"There's a statistical theory that if you gave a million monkeys typewriters and set them to work, they'd eventually come up with the complete works of Shakespeare. Thanks to the Web, we now know this isn't true." Ian Hart

Web Technology

Lecture 4: Introduction to HTML

The university web server

- In your H:\ drives, you can create a special folder called public_html.
- This is then web accessible at http://homepages.abdn.ac.uk/yourname/pages/<filename>
  - If <filename> is not specified, index.htm or index.php is shown, if present
- You need to run the publish script once the files are in place to make them visible.
- Details in practicals

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Filenames

- On most production web servers, file names are **case sensitive**
  - e.g. index.htm, INDEX.HTM, Index.HTM, and INDEX.htm are all different files
- URLs are (almost) universally lower case (e.g. http://bbc.co.uk/news)
- For your sanity, **keep your filenames lower case.**
- Generally, **don't** use capital letters when writing markup or code unless you have a GENUINE reason to do so.

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Filenames (2)

- URLs cannot contain spaces
- Filenames with spaces in them are translated to %20
  - E.g. if you put "my silly filename.htm" in your public_html folder, you'd need to go to http://homepages.abdn.ac.uk/myname/pages/my%20silly%20filename.htm to view it
- The lesson: don't put spaces in filenames containing markup or source-code
- **But still name your files something vaguely sensible**

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Those on home computers

- You can run a local webserver on your computer to host pages (on your machine only)
  - Windows: Use XAMPP
  - Mac: Use MAMP
  - Linux: I assume you know how to do that
- Put your pages in the htdocs or www folder
- These are then accessible at http://localhost/<filename>
- More details on MyAberdeen soon.

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Have you used HTML before?

- `<font>`
- `<center>`
- `<applet>`
- `<b>`
- `<strike>`
- `<u>`

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HTML

HTML Hypertext Markup Language

- – HTML is not a programming language, it is a markup language
- – A markup language is a set of markup tags
- – HTML uses markup tags to describe web pages

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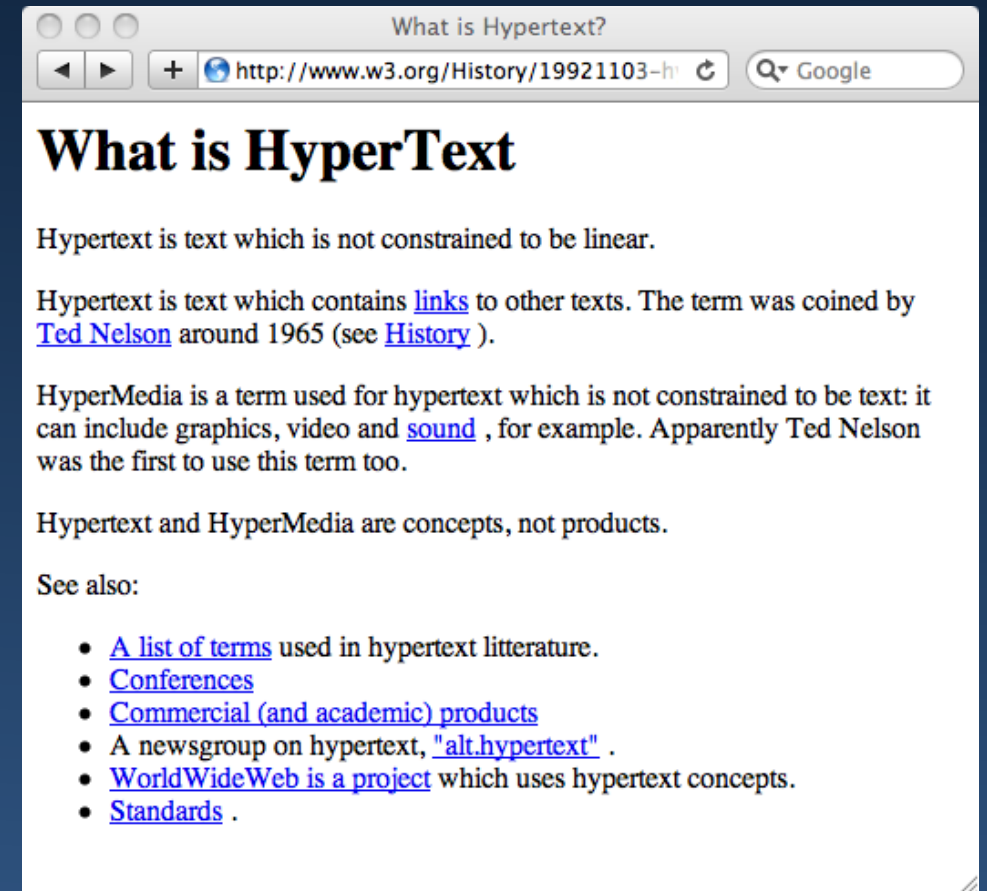
What HTML Looks Like

```
<h2 id="htmllooks">What HTML looks like</h2>
```

The oldest HTML on the Web

- "Last-Modified: Tue, 13 Nov 1990 15:17:00 GMT"
- Still functional in modern Web browsers
- http://infomesh.net/html/history/early/

The History of HTML

- Originally HTML was not a specification or standard.
- The IETF (Internet Engineering Task Force) published a draft proposal of HTML in 1993.
- In 1995, "HTML 2.0" was written, taking ideas from the original HTML draft.
- In 1997, the W3C published HTML 4.0 that adopted more browser-specific extensions.
- HTML 4.01 was published in 1999, with some errata noted in 2001.
- In 2000, the W3C also published the XHTML 1.0 specification, which was HTML re-structured to be a valid XML document.
- 2008 – 2014 HTML 5: From Working Draft to W3C Candidate Recommendation
- 2015 – HTML5 finalized, XHTML 2.0 largely abandoned.
- We will use HTML5

