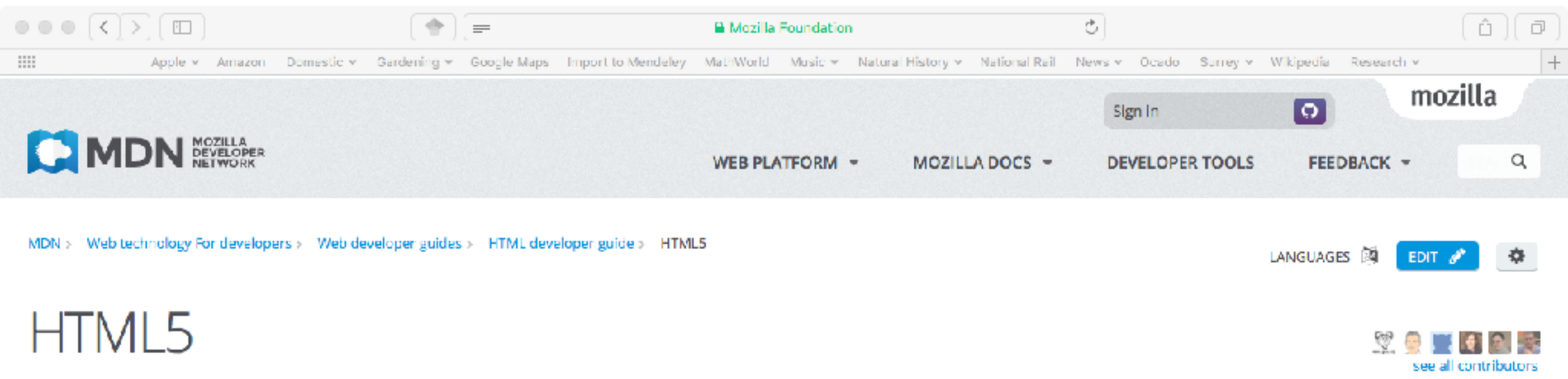
HTML5 and CSS3 for Mobile Applications

Prof. Paul Krause, University of Surrey
What did HTML5 ever do for us?

Why is HTML5 a game changer?

- Pros for HTML5 Web Apps
    - Easier to build and iterate
    - Use existing skills in HTML and CSS
    - Same technology across all devices
    - All mobile browsers support HTML5 Audio and Video
        - Control via the DOM, style via CSS
    - Geolocation API
    - Offline content and storage

https://developer.mozilla.org/en-US/docs/Web/Guide/HTML/HTML5



HTML5

see all contributors

HTML5 is the latest evolution of the standard that defines HTML. The term represents two different concepts:

- It is a new version of the *language* HTML, with new elements, attributes, and behaviors,
- and a larger set of **technologies** that allows more diverse and powerful Web sites and applications. This set is sometimes called *HTML5 & friends* and often shortened to just *HTML5*.

Designed to be usable by all Open Web developers, this reference page links to numerous resources about HTML5 technologies, classified into several groups based on their function.

- *Semantics*: allowing you to describe more precisely what your content is.
- *Connectivity*: allowing you to communicate with the server in new and innovative ways.
- *Offline and storage*: allowing webpages to store data on the client-side locally and operate offline more efficiently.
- *Multimedia*: making video and audio first-class citizens in the Open Web.
- *2D/3D graphics and effects*: allowing a much more diverse range of presentation options.
- *Performance and integration*: providing greater speed optimization and better usage of computer hardware.
- *Device access*: allowing for the usage of various input and output devices.
- *Styling*: letting authors write more sophisticated themes.

SEMANTICS

PERFORMANCE AND INTEGRATION

What is HTML?

What is HTML?

- Hypertext Markup Language
- “A language to describe the contents of web documents”

[W3C: The Basics of HTML]

“A language to describe the contents of Web Documents”

- How does it do that?
- It uses tags

“A language to describe the contents of Web Documents”

- How does it do that?
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To divide the document up into meaningful elements

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“A language to describe the contents of Web Documents”

- How does it do that?
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To divide the document up into meaningful elements

N.B. The delineation between block and inline elements has been removed from the specification

Why is this important?

- So that *user agents* can read and interpret those documents
- Those user agents can be created by anyone
- “User agents” include, but are not limited to, Web browsers
  - Think also of search engines, indexing tools, ...

Building a Document Template

```
<!DOCTYPE html>
<html>
  <head>
    <title>Meta data goes here</title>
  </head>
  <body>
    <p>
      This is where your marked up content goes.
    </p>
  </body>
</html>
```

Setting the document’s primary language

- This is rarely done, but will help search engines and screen readers
    - Especially if the primary language is not english
- Use the “lang” attribute to do this:
    - e.g. <html lang=“en-GB”>
    - The “lang” attribute can also be used in lower level elements
- For language codes see:
    - http://www.w3.org/International/articles/language-tags/

Revision of the template

```
1  <!DOCTYPE html>
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Character Encoding

Basics of character encoding

- Old days of ASCII:
  - Characters represented as a number between 32 and 127
  - Needed 7 bits to encode, so for 8 bit bytes there was one bit to spare
  - That led to all sorts of ideas on how to use the codes between 128 and 255

Unicode supports Internationalisation

- Provides a standard mapping from characters (in any language) to *code points*
- For example, the letter A maps to U+0041
  - The digits are hex characters
  - But these in turn need to be encoded into bits, and there are alternative ways to do this
    - e.g. UTF-8; UTF-16; UTF-32 (and variants thereof :( )

HTML5 recommends UTF-8

- Every code point from 0-127 is stored as a single byte
  - So ASCII and UTF-8 coincide
  - And documents involving predominantly ASCII characters are quite compact
- Code points above 128 are stored in 2, 3, ... 6 bytes

“There Ain’t No Such Thing As Plain Text”

See *Joel on Software*
http://www.joelonsoftware.com/articles/Unicode.html

Rule #1: Define your charset as soon as you can

```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>Meta data goes here</title>
6      <meta name="description" content="Make the description
       concise and relevant">
7      <meta name="keywords" content="use, primarily, internally">
8      <link rel="stylesheet" type="text/css" href="mystyle.css">
9      <script src="myscript.js"></script>
10   </head>
11   <body>
12     <p>
13       This is where your marked up content goes.
14     </p>
15   </body>
16 </html>
```

Rule #2: Character references should be eliminated

- Which is easier to read?

  <h1>audio vérité</h1>

  <h1>audio vérité</h1>

  <h1>audio vérité</h1>

- The same applies to @ and ©

- But you will need to use references for those characters that have meaning in HTML: >, < and (possibly) & for <, >, & respectively

The Title element

The <title> element

- This is the only element you *must* have in the <head>
- <title> cannot contain any nested elements
- It is the first piece of content of your document that most user agents will see
- Make sure it is concise, but informative
    - and don’t try to trick search engines!

For Example:

```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>WI Temperance Society | About Us</title>
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Pages from the UK

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www.car**and**class**ic**.co.**uk**/
Classic Cars For Sale, Free Dealer and Private Advertising. Motorcycles, Camper Vans, Caravans, 4x4s, and American **Cars**. The **UK's** most popular **Classic Car** ...
For Sale - To list Classic Cars for Sale - Motorcycles - Classic Cars

Classic Cars For Sale, classifieds for used **classic car** dealers ...
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Classic Cars | eBay - eBay Motors **UK**
motors.shop.ebay.co.**uk**/**Classic-Cars**-/29751/i.html
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Classic Cars | eBay
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1993 BMW 325 I AUTO BLUE EXELLENT RUNNER	1993	4 bids	£620.09
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Keywords (stuffing)

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       problem at root cause.">
7      <meta name="keywords" content="sex, drugs, rock and roll,
       world of warcraft">
8    </head>
9    <body>
10     <p>
11       This is where your marked up content goes.
12     </p>
13   </body>
14 </html>
```

But keywords can still be useful

- If you are building a large website, keywords on subpages can be used very effectively to search within, and navigate around, the website

And finally

- The <head> element is the place where you should include the import statements for the style sheets and scripts that will be used by your document

- Remember:

    - On the basis of parsimony, put only what is absolutely necessary in your html document

- Styling can be changed while keeping the content the same

- Scripting can be changed while keeping the content the same

    - So stylesheets and scripts belong in *separate* files

What We Have Done

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      This is where your marked up content goes.
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```

Structuring your document

Document outlines

- Where does my web document start, what are the main sections and what are their respective subsections?
- This is captured by the *Document Outline*
- In HTML 4, the only way to create a document outline was to use the <h1> - <h6> elements
  - This leads to a number of issues
- HTML 5 provides much stronger support for creating a document outline
  - Why is this important?

So you thought you had a single root?

