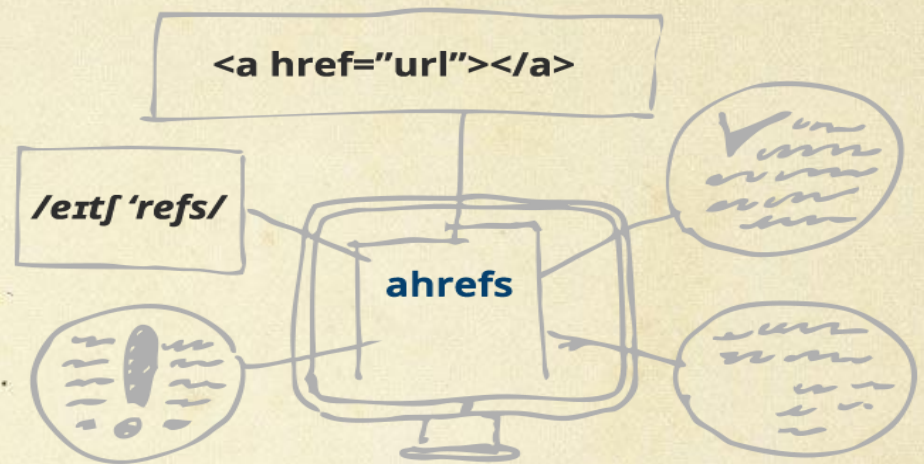# Web Development Fundamentals

/eɪtʃ ˈrefs/

ahrefs

Lists Revision
HTML – Links
Lecturer: Marie Brennan

lists

```
<ol>
 <li>Coffee</li>
 <li>Tea</li>
 <li>Milk</li>
</ol>
```

Ordered List

1. Coffee
2. Tea
3. Milk

Roman numerals

```
<ol type="i">
 <li>Coffee</li>
 <li>Tea</li>
 <li>Milk</li>
</ol>
```

```
   i.  Coffee
  ii.  Tea
 iii.  Milk
```

letters

- `<ol type="A">`

- `<li>Coffee</li>`

- `<li>Tea</li>`

- `<li>Milk</li>`

- `</ol>`

Ordered List with Letters

A. Coffee
B. Tea
C. Milk

Styles

○ <ul style="list-style-type:disc">
  Coffee
  Tea
  Milk

Unordered List with Disc Bullets

- Coffee
- Tea
- Milk

Removing the numbers

○ <ul style="list-style-type:none">
    Coffee
    Tea
    Milk

Unordered List without Bullets

Coffee
Tea
Milk

Changing the style in html

- <ul style="list-style-type:square">

-   Coffee

-   Tea

-   Milk

-

Unordered List with Square Bullets

- Coffee
- Tea
- Milk

Changing the style in html

○ ```html
<ul style="list-style-type:circle">
 Coffee
 Tea
 Milk

```

**Unordered List with Circle Bullets**

○ Coffee
○ Tea
○ Milk

# HTML Description Lists

HTML also supports description lists.

A description list is a list of terms, with a description of each term.

The <dl> tag defines the description list, the <dt> tag defines the term (name), and the <dd> tag describes each term:

Example
```
<dl>
  <dt>Coffee</dt>
      <dd>- black hot drink</dd>
  <dt>Milk</dt>
      <dd>- white cold drink</dd>
</dl>
```

**A Description List**

Coffee
- black hot drink
Milk
- white cold drink

# Nested lists

```html
<ul>
  <li>Coffee</li>
  <li>Tea
      <ul>
        <li>Black tea</li>
        <li>Green tea</li>
      </ul>
  </li>
  <li>Milk</li>
</ul>
```

A Nested List

- Coffee
- Tea
  - Black tea
  - Green tea
- Milk

Linking pages

Introduction

- This week we are going learning how to add an important features to web pages:

- hypertext ***links***
  - This allows us to make sites, comprising of multiple <u>interlinked</u> pages, and also link to pages on other web sites on the WWW

- Plus we'll learn a bit more about images …

Adding Links - Introduction

○ If you are creating a page for the web, chances are you will want it to link somewhere.

○ These are the main examples of where to link:

   1. Link to another page of <u>your site</u>
   2. Link to a page on <u>someone else's site</u>

○ To create a link we use the *anchor* element, **a**

   ○ I know, this is a terrible name … but at least it's short

○ This comprises of an opening and closing tag e.g.

   ○ **<a> … **

The href Attribute

- The href attribute provides the address (URL) of the page we want to link to.

- The URL must always be in quotation marks.

- In fact, the values of *all* attributes should be in quotation marks.

- Most of the time we link to other HTML documents.

- But, we can also link to resources such as images, video files, audio and so on.

- There are two different ways to specify the URL.

Adding Links - Introduction

- The <u>content</u> of this element becomes the hypertext link

- Wrap some text in opening and closing <a>... tags and use the href attribute to provide the URL of the linked page.

- For example:

  ITB

- This links to ITB's website

- Appear in browser as text "ITB", blue and underlined
  - if no other style rules are applied to the page

Adding Links - Introduction

- Can use IMAGES as content for links

- Or mixture of images and text

- There is NO restriction on what can be the content inside an anchor link element
  - Text
  - Images
  - Mixed text and images
  - Block level elements like paragraphs etc...not very common though

The href Attribute

- The href attribute provides the address (URL) of the page we want to link to.

- The URL must always be in quotation marks.

- In fact, the values of *all* attributes should be in quotation marks – KIS (Keep is Simple …)
  - (this is best practice, since it means you don't have to worry about when they MUST be used and when they are optional …)

- Most of the time we link to other HTML documents.

- But, we can also link to resources such as images, video files, audio and so on.

- There are two different ways to specify the URL.

Absolute URLs:
link to another website

Absolute URLs

○ These provide the full URL for the document

○ This includes:
    ○ The protocol (http://)
    ○ The domain name
    ○ The pathname

○ You have to use the absolute URL when pointing to a page that is out on the Web.

○ For example:

○ href = "http://www.itb.ie/CurrentStudents/index.html

Absolute URLs:
Linking to Pages on the Web

○ A link to a page on another site called an *external* link.

○ Have to use absolute URL for this, which includes:

    ○ protocol   http://

    ○ Site name   www.itb.ie

    ○ Pathname   /CurrentStudents/index.htm

○ The next slide contains some HTML code with some examples of internal links.

Relative URLs:
link to another page on same website

Relative URLs

○ These describe the pathname to the linked file *relative* to the current document.

○ No protocol, no domain name. Just use the pathname.

○ Relative URLs are used when linking to pages on your own site (i.e. on the same server)

○ For example:

href = "about.html"

href = "contact.html"

○ Can also link to sub-folders …

href = "courses/computing.html"

