

1

Structure

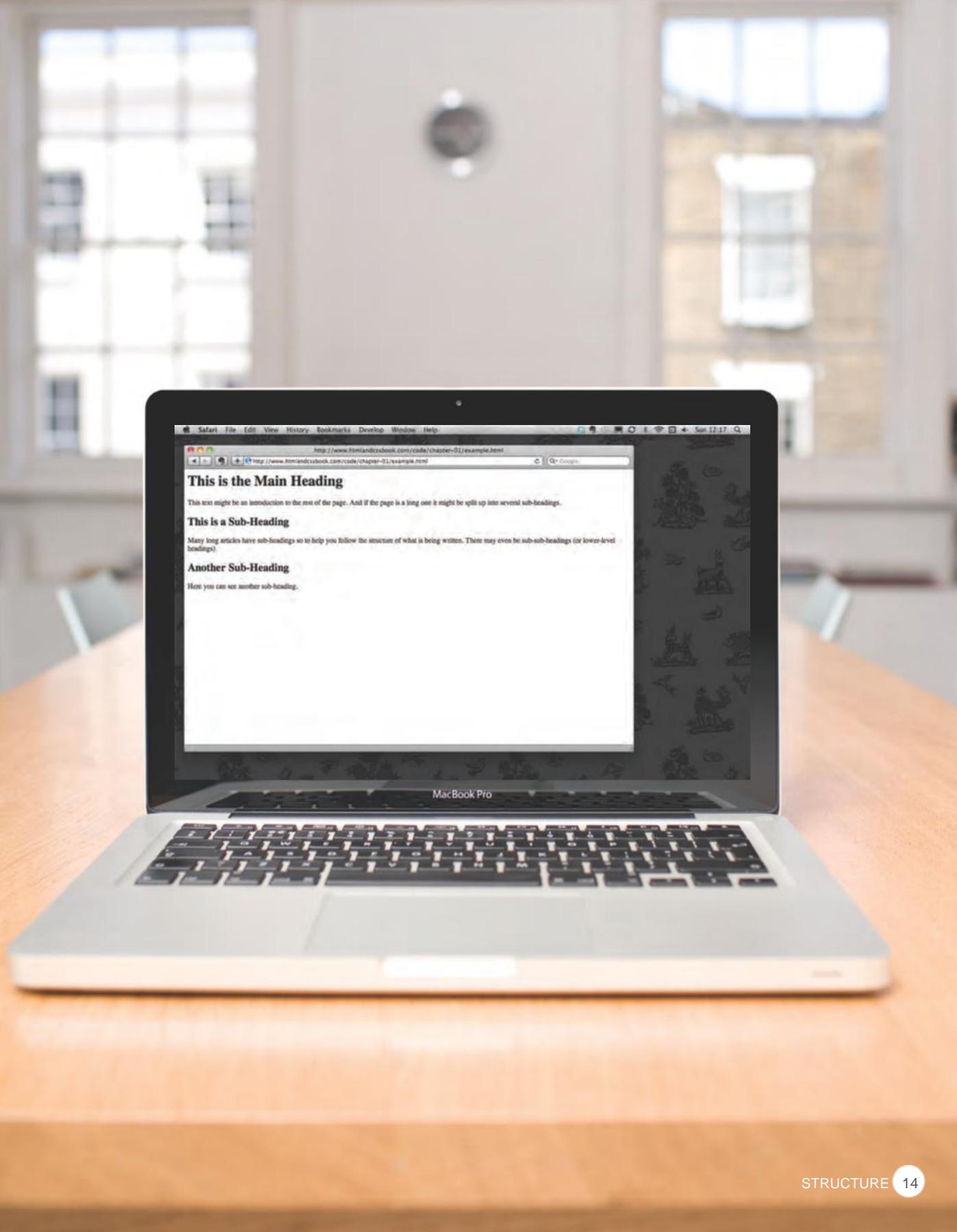
- ↳ Understanding structure
- ↳ Learning about markup
- ↳ Tags and elements

We come across all kinds of documents every day of our lives. Newspapers, insurance forms, shop catalogues... the list goes on.

Many web pages act like electronic versions of these documents. For example, newspapers show the same stories in print as they do on websites; you can apply for insurance over the web; and stores have online catalogs and e-commerce facilities.

In all kinds of documents, structure is very important in helping readers to understand the messages you are trying to convey and to navigate around the document. So, in order to learn how to write web pages, it is very important to understand how to structure documents. In this chapter you will:

- See how HTML describes the structure of a web page
- Learn how tags or elements are added to your document
- Write your first web page



How Pages Use Structure

Think about the stories you read in a newspaper: for each story, there will be a headline, some text, and possibly some images. If the article is a long piece, there may be subheadings that split the story into separate sections or quotes from those involved. Structure helps readers understand the stories in the newspaper.

The structure is very similar when a news story is viewed online (although it may also feature audio or video). This is illustrated on the right with a copy of a newspaper alongside the corresponding article on its website.

Now think about a very different type of document — an insurance form. Insurance forms often have headings for different sections, and each section contains a list of questions with areas for you to fill in details or checkboxes to tick. Again, the structure is very similar online.

Interview Rio Caraeff

Vevo revolutionary

Universal's former mobile chief is leading the music industry's fight to shake up online video. He reveals his frustration with MTV, and says why no one need own music if his site succeeds. Interview by **Mark Sweeney**

If Rio Caraeff succeeds, perhaps only diehard fans will need to own music. His online music video site, part-owned by the two largest record companies, aims to have the same impact as MTV and to be an answer to YouTube. Chuck those goals in with that of making the industry less dependent on the purchase of recordings, and for Caraeff there is clearly plenty to do.

Caraeff is the youthful chief executive of Vevo - launched in late 2009 with the help of Universal Music, EMI, Sony Music, and PolyGram - who is taking the venture international with a rollout starting in the UK and continental Europe. "Music videos are the only entertainment categories on the planet that people love that can build audiences at the scale of billions of people," says, "I'm on the business of trying to make people happy," in his modestly stated aim.

With global CD sales plummeting by \$1.5bn last year, Caraeff's message is that "if you're not doing well on YouTube, if MTV was doing it, we didn't need it," he says. "The industry felt it was necessary. If MTV was doing a great job paying royalties, if YouTube [was], then we would have been able to invent new paradigms to be responsible for our own destiny. We can't sit back and say 'They're bigger or whatever figure that'."

Vevo's relationship with Google, the owner of the world's largest video-sharing platform YouTube, is clearly critical. Michael Soskin, Google's head of "product" and its Martin Sorrell described it as a "frustrum". Despite the combustive relationship the music industry has historically had with Google, in this case, Caraeff prefers to characterize Vevo's dealings with YouTube as "synthetic", although "declaration of independence" would be more appropriate.

"We're not trying to how to work with them," he explains. "There are no illegitimate copies [of music videos] on YouTube, there were thousands before, they're still there, but now they're not the focus on. They don't threaten us. YouTube is a place where people can upload any video in the world, we're not trying to compete with [it]."