```
 7    <body>
 8      <div id="header">
 9        <h1>What makes a good role model</h1>
10      </div>
11      <div class="entry">
12        <h1>Jessy J</h1>
13        <p>
14          Why does Jessy J get so much press when Lilly Allen is
15          so much funnier?
16        </p>
17      </div>
18      <div class="entry">
19        <h1>Posh Spice</h1>
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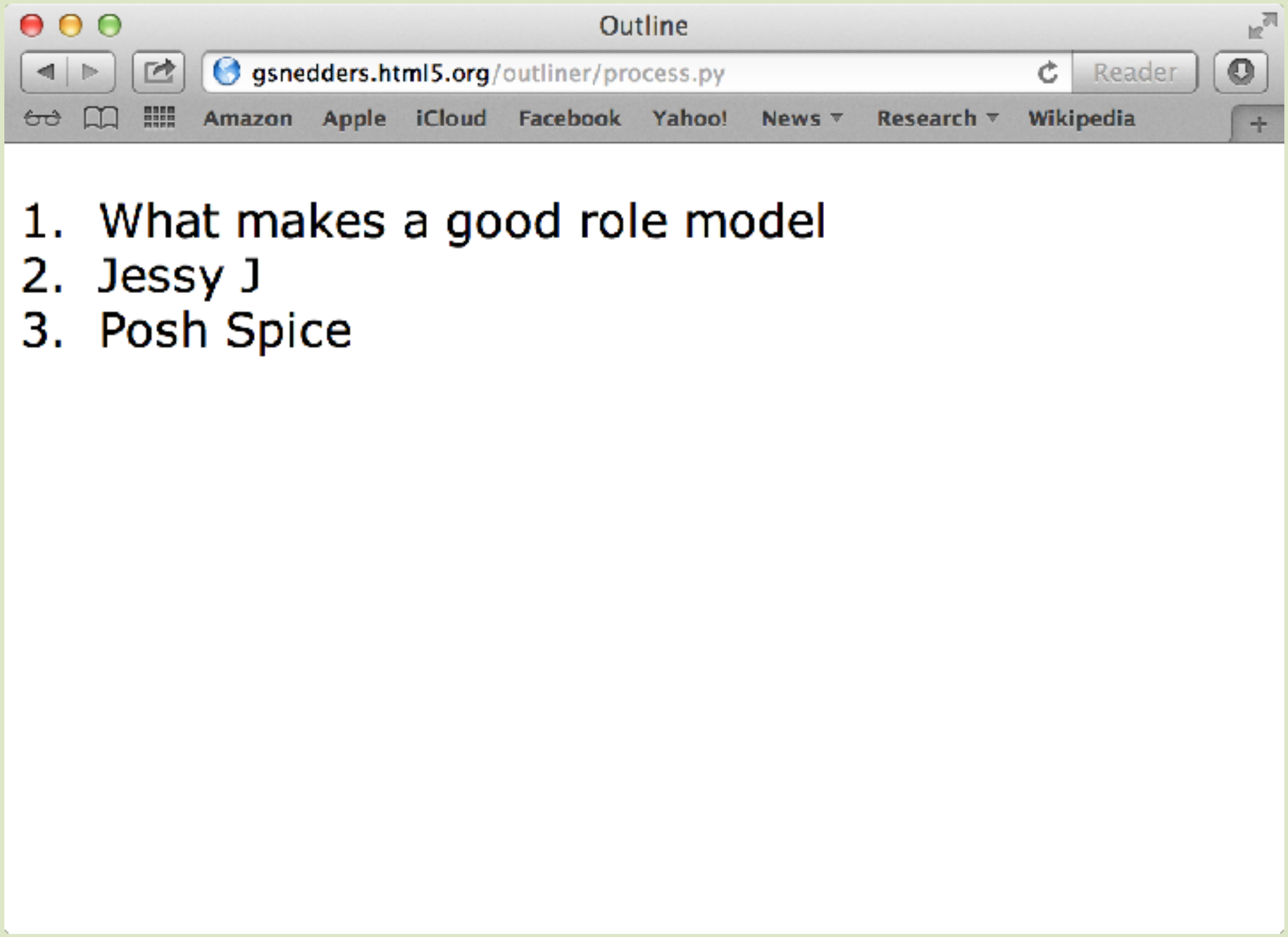
http://gsnedders.html5.org/outliner/



So I have to do this

```
 7    <body>
 8      <div id="header">
 9        <h1>What makes a good role model</h1>
10      </div>
11      <div class="entry">
12        <h2>Jessy J</h2>
13        <p>
14          Why does Jessy J get so much press when Lilly Allen is
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16        </p>
17      </div>
18      <div class="entry">
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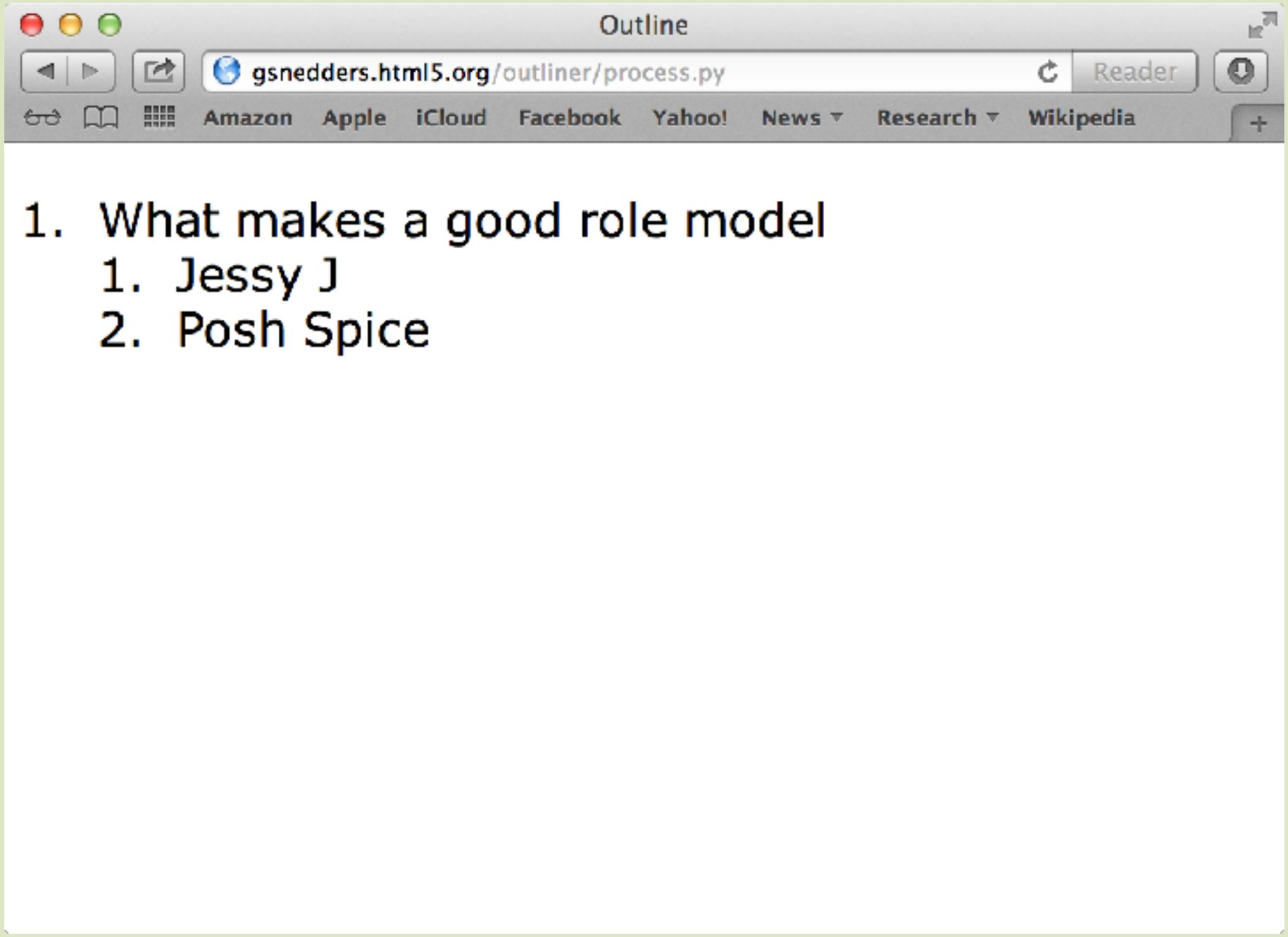
Got what I want, but I hacked it



Now let’s do it properly, the HTML5 way

Our first two new elements

<header>

- Defines a header region of a page, section or article

<article>

- Defines a self-contained piece of content

One header and two articles

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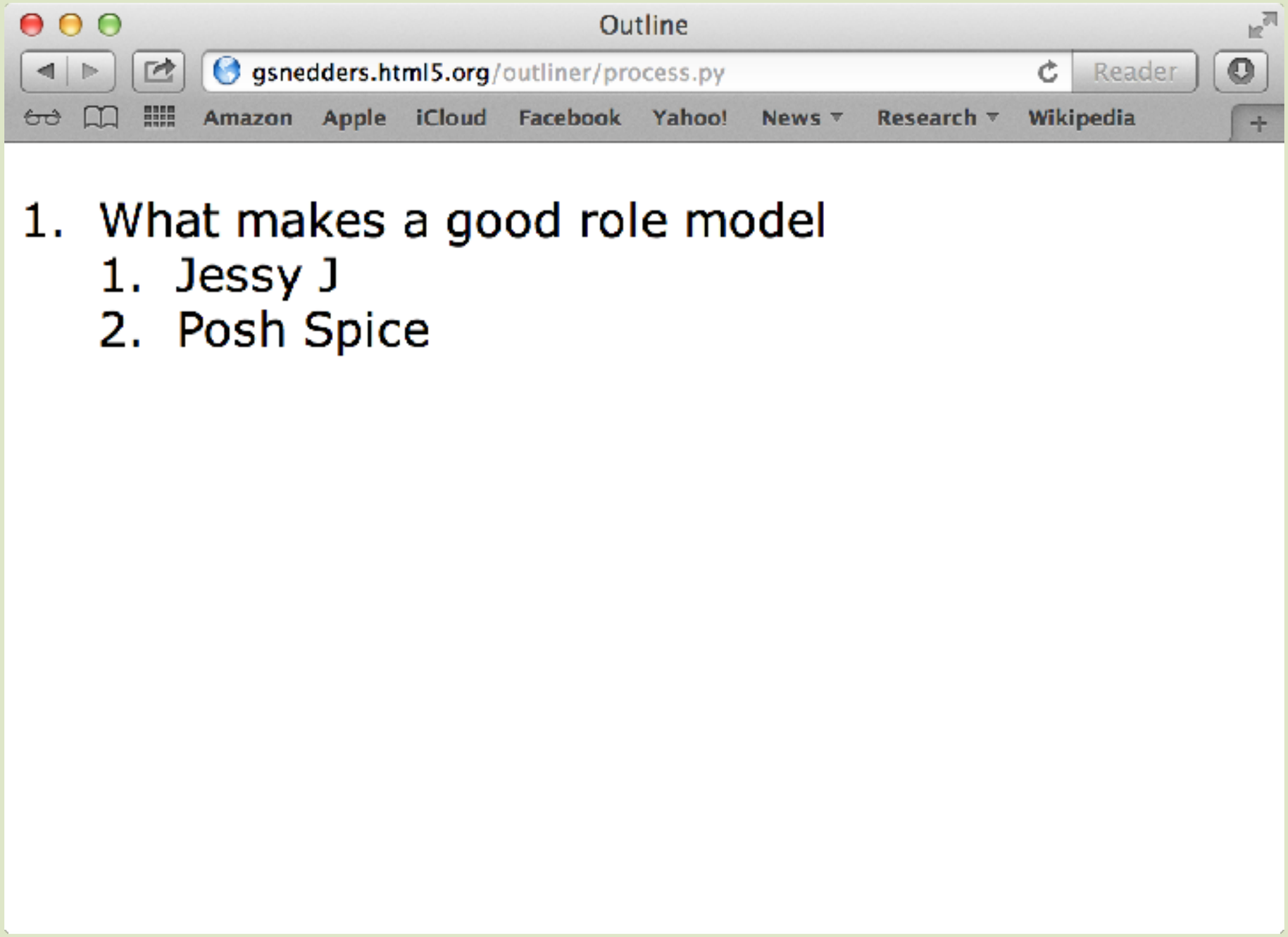
```
7     <body>
8       <header>
9         <h1>What makes a good role model</h1>
10      <header>
11      <article>
12        <h1>Jessy J</h1>
13        <p>
14          Why does Jessy J get so much press when Lilly Allen is
15          so much funnier?
16        </p>
17      </article>
18      <article>
19        <h1>Posh Spice</h1>
20        <p>
21          Why does Posh Spice get so much press when Lilly Allen
22          has so much more to say?
23        </p>
24      </article>
25    </body>
```

Gives the outline we want



A little more content