Structure of a HTML Document

```
<!DOCTYPE …">
<html>
  <head>

  <title></title>
                …
  </head>
  <body>
          …
  </body>
</html>
```
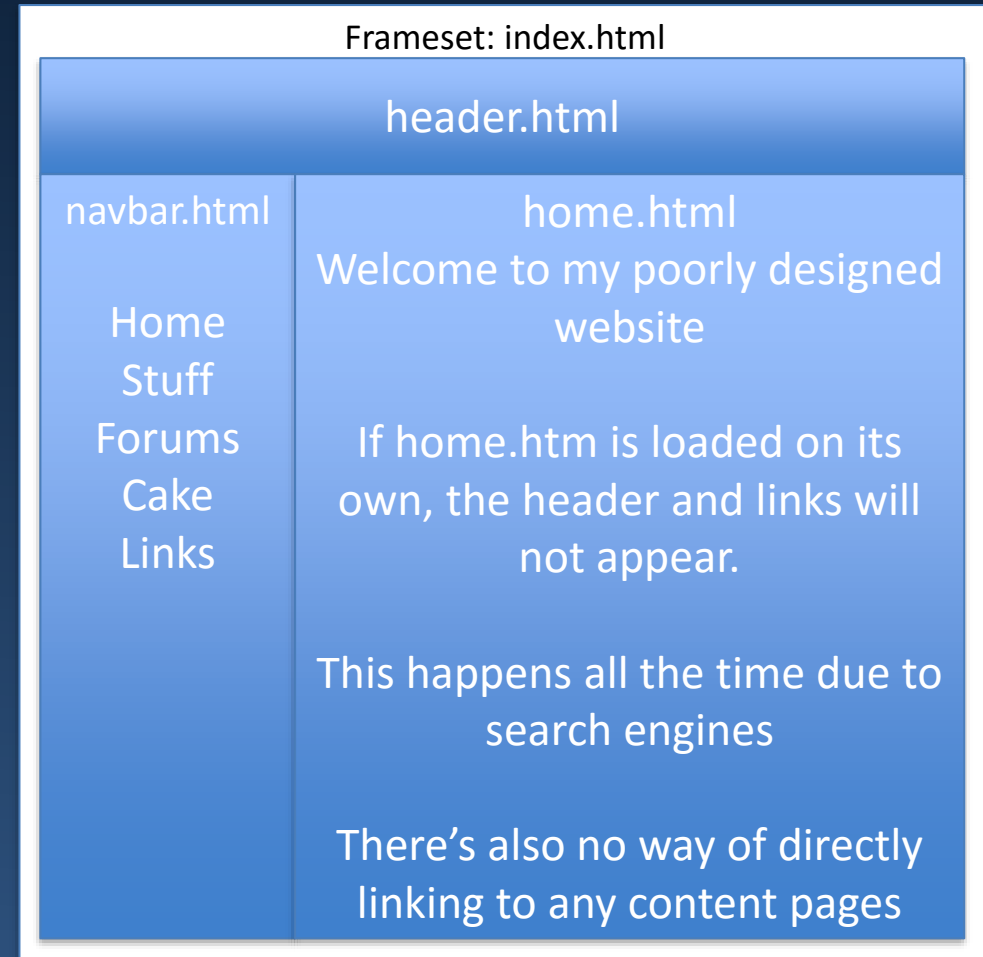
- Document type, so that browsers can determine how to interpret the document.

- The HTML Document
  - Head (document metadata)
  - Body (page content)

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Document Type Definitions (doctype)

- Specifies the (X)HTML standards that the document conforms to.

- Used to be long winded things, with variants for the standards of the time (strict, transitional, frameset [evil]).

  - `<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">`

- Thankfully, for HTML 5:

  `<!doctype html>`

  Does the trick. Sanity wins.

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Frames

- Frames are evil
- Frames are not supported in HTML5, for good reasons
- iframes are still allowed
  - Use sparingly, if at all

Frameset: index.html

header.html

navbar.html

Home
Stuff
Forums
Cake
Links

home.html
Welcome to my poorly designed website

If home.htm is loaded on its own, the header and links will not appear.

This happens all the time due to search engines

There's also no way of directly linking to any content pages

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First HTML

```
<!doctype html>

<html lang="en">
  <head>
  <meta charset="utf-8">
   <title></title>
  </head>


  <body>
  </body>
</html>
```


HTML1.html
file:///Users/epignott/Desktop
Google

Title Tag

```html
<!doctype html>

<html lang="en">
  <head>
  <meta charset="utf-8">
  <title>My First
  Page</title>
  </head>
  <body>
  </body>
</html>
```

My First Page

file:///Users/epignott/Desktop   Google

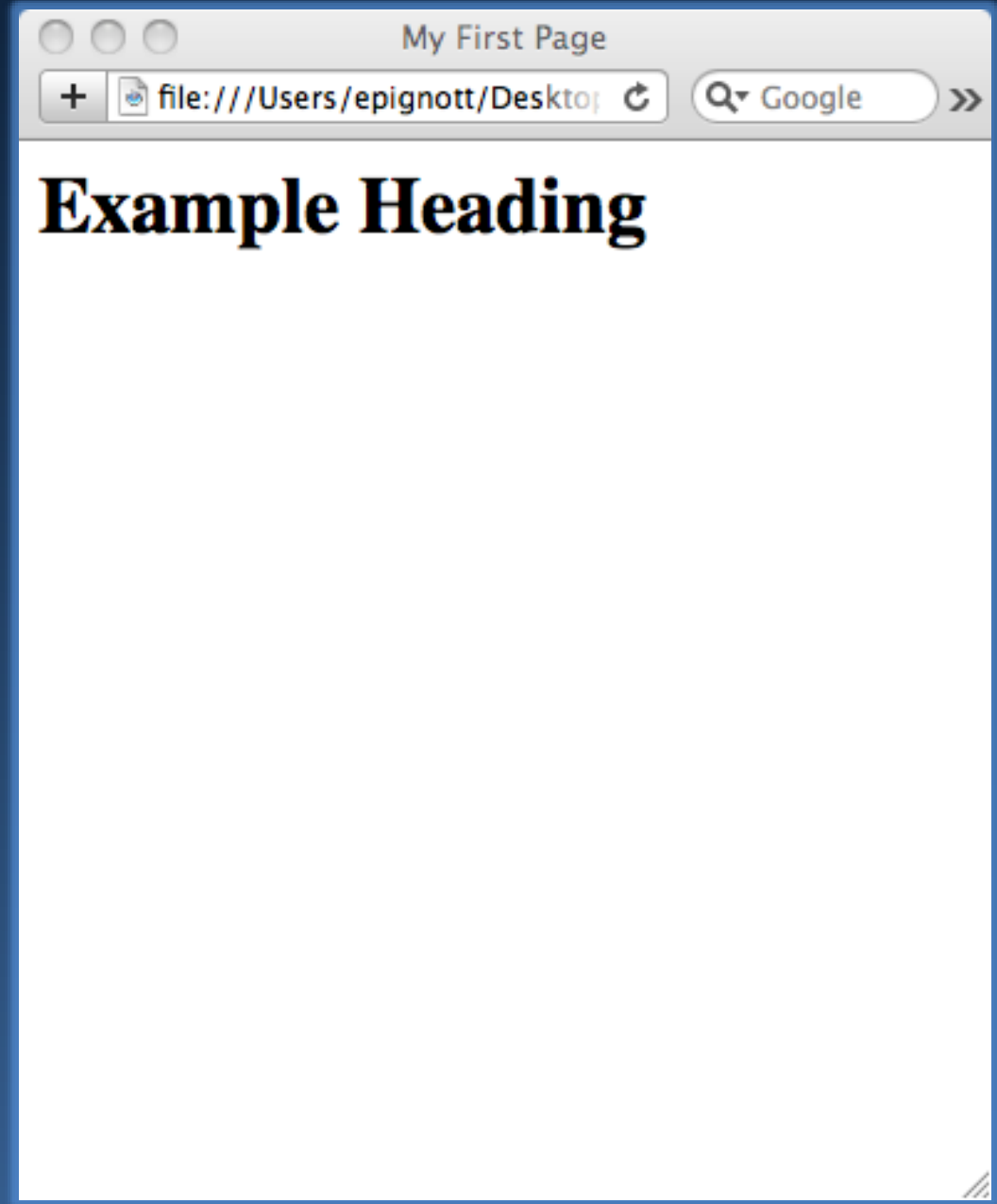# What can we use in the body of the document?