```
<!DOCTYPE html>
<html lang="en"><head>
    <meta charset="utf-8">
    <title>Links Example</title>
</head>

<body>
<p>
An example of a good site about web design and development is
<a href="http://www.alistapart.com">A List Apart</a>.
</p>

<p>
It contains information on all sorts of topics, including:
</p>

<ul>
<li><a href="http://www.alistapart.com/topics/code">Code</a></li>
<li><a
href="http://www.alistapart.com/topics/content">Content</a></li>
<li><a
href="http://www.alistapart.com/topics/design">Design</a></li>
</ul>
</body>
</html>
```

Linking to Pages on the Web

An example of a good site about web design and development is <u>A List Apart</u>.

It contains information on all sorts of topics, including:

- <u>Code</u>
- <u>Content</u>
- <u>Design</u>

http://www.alistapart.com/topics/design

Linking Within Your Own Site

○ Most linking will be to pages within same site

○ In these cases, we use a *relative* URL
  ○ one that calls for a page within your own server
  ○ you do NOT specify the protocol for relative URLs

○ browser looks for file on current server
  ○ i.e. same server as webpage in which link is written

○ VERY simple, if website designed carefully, e.g.:
  ○ **index.html**
  ○ **about.html**
  ○ **contact.html**
  ○ **products.html**
  ○ **Plus folders /images and /css**

Simple website structure

- Sub-folder for images
- Sub-folder for CSS style sheets
- All HTML pages in main website folder
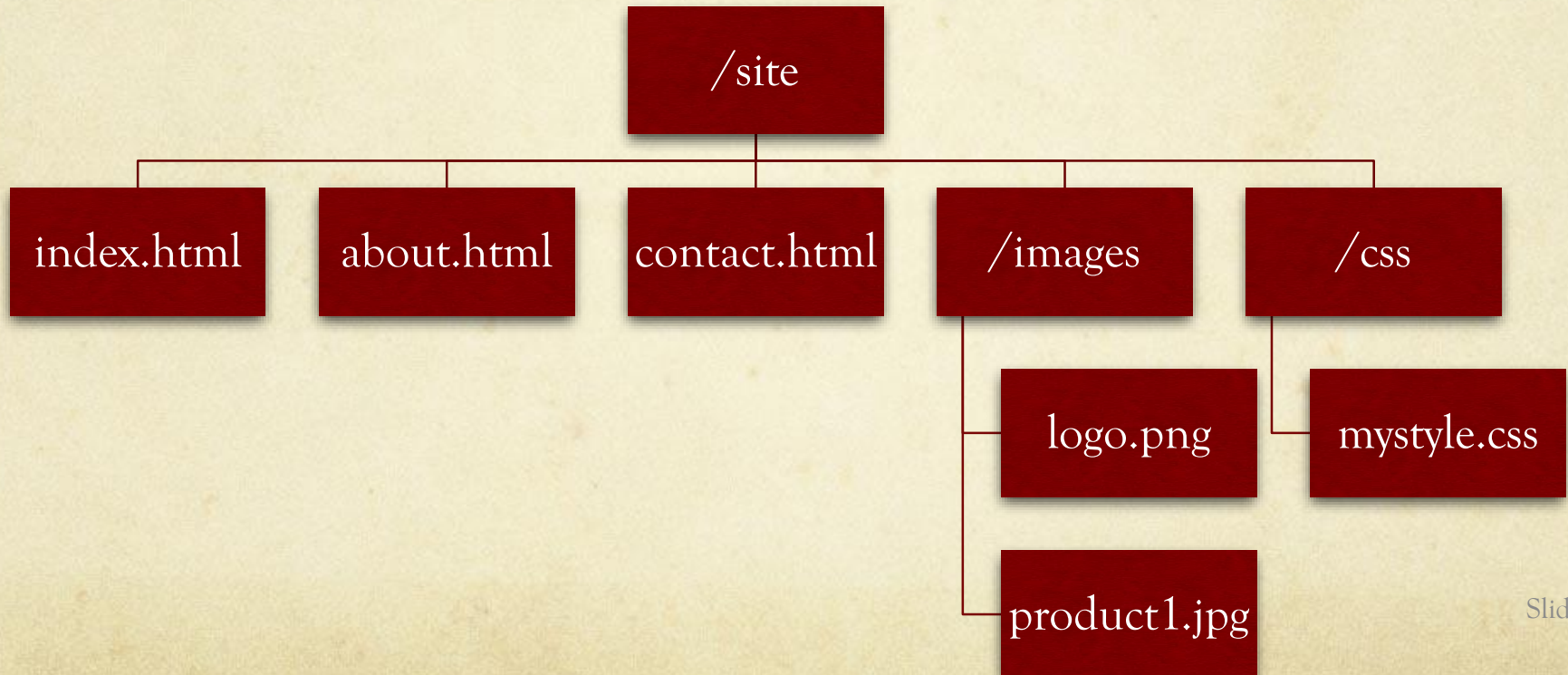
Relative URLs:
Linking within same directory/folder

- Simplest relative URL is when we want to link to another file within <u>same directory/folder</u>

- Just write filename of file to link to

- For example, if want to link from `index.html` to the file `about.html`.
    - Both files are in the same directory.
    - So, the link inside `index.html` would be as follows:

    About Page

- See diagram on next slide

Sample Website

Linking Within Your Own Site – structure of the site