```
 7    <body>
 8      <header>
 9        <h1>What makes a good role model?</h1>
10      <header>
11      <article>
12        <header>
13          <time datetime="2012-09-03" pubdate>03 September 2012</time>
14          <h1>Here is a better role model</h1>
15        </header>
16        <p>Some text here</p>
17      </article>
18      <article>
19        <header>
20          <time datetime="2012-09-04" pubdate>04 September 2012</time>
21          <h1>Here is an even better still role model</h1>
22        </header>
23        <p>Some different other text here</p>
24      </article>
25    </body>
```

A little more content

```
 7    <body>
 8      <header>
 9        <h1>What makes a good role model?</h1>
10      <header>
11      <article>
12        <header>
13          <time datetime="2012-09-03" pubdate>03 September 2012</time>
14          <h1>Here is a better role model</h1>
15        </header>
16        <p>Some text here</p>
17      </article>
18      <article>
19        <header>
20          <time datetime="2012-09-04" pubdate>04 September 2012</time>
21          <h1>Here is an even better still role model</h1>
22        </header>
23        <p>Some different other text here</p>
24      </article>
25    </body>
```

A little more content

```
 7    <body>
 8      <header>
 9        <h1>What makes a good role model?</h1>
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15        </header>
16        <p>Some text here</p>
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A little more content

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 7    <body>
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22        </header>
23        <p>Some different other text here</p>
24      </article>
25    </body>
```

Dates and times

```
<time datetime="2012-09-04" pubdate>04 September 2012</time>
```

Dates and times

Machine readable time stamp

```
<time datetime="2012-09-04" pubdate>04 September 2012</time>
```

Dates and times

Optional boolean

```
<time datetime="2012-09-04" pubdate>04 September 2012</time>
```

Dates and times

Human readable text

```
<time datetime="2012-09-04" pubdate>04 September 2012</time>
```

Dates and times

```
<time datetime="2012-09-04" pubdate>04 September 2012</time>
```

To include a time

```
<time datetime="2012-09-04T16:01+01:00" pubdate>
  04 September 2012
</time>
```

To include a time

```
<time datetime="2012-09-04T16:01+01:00" pubdate>
  04 September 2012
</time>
```

To include a time

```
<time datetime="2012-09-04T16:01+01:00" pubdate>
  04 September 2012
</time>
```

Some more elements

<section>

- A logical region or grouping of content

<nav>

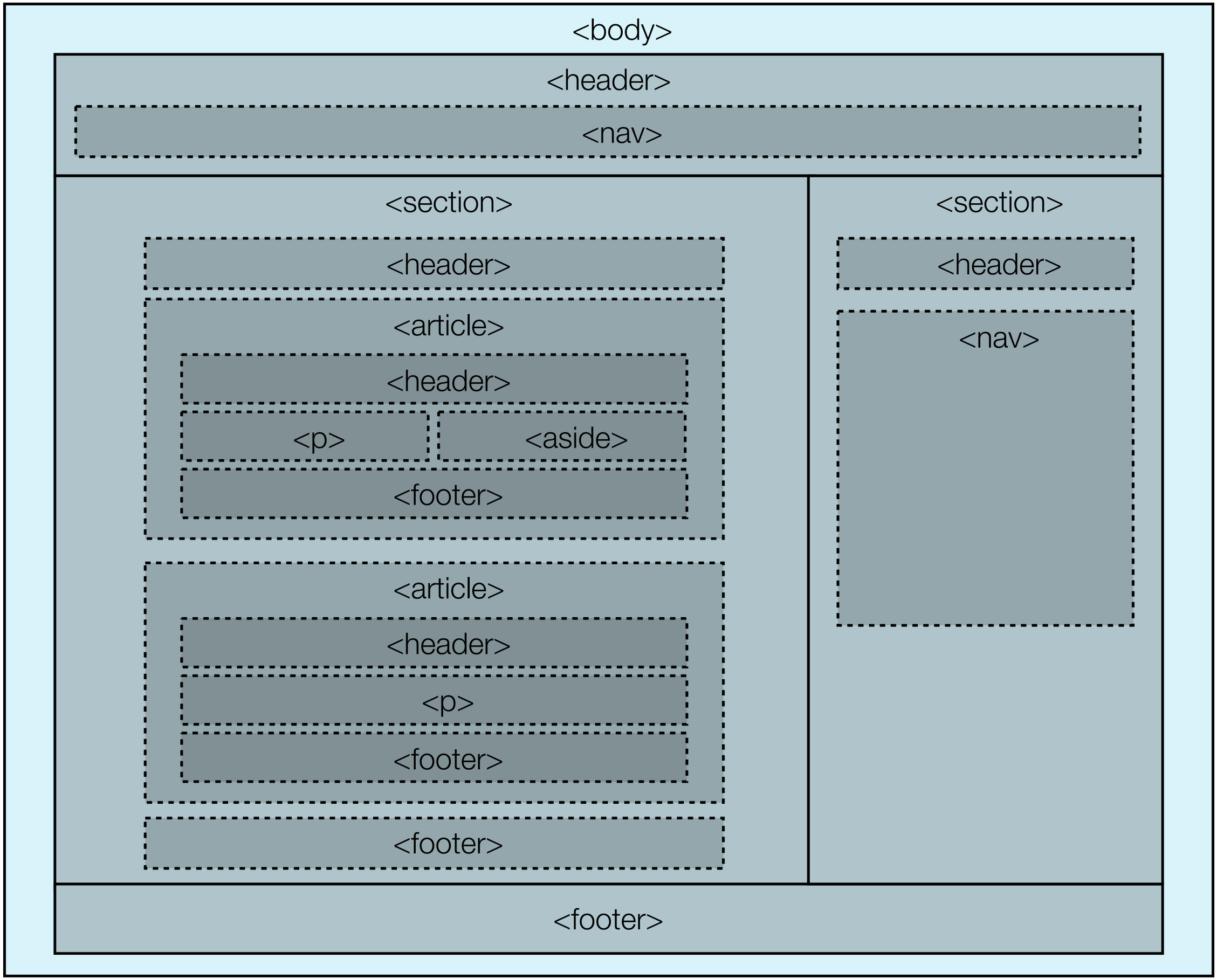
- A navigation element for a page or region

<aside>

- content secondary or related to a region or page

<footer>

- A footer for a region or section


<body>
<header>
<nav>
<section>
<header>
<article>
<header>
<p>
<aside>
<footer>
<article>
<header>
<p>
<footer>
<footer>
<section>
<header>
<nav>
<footer>

Some more examples

-
  - indicates the importance of its contents
- <i>
  - represents a span of text that is offset from the normal prose
- <b>
  - represents text that is *stylistically* offset from the normal prose

Short quotations

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>WI Temperance Society | About Us</title>
  </head>
  <body>
    <p>
      Harry grimaced. <q>Keep that hairy matelot away from me</q>, he cried.
    </p>
  </body>
</html>
```