- Heading: `<h1> </h1> … <h6> </h6>`
- Paragraph: `<p> </p>`
- Line Break: `<br>`
- Lists: `<ul> <li>  </li> … </ul>`
                `<ol> <li>  </li> … </ol>`

- Links: `<a href=""> </a>`
- Images: `<img src="" alt="">`
- Emphasis: `<strong></strong> <em></em>`
- Quoting: `<blockquote cite=""></blockquote>`

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1 4 9 5

Heading Tag

```html
<!doctype html>

<html lang="en">
  <head>
  <meta charset="utf-8">
   <title>My First
Page</title>
  </head>
  <body>
   <h1>Example
Heading</h1>
  </body>
</html>
```

Example Heading

Paragraph Tag

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
    <title>My First
Page</title>
    </head>
    <body>
    <h1>Example Heading</h1>
        <p>
            Here is some text in a
    paragraph
        </p>
        <p>Here is some text in
    the next paragraph</p>
    </body>
</html>
```
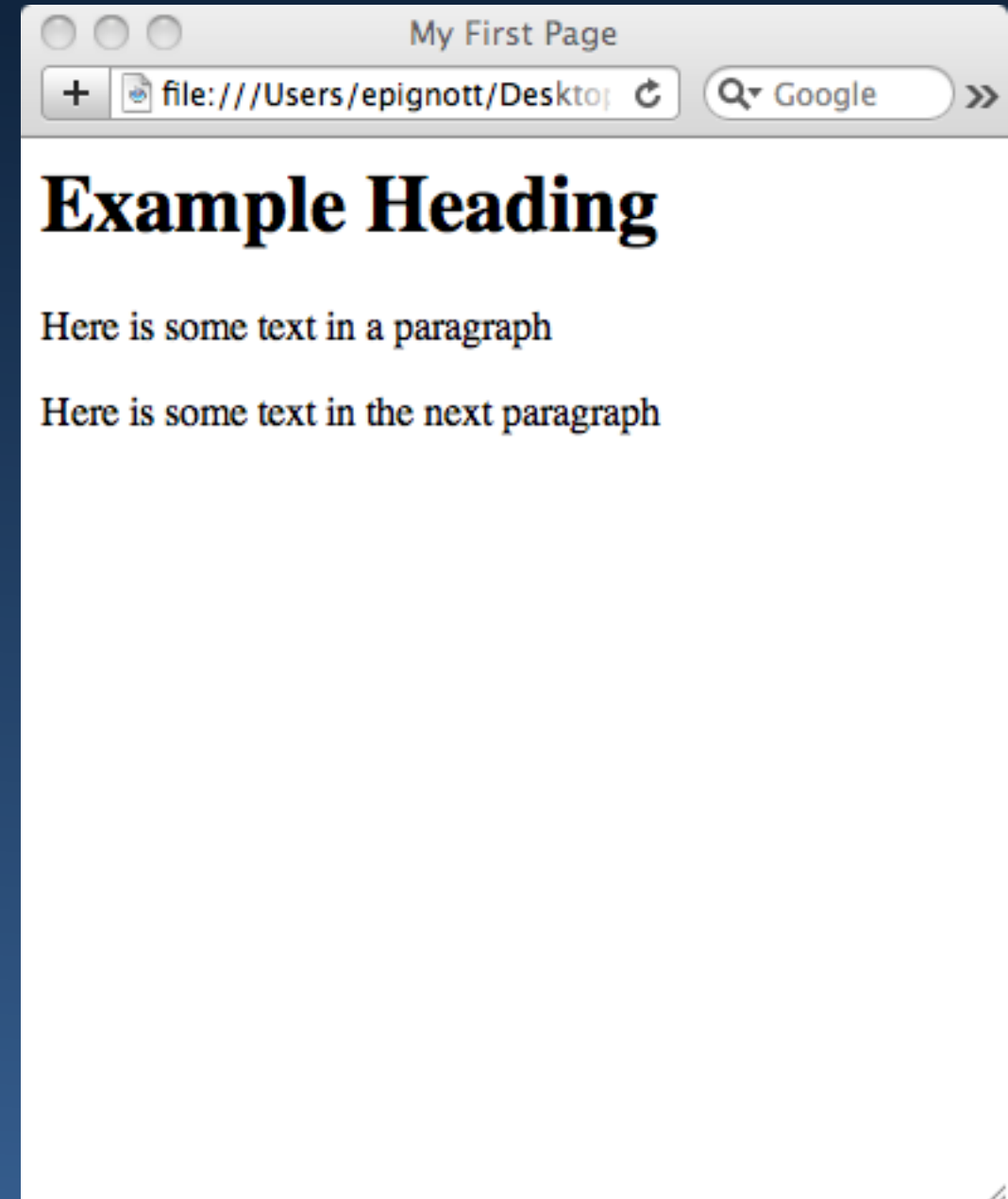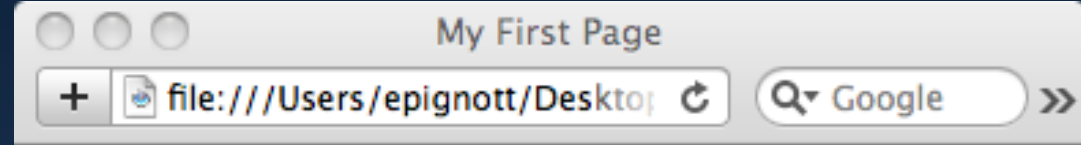
My First Page

file:///Users/epignott/Desktop Google

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph

Paragraph Tag

```html
<!doctype html>
<html lang="en">
  <head>
  <meta charset="utf-8">
   <title>My First Page</title>
  </head>
  <body>
   <h1>Example Heading</h1>
      <p>
        Here is some text in a
paragraph
      </p>
      <p>Here is some text in the
next paragraph. Adding more
text.</p>
  </body>
</html>
```

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph. Adding more text.

Line Break