The diagram and the view of the Mac OS Finder reveal the structure of the *jenskitchen* directory.
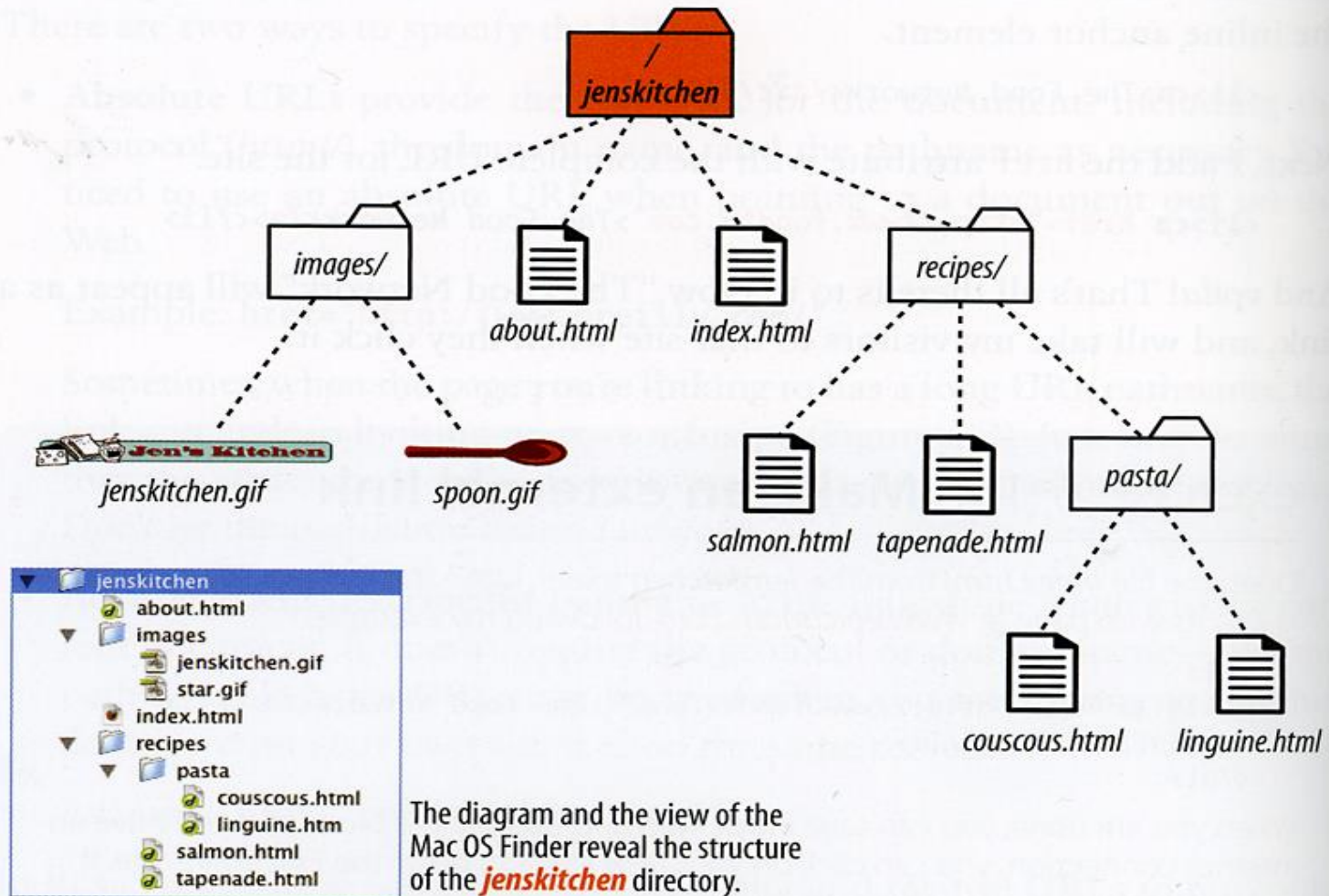
Structure of the Site

- So the site is contained within a folder called **jenskitchen**.

- This folder contains an **index.html** file and an **about.html** file.

- It also contains the folders **images** and **recipes**.
  - The `images` folder contains all the graphic image files for the site. This is a common enough convention for websites.

- The **recipes** folder contains two html files and another folder called **pasta**.

- The `pasta` folder contains the files **couscous.html** and **linguine.html**.

Linking Within Your Own Site

The diagram shows that index.html and about.html are in the same directory.

From index.html:
```
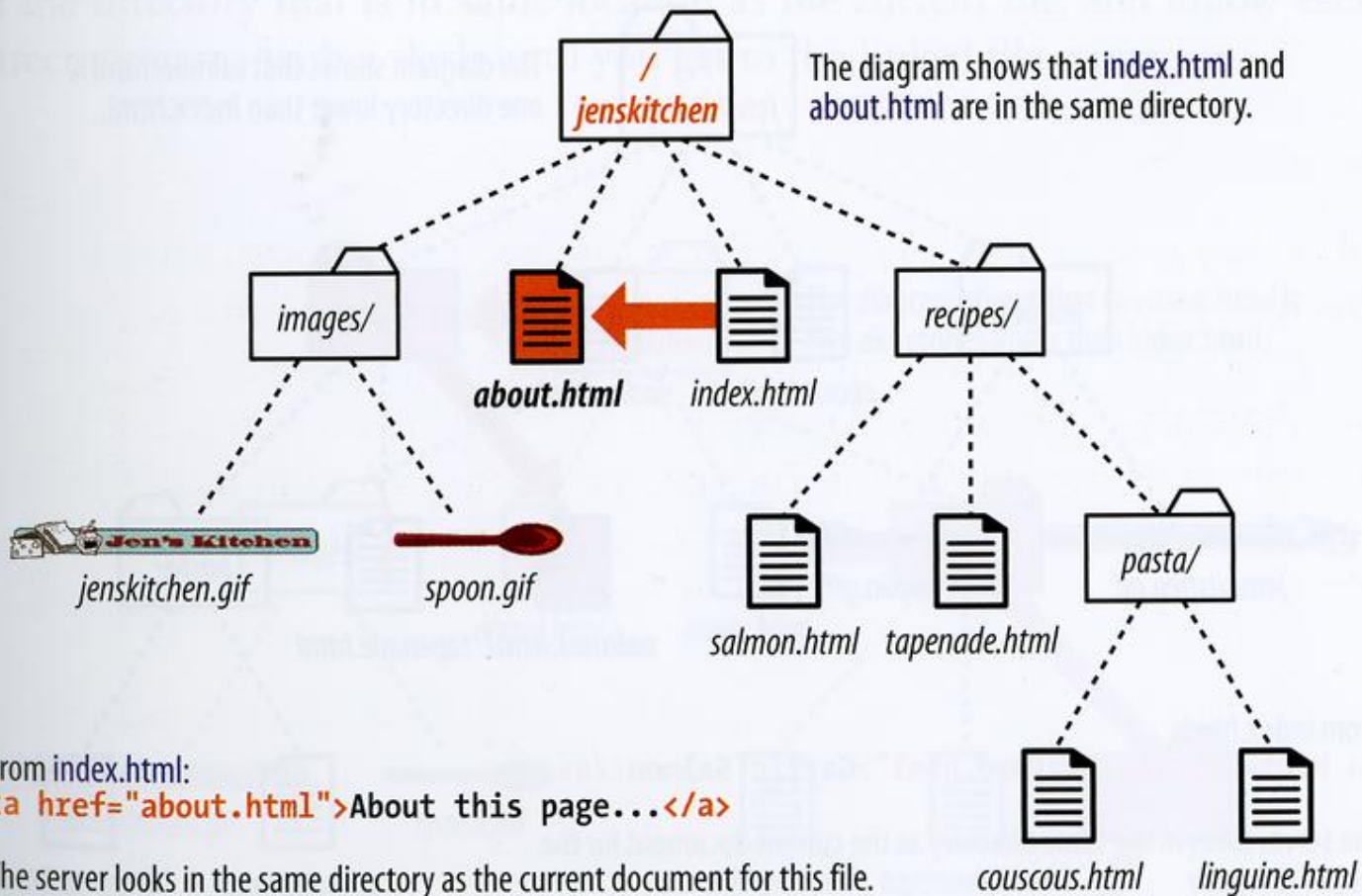<a href="about.html">About this page...</a>
```

The server looks in the same directory as the current document for this file.

Figure 6-5. *Writing a relative URL to another document in the same directory.*

Linking to a Lower Directory

○ What if the files are not in the same directory?

○ In this case we need to provide a pathname so the browser knows where to look in the file hierarchy.

○ Suppose for example, we want to link from `index.html` to `salmon.html`.

○ `salmon.html` is in the directory `recipes`.

○ So the pathname needs to tell the browser to look in the current directory for a directory called `recipes`, and then look inside *that* for the file `salmon.html`.

○ **`<a href="recipes/salmon.html">Garlic Salmon</a>`**

The diagram and the view of the Mac OS Finder reveal the structure of the *jenskitchen* directory.

Linking Within Your Own Site

The diagram shows that salmon.html is one directory lower than index.html.

From index.html:
`<a href="recipes/salmon.html">Garlic Salmon</a>`

The server looks in the same directory as the current document for the *recipes* directory

Linking to a Lower Directory

