-961217.html, 1996
- CSS 2 - www.w3.org/TR/2008/REC-CSS2-20080411/ 1998-2007?
- CSS 3 - www.w3.org/TR/2011/WD-css3-text-20110215/

An Example



Example from http://seedconference.com



Seed Conference | Chicago | 6 June 2008

file:///Users/sillito/Dropbox/Public/lecture-material/web/css-examples/seed.html

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[CROWN HALL](#) by Mies van der Rohe

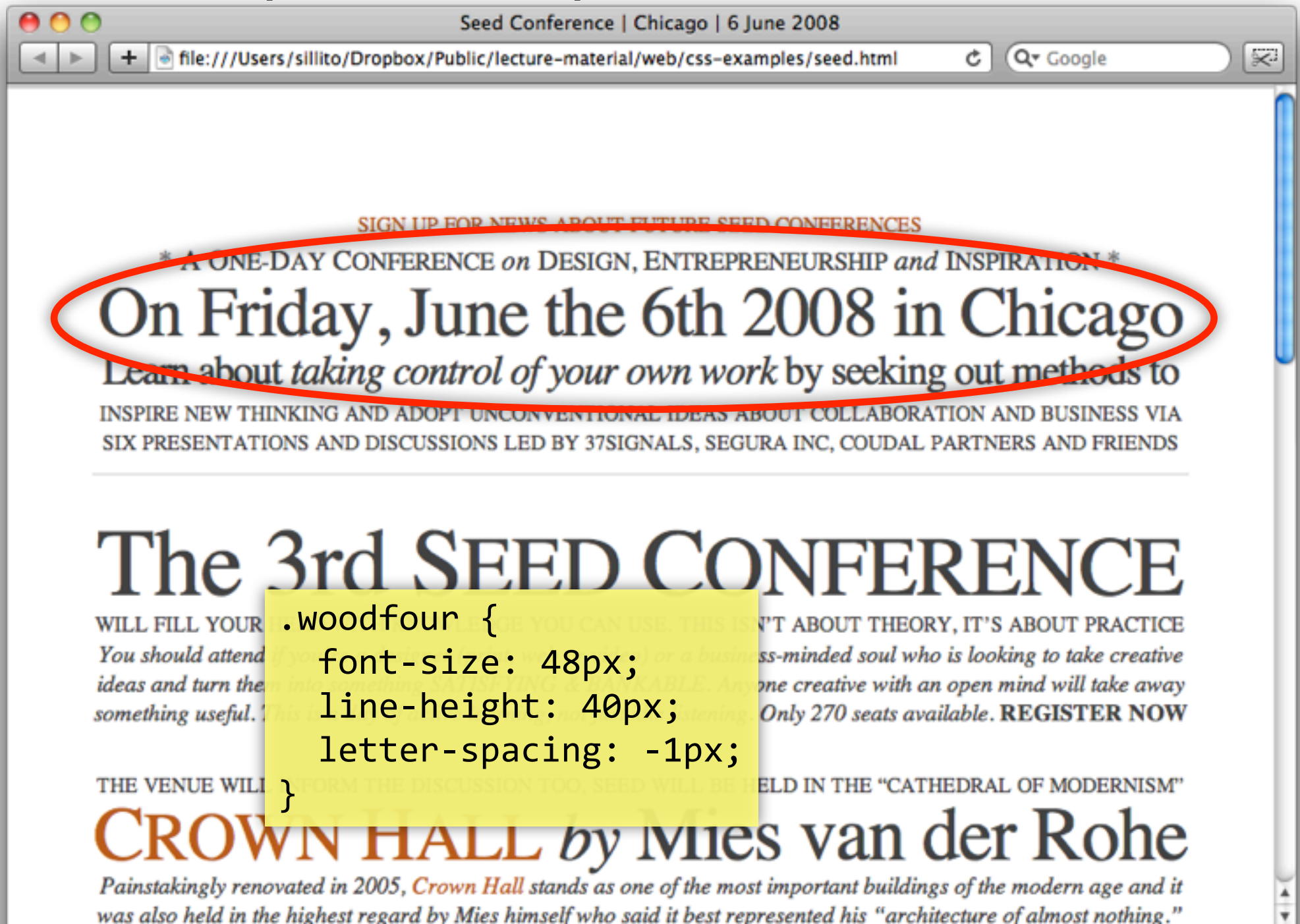
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WILL FILL YOUR *woodfour* { font-size: 48px; line-height: 40px; letter-spacing: -1px; } *YOU CAN USE THIS ISN'T ABOUT THEORY, IT'S ABOUT PRACTICE*