Vevo's traffic comes from YouTube search, and 50% comes from recommendations of videos that users might like to watch that appear on the side of the YouTube web pages when a user is viewing clips.

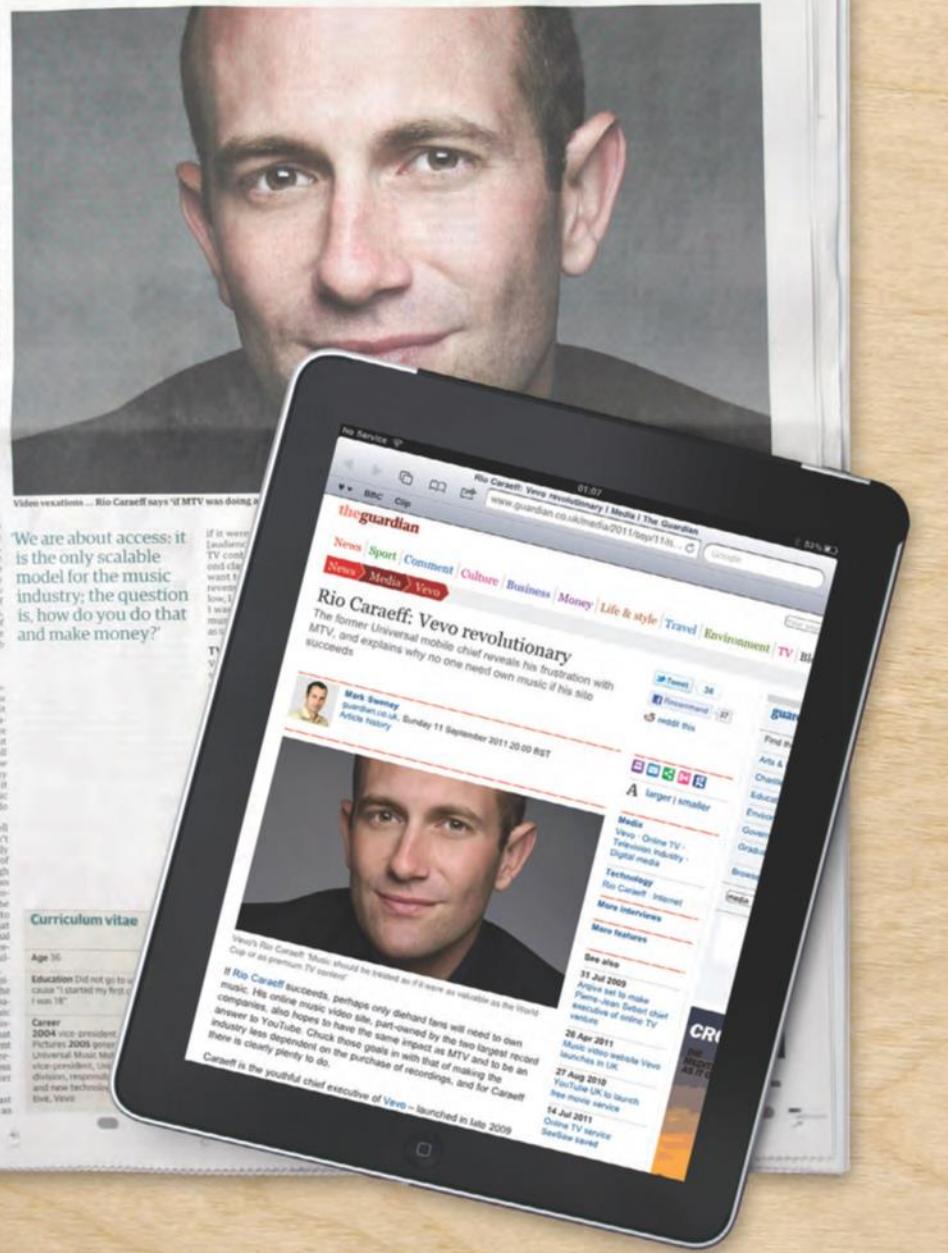
Free access

Vevo's business model is all about providing free access to music that can be serious fare, funded by advertising - so to put it another way - give consumers an alternative to owning songs. "I believe the future is access, not ownership, not [using it] as a tool to sell things, but as a way to try to sell people music; our customers are not the small amount of people that want to buy music. We are about providing access; if it's free and it's good, then it's fine. In that case, the question is, how do you do that and make money?"

Which raises the question of how well Vevo is actually doing. Caraeff doesn't want to say, but the company is commercially busy says it is already making "hundreds of millions of dollars" in revenue, although there are hosting costs to pay. More than half of gross revenue comes from advertising, the rest from artists or licenses - with the remainder being kept by Vevo or paid to partners such as YouTube. He says that Vevo is "aggressively" looking at "all forms of business models" - short-term rental, for example - and is on track to achieve profitability "in the very early part of next year".

Yet there are problems. Caraeff's business is dependent on advertising, and he is worried by the fact that companies pay to run campaigns around music content. His contention is that advertisers treat music content as inferior to that Vevo offers, and that they will not be an answer to position it as a premium product. Think the free-to-access equivalent of BTskyB owner Premier League football.

"The audience that loves music is vast and discerning: it should be treated as



We are about access: it is the only scalable model for the music industry; the question is, how do you do that and make money?

Curriculum vitae

Age 36.

Education Did not go to a cause "I started my first company at 16".