```
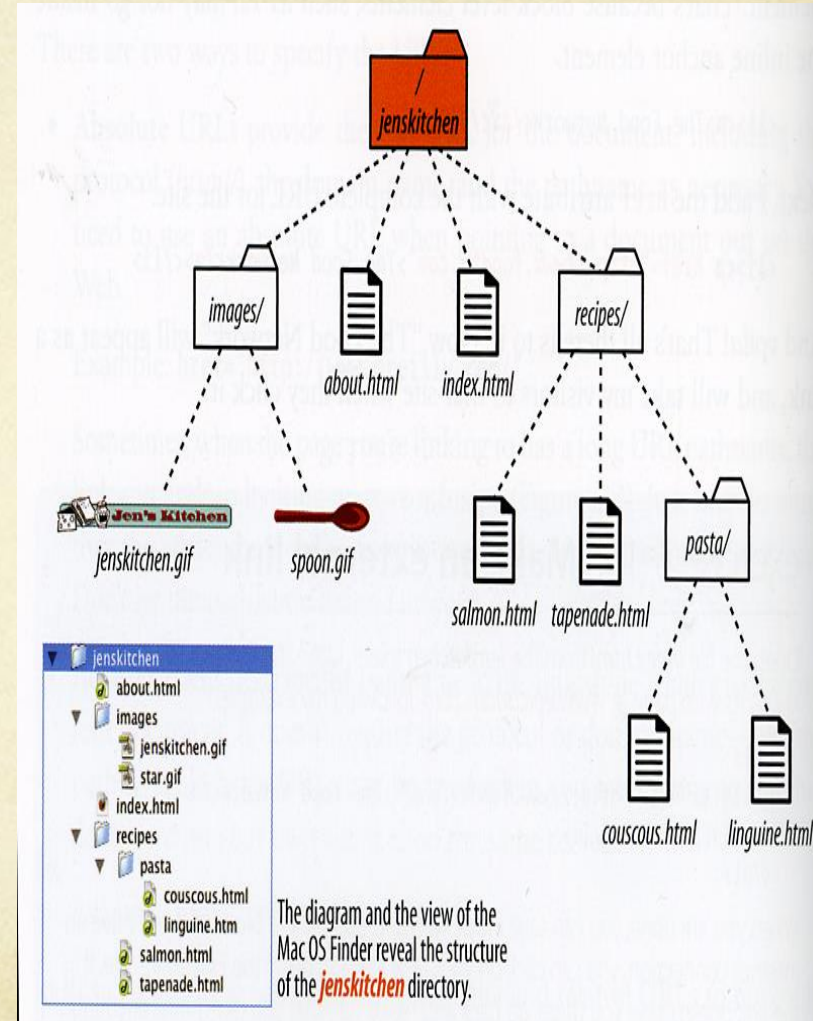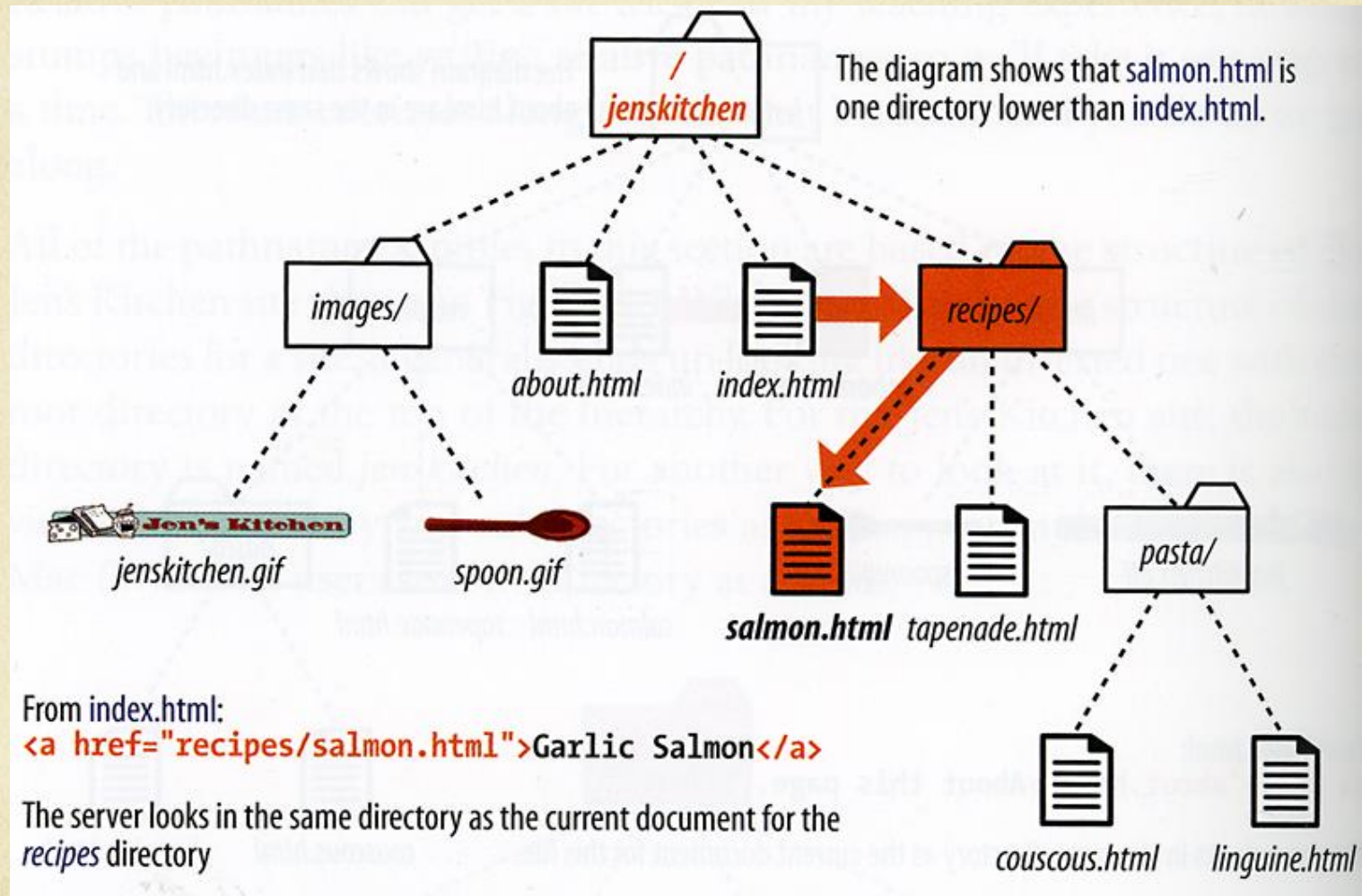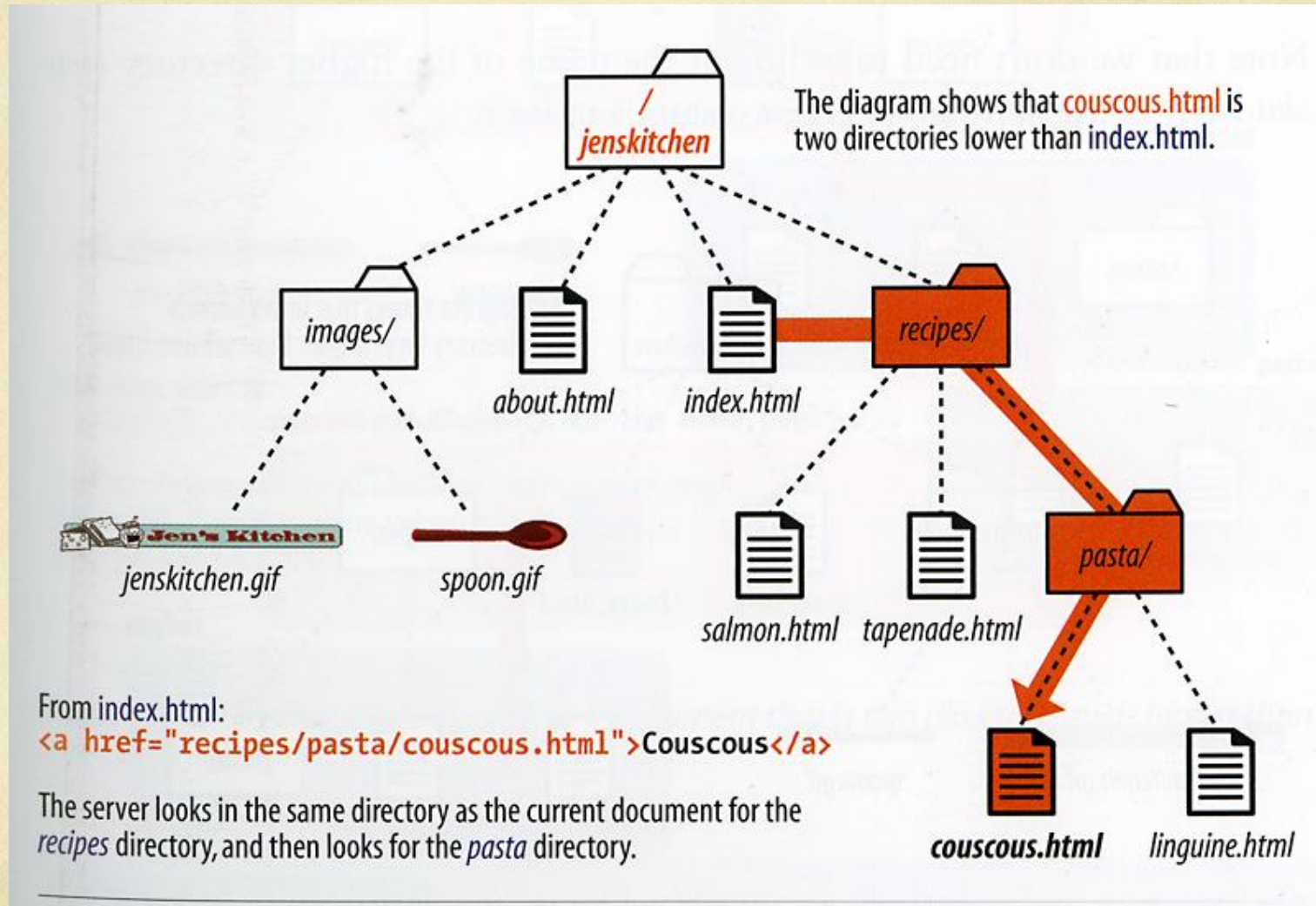<a href= "recipes/pasta/couscous.html">Couscous</a>
```

○ The previous example linked one directory down.

○ What if we want to link two directories down?

○ For example, suppose want to link to `couscous.html`.

○ This is inside the directory `pasta`, which is inside the directory `recipes`, which is located in the current directory.

○ We do this by simply separating the directory names with forward slashes.

Linking to a Higher Directory

The diagram shows that couscous.html is two directories lower than index.html.

From index.html:
```
<a href="recipes/pasta/couscous.html">Couscous</a>
```

The server looks in the same directory as the current document for the *recipes* directory, and then looks for the *pasta* directory.

Linking to a Higher Directory