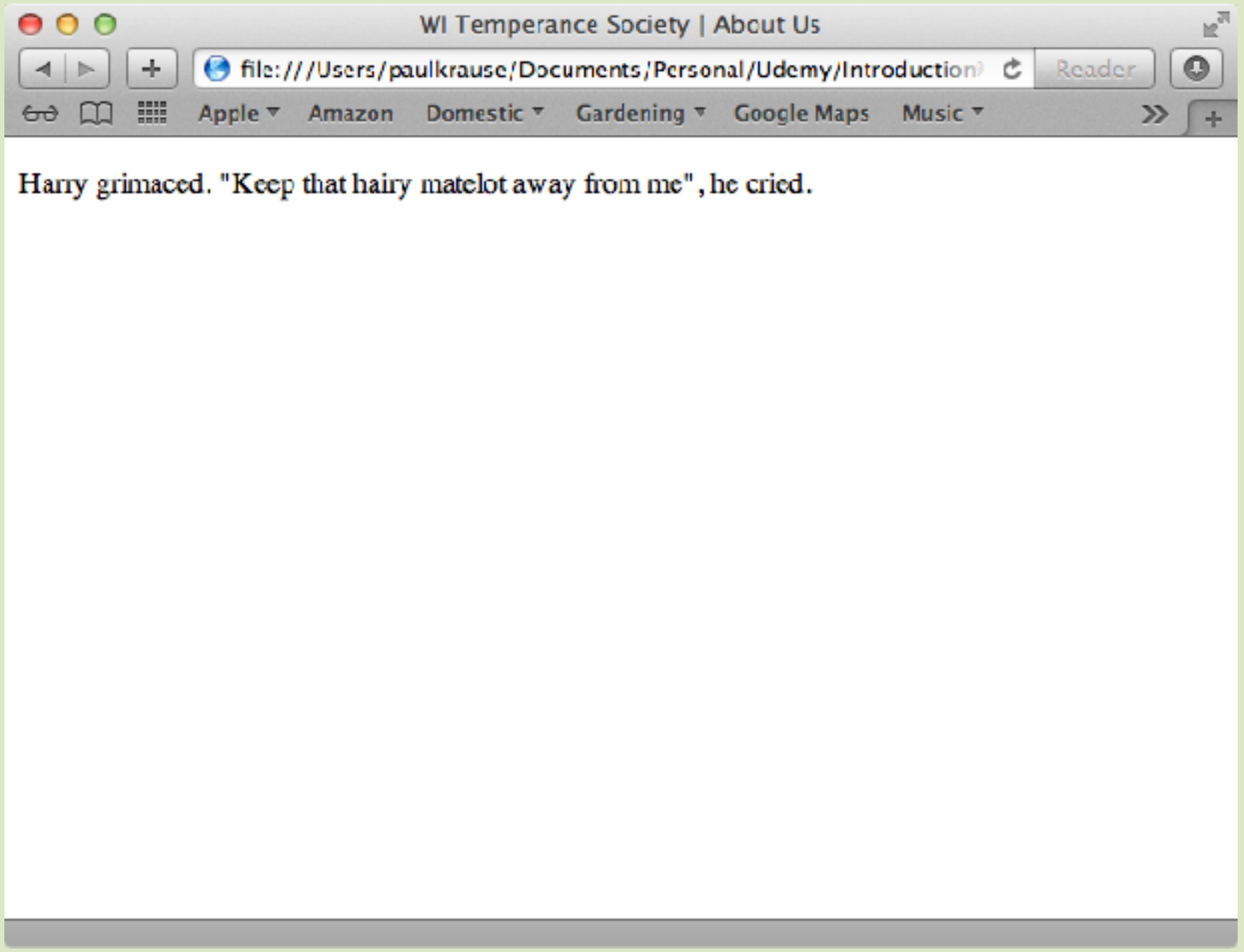
Short quotations

```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>WI Temperance Society | About Us</title>
6    </head>
7    <body>
8      <p>
9        Harry grimaced. <q>Keep that hairy matelot away from me</q>, he cried.
10     </p>
11   </body>
12 </html>
```

Short quotations

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>WI Temperance Society | About Us</title>
  </head>
  <body>
    <p>
      Harry grimaced. <q>Keep that hairy matelot away from me</q>, he cried.
    </p>
  </body>
</html>
```

Renders as


WI Temperance Society | About Us
file:///Users/paulkrause/Documents/Personal/Udemy/Introduction
Reader
Apple
Amazon
Domestic
Gardening
Google Maps
Music
Harry grimaced. "Keep that hairy matelot away from me", he cried.

Tables

Just in case

In historical days, web developers used tables to layout elements on a page

Just in case

Let’s start a proper table

```
<table>
  <tr>
    <td>Plant Name</td>
    <td>Promise</td>
    <td>Problem</td>
  </tr>
</table>
```

Let’s start a proper table

Indicates the content needs to be arranged in tabular fashion

```
1  <table>
2    <tr>
3      <td>Plant Name</td>
4      <td>Promise</td>
5      <td>Problem</td>
6    </tr>
7  </table>
```

Let’s start a proper table

A table row

```
1  <table>
2    <tr>
3      <td>Plant Name</td>
4      <td>Promise</td>
5      <td>Problem</td>
6    </tr>
7  </table>
```

Let’s start a proper table

```
<table>
  <tr>
    <td>Plant Name</td>
    <td>Promise</td>
    <td>Problem</td>
  </tr>
</table>
```

A table cell

Let’s start a proper table

```
<table>
  <tr>
    <td>Plant Name</td>
    <td>Promise</td>
    <td>Problem</td>
  </tr>
</table>
```

add some content ...

```
<table>
  <tr>
    <td>Plant Name</td>
    <td>Promise</td>
    <td>Problem</td>
  </tr>
  <tr>
    <td>Verbena bonariensis</td>
    <td>Gives attractive meadow like feel to borders</td>
    <td>
      If you haven't got friends who are pulling this up by
      the bucket load, then get a life.
    </td>
  </tr>
  <tr>
    <td>Laurel</td>
    <td>Evergreen hedging plant</td>
    <td>
      If you turn your back on it for 5 minutes and you will
      lose 10 feet of your garden. Plant Yew instead.
    </td>
  </tr>
</table>
```

Don’t forget to put this in a proper document!

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>Meta data goes here</title>
    <meta name="description" content="Make the description concise and relevant">
    <meta name="keywords" content="use, primarily, internally">
    <link rel="stylesheet" type="text/css" href="mystyle.css">
    <script src="myscript.js"></script>
  </head>
  <body>
    <table>
      <tr>
        <td>Plant Name</td>
        <td>Promise</td>
        <td>Problem</td>
      </tr>
      <tr>
        <td>Verbena bonariensis</td>
        <td>Gives attractive meadow like feel to borders</td>
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          If you haven't got friends who are pulling this up by
          the bucket load, then get a life.
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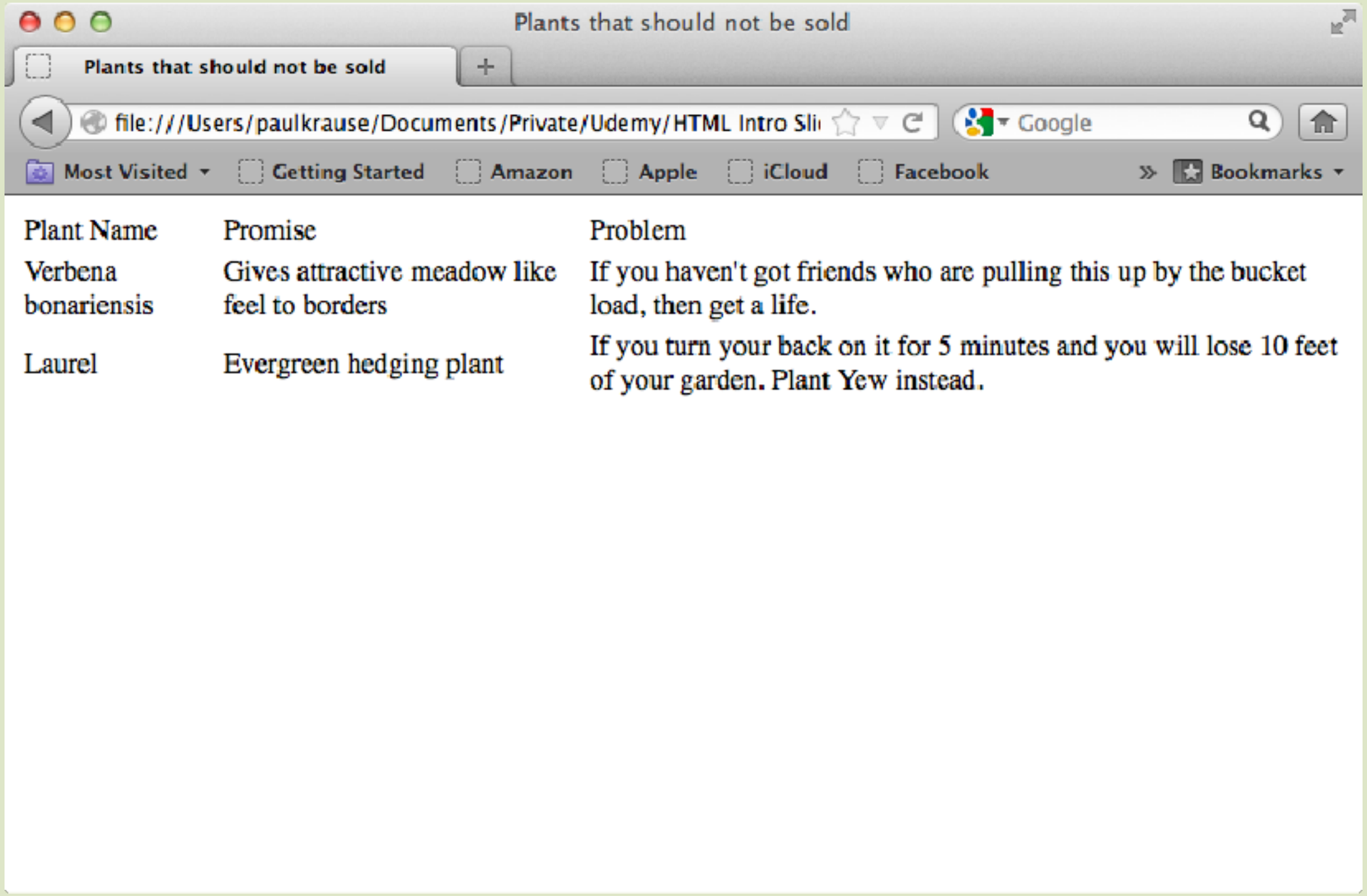
          lose 10 feet of your garden. Plant Yew instead.
        </td>
      </tr>
    </table>
  </body>
</html>
```

Renders as ...


Plants that should not be sold
Plants that should not be sold
file:///Users/paulkrause/Documents/Private/Udemy/HTML Intro Sli
Google
Most Visited
Getting Started
Amazon
Apple
iCloud
Facebook
Bookmarks
Plant Name
Promise
Problem
Verbena bonariensis
Gives attractive meadow like feel to borders
If you haven't got friends who are pulling this up by the bucket load, then get a life.
Laurel
Evergreen hedging plant
If you turn your back on it for 5 minutes and you will lose 10 feet of your garden. Plant Yew instead.