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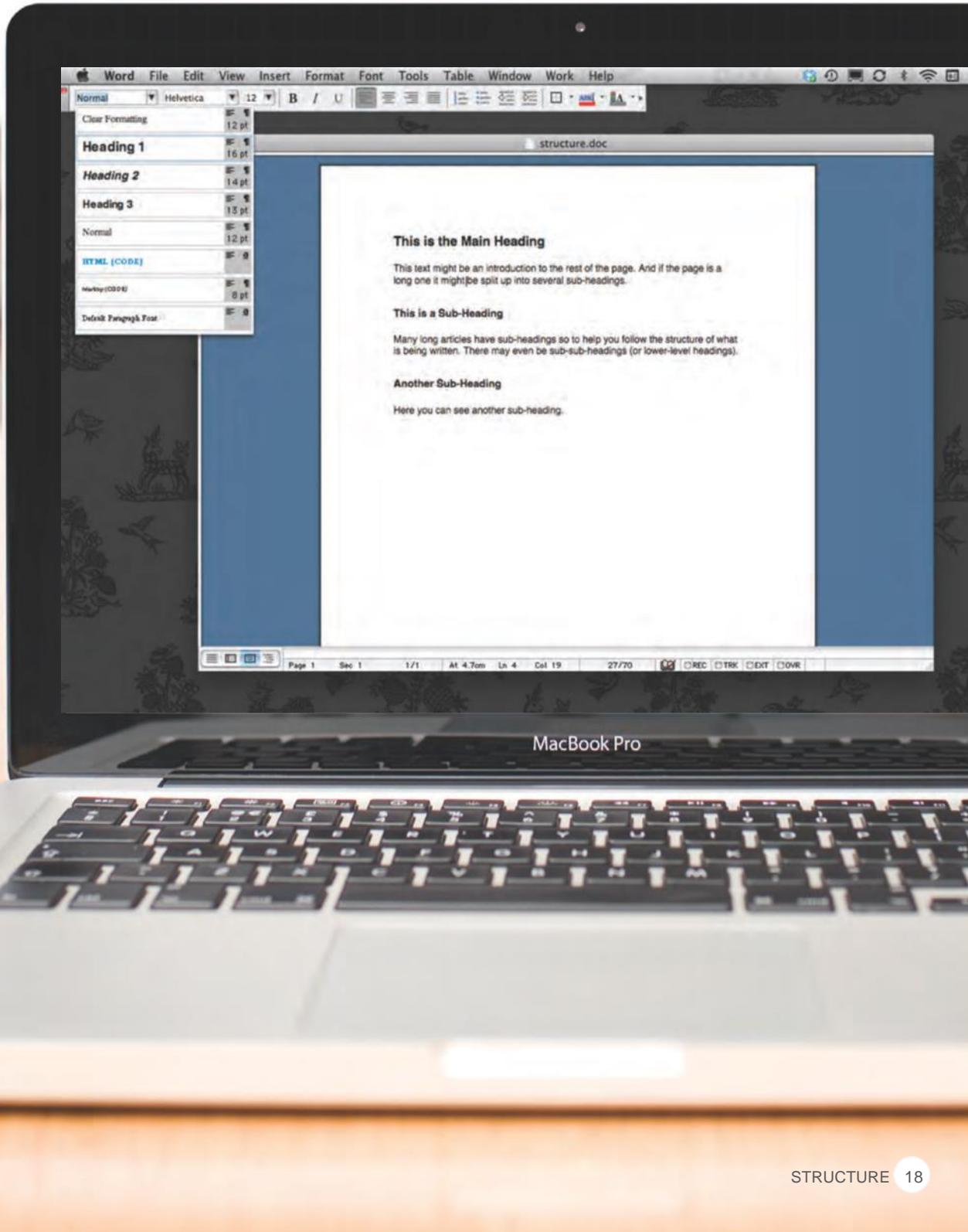
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Structuring word documentS

The use of headings and subheadings in any document often reflects a hierarchy of information. For example, a document might start with a large heading, followed by an introduction or the most important information.

This might be expanded upon under subheadings lower down on the page. When using a word processor to create a document, we separate out the text to give it structure. Each topic might have a new paragraph, and each section can have a heading to describe what it covers.

On the right, you can see a simple document in Microsoft Word. The different styles for the document, such as different levels of heading, are shown in the drop down box. If you regularly use Word, you might have also used the formatting toolbar or palette to do this.



On the previous page you saw how structure was added to a Word document to make it easier to understand. We use structure in the same way when writing web pages.



HTML deScribeS tHe Structure of PageS

In the browser window you can see a web page that features exactly the same content as the Word document you met on the page 18. To describe the structure of a web page, we add code to the words we want to appear on the page.

You can see the HTML code for this page below. Don't worry about what the code means yet. We start to look at it in more detail on the next page. Note that the HTML code is in blue, and the text you see on screen is in black.

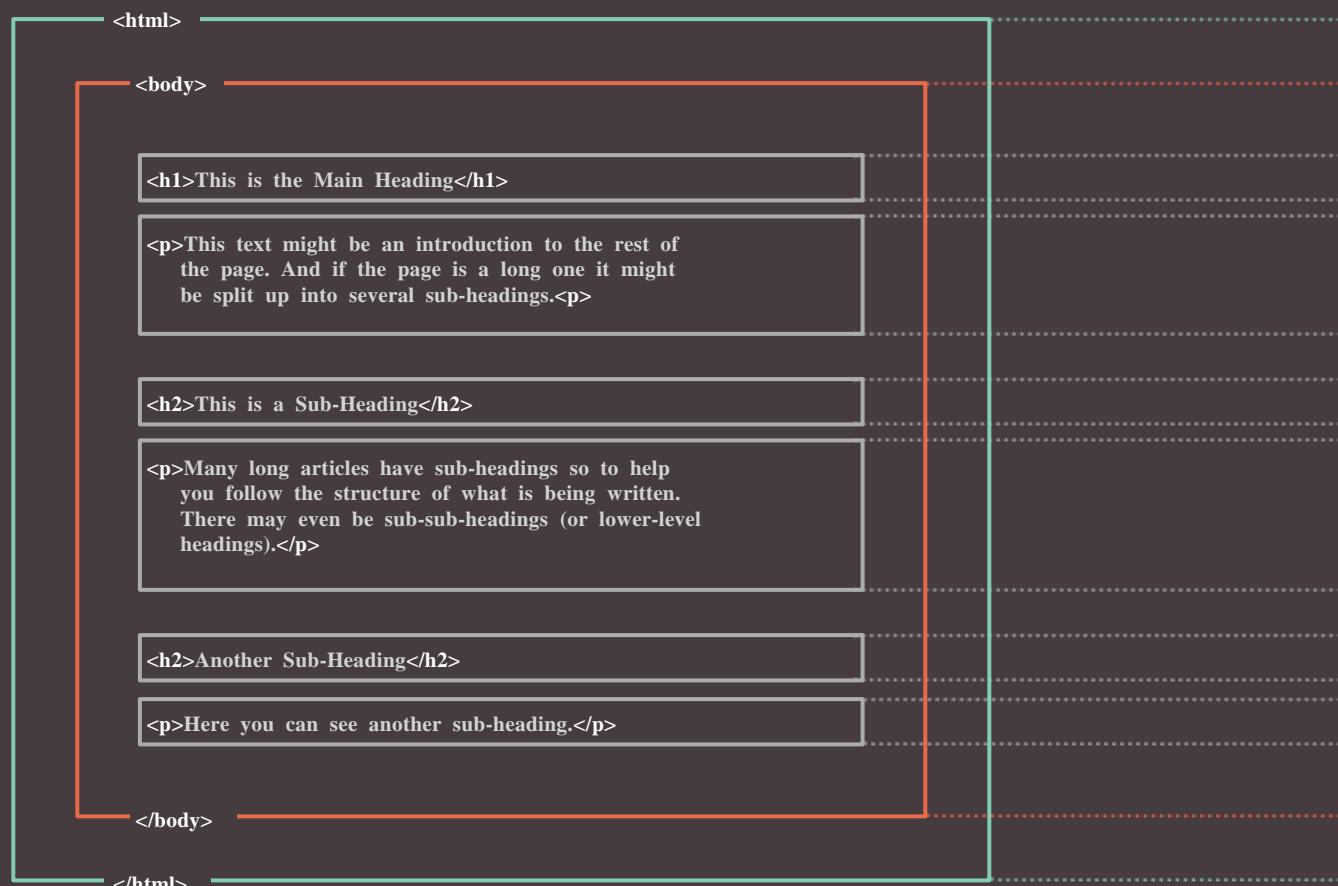
```
<html>
  <body>
    <h1>This is the Main Heading</h1>
    <p>This text might be an introduction to the rest of
      the page. And if the page is a long one it might
      be split up into several sub-headings.<p>
    <h2>This is a Sub-Heading</h2>
    <p>Many long articles have sub-headings so to help
      you follow the structure of what is being written.
      There may even be sub-sub-headings (or lower-level
      headings).</p>
    <h2>Another Sub-Heading</h2>
    <p>Here you can see another sub-heading.</p>
  </body>
</html>
```

The HTML code (in blue) is made up of characters that live inside angled brackets — these are called **HTML elements**. Elements are usually made up of two **tags**: an opening tag and a closing tag. (The closing tag has an extra forward slash in it.) Each HTML element tells the browser something about the information that sits between its opening and closing tags.