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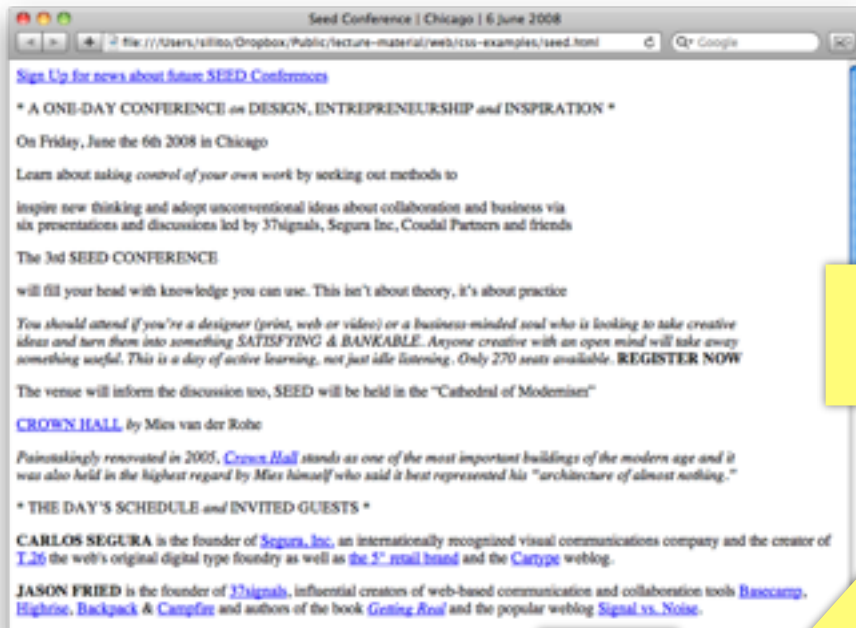
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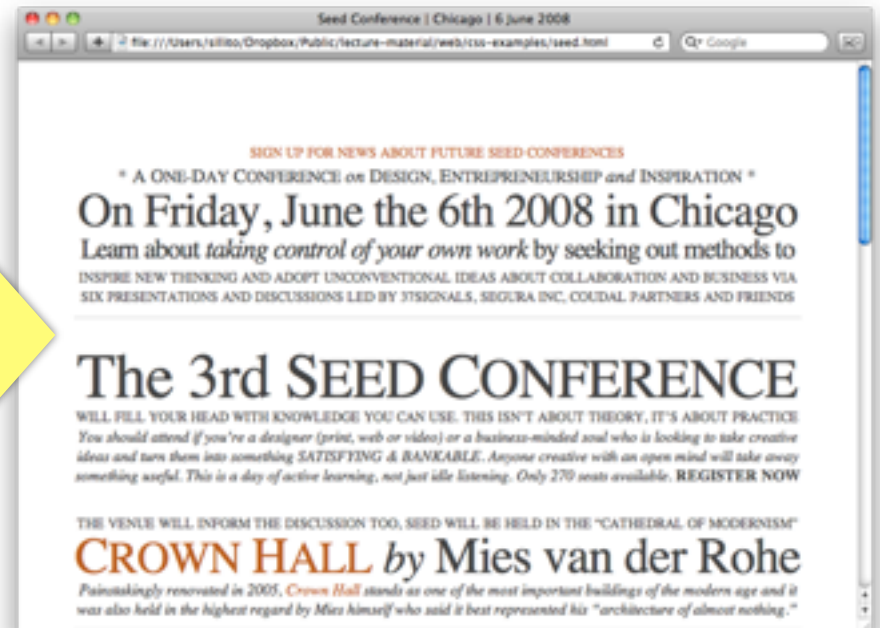
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Example from <http://seedconference.com>



CSS



CSS

CSS

Introducing CSS

What is CSS?

Formally it is a style sheet language that can be used to describe the presentation semantics of an HTML document or a document written in a similar markup language.

It is designed to separate the document contents from its presentation. One advantage is the same HTML document could be presented differently on different devices. Consider:

- Viewing in a desktop browser,
- Viewing in an Android browser,
- Sending to a printer version, or
- Rendering in a braille based device.

What is CSS?

CSS allows developers to specify a set of rules or declarations that a user agent should use in determining how to present an element.

When multiple (conflicting) rules matches for an element there is a priority scheme (cascading).