Mark up table headers and add a caption

```
<table>
  <caption>
    Garden plants that nurseries really ought not sell
  </caption>
  <tr>
    <th>Plant Name</th>
    <th>Promise</th>
    <th>Problem</th>
  </tr>
  <tr>
    <td>Verbena bonariensis</td>
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      lose 10 feet of your garden. Plant Yew instead.
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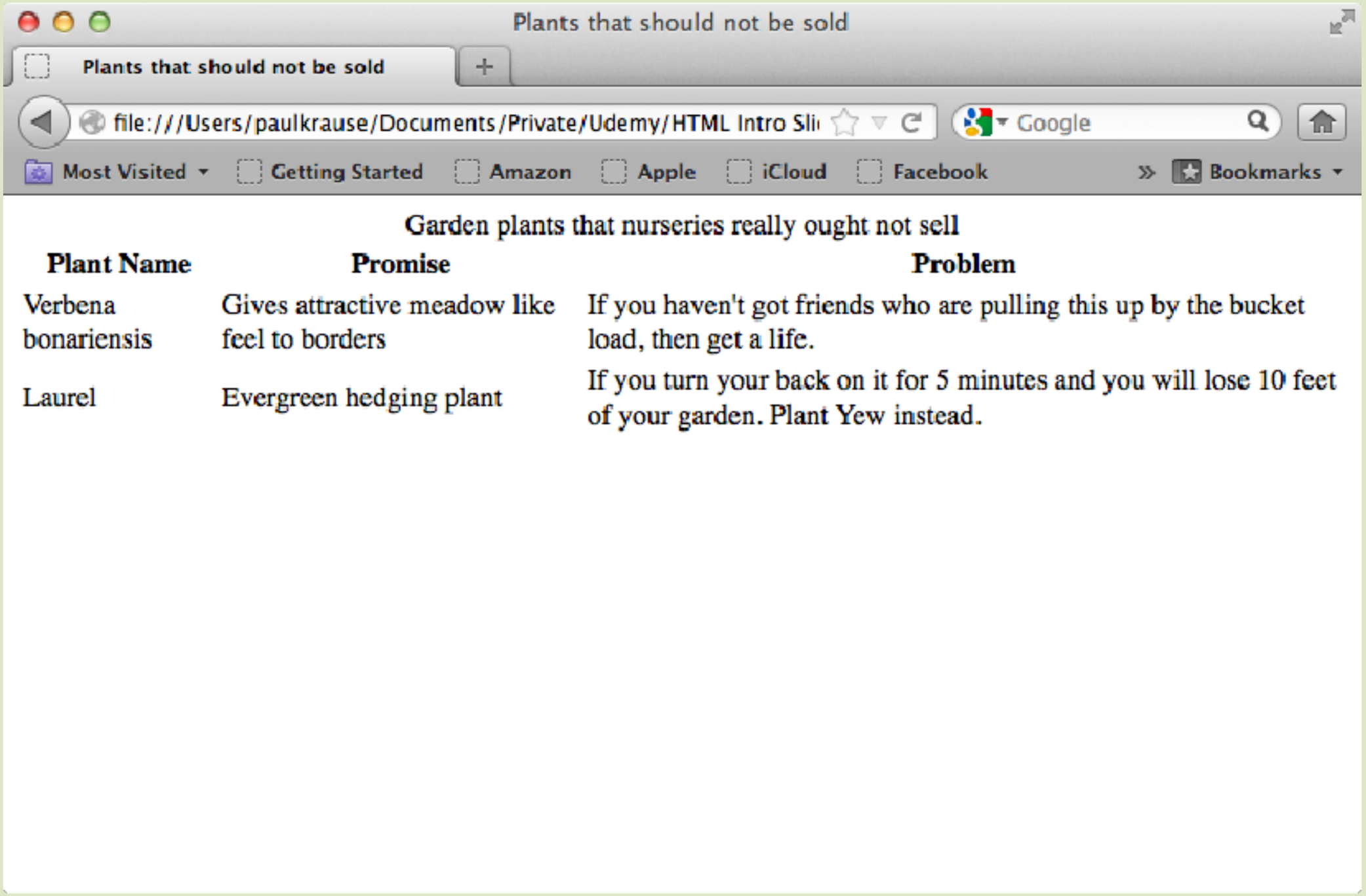
  </tr>
</table>
```

Looks like this



Add summary and structure

```
<table summary="This table provides a list of plants that are on sale at most
nurseries, but which customers ought to be cautioned away from">
  <caption>
    Garden plants that nurseries really ought not sell
  </caption>
  <thead>
    <tr>
      <th scope="col">Plant Name</th>
      <th scope="col">Promise</th>
      <th scope="col">Problem</th>
    </tr>
  </thead>
  <tbody>
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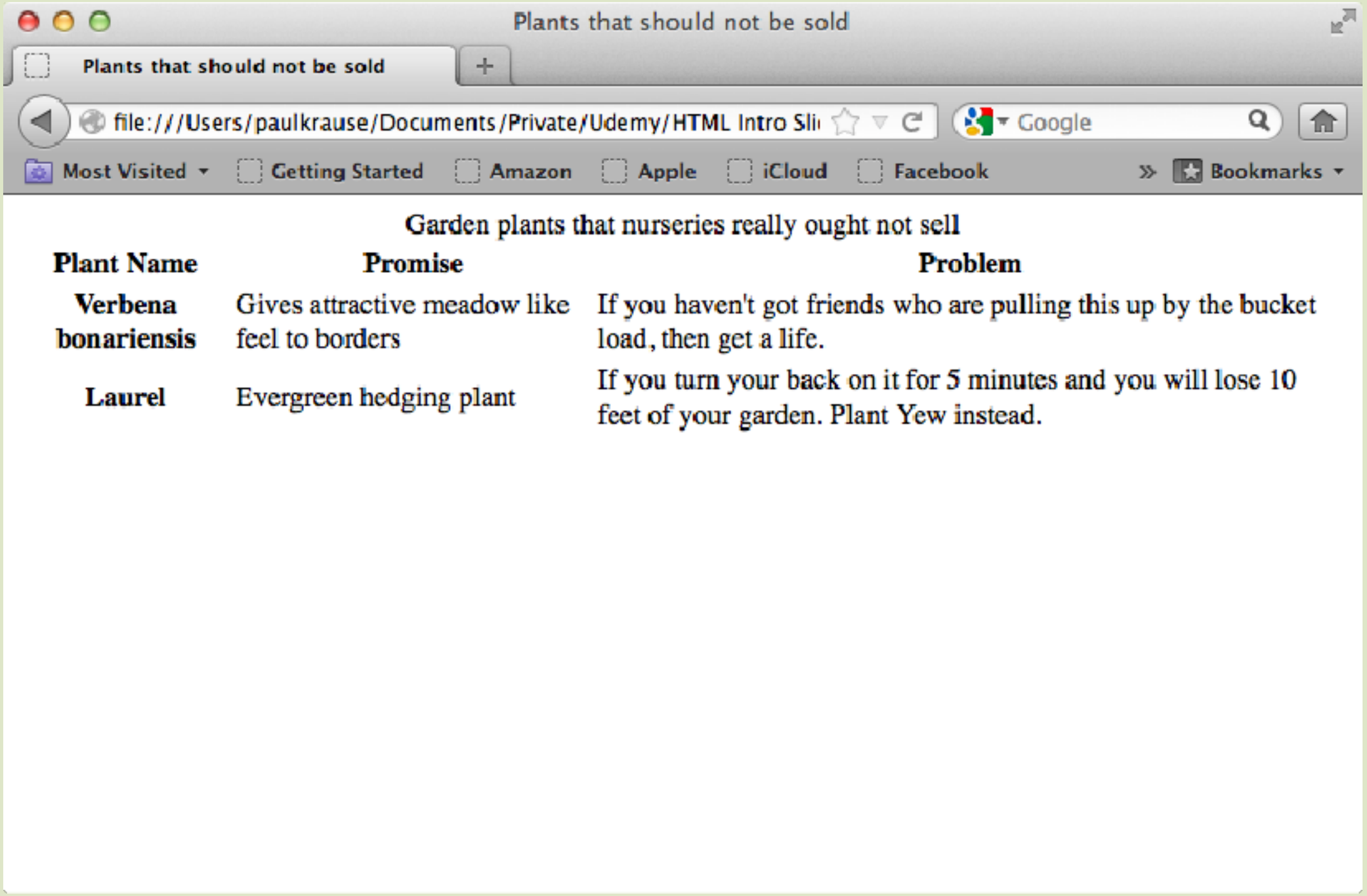
    </td>
  </tr>
  </tbody>
</table>
```

And now it looks like this



And finally

```
<thead>
  <tr>
    <th scope="col">Plant Name</th>
    <th scope="col">Promise</th>
    <th scope="col">Problem</th>
  </tr>
</thead>
<tfoot>
  <tr>
    <td colspan="3">
      Compiled <time datetime="2012-09-04">September 2015</time>
    </td>
  </tr>
</tfoot>
```

And finally

```
<thead>
  <tr>
    <th scope="col">Plant Name</th>
    <th scope="col">Promise</th>
    <th scope="col">Problem</th>
  </tr>
</thead>
<tfoot>
  <tr>
    <td colspan="3">
      Compiled <time datetime="2012-09-04">September 2015</time>
    </td>
  </tr>
</tfoot>
```