HtmL uSeS eLementS to deScribe tHe Structure of PageS

Let's look closer at the code from the last page.
There are several different elements. Each element has an opening tag and a closing tag.

Code



Tags act like containers. They tell you something about the information that lies between their opening and closing tags.

desCription

The opening `<html>` tag indicates that anything between it and a closing `</html>` tag is HTML code.

The `<body>` tag indicates that anything between it and the closing `</body>` tag should be shown inside the main browser window.

Words between `<h1>` and `</h1>` are a main heading.

A paragraph of text appears between these `<p>` and `</p>` tags.

Words between `<h2>` and `</h2>` form a sub-heading.

Here is another paragraph between opening `<p>` and closing `</p>` tags.

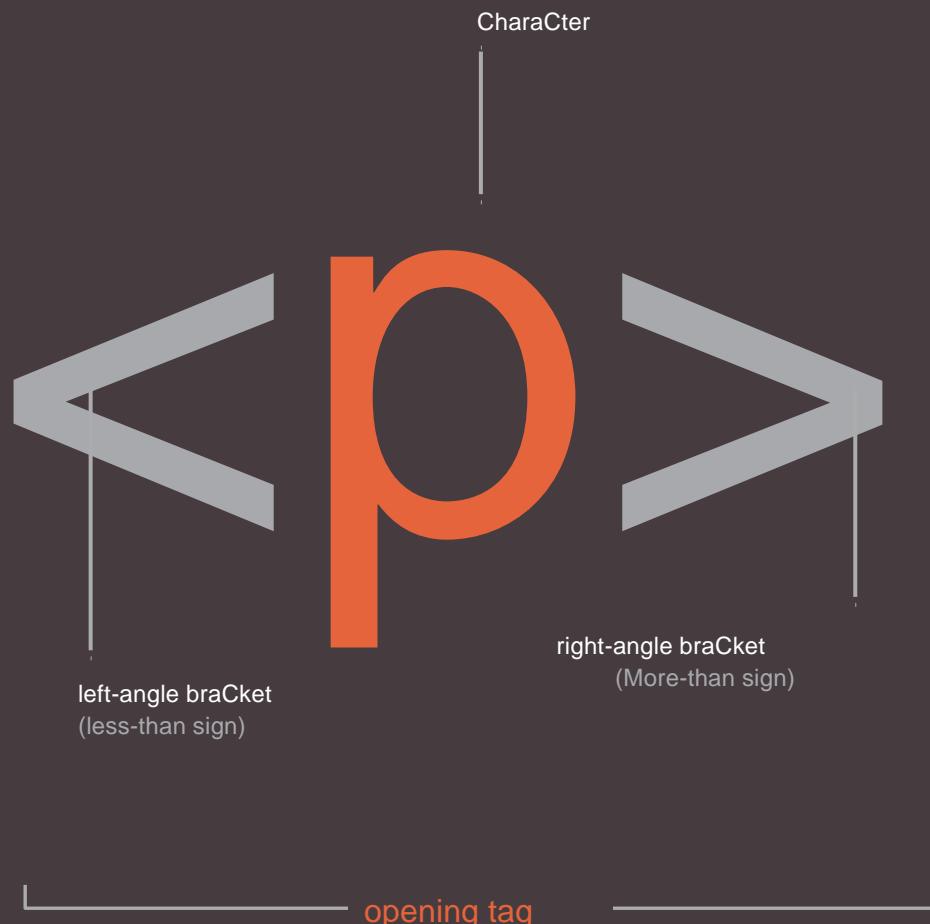
Another sub-heading inside `<h2>` and `</h2>` tags.

Another paragraph inside `<p>` and `</p>` tags.

The closing `</body>` tag indicates the end of what should appear in the main browser window.

The closing `</html>` tag indicates that it is the end of the HTML code.