```
<!doctype html>
<html lang="en">
  <head>
  <meta charset="utf-8">
   <title>My First
Page</title>
  </head>
  <body>
   <h1>Example Heading</h1>
      <p>
       Here is some text in a
paragraph
      </p>
      <p>Here is some text in
   the next paragraph. <br>
   Adding more text.</p>
  </body>
</html>
```

My First Page

file:///Users/epignott/Desktop ⟳ Google »

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

Lists

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>
<body>
    <h1>Example Heading</h1>
        <p>Here is some text in a  paragraph</p>
        <p>Here is some text in the next
paragraph. <br />  Adding more text.</p>

    <ul>

        <li>Item 1 </li>

        <li>Item 2</li>

    </ul>
</body>
</html>
```
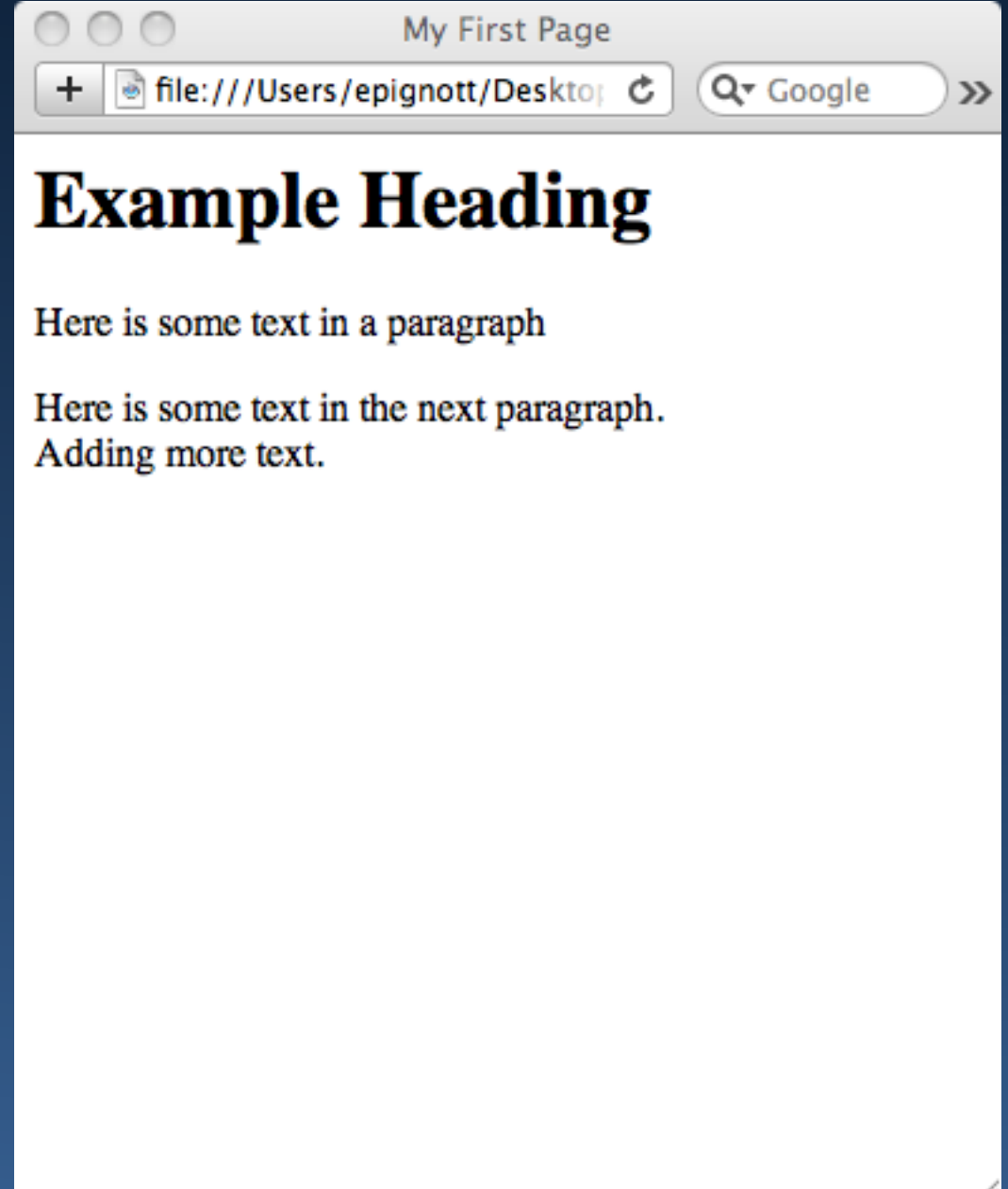
My First Page

file:///Users/epignott/Desktop ⟳ Q▾ Google »

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

- Item 1
- Item 2

Ordered Lists

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>
<body>
    <h1>Example Heading</h1>
        <p>Here is some text in a  paragraph</p>
        <p>Here is some text in the next
paragraph. <br />  Adding more text.</p>

    <ol>

        <li>Item 1 </li>

        <li>Item 2</li>

    </ol>
</body>
</html>
```
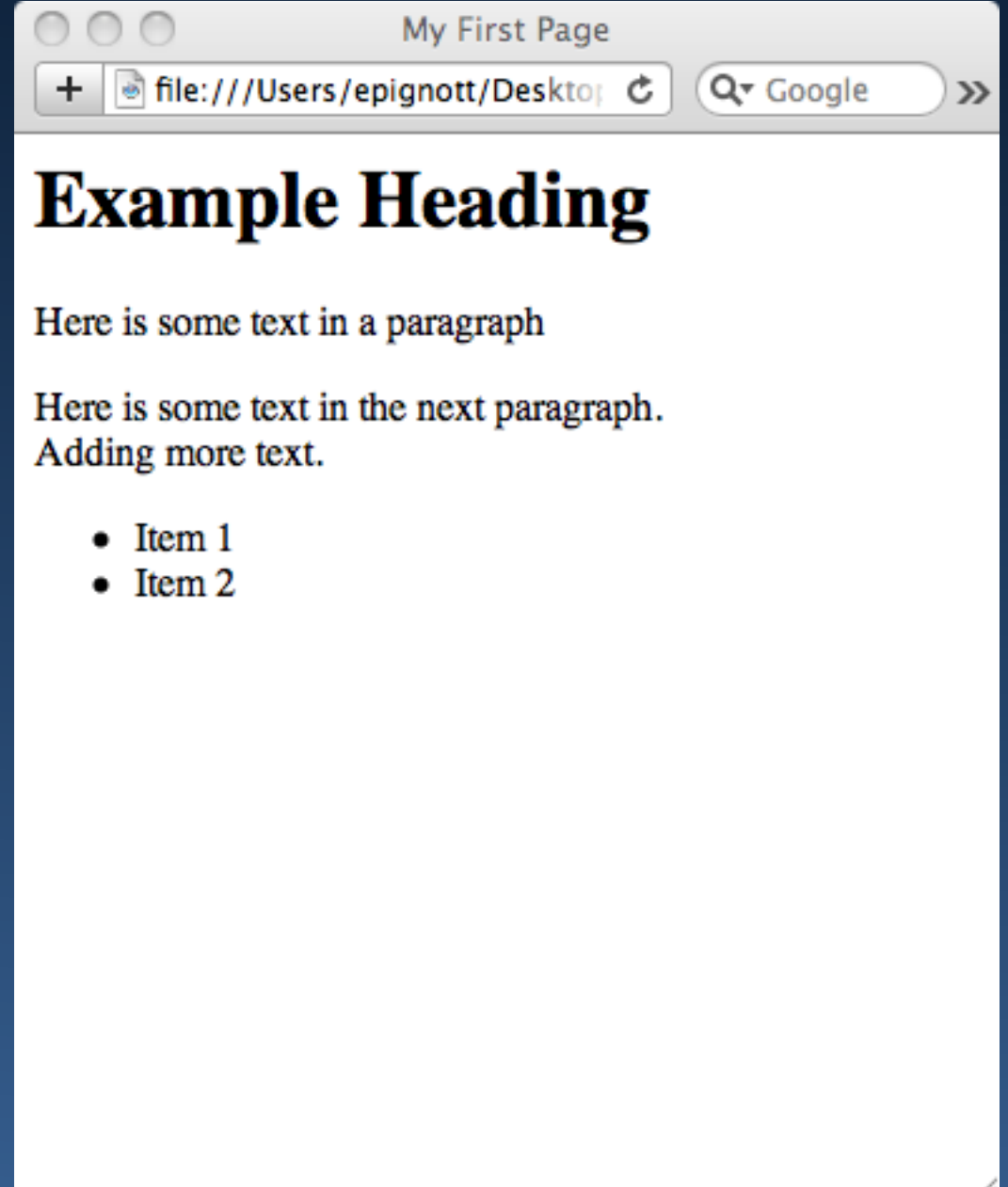
file:///Users/epignott/Desktop

Google

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

1. Item 1
2. Item 2

Links

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>
```