And finally

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<thead>
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</thead>
<tfoot>
  <tr>
    <td colspan="3">
      Compiled <time datetime="2012-09-04">September 2015</time>
    </td>
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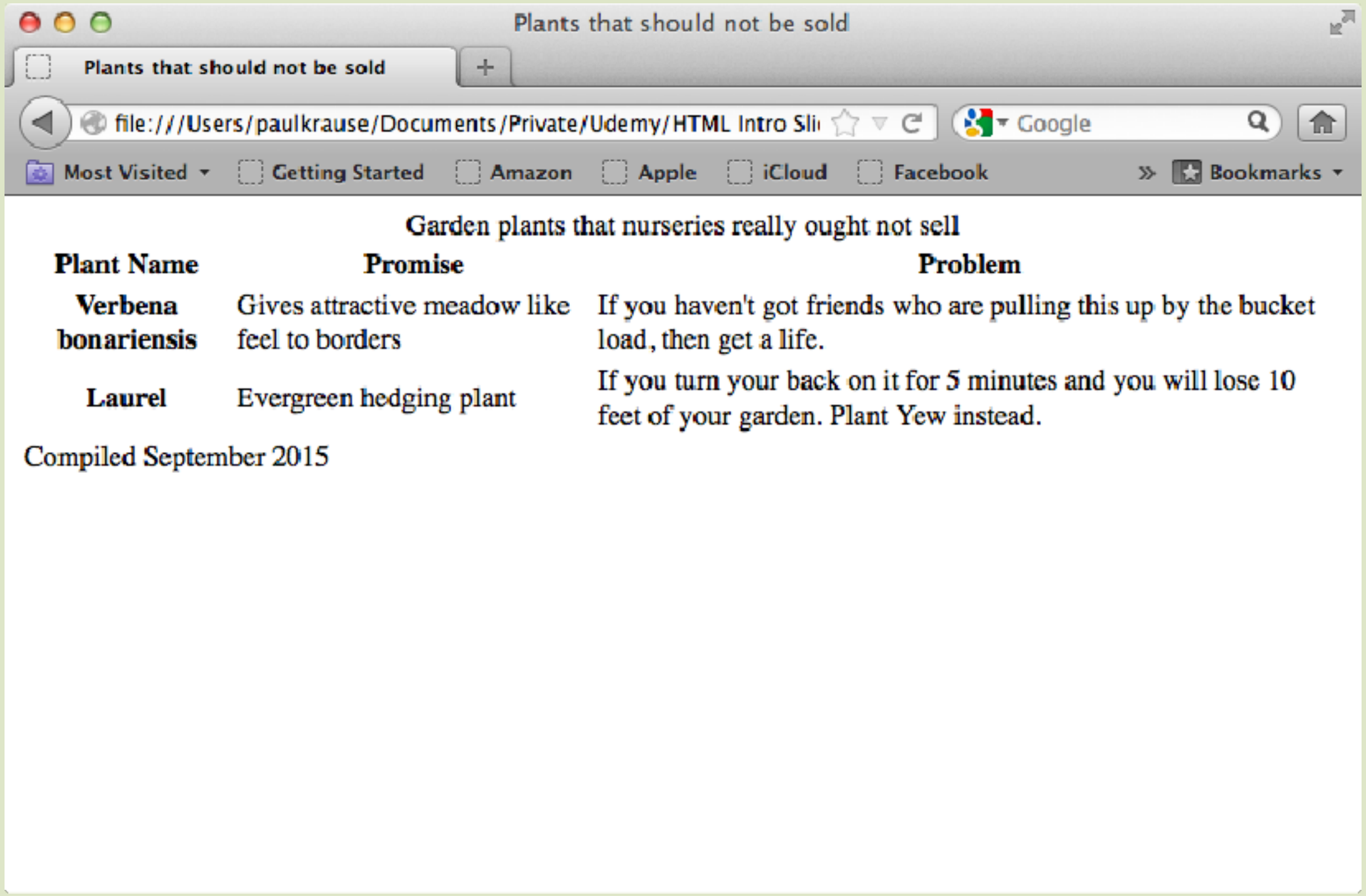
```

Looks like ...


Plants that should not be sold
Plants that should not be sold
file:///Users/paulkrause/Documents/Private/Udemy/HTML Intro Sli
Google
Most Visited
Getting Started
Amazon
Apple
iCloud
Facebook
Bookmarks
Garden plants that nurseries really ought not sell
Plant Name
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If you haven't got friends who are pulling this up by the bucket load, then get a life.
Laurel
Evergreen hedging plant
If you turn your back on it for 5 minutes and you will lose 10 feet of your garden. Plant Yew instead.
Compiled September 2015

What We Have Done

- We have shown the basics of using tables for organizing data
- For more detail, take a look at Roger Johansson's article:
    - http://www.456bereastreet.com/archive/200410/bring_on_the_tables/

Now some good form(s)

A basic form

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

A basic form

```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>HTML Forms</title>
6    </head>
7    <body>
8      <header>
9        <h1>My Fi
10     <header>
11     <form>
12       Event Details: <textarea name="details" id="details"></textarea>
13       <input type="submit" value="Submit">
14     </form>
15   </body>
16 </html>
```

Defines the form element

A basic form

```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>HTML Forms</title>
6    </head>
7    <body>
8      <header>
9        <h1>My First Form</h1>
10     <header>
11     <form>
12       Event Details: <textarea name="details" id="details"></textarea>
13       <input type="submit" value="Submit">
14     </form>
15   </body>
16 </html>
```

An input element where free text can be entered.

A basic form

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

Data in forms is submitted as name:value pairs

A basic form

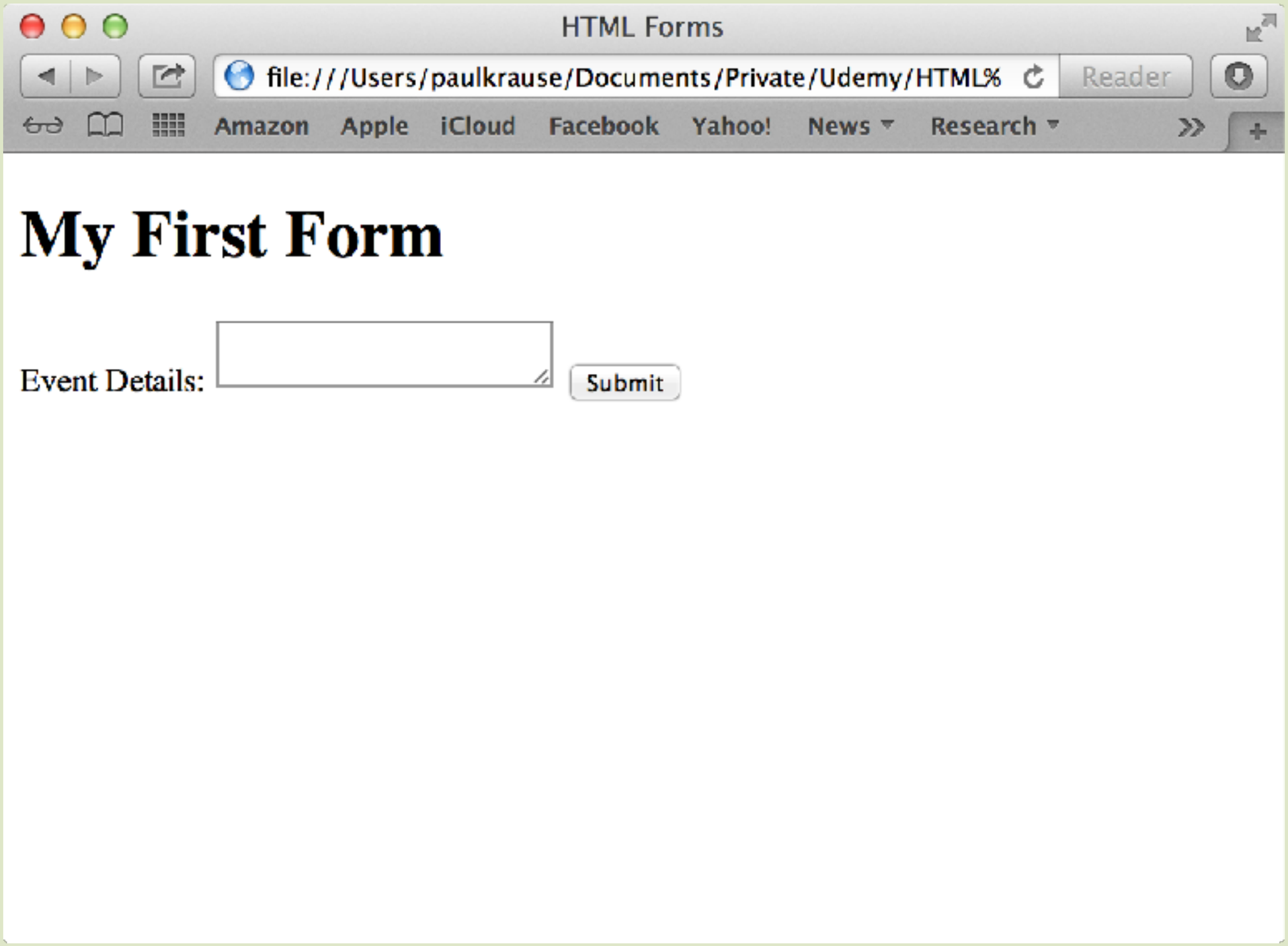
```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>HTML Forms</title>
6    </head>
7    <body>
8      <header>
9        <h1>My First Form</h1>
10     <header>
11     <form>
12       Event Details: <textarea name="details" id="details"></textarea>
13       <input type="submit" value="Submit">
14     </form>
15   </body>
16
```

A special input type which is a submit button

A basic form

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

This is what it looks like



Add another type of input field

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Title: <input type="text" name="title" id="title" value="">
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

Add another type of input field

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Title: <input type="text" name="title" id="title" value="">
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

Add another type of input field

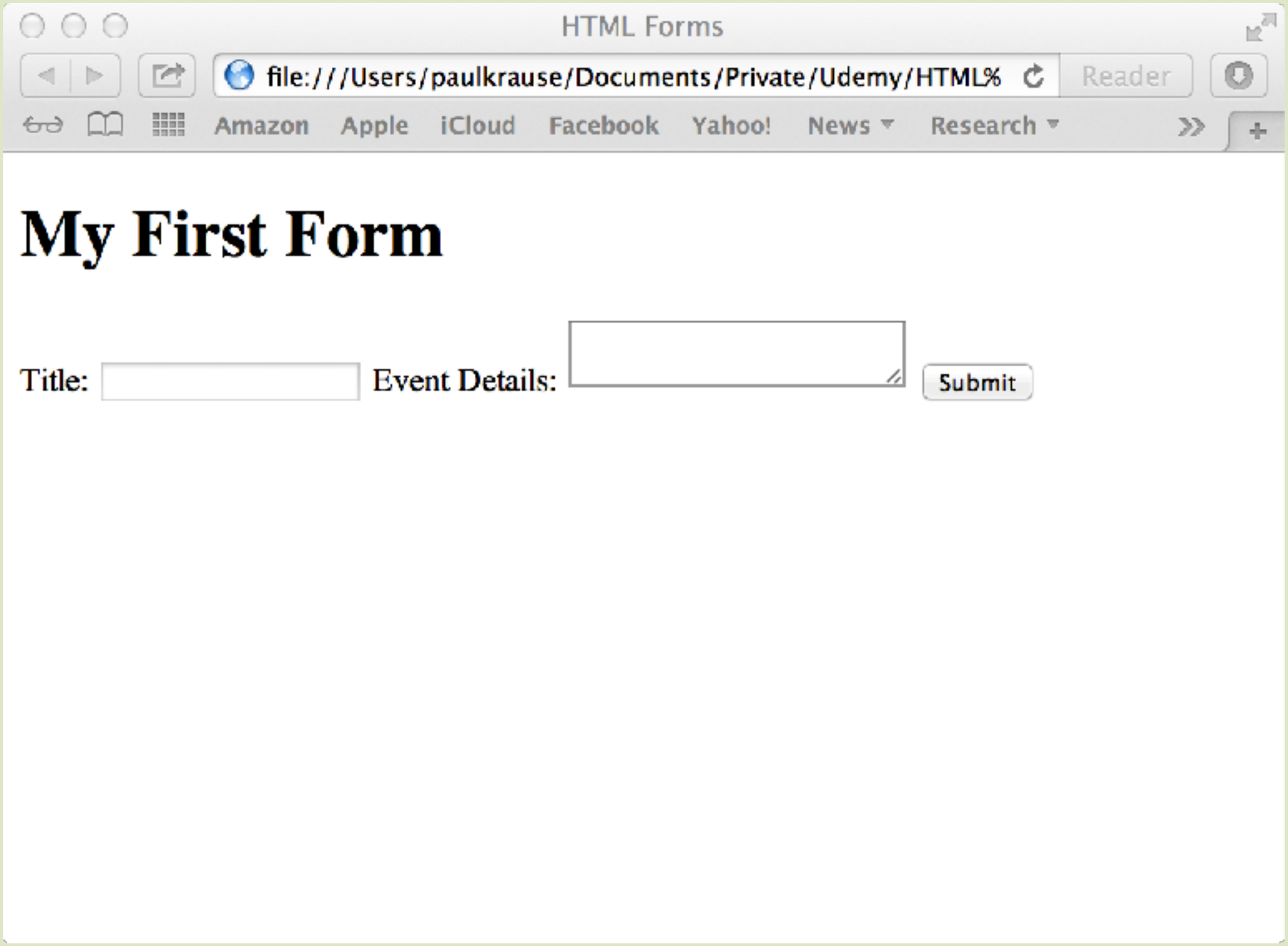
```
1  <!DOCTYPE html>
2  <html lang="en-GB">
3    <head>
4      <meta charset="utf-8">
5      <title>HTML Forms</title>
6    </head>
7    <body>
8      <header>
9        <h1>My First Form</h1>
10     <header>
11     <form>
12       Title: <input type="text" name="title" id="title" value="">
13       Event Details: <textarea name="details" id="details"></textarea>
14       <input type="submit" value="Submit">
15     </form>
16   </body>
17 </html>
```

Provides an initial value for “title”

Add another type of input field

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8">
    <title>HTML Forms</title>
  </head>
  <body>
    <header>
      <h1>My First Form</h1>
    <header>
    <form>
      Title: <input type="text" name="title" id="title" value="">
      Event Details: <textarea name="details" id="details"></textarea>
      <input type="submit" value="Submit">
    </form>
  </body>
</html>
```