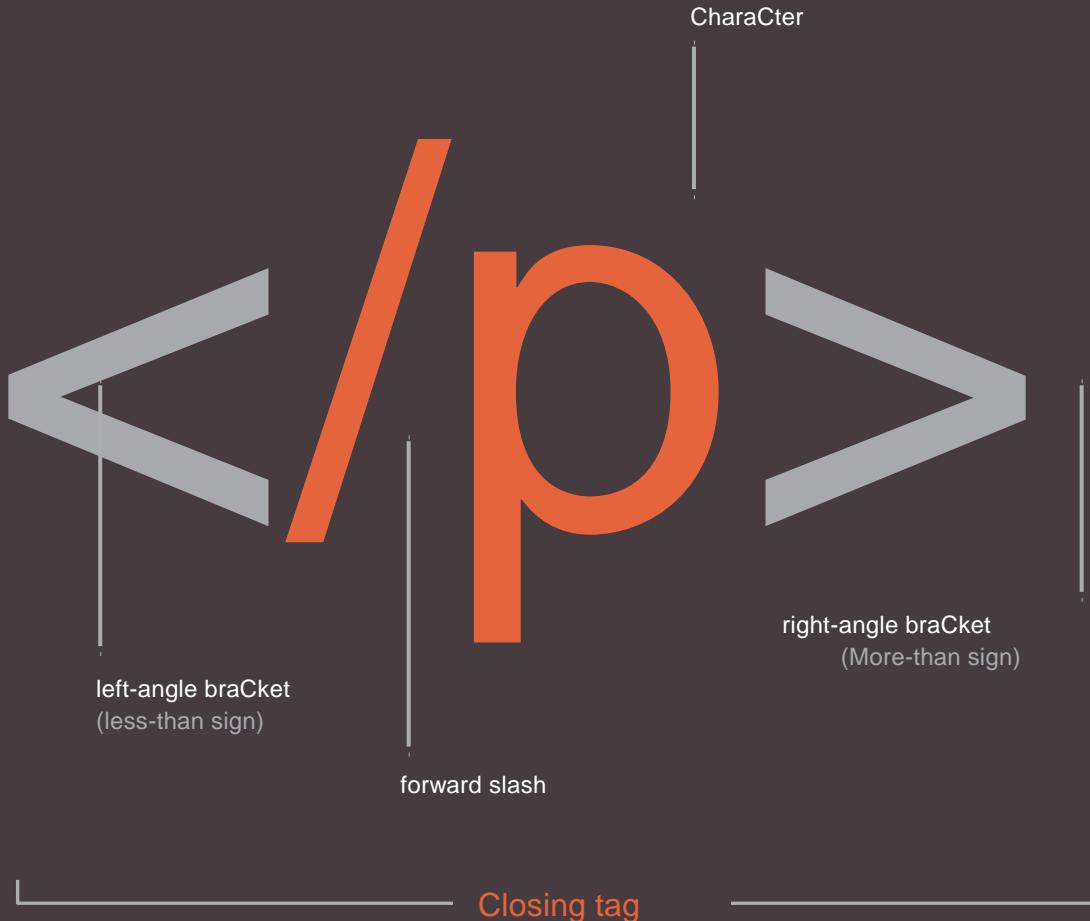
a cLoSer Look at t agS



The characters in the brackets indicate the tag's purpose.

For example, in the tags above the p stands for paragraph.

The closing tag has a forward slash after the < symbol.



The terms "tag" and "element" are often used interchangeably.

Strictly speaking, however, an element comprises the opening

tag and the closing tag *and* any content that lies between them.

attributeS teLL uS more about eLementS

Attributes provide additional information about the contents of an element. They appear on the opening tag of the element and are made up of two parts: a **name** and a **value**, separated by an equals sign.



The attribute **name** indicates what kind of extra information you are supplying about the element's content. It should be written in lowercase.

The **value** is the information or setting for the attribute. It should be placed in double quotes. Different attributes can have different values.

Here an attribute called **lang** is used to indicate the language used in this element. The value of this attribute on this page specifies it is in US English.

HTML5 allows you to use uppercase attribute names and omit the quotemarks, but this is not recommended.



The majority of attributes can only be used on certain elements, although a few attributes (such as `lang`) can appear on any element.

Most attribute values are either pre-defined or follow a stipulated format. We will look at the permitted values as we introduce each new attribute.

The value of the `lang` attribute is an abbreviated way of specifying which language is used inside the element that all browsers understand.

body, Head & title

<body>

You met the `<body>` element in the first example we created. Everything inside this element is shown inside the main browser window.

<head>

Before the `<body>` element you will often see a `<head>` element. This contains information about the page (rather than information that is shown within the main part of the browser window that is highlighted in blue on the opposite page). You will usually find a `<title>` element inside the `<head>` element.

<title>

The contents of the `<title>` element are either shown in the top of the browser, above where you usually type in the URL of the page you want to visit, or on the tab for that page (if your browser uses tabs to allow you to view multiple pages at the same time).

/chapter-01/body-head-title.html HTML

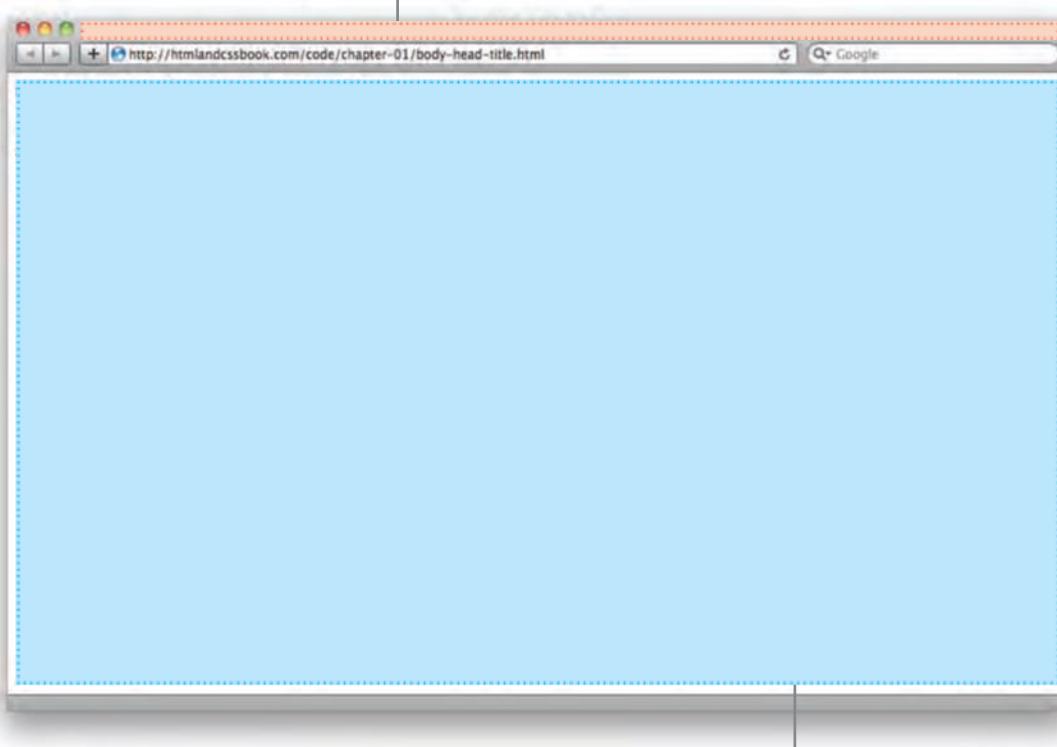
```
<html>
  <head>
    <title>This is the Title of the Page</title>
  </head>
  <body>
    <h1>This is the Body of the Page</h1>
    <p>Anything within the body of a web page is displayed in the main browser window.</p>
  </body>
</html>
```

Result

This is the Body of the Page

Anything within the body of a web page is displayed in the main browser window.

Anything written between the `<title>` tags will appear in the title bar (or tabs) at the top of the browser window, highlighted in orange here.



Anything written between the `<body>` tags will appear in the main browser window, highlighted in blue here.