```
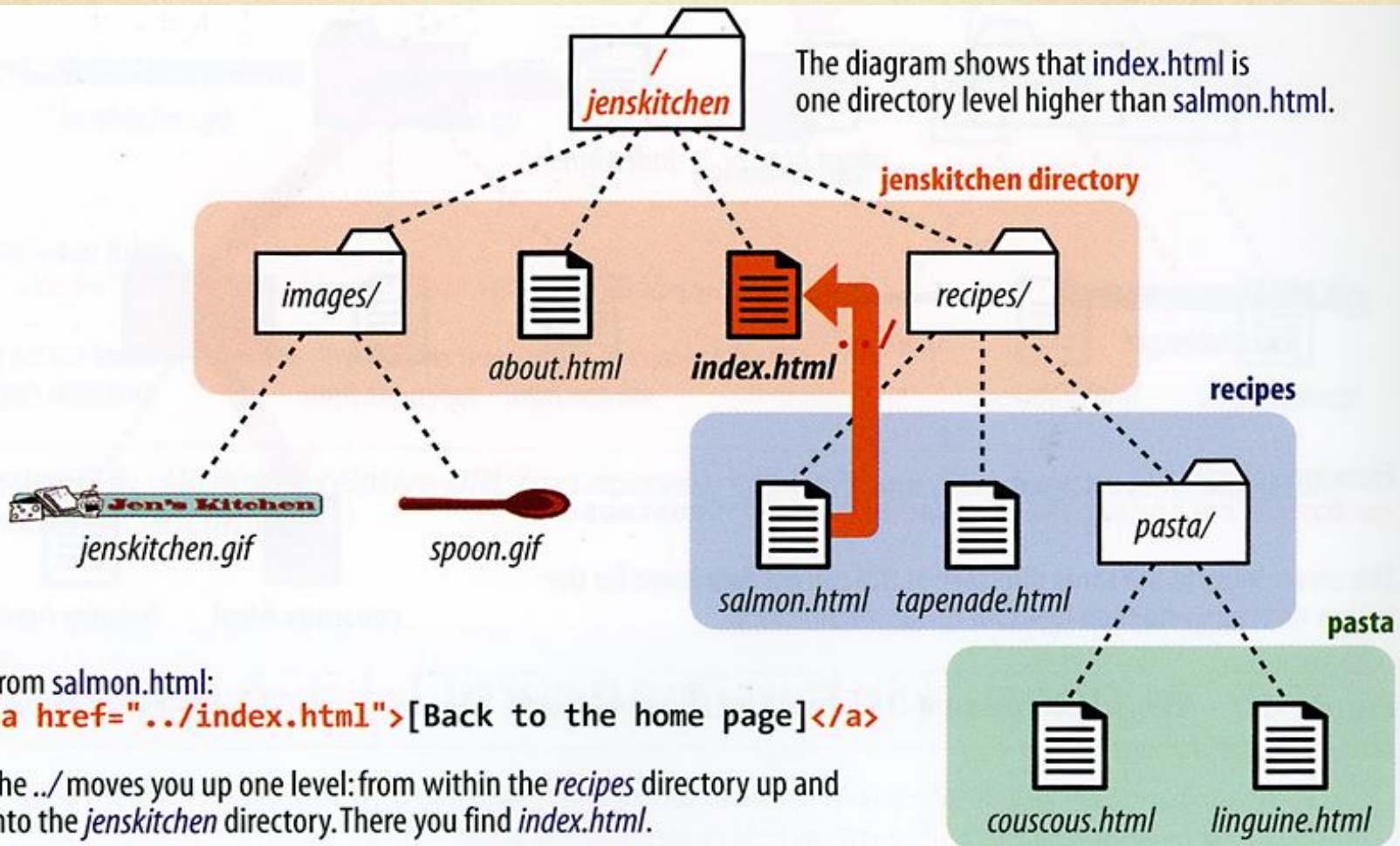<a href="../index.html">[Back to the home page]</a>
```

- What if we want to link back up?

- Suppose, for example we wanted to link from the page `salmon.html` back to the `index.html` page.

- To do this we use the "dot-dot-slash" convention.

- When we begin a pathname with ../ it is the same as telling the browser to go "back up on directory level".

- It's like clicking the "Up" button on Windows Explorer.

- So let's see how this works by making a link from `salmon.html` to `index.html`.

Linking Within Your Own Site

The diagram shows that **index.html** is one directory level higher than salmon.html.

jenskitchen directory

From salmon.html:

```
<a href="../index.html">[Back to the home page]</a>
```

The ../ moves you up one level: from within the *recipes* directory up and into the *jenskitchen* directory. There you find *index.html*.

Linking to a Higher Directory

○ What if we want to link all the way back to the home page from `couscous.html`?

○ This has to go back two directory levels.

○ This is done by simply adding the `../` twice.

○ So a link on the `couscous.html` page to `index.html` would be:

```
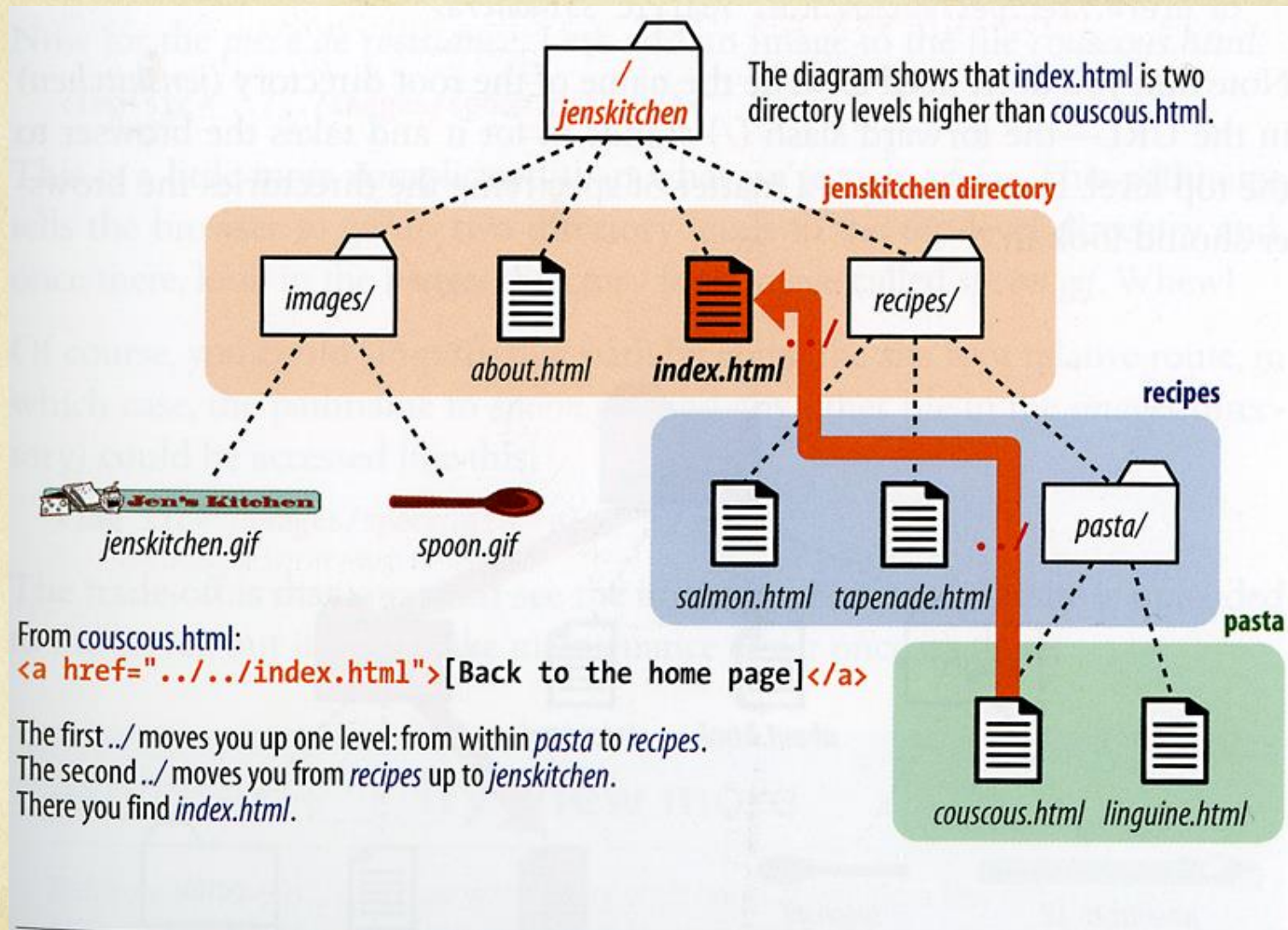<a href="../../index.html">[Back to the
home page]</a>
```

○ The first `../` backs us up to the `recipes` folder and the second one back us up to the `jenskitchen` folder.

Linking to a Higher Directory

The diagram shows that index.html is two directory levels higher than couscous.html.

jenskitchen directory

jenskitchen.gif

spoon.gif

salmon.html   tapenade.html

couscous.html   linguine.html

From couscous.html:
```
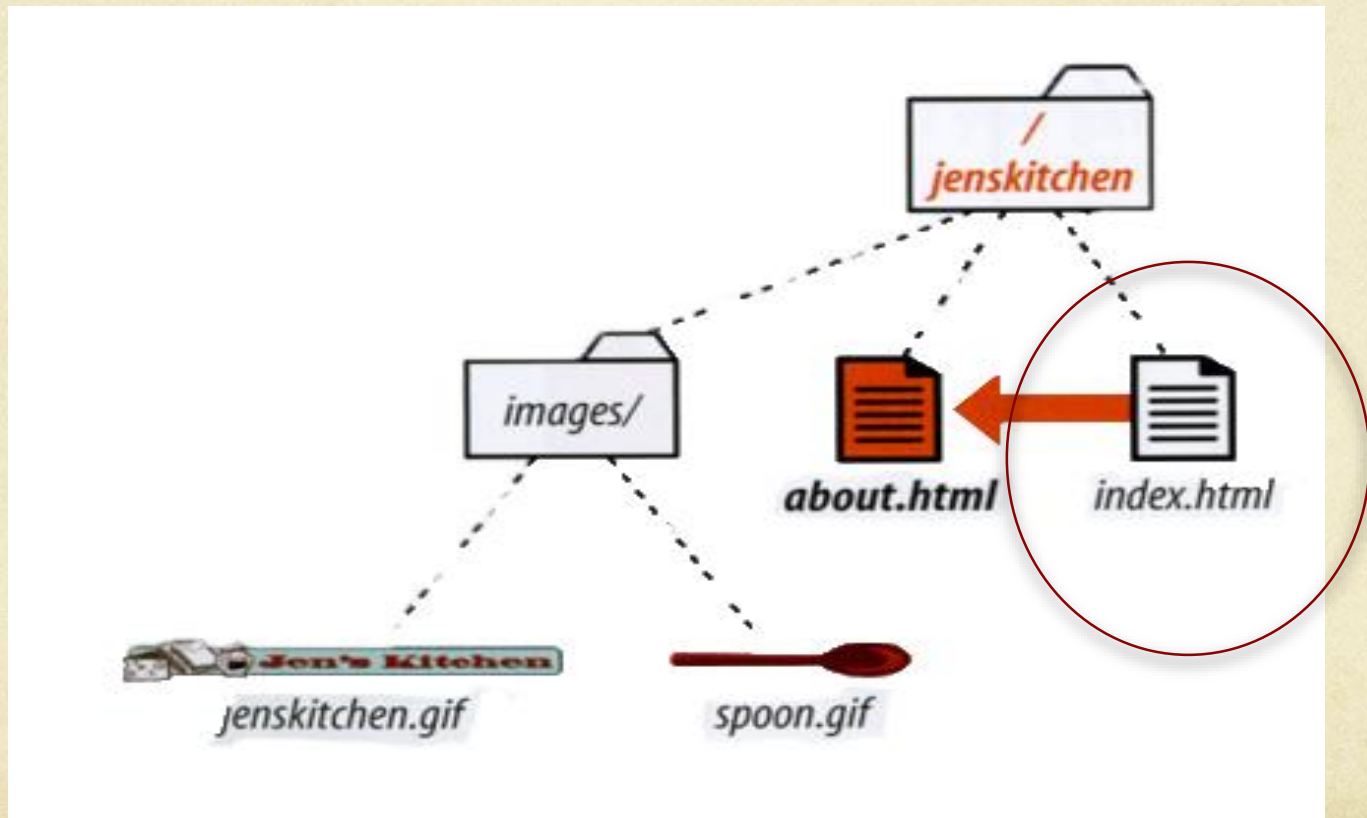<a href="../../index.html">[Back to the home page]</a>
```

The first ../ moves you up one level: from within *pasta* to *recipes*.
The second ../ moves you from *recipes* up to *jenskitchen*.
There you find *index.html*.

Linking Within Your Own Site

`<a href="about.html">About Page</a>`

Images as Links

Images as links

○   To make an image a link simply add an anchor <a> element around your image

○   E.g.

<img src="house.gif" alt="an image of a house">

○   That's it !

○   NOTE:
have no space between >< or you'll get spaces as links too...
This is one time where SPACES matter a lot !!!!!!!!!!!!!!!!

email Links

@

email Links

- Here's something handy.

- Can use **mailto** protocol to put link to email address appearing in web page

- When user clicks email link, their email program will boot up with new mail message started to that email address
  - If device web page being viewed on has an email application …

- e.g.