`<body>`

```
    <h1>Example Heading</h1>
     <p>Here is some text in a  paragraph</p>
     <p>Here is some text in the next paragraph. <br />  Adding
    more text.</p>
     <ol>
        <li>Item 1 </li>
        <li>Item 2</li>
         </ol>
```
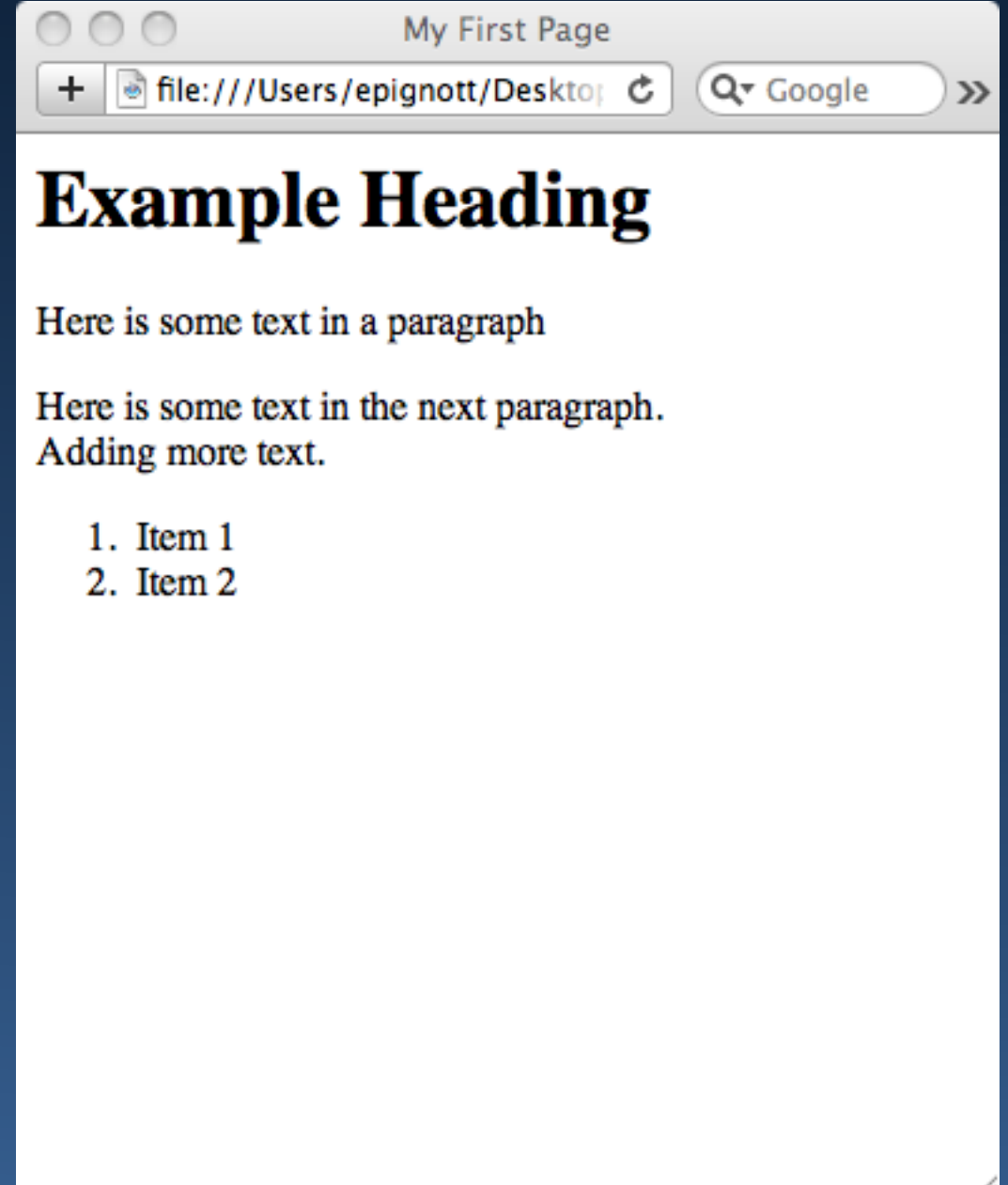
`<p> A link to the`