You may know that HTML stands for HyperText Markup Language. The HyperText part refers to the fact that HTML allows you to create links that allow visitors to move from one

page to another quickly and easily. A markup language allows you to annotate text, and these annotations provide additional meaning to the contents of a document. If you think of a web

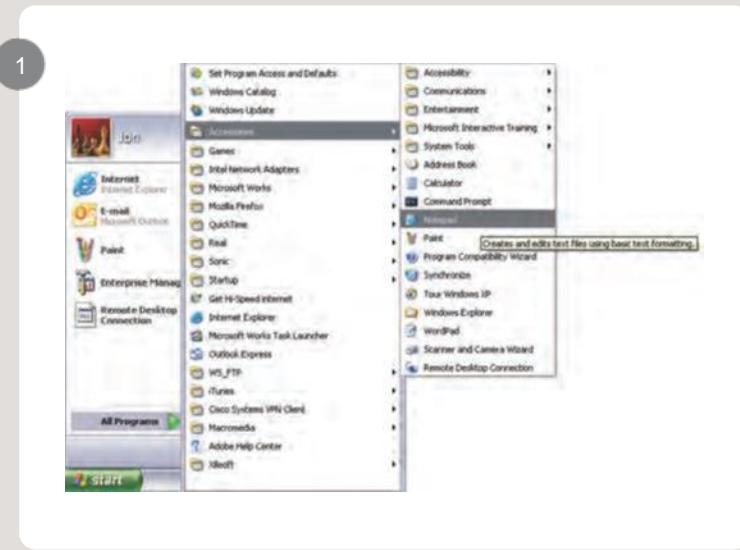
page, we add code around the original text we want to display and the browser then uses the code to display the page correctly. So the tags we add are the markup.

creating a web Page on a Pc

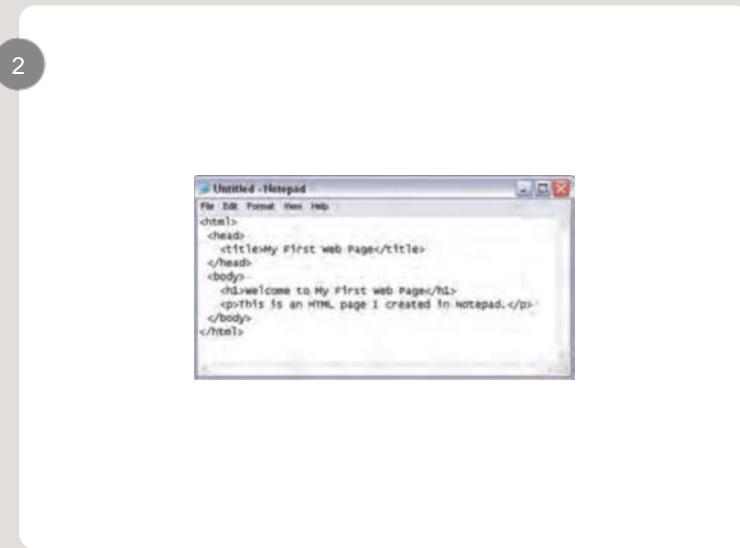
To create your first web page on a PC, start up Notepad. You can find this by going to:

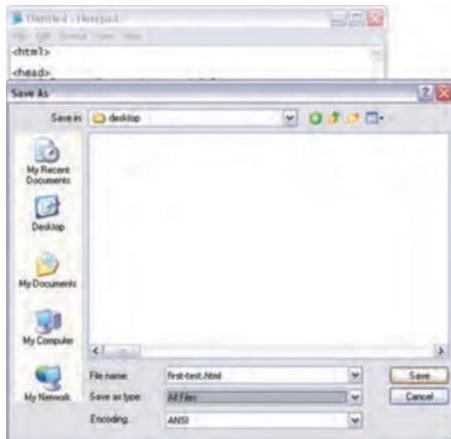
Start
All Programs (or Programs)
Accessories
Notepad

You might also like to download a free editor called Notepad++ from notepad-plus-plus.org.



Type the code shown on the right.





3

Go to the File menu and select Save as... You will need to save the file somewhere you can remember. If you like, you could create a folder for any examples that you try out from this book.

Save this file as **first-test.html**. Make sure that the *Save as type* drop down has *All Files* selected.



4

Start your web browser. Go to the *File* menu and select *Open*. Browse to the file that you just created, select it and click on the *Open* button. The result should look something like the screen shot to the left.

If it doesn't look like this, find the file you just created on your computer and make sure that it has the file extension *.html* (if it is *.txt* then you need to go back to Notepad and save the file again, but this time put quote marks around the name "first-test.html").

creating a web Page on a mac

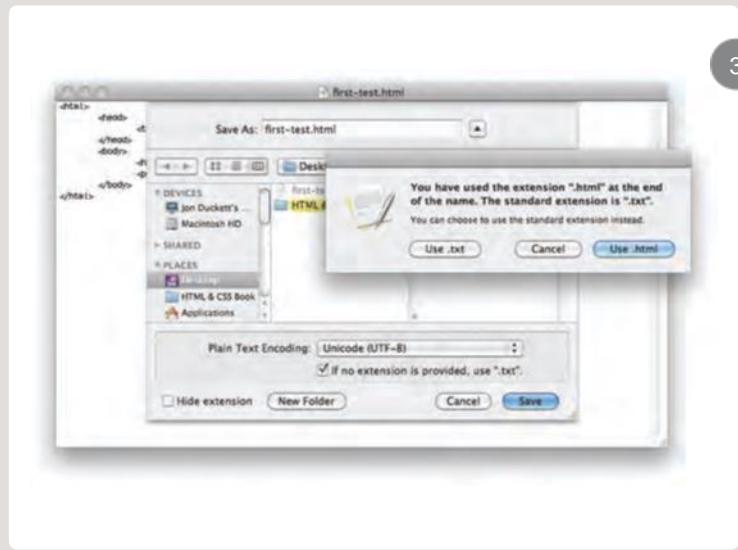
To create your first web page on a Mac, start up TextEdit. This should be in your *Applications* folder.

You might also like to download a free text editor for creating web pages called TextWrangler which is available from barebones.com.



Type the code shown on the right.





3

Now go to the *File* menu and select *Save as...*. You will need to save the file somewhere you can remember.

If you like, you could create a folder for any examples that you try out from this book. Save this file as **first-test.html**. You will probably see a window like the screen shot to the left.

You want to select the *Use .html* button.

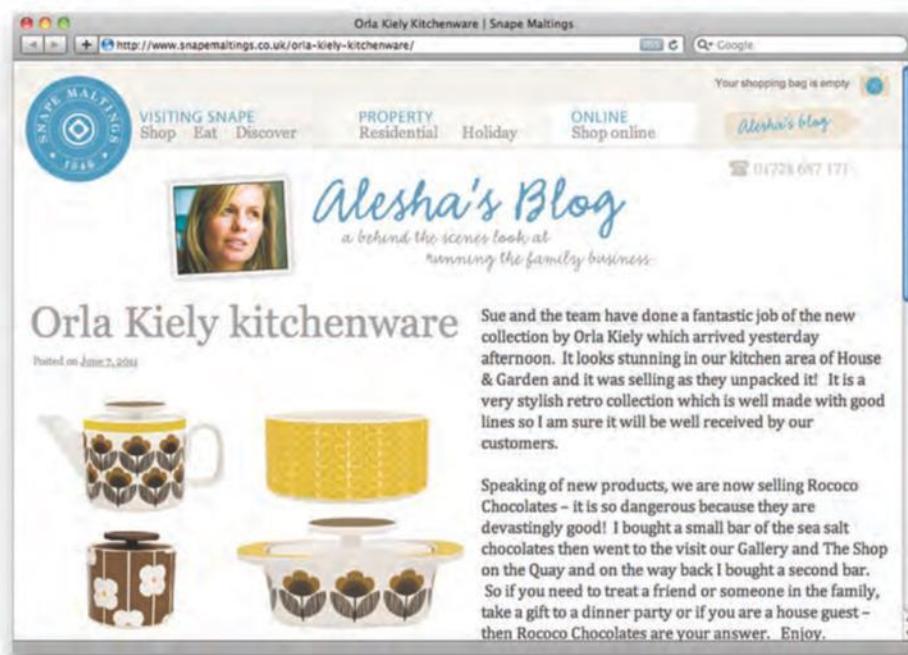


4

Next, start your web browser, go to the *File* menu, and select *Open*. You should browse to the file that you just created, select it and click on the *Open* button. The result should look like the screen shot to the left.