Basic CSS Syntax

A CSS document is a set of rules or rule-sets. Each starts with one or more selectors and then a block of declarations. A declaration is a property and value pair.

One selector

Three declarations

```
.woodfour {  
    font-size: 48px;  
    line-height: 40px;  
    letter-spacing: -1px;  
}
```

property *value*

Basic CSS Syntax

A CSS document is a set of rules or rule-sets. Each starts with one or more selectors and then a block of declarations. A declaration is a property and value pair.

five selectors

```
h1, h2, h3, h4, h5 {  
  color: #ff9966;  
  font-family: Corbel, sans-serif;  
}
```



Including CSS
with an HTML document

Including Inline CSS

CSS can be applied to a particular element using the style attribute. (No selector is used as it is obvious what elements are matched.)

- `<p style="color:#666; font-size:15px">...</p>`

CSS can be included in the header of the HTML document using the style tag.

```
<head>
  <style type="text/css">
    h1 {font-size:40px;}
    h2 {font-size:32px;}
    h3 {font-size:26px;}
  </style>
</head>
```

Including a Separate CSS File

Often the most appropriate way is to use the link tag to reference a separate CSS file. The link tag has several attributes, the most important ones for our purposes are:

- **rel** - relationship of linked document to current document
- **type** - mime type of linked document
- **href** - location of linked document
- **media** - type of device the linked document is applicable to

```
<head>
```

```
<link rel="stylesheet" href="/stylesheets/  
app.css" type="text/css" media="screen" />
```

```
</head>
```

CSS Selectors

CSS Selectors

Rule sets start with one or more selectors which determine which elements the rule applies to.

Selectors can be based on:

- Element type - `div`, `p`, `input`, ...
- Element attributes - `#elementid`, `.classname`, `input[type=text]`
- (Relative) positioning in the DOM -
- Pseudo-classes (which match in some cases) - `a:hover`
- Combinations of the above

* is the Universal Selector

Matches any single element in the DOM. Unless you're using it by itself, you can usually leave it out (since it is implied). So the following are identical:

- `*.error_message { ... }`
- `.error_message { ... }`

CSS Selectors (continued)

A type selector matches every instance of the element type in the DOM.

- `h1 { ... }`
- `p { ... }`

Descendent selectors use two or more patterns (separated by white space) to match an element that is the descendant of another. The general form “A B” (where A and B are both patterns) matches an element B when it is a descendant of A.

- `h1 b { ... }` (b element in an h1 element (arbitrary depth))
- `div * p { ... }` (p element that is grandchild or deeper of a div element)

CSS Selectors (continued)

Child selectors match an element that is the direct element of some element.

- `body > p` // all p elements that are children of the body element

Adjacent sibling selectors have the form “A + B” and matches B when A and B are siblings with A immediately preceding B.

- `h1 + h2 { ... }`

CSS Selectors (continued)

Attribute selectors for matching elements that have particular attributes.

- `h1[title] {...}`
- `h1[title="home page"] {...}`

Class attribute selector (shorthand for using above) match elements with a given class. This p element has one class attribute, but conceptually two classes:

- `<p class="details summary">...</p>`
- `p.details {...}`
- `p.summary {...}`

CSS Selectors (continued)

ID selectors match (at most) one element based on the ID attribute.

- `<h1 id="chapter3">...</h1>`
- `h1#chapter3 {...}`
- `#chapter3 {...}`

Pseudo-classes classify elements on “other” characteristics. Here are a few examples.

- `:first-child` and `:last-child`
- `:link` and `:visited`
- `:hover`, `:active` and `:focus`

Cascading and Inheritance

Some values are inherited by the children of an element (barring other “overriding” rules). For example:

- `<p>Here is some text</p>`
- `p {font-size:15px}`

Given contradictory property values for a given element first find all matching rules with the relevant property, then:

- Sort by importance and origin (e.g., author supplied declarations take precedence over user agent defaults)
- Sort the rules by how specific the selector is (e.g., `div#abc` is more specific than `div`)
- Finally, sort the rules by order specified (i.e., later in CSS file takes precedence over earlier declarations)

More details about selectors

<http://www.w3.org/TR/CSS2/selector.html>



<http://paulirish.com/2010/high-res-browser-icons/>

CSS Selectors Quiz

(Including examples from the spec at
www.w3.org/TR/CSS2/selector.html)

Selector:

#abcd

Description:

Matches the element in the DOM with the ID “abcd”

Selector:

`p.overview:last-child`

Description:

Matches any P element that has the class overview and is the last-child of its parent

Selector:

`p.marine.pastoral`

Description:

Matches any P element whose "class" attribute has been assigned a list of space-separated values that includes "pastoral" and "marine".