`<a`
`href="http://www.google.com">`
`Google </a> page </p>`
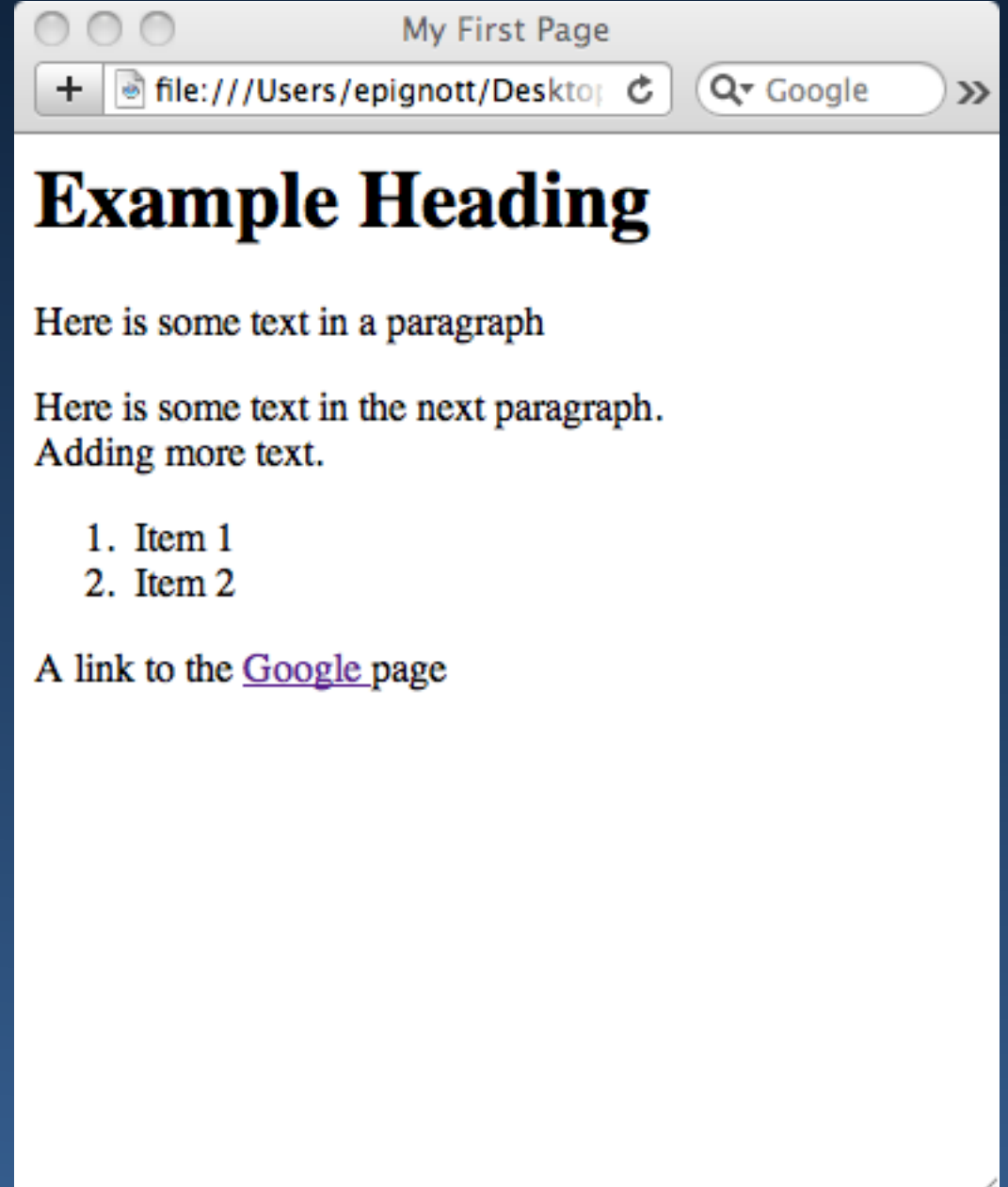
`</body>`

`</html>`

My First Page

file:///Users/epignott/Desktop

Google

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

1. Item 1
2. Item 2

A link to the Google page

Images

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>
```

```
<body>
```

```
    <h1>Example Heading</h1>
     <p>Here is some text in a  paragraph</p>
     <p>Here is some text in the next paragraph. <br />  Adding more
    text.</p>
    <ol>
      <li>Item 1 </li>
       <li>Item 2</li>
        </ol>
    <p> A link to the
    <a href="http://www.google.com"> Google <a> page </p>
```

```
<h2> Cute kitten
    </h2>
```

```
<img src="kitten.jpg"
    alt="Kitten">
```

```
</body>
```

```
</html>
```

My First Page

file:///Users/epignott/Desktop

Q▾ Google

Here is some text in the next paragraph.
Adding more text.

1. Item 1
2. Item 2

A link to the Google page

Cute kitten

Emphasis

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>

<body>
    <h1>Example Heading</h1>
     <p>Here is some text in a  paragraph</p>
     <p>Here is some text in the next paragraph. <br />  Adding more text.</p>

    Some text can be
<em>emphasized</em>.
<br />
    You can also give a
<strong>stronger
emphasis.</strong>
     <ol>
       <li>Item 1 </li>
        <li>Item 2</li>
        </ol>
     <p> A link to the
    <a href="http://www.google.com"> Google <a> page </p>
<h2> Cute kitten </h2>
<img src="kitten.jpg" alt="Kitten">

</body>
</html>
```
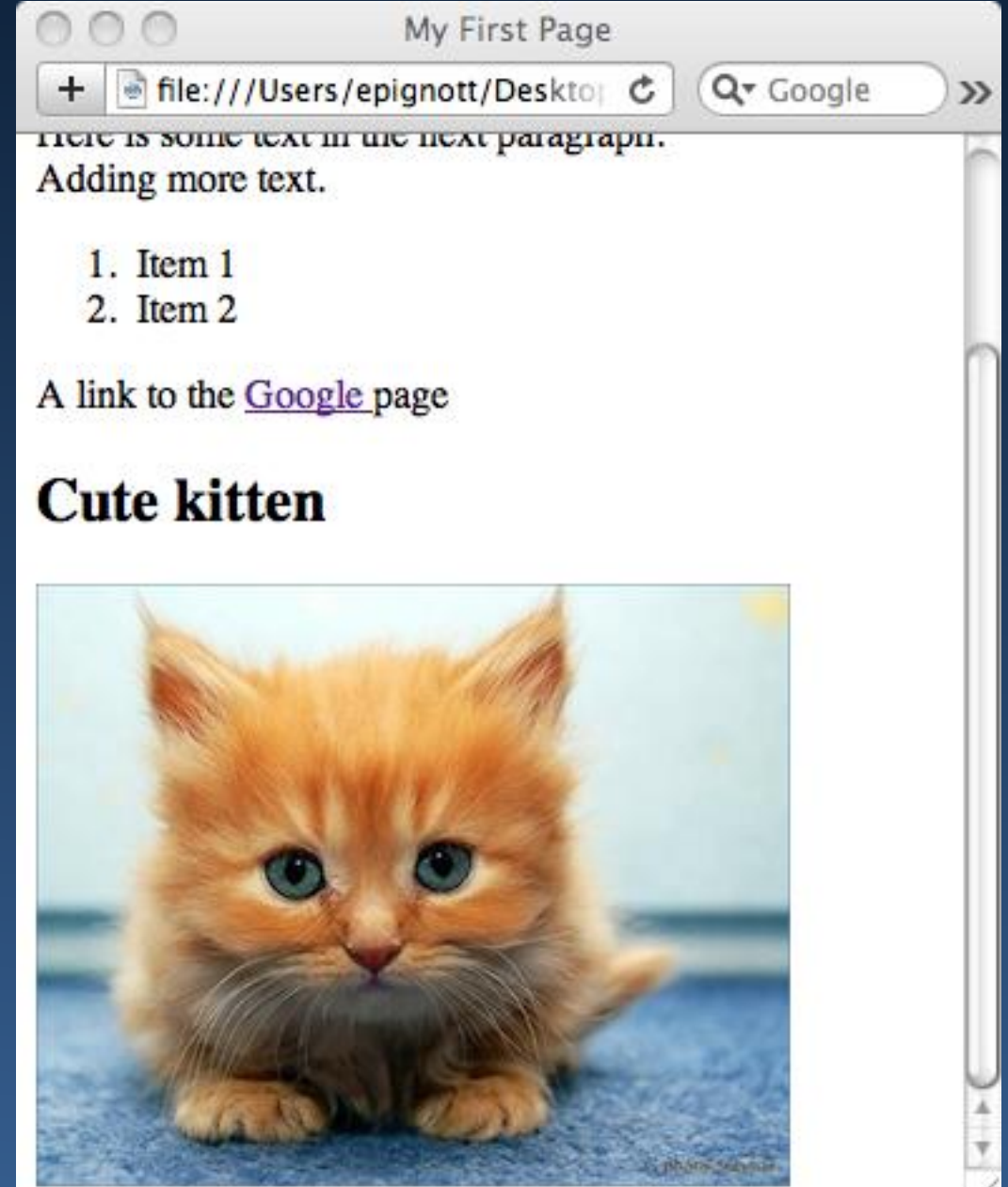
My First Page