If it doesn't look like this, you might need to change one of the settings in TextEdit. Go to the TextEdit menu and select *Preferences*. Then on the preferences for *Open and Save*, tick the box that says *Ignore rich text commands in HTML files*. Now try to save the file again.

code in a content management SyStem



If you are working with a content management system, blogging platform, or e-commerce application, you will probably log into a special administration section of the website to control it. The tools provided in the administration sections of these sites usually allow you to edit parts of the page rather than the entire page, which means you will rarely see the `<html>`, `<head>`, or `<body>` elements.

Looking at the content management system on the opposite page, you have a box

that allows you to enter a title for the page, another box for the main article, a way to enter a publication date, and something to indicate which section of the site this page belongs in.

For an e-commerce store, you might have boxes that allow you to enter a title for the product, a description of the product, its price, and the quantity available.

That is because they use a single 'template' to control all of the pages for a section of the site. (For example, an e-commerce

system might use the same template to show all of their products.) The information you supply is placed into the templates.

The advantage of this approach is that people who do not know how to write web pages can add information to a website and it is also possible to change the presentation of something in the template, and it will automatically update every page that uses that template. If you imagine an e-commerce store with 1,000 items for sale, just



altering one template is a lot easier than changing the page for each individual product. In systems like this, when you have a large block of text that you can edit, such as a news article, blog entry or the description of a product in an e-commerce store, you will often see a text editor displayed.

Text editors usually have controls a little like those on your word processor, giving you different options to style text, add links or insert images. Behind the scenes these editors

are adding HTML code to your text, just like the code you have seen earlier in this chapter. Many of these editors will have an option that allows you to see (and edit) the code that they produce.

Once you know how to read and edit this code, you can take more control over these sections of your website.

In the example above, you can see that the text editor has a tab for Visual / HTML views of what the user enters. Other systems

might have a button (which often shows angle brackets) to indicate how to access the code.

Some content management systems offer tools that also allow you to edit the template files. If you do try to edit

template files you need to check the documentation for your CMS as they all differ from each other.

You need to be careful when editing template files because if you delete the wrong piece of code or add something in the wrong place the site may stop working entirely.

Looking at How otHer SiteS are buiL t

When the web was first taking off, one of the most common ways to learn about HTML and discover new tips and techniques was to look at the source code that made up web pages.

These days there are many more books and online tutorials that teach HTML, but you can still look at the code that a web server sends to you. To try this out for yourself, simply go to the sample code for this chapter, at

[www.htmlandcssbook.com/
code/](http://www.htmlandcssbook.com/code/) and click on the link called "View Source."

Once you have opened this page, you can look for the *View* menu in your browser, and select the option that says *Source* or *View source*. (The title changes depending on what browser you are using.)

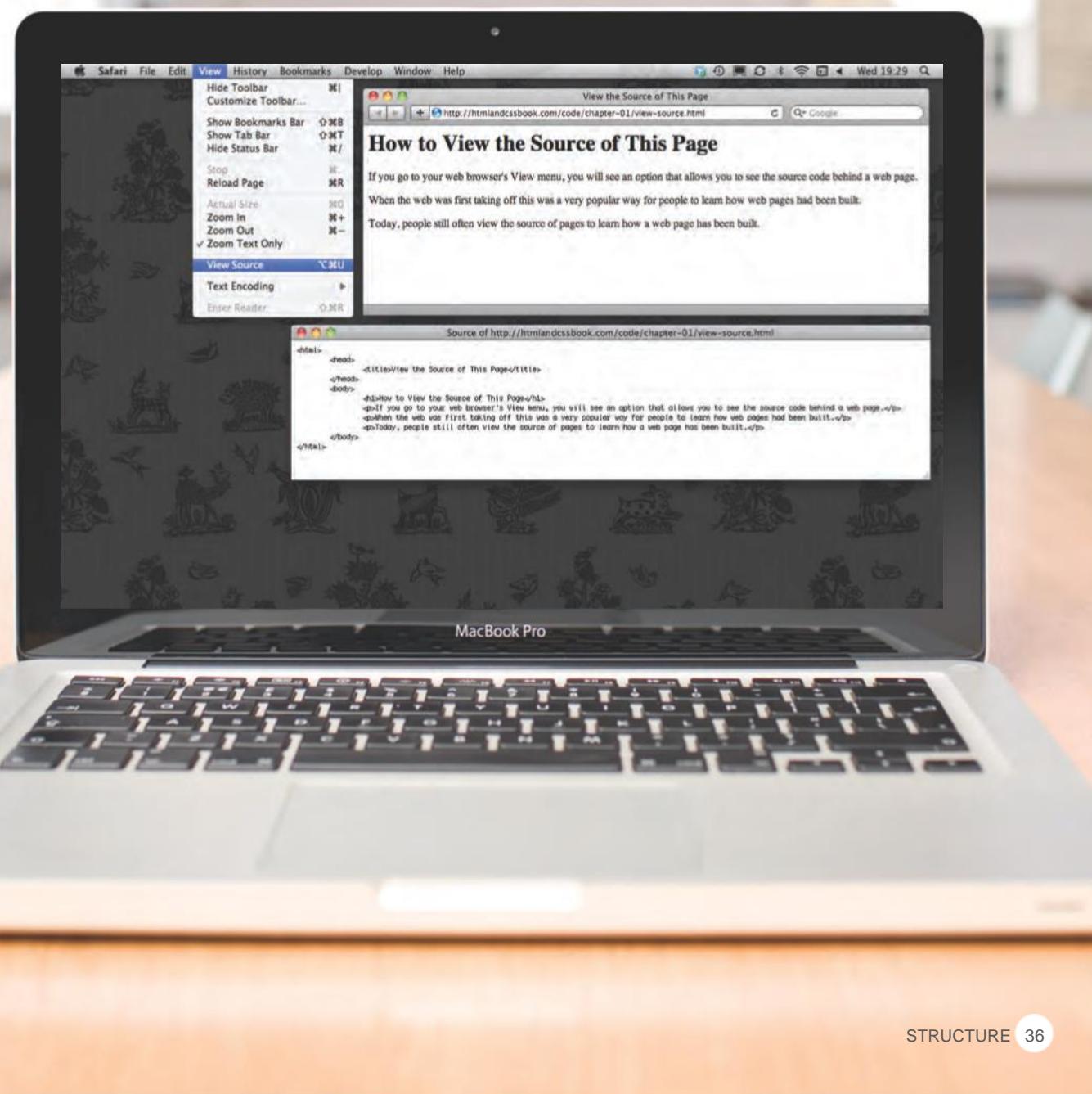
You should see a new window appear, and it will contain the source code that was used to create this page.