Starting to look a bit messy!



Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

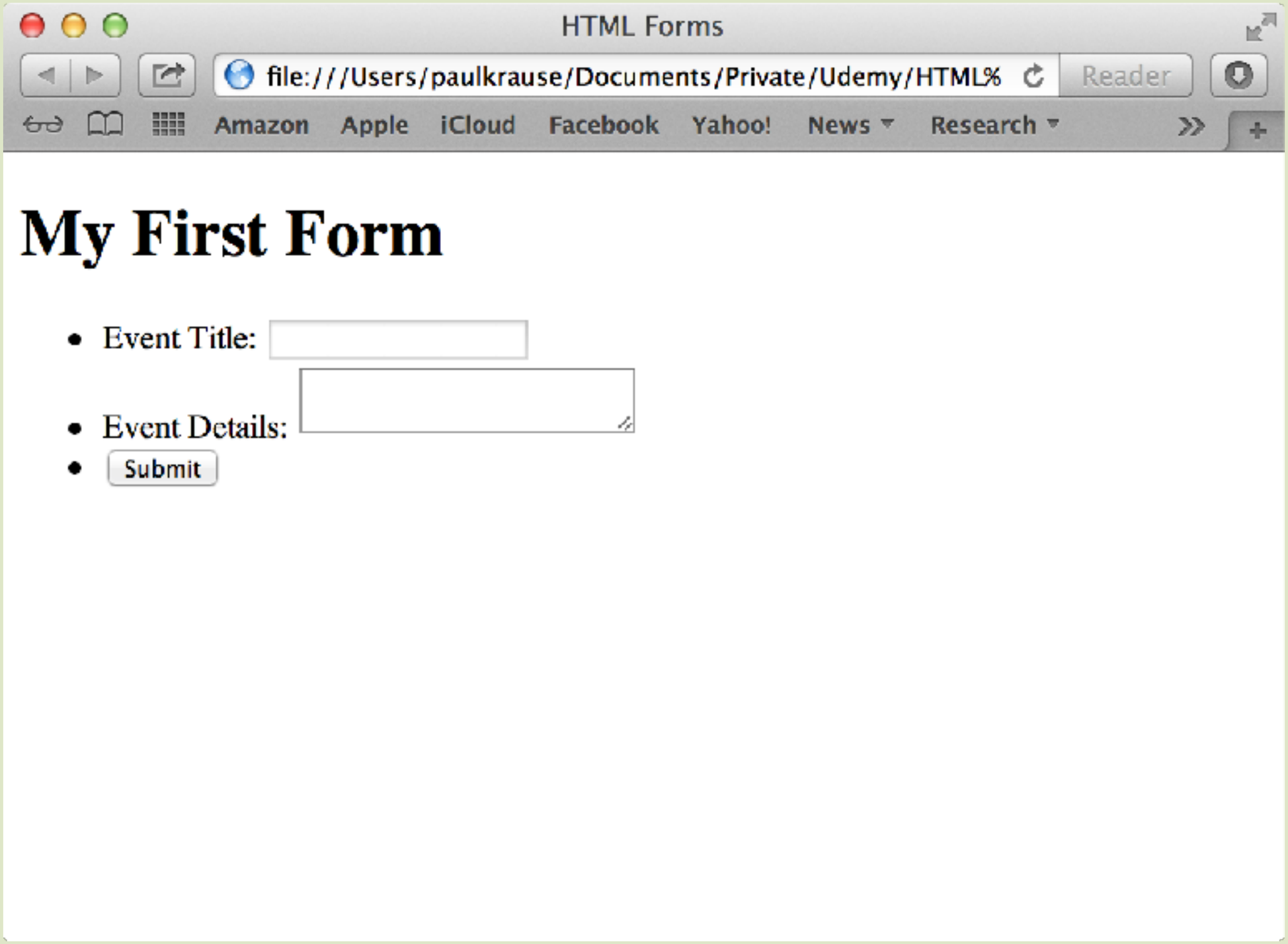
Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

Add a bit of (meaningful) structure

```
11      <form>
12        <ul>
13          <li>
14            <label for="title">Event Title:</label>
15            <input type="text" name="title" id="title" value="">
16          </li>
17          <li>
18            <label for="details">Event Details:</label>
19            <textarea name="details" id="details"></textarea>
20          </li>
21          <li>
22            <input type="submit" value="Submit">
23          </li>
24        </ul>
25      </form>
```

A bit neater


HTML Forms
file:///Users/paulkrause/Documents/Private/Udemy/HTML%
Reader
Amazon
Apple
iCloud
Facebook
Yahoo!
News
Research
My First Form
Event Title:
Event Details:
Submit

Group elements within the form

```
<form>
  <fieldset>
    <legend>Submit a new event</legend>
    <ul>
      <li>
        <label for="title">Event Title:</label>
        <input type="text" name="title" id="title" value="">
      </li>
      <li>
        <label for="details">Event Details:</label>
        <textarea name="details" id="details"></textarea>
      </li>
      <li>
        <input type="submit" value="Submit">
      </li>
    </ul>
  </fieldset>
</form>
```

Group elements within the form

```
<form>
  <fieldset>
    <legend>Submit a new event</legend>
    <ul>
      <li>
        <label for="title">Event Title:</label>
        <input type="text" name="title" id="title" value="">
      </li>
      <li>
        <label for="details">Event Details:</label>
        <textarea name="details" id="details"></textarea>
      </li>
      <li>
        <input type="submit" value="Submit">
      </li>
    </ul>
  </fieldset>
</form>
```