```
<a
href="mailto:marie.brennan@itb.ie">
Contact Marie</a>
```

Path to IMAGES in other directories

Path to IMAGES in other directories

○ The src attribute of the img element works the same way as the href attribute of the anchor element.

○ For example suppose we want to include the image `jenskitchen.gif` on the `index.html` page.

○ This would be:

<div align="center">**<img src="images/jenskitchen.gif" >**</div>

○ What if we wanted to display image `spoon.gif` from the page `couscous.html`?

<div align="center">**<img src="../../images/spoon.gif" >**</div>

Summary

○ So far we have covered the basic structure of a webpage

○ We have used the elements needed to add content

○ We have added images

○ We have made an image as a link

○ In the lab next week you will create 2 pages with all of the above elements and link the 2 pages together

○ What next?????

- We need to start formatting the default elements on the screen
- We need to add some colour
- We need to change the layout of the screen How??????? CSS Cascading Style Sheets

CSS - what?

- Cascade Style Sheets
- Defines how to display HTML elements (fonts, size, colors, background images, border, styles)
- Add to HTML **5**
- Stored in CSS files
- All browsers support CSS
- Defined by the World Wide Web consortium (W3C)

CSS Website Example

http://www.csszengarden.com/

What is CSS?

- **<u>C</u>ascading**: Multiple styles can overlap in order to specify a range of style from a whole web site down to a unique element. Which style gets applied pertains to the rules of CSS cascading logic.

- **<u>S</u>tyle**: CSS deals specifically with the **presentation** domain of designing a web page (color, font, layout, etc).

- **<u>S</u>heet**: Normally, CSS is a file **separate** from the HTML file – linked to the HTML file through its <head> (exceptions apply).

CSS - why???

- Advantages
  - Saves time editing (define once on the element, next time the elements will automatically defined)
  - Page load faster
  - Easy maintenance
  - Superior styles to HTML (much wider array of attributes)

syntax

A CSS rule has two main parts: a selector, and one or more declarations

Selector	Declaration	Declaration
h1	{ color:blue;	font-size:12px; }
	Property Value	Property Value

The selector is the HTML element you want to style.

- Each declaration consists of a property and a value.
- The property is the style attribute you want to change. Each property has a value.

how to ??

<u>Text editors</u>
- Notepad/WordPad for Windows; TextEdit for Mac
- Dreamweaver has a function embedded into the program.

<u>Comments</u>

/* This is for CSS. */

<u>Grouping</u>

h1, h2, h3 {color: blue;}

<u>Applying multiple properties</u>

```
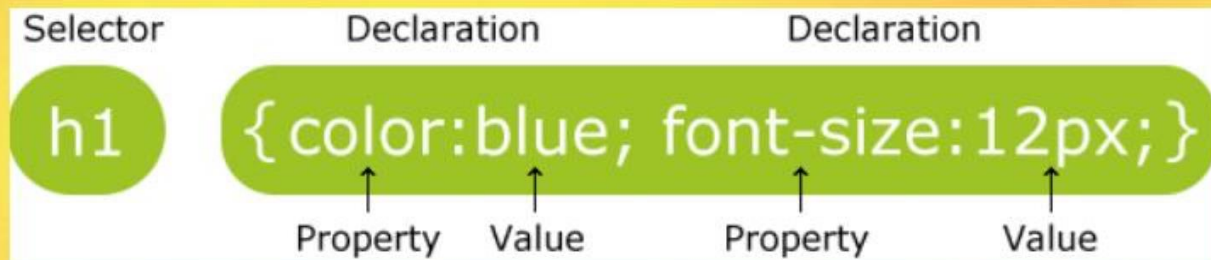h1 {color: blue;
    font-size: 150%;
    font-family: arial, Helvetica, "sans serif";
    }
```

inline and internal styles

```html
<html>

    <head>
        <title>Project One</title>
        <style type="text/css">
                body {background-color: #ff0000;}
                p {color: blue; margin-left:20px;}
        </style>
    </head>

    <body style="background-color: #ff0000;">
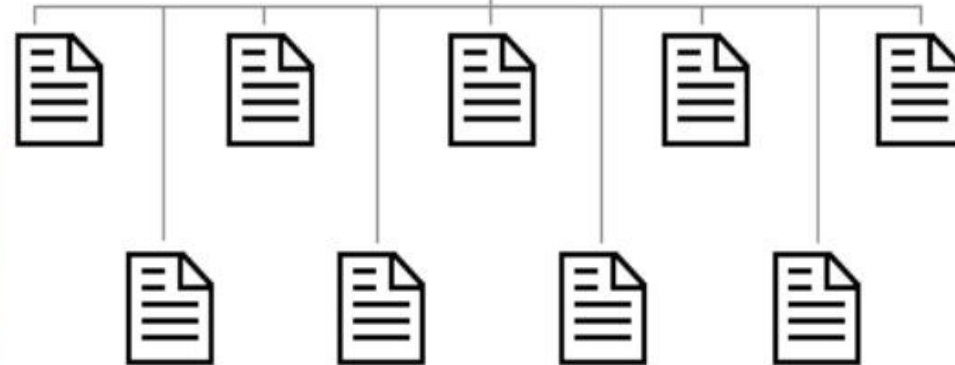    <p style="color:blue;margin-left:20px ;">
    This is a red page.
    </p>
    </body>

</html>
```

external style (1)

- Create a text file and save as .css
- Create a link in HTML document
- The css style sheet contains only styles

external style – where to put it?

HTML documents linking to the same style sheet

Linking an external file in HTML 5

```html
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="utf-8">
    <title> Black Goose Bistro </title>

    <style>
        @import "goose.css";
    </style>
 </head>

<body>
<img src="blackgoose.gif" alt="Goose logo">

<h1> Black Goose Bistro</h1>
<h2> The Restaurant</h2>
<p> The Black Goose Bistro offers casual lunch and dinner fare in a hip atmosphere</p>
<h2> Catering</h2>
<p> You have fun ... <em> we'll handle the cooking</em>. Black Goose Catering can handle even
<h2> Location and Hours </h2>
<p> Seekonk, Massachusetts;
Monday though Thursday 11am to 9pm, Friday and Saturday, 11am to midnight </p>
</body>
</html>
```

The CSS

```
body {
        background-color: lightblue;
        font-family: monospace;
}

h1 {

        color: red;
}

h2 {

        font-variant: small-caps;
}
```

Summary / Conclusions …

- Many text properties you can control
  - Font / size / color / bold / italics etc.

- Use the BOOK or a good reference chart
  - It's hard to remember them all …

cascade order

Styles can be specified:

- Inside an HTML element (in-line)
- Inside the head section of an HTML page (internal)
- In an external CSS style sheet (external)

Next week

○ Lab – Linking pages

Slide 59