Selector:

`div p *[href]`

Description:

Matches any element that has an href element and is in a P element that is in a DIV element

Selector:

`div ol>li p`

Description:

Matches any P element that is a descendant of an LI; the LI element must be the child of an OL element; the OL element must be a descendant of a DIV.

Selector:

`span[hello="Cleveland"][goodbye="Columbus"]`

Description:

Matches all SPAN elements whose "hello" attribute has exactly the value "Cleveland" and whose "goodbye" attribute has exactly the value "Columbus"

Properties and Values

Color in CSS

The color of text, backgrounds and borders can be controlled using the following properties:

- `color:#ff0000`
- `background-color: rgb(204,204,204)`
- `background-color: rgb(80%, 80%, 80%)`
- `border-color: #48b` (*same as #4488bb*)



In the first example above, the ‘#’ symbol is followed by six hexadecimal digits. The first two digits specify the amount of red, the next two specify the amount of green and the last two specify the amount of blue.

- `#ffffff` (*white*)
- `#000000` (*black*)

Color in CSS

The CSS specification also specifies color keywords that can be used:

- `color:purple`
- `color:aqua`

http://www.colourlovers.com/

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http://www.colourlovers.com/palettes/new/all-time/meta?page=1

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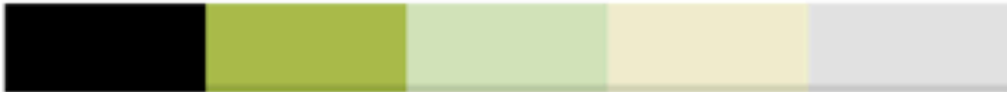
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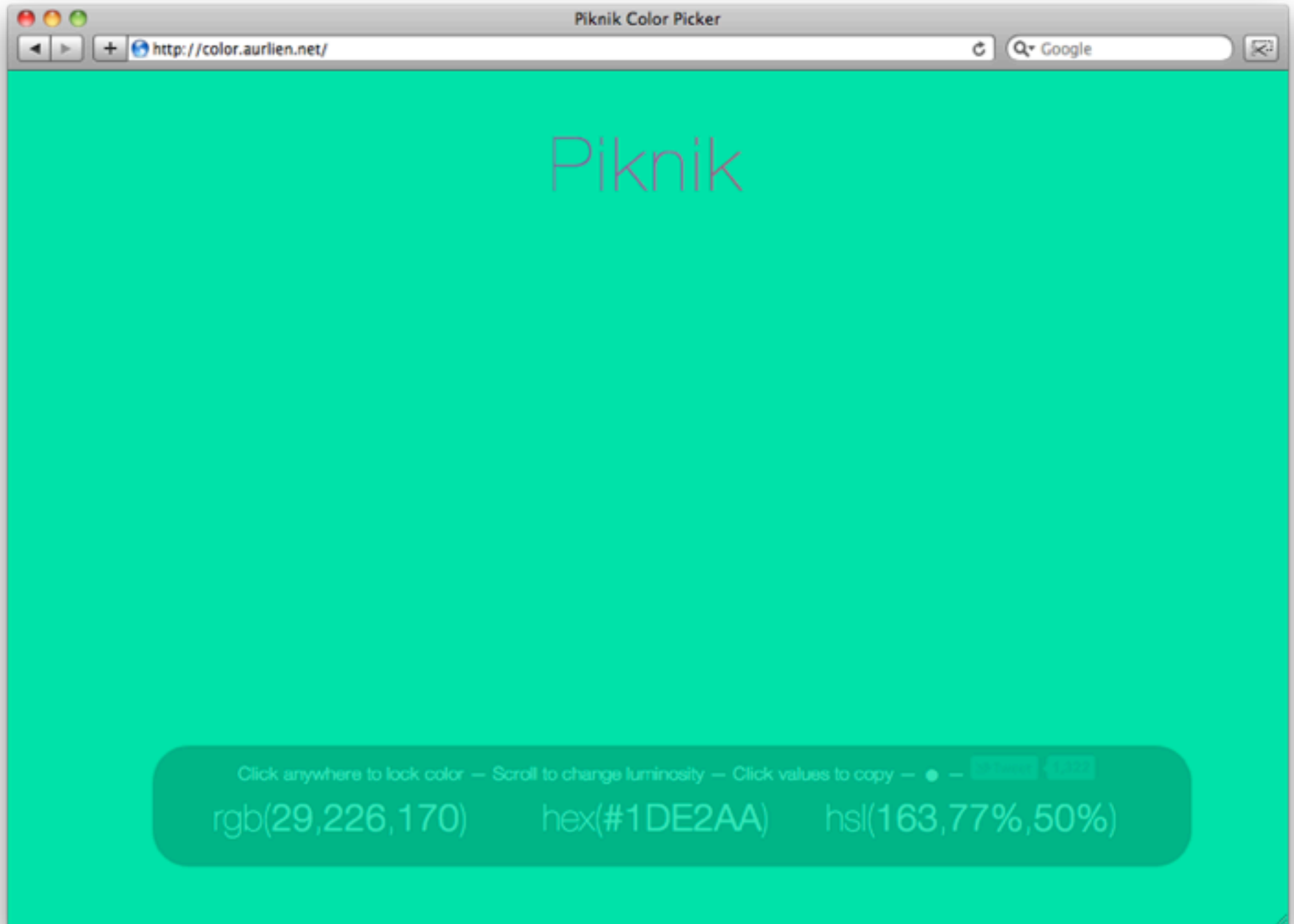
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joshw
POSTED 7 MINUTES AGO