file:///Users/epignott/Desktop
http://www.....dvfrtop.htm

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

Some text can be *emphasized*.
You can also give a **stronger emphasis.**

1. Item 1
2. Item 2

A link to the Google page

Cute kitten

Quoting other sources

```
<!doctype html>
<html lang="en">
    <head>
    <meta charset="utf-8">
     <title>My First Page</title>
    </head>
```

<body>

```
    <h1>Example Heading</h1>
     <p>Here is some text in a  paragraph</p>
    <p>Here is some text in the next paragraph. <br />  Adding more text.</p>
    Some text can be <em>emphasized</em>. <br />
    You can also give a <strong>stronger emphasis.</strong>
```

Here comes a quotation:

<blockquote>This is a
long quotation. This is
a long quotation. This
is a long quotation.
This is a long
quotation.</blockquote>

```
    <ol>
      <li>Item 1 </li>
       <li>Item 2</li>
       </ol>
     <p> A link to the
    <a href="http://www.google.com"> Google <a> page </p>
<h2> Cute kitten </h2>
<img src="kitten.jpg" alt="Kitten">
```
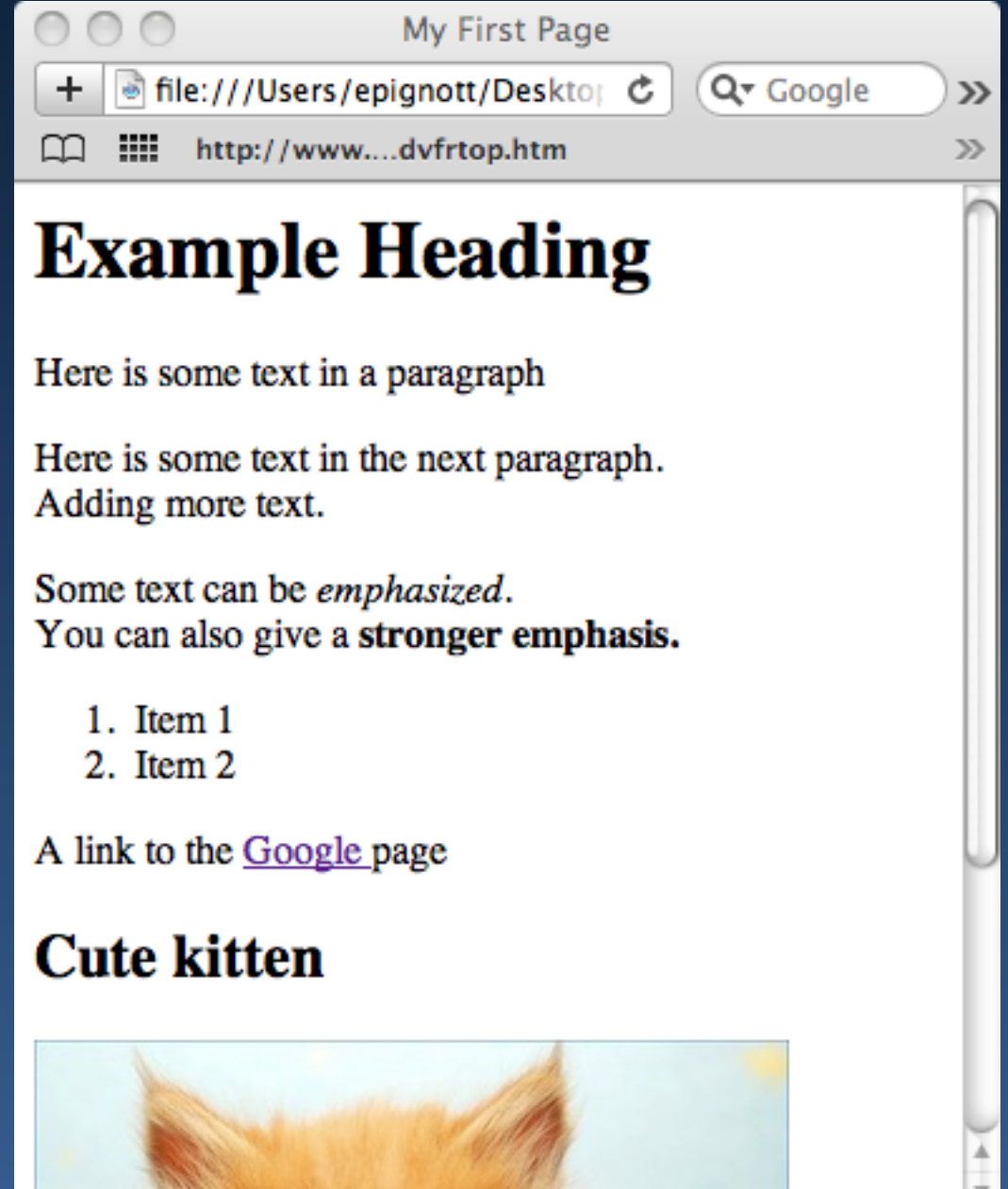
</body>

</html>

My First Page

file:///Users/epignott/Deskto

Q Google

http://www.....dvfrtop.htm

Example Heading

Here is some text in a paragraph

Here is some text in the next paragraph.
Adding more text.