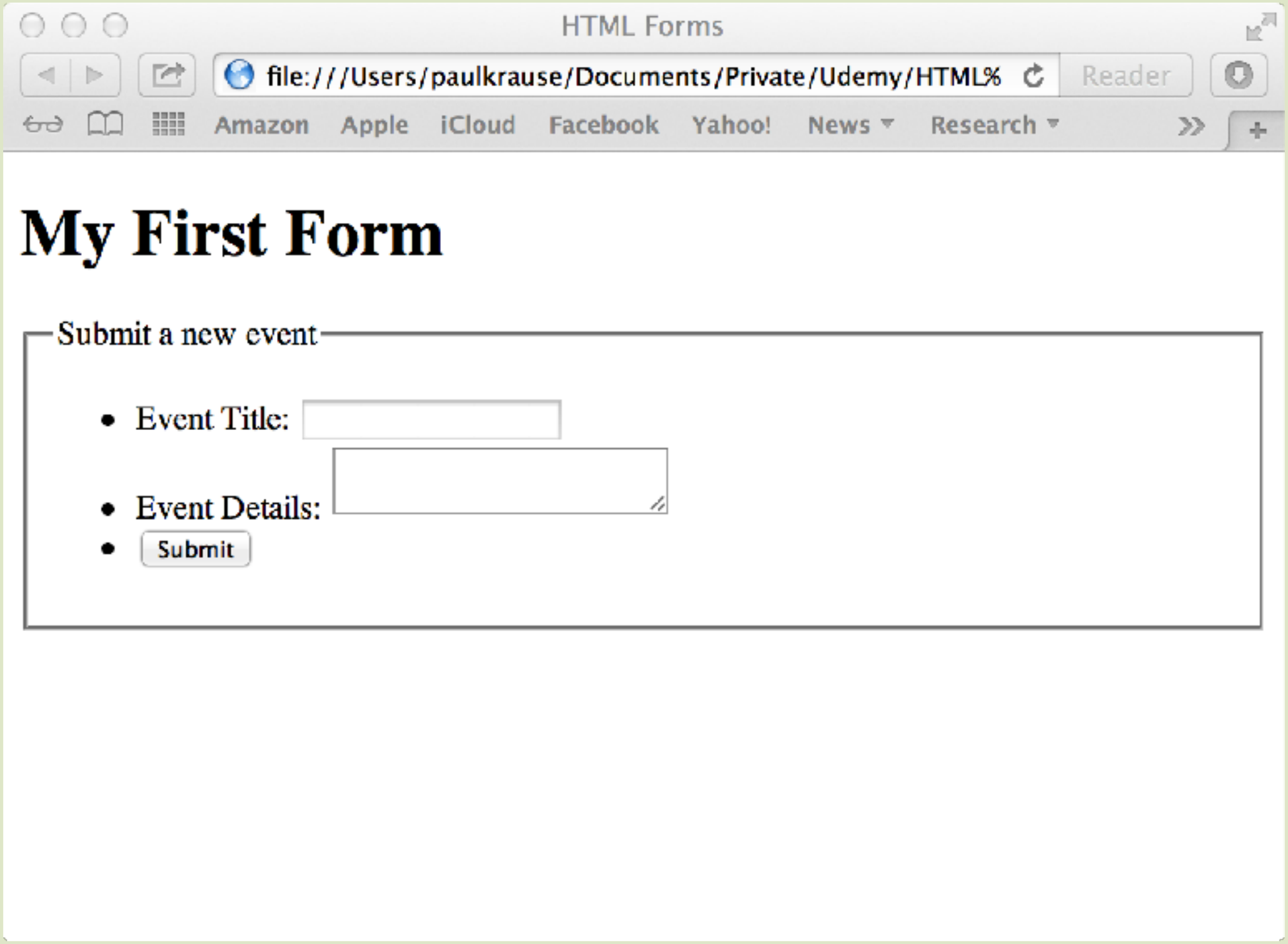
Group elements within the form

```
11      <form>
12        <fieldset>
13          <legend>Submit a new event</legend>
14            <ul>
15              <li>
16                <label for="title">Event Title:</label>
17                <input type="text" name="title" id="title" value="">
18              </li>
19              <li>
20                <label for="details">Event Details:</label>
21                <textarea name="details" id="details"></textarea>
22              </li>
23              <li>
24                <input type="submit" value="Submit">
25              </li>
26            </ul>
27        </fieldset>
28      </form>
```

Group elements within the form

```
<form>
  <fieldset>
    <legend>Submit a new event</legend>
    <ul>
      <li>
        <label for="title">Event Title:</label>
        <input type="text" name="title" id="title" value="">
      </li>
      <li>
        <label for="details">Event Details:</label>
        <textarea name="details" id="details"></textarea>
      </li>
      <li>
        <input type="submit" value="Submit">
      </li>
    </ul>
  </fieldset>
</form>
```

Now fully described and ready to style!



But what happens when the form is submitted?

```
<form action="action_name" method="post">
  <fieldset>
    <legend>Submit a new event</legend>
    <ul>
      <li>
        <label for="title">Event Title:</label>
        <input type="text" name="title" id="title" value="">
      </li>
      <li>
        <label for="details">Event Details:</label>
        <textarea name="details" id="details"></textarea>
      </li>
      <li>
        <input type="submit" value="Submit">
      </li>
    </ul>
  </fieldset>
</form>
```

But what happens when the form is submitted?

```
11    <form action="action_name" method="post">
12      <fieldset>
13        <legend>Submit a new event</legend>
14        <ul>
15          <li>
16            <label for="title">Event Title:</label>
17            <input type="text" name="title" id="title" value="">
18          </li>
19          <li>
20            <label for="details">Event Details:</label>
21            <textarea name="details" id="details"></textarea>
22          </li>
23          <li>
24            <input type="submit" value="Submit">
25          </li>
26        </ul>
27      </fieldset>
28    </form>
```

But what happens when the form is submitted?

```
11    <form action="action_name" method="post">
12      <fieldset>
13        <legend>Submit a new event</legend>
14        <ul>
15          <li>
16            <label for="title">Event Title:</label>
17            <input type="text" name="title" id="title" value="">
18          </li>
19          <li>
20            <label for="details">Event Details:</label>
21            <textarea name="details" id="details"></textarea>
22          </li>
23          <li>
24            <input type="submit" value="Submit">
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26        </ul>
27      </fieldset>
28    </form>
```

But what happens when the form is submitted?

```
<form action="action_name" method="post">
  <fieldset>
    <legend>Submit a new event</legend>
    <ul>
      <li>
        <label for="title">Event Title:</label>
        <input type="text" name="title" id="title" value="">
      </li>
      <li>
        <label for="details">Event Details:</label>
        <textarea name="details" id="details"></textarea>
      </li>
      <li>
        <input type="submit" value="Submit">
      </li>
    </ul>
  </fieldset>
</form>
```

HTML5 Validations

```
<li>
  <label for="title">Event Title:</label>
  <input tabindex="1" type="text" name="title" id="title" placeholder="Enter
  a short title" value="" required>
</li>
<li>
  <label for="eventStartTime">Start Time:</label>
  <input type="time" min="17:00" max="22:00" name="eventStartTime" required>
</li>
```

HTML5 Validations

```
<li>
  <label for="title">Event Title:</label>
  <input tabindex="1" type="text" name="title" id="title" placeholder="Enter
  a short title" value="" required>
</li>
<li>
  <label for="eventStartTime">Start Time:</label>
  <input type="time" min="17:00" max="22:00" name="eventStartTime" required>
</li>
```

HTML5 Validations

```
<li>
  <label for="title">Event Title:</label>
  <input tabindex="1" type="text" name="title" id="title" placeholder="Enter
  a short title" value="" required>
</li>
<li>
  <label for="eventStartTime">Start Time:</label>
  <input type="time" min="17:00" max="22:00" name="eventStartTime" required>
</li>
```

HTML5 Validations

```
<li>
  <label for="title">Event Title:</label>
  <input tabindex="1" type="text" name="title" id="title" placeholder="Enter
  a short title" value="" required>
</li>
<li>
  <label for="eventStartTime">Start Time:</label>
  <input type="time" min="17:00" max="22:00" name="eventStartTime" required>
</li>
```

HTML5 Validations

```
<li>
  <label for="title">Event Title:</label>
  <input tabindex="1" type="text" name="title" id="title" placeholder="Enter
  a short title" value="" required>
</li>
<li>
  <label for="eventStartTime">Start Time:</label>
  <input type="time" min="17:00" max="22:00" name="eventStartTime" required>
</li>
```

Media Queries

Media Queries

- General format:

```
@media screen and (max-width: 400px) {
  /* Query specific CSS goes here */
}
```

- Media queries can also test for:
  - width; height; device-width; device-height; orientation; aspect-ratio; color; resolution; scan ...

Scalable Vector Graphics

Advantages of SVG

- Small file size
- Can be changed with scripting
- Scales without pixelated or jagged edges
- Easy to understand
- Can be animated

Japanese flag

```svg
<!DOCTYPE svg PUBLIC "-//W3C//DTD SVG 1.0//EN"
  "http://www.w3.org/TR/2001/REC-SVG-20010904/DTD/svg10.dtd">
<svg xmlns="http://www.w3.org/2000/svg" height="220" width="320" version="1.0">
  <title>Japanese Flag</title>
  <desc>Red circle on white flag</desc>
  <rect x="10" y="10" width="300" height="200" style="fill: #ffffff; stroke: #e7e7e7;"/>
  <circle cx="160px" cy="107px" r="60px" fill="#d60818"/>
</svg>

```

Including an svg file in a document

```
1
2
3   <img src="flag.svg" alt="Japanese Flag"/>
4
5   or
6
7   <embed type="image/svg+xml" src="flag.svg" width="320" height="220"/>
8
9   or
10
11  <object data="flag.svg" type="image/svg+xml" width="320" height="220"></object>
12
13
```

Canvases

Adding a canvas to a document

```
<!DOCTYPE html>
<html lang="en-GB">
  <head>
    <meta charset="utf-8" />
    <title>Japanese Flag</title>
    <meta name="description" content="Japanese flag in JavaScript" />
  </head>
  <body>
    <canvas id="flag" width="320" height="220">
      If you can see this then you are not supporting Canvases!!
    </canvas>
  </body>
```

Drawing the flag in JavaScript

```
13      <script>
14        var el= document.getElementById("flag");
15
16        if (el && el.getContext) {
17          var context = el.getContext('2d');
18          if (context) {
19            context.fillStyle   = "#ffffff";
20            context.strokeStyle = "#cccccc";
21            context.lineWidth   = 1;
22            context.shadowOffsetX = 5;
23            context.shadowOffsetY = 5;
24            context.shadowBlur  = 4;
25            context.shadowColor   = 'rgba(0, 0, 0, 0.4)';
26            context.strokeRect(10, 10, 300, 200);
27            context.fillRect(10, 10, 300, 200);
28            context.shadowColor='rgba(0,0,0,0)';
29            context.beginPath();
30            context.fillStyle = "#d60818";
31            context.arc(160, 107, 60, 0, Math.PI*2, false);
32            context.closePath();
33            context.fill();
34          }
35        }
36      </script>
```

Compare and contrast

- SVG you draw in XML; with Canvas, you draw in JavaScript;
- SVG creates DOM nodes that can be manipulated, and is resolution independent;
- Canvas draws in pixels so pixilates on zooming;
- No animation API with Canvases
- But SVG can perform badly - especially an issue on mobile devices

What we have done

- Skateboard tour through HTML5
    - Clear semantics for _all_ user agents
    - Wonderfully expressive if used properly
- Accessible support for graphics with SVG and Canvases
- To Do:
    - Cross-device support for Audio and Video
    - Geolocation API
    - Support for Offline working