Hey Hey
by joshw
0
0
Rank #1364938
COLOURlovers.com

RE: Puzzle

http://color.aurlien.net/



Fonts in CSS

CSS specifies several font properties. The font (or font family) is specified as follows:

- `font-family: <family>, <family>, ...`

Where `<family>` can be a specific font family or a generic font family. Some examples:

- `font-family: "Times New Roman", Times, serif`

Generic font families:

serif

sans-serif

cursive

fantasy

monospace

Tip: Always include a generic family at end of list of families

see: <http://www.w3.org/TR/CSS2/fonts.html>

Fonts in CSS

Other font properties (and values):

- `font-style: normal`
- `font-style: italic`
- `font-variant: small-caps`
- `font-weight: normal`
- `font-weight: bold`
- `font-weight: bolder` (or 100, 200, ..., 900)
- `font-size: small`
- `font-size: 15px`
- `font-size: 150%`

See: <http://www.w3.org/TR/CSS2/fonts.html>

Box Model in CSS

CSS defines a box model describing the rectangular boxes that are generated for elements in the DOM. For CSS2 this model is specified here: www.w3.org/TR/CSS2/box.html.

Each box has a content area and optional surrounding padding, border, and margin areas. The sizes of these can be controlled using CSS.

Margin:

- `margin-top: 12px`
- `margin-bottom: 5px`
- `margin-left: 10px`
- `margin-right: 12px`
- `margin: 0 auto` ('auto' centres the box within parent)

Box Model in CSS

Border for all sides:

- `border-style: dashed`
- `border-width: 2px`
- `border-color: #EEEEEE`

Border for just one side (top, left, right, bottom):

- `border-top-style: solid`
- `border-top-width: thin`
- `border-top-color: navy`

Box Model in CSS

Padding (top, left, right, bottom):

- `padding-top: 15px`
- `padding-right: 12%` (a % of the width)

The size of boxes for block elements default to the width of the parent's content area and the height to whatever is needed to contain the content, but it can be controlled using CSS:

- `width: 500px`
- `height: 100px`
- `overflow: visible` (or `hidden`, `scroll`, `auto`)

Positioning in CSS

There are different ways to layout DOM elements. The default is to block format block level-elements (div, p, ul, ...) and to inline format inline-level elements (span, b, ...).

- `display: block`
- `display: none`
- `display: inline`

The `position` and `float` properties give page authors more control over the positioning of elements.

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Positioning in CSS

Static position (this is normal):

- `position: static`

Relative position (offset relative to normal position by):

- `position: relative; top: -10px; left: -10px`

Absolute positioning (offset relative to containing block):

- `position: absolute; top: 10px; left: 10px`

Fixed positioning (offset as in absolute, but doesn't move when scrolled):

- `position: fixed`

Positioning in CSS

A float is a way to shift a box to the right or left and other content can flow along its side.

- `float: left`
- `float: right`
- `clear: left`

Link underlining in CSS

One final property: text-decoration. Suppose you want to make links underlined only when the mouse is hovering over the link ...