Some text can be *emphasized.*
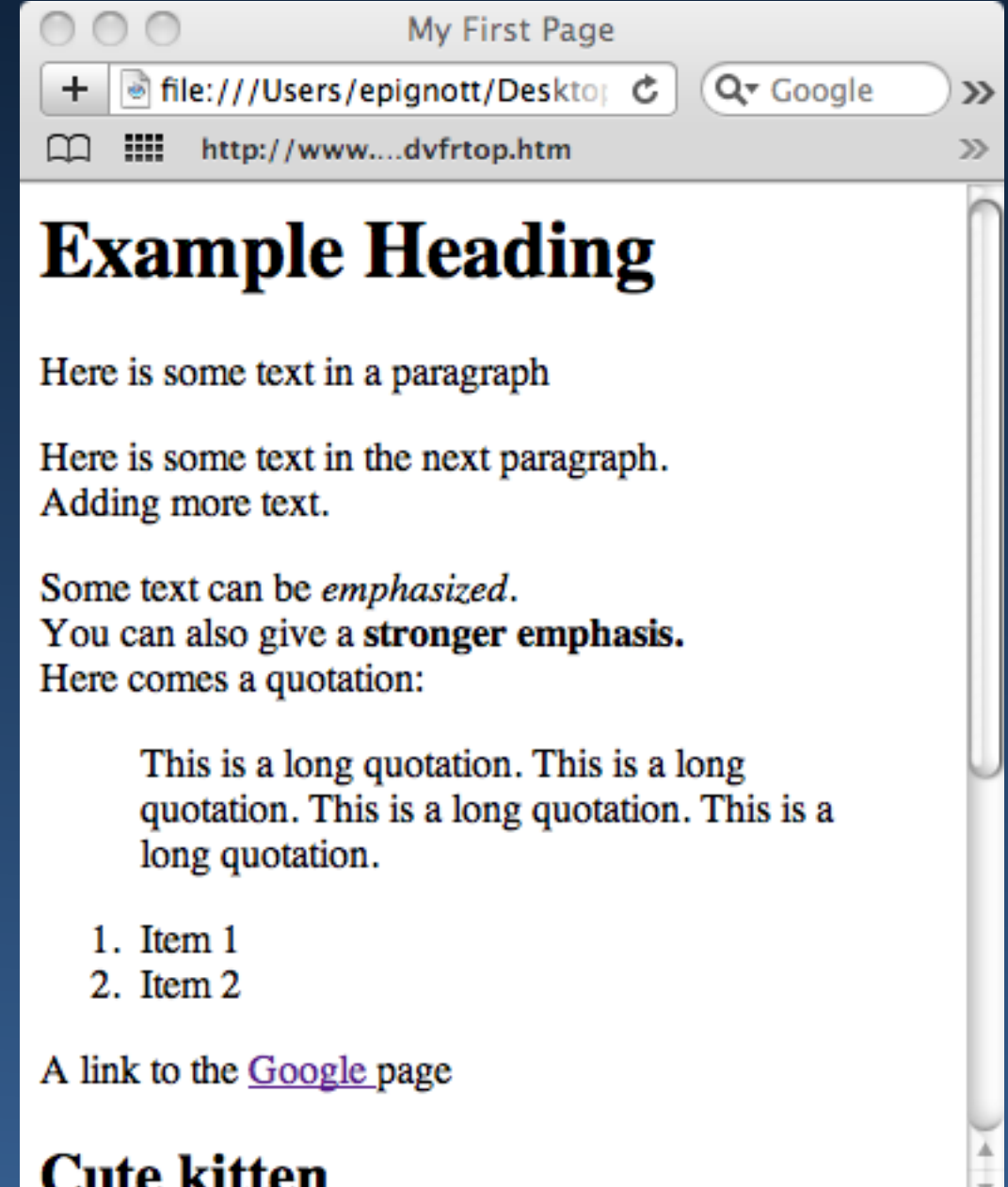You can also give a **stronger emphasis.**
Here comes a quotation:

> This is a long quotation. This is a long
> quotation. This is a long quotation. This is a
> long quotation.

1. Item 1
2. Item 2

A link to the Google page

Cute kitten

To learn more about HTML

http://w3schools.com/html

What is the correct HTML for creating a hyperlink?

A: `<a name="http://www.abdn.ac.uk">UoA</a>`

B: `<a href="http://www.abdn.ac.uk">UoA</a>`

C: `<a url="http://www.abdn.ac.uk">UoA</a>`

D: `<a>http://www.abdn.ac.uk</a>`

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HTML5

- Provides many new features over HTML 4 and XHTML 1.x

- Key features are better multimedia support and better form fields for the modern web

- Together with CSS 3 and JavaScript, can make complex, functional web applications

- Makes development for mobiles and other non-pc devices much easier!

HTML 5

Deceased, or the corpse is twitching:

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Which other applications are next to die?

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Bad HTML

- Many pages on the internet contain "bad" HTML

- When HTML is invalid, web browsers approximate the intended layout
  – But the results are unpredictable!

- You should write valid HTML and follow good coding standards

```
<html>
<head>
<title>This is bad
HTML</title>
<body>
<font face="comic sans ms">
<h1>You cannot use Comic Sans
MS and be taken seriously in
life
</body>
```

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HTML5 vs XHTML 1.x

- HTML5 is less strict than its predecessor, XHTML 1.x

- Less rigid rules
  - Surprisingly, <html><body> and even <head> can be omitted

- However, "normal" coding standards should be adhered to, even if it is not an absolute rule

- Older versions of IE may crash without the "standard" tags above, despite it being valid to omit them.

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HTML5 good practice (1/3)

- All HTML5 documents must have the DOCTYPE declaration.
  - Though the case doesn't matter, <!doctype html> or <!DOCTYPE html>
- The html, head, title, and body elements should be present.
- HTML Elements should Be Properly Nested
  - `<strong><em>Some text here</em></strong>`
- Elements should be closed
  - `<p>This is a paragraph`
    `<p>This is another paragraph` (BAD)
  - `<p>This is a paragraph</p>`
    `<p>This is another paragraph</p>` (GOOD)

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HTML5 good practice (2/3)

- Empty elements (e.g.
 and <img>) do not need to be closed, but **be consistent**:

  - ```
    <br>
    <img src="happy.gif" alt="happy">
    ```
  Or:
  - ```
    <br />
    <img src="happy.gif" alt="happy" />
    ```
  - HTML Elements Should be in Lower Case

  - `<P>This is a paragraph</P>` (BAD)

  - `<P>This is a paragraph</p>` (WORSE)

  - `<p>This is a paragraph</p>` (GOOD)

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HTML5 good practice (3/3)

- HTML5 Documents should contain the Root Element

```
<html lang="en">
 <head> ... </head>  <body> ... </body>
</html>
```

- Attribute Names Should use Lower Case

  - `<img SRC="happy.jpg" ALT="happy" />` (BAD)

  - `<img src="happy.jpg" alt="happy" />` (GOOD)

- Attribute Values Must be Quoted

  - `<img src=happy.jpg alt=happy />` (BAD or WRONG)

  - `<img src="happy.jpg" alt="happy" />` (CORRECT)

Accessibility

HTML5 has better support for screen readers:

```
<body>
    <header>
        <nav><!-- links --></nav>
    </header>
    <main><!-- actual page contents --></main>
    <footer><!--footer information--></footer>
</body>
```

Use them!

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Markup Validator Service

http://validator.w3.org/

Summary

In this lecture

- Introduction to HTML
- How to write a basic page
- HTML5 good practice

What next?

- Example of interesting Web pages
- More advanced HTML5

References

- HTML Tutorial :http://www.w3schools.com/html/default.asp
- http://infomesh.net/html/history/early/