- `a {text-decoration:none}`
- `a:hover {text-decoration:underline}`

Putting it all together

Notebooks



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Irure dolor in reprehend incididunt ut labore et dolore magna aliqua.



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Officia deserunt mollit anim id est laborum Et harumd dereud.



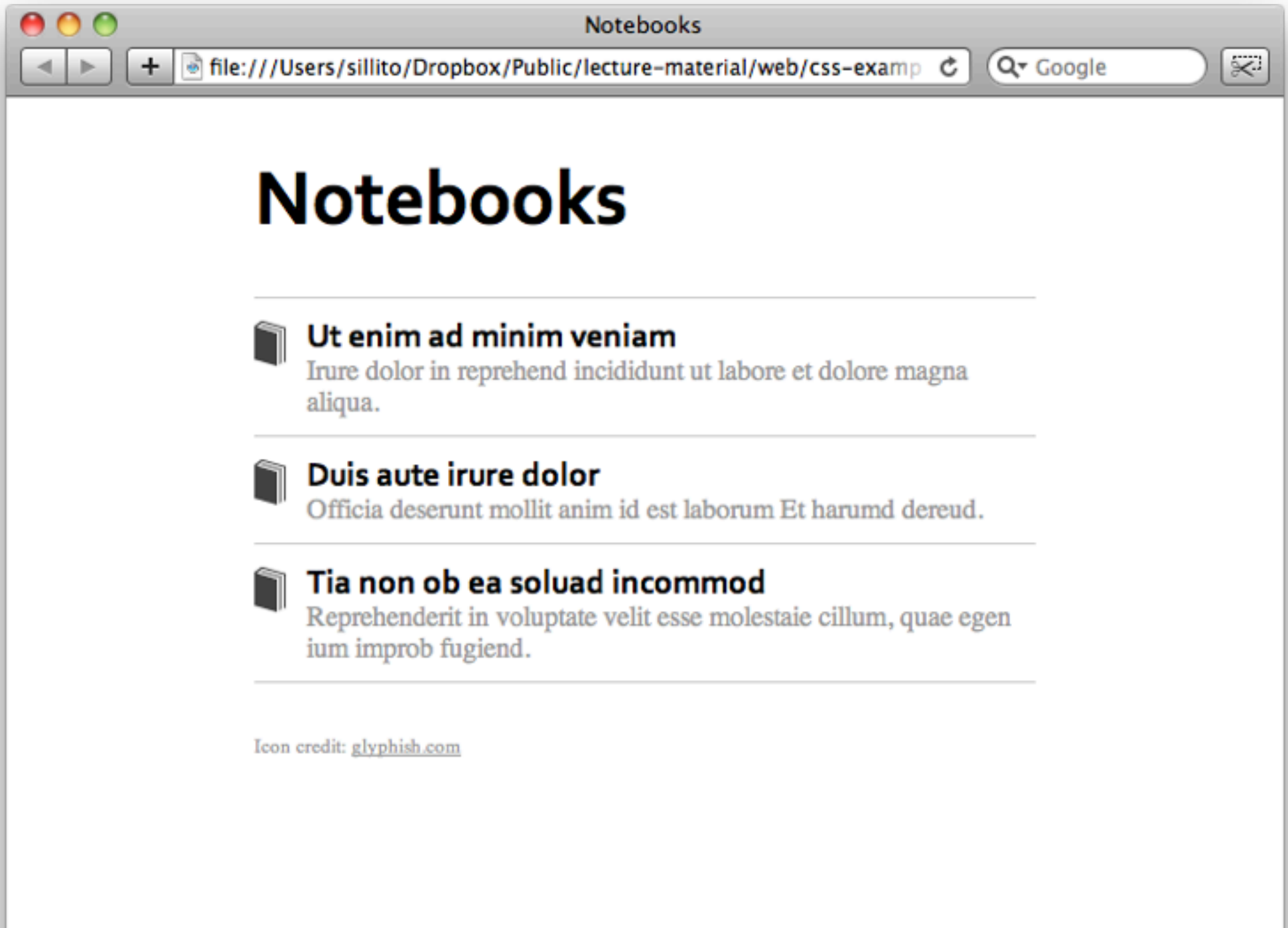
Tia non ob ea soluad incommo

Reprehenderit in voluptate velit esse molestaie cillum, quae egen ium improb fugiend.

Icon credit: glyphish.com

```
<div class="notebook">  
  
```

Here is what we need to do (using CSS):



Be curious and use the
view source feature :)