You can see this result in the photograph on the right. The page you see is the window at the top; the code is below.

At first this code might look complicated but don't be discouraged. By the time you have finished the next chapter of this book, you will be able to understand it.

All of the examples for this book are on the website, and you can use this simple technique on any of the example pages to see how they work.

You can also download all of the code for this book from the same website by clicking on the "Download" link.





Summary

Structure

- ↳ HTML pages are text documents.
- ↳ HTML uses tags (characters that sit inside angled brackets) to give the information they surround special meaning.
- ↳ Tags are often referred to as elements.
- ↳ Tags usually come in pairs. The opening tag denotes the start of a piece of content; the closing tag denotes the end.
- ↳ Opening tags can carry attributes, which tell us more about the content of that element.
- ↳ Attributes require a name and a value.
- ↳ To learn HTML you need to know what tags are available for you to use, what they do, and where they can go.



2

TexT

- ↳ Headings and paragraphs
- ↳ Bold, italic, emphasis
- ↳ Structural and semantic markup



When creating a web page, you add tags (known as markup) to the contents of the page. These tags provide extra meaning and allow browsers to show users the appropriate structure for the page.

In this chapter we focus on how to add markup to the text that appears on your pages. You will learn about:

- **Structural markup:** the elements that you can use to describe both headings and paragraphs
- **Semantic markup:** which provides extra information; such as where emphasis is placed in a sentence, that something you have written is a quotation (and who said it), the meaning of acronyms, and so on



TEXT 42

Headings

<h1>
<h2>
<h3>
<h4>
<h5>
<h6>

HTML has six "levels" of headings:

<h1> is used for main headings

<h2> is used for subheadings

If there are further sections under the subheadings then the <h3> element is used, and so on...

Browsers display the contents of headings at different sizes. The contents of an <h1> element is the largest, and the contents of an <h6> element is the smallest. The exact size at which each browser shows the headings can vary slightly. Users can also adjust the size of text in their browser. You will see how to control the size of text, its color, and the fonts used when we come to look at CSS.

chapter-02/headings.html

HTML

```
<h1>This is a Main Heading</h1>
<h2>This is a Level 2 Heading</h2>
<h3>This is a Level 3 Heading</h3>
<h4>This is a Level 4 Heading</h4>
<h5>This is a Level 5 Heading</h5>
<h6>This is a Level 6 Heading</h6>
```

This is a Main Heading

Result

This is a Level 2 Heading

This is a Level 3 Heading

This is a Level 4 Heading

This is a Level 5 Heading

This is a Level 6 Heading

ParagraPHs

HTML

chapter-02/paragraphs.html

<p>A paragraph consists of one or more sentences that form a self-contained unit of discourse. The start of a paragraph is indicated by a new line.</p>

<p>Text is easier to understand when it is split up into units of text. For example, a book may have chapters. Chapters can have subheadings. Under each heading there will be one or more paragraphs.</p>

<p>

To create a paragraph, surround the words that make up the paragraph with an opening <p> tag and closing </p> tag.

By default, a browser will show each paragraph on a new line with some space between it and any subsequent paragraphs.

Result

A paragraph consists of one or more sentences that form a self-contained unit of discourse. The start of a paragraph is indicated by a new line.

Text is easier to understand when it is split up into units of text. For example, a book may have chapters. Chapters can have subheadings. Under each heading there will be one or more paragraphs.

Bold & iTalic

By enclosing words in the tags `` and `` we can make characters appear bold.

The `` element also represents a section of text that would be presented in a visually different way (for example key words in a paragraph) although the use of the `` element does not imply any additional meaning.

chapter-02/bold.html

HTML

```
<p>This is how we make a word appear bold.</b>
</p>
<p>Inside a product description you might see some
key features</b> in bold.</p>
```

Result

This is how we make a word appear **bold.**
Inside a product description you might see
some **key features** in bold.

<i>

By enclosing words in the tags `<i>` and `</i>` we can make characters appear italic.

The `<i>` element also represents a section of text that would be said in a different way from surrounding content — such as technical terms, names of ships, foreign words, thoughts, or other terms that would usually be italicized.

chapter-02/italic.html

HTML

```
<p>This is how we make a word appear italic.</i>
</p>
<p>It's a potato Solanum tuberosum.</i></p>
<p>Captain Cook sailed to Australia on the
Endeavour.</i></p>
```

Result

This is how we make a word appear *italic*.
It's a potato *Solanum tuberosum*.
Captain Cook sailed to Australia on the *Endeavour*.

suPerscriPT & suBscriPT

HTMl

chapter-02/superscript-and-subscript.html

<p>On the 4th of September you will learn about E=MC².</p>
<p>The amount of CO₂ in the atmosphere grew by 2ppm in 2009₁.</p>

Result

On the 4th of September you will learn about E=MC².
The amount of CO₂ in the atmosphere grew by 2ppm in 2009₁.

<sup>

The <sup> element is used to contain characters that should be superscript such as the suffixes of dates or mathematical concepts like raising a number to a power such as 2^2 .

<sub>

The <sub> element is used to contain characters that should be subscript. It is commonly used with foot notes or chemical formulas such as H₂O.

WHiTε sPace

In order to make code easier to read, web page authors often add extra spaces or start some elements on new lines.

When the browser comes across two or more spaces next to each other, it only displays one space. Similarly if it comes across a line break, it treats that as a single space too. This is known as **white space collapsing**.

You will often see that web page authors take advantage of white space collapsing to indent their code in order to make it easier to follow.

chapter-02/white-space.html

HTML

```
<p>The moon is drifting away from Earth.</p>
<p>The moon      is drifting away from Earth.</p>
<p>The moon is drifting away from
Earth.</p>
```

The moon is drifting away from Earth.

Result

The moon is drifting away from Earth.

The moon is drifting away from Earth.

line Breaks & Horizontal rules

HTML

chapter-02/line-breaks.html

```
<p>The Earth<br />gets one hundred tons heavier  
every day<br />due to falling space dust.</p>
```

Result

The Earth
gets one hundred tons heavier every day
due to falling space dust.

As you have already seen, the browser will automatically show each new paragraph or heading on a new line. But if you wanted to add a line break inside the middle of a paragraph you can use the line break tag `
`.

HTML

chapter-02/horizontal-rules.html

```
<p>Venus is the only planet that rotates  
clockwise.</p>  
<hr />  
<p>Jupiter is bigger than all the other planets  
combined.</p>
```

Result

Venus is the only planet that rotates clockwise.

Jupiter is bigger than all the other planets combined.

<hr />

To create a break between themes — such as a change of topic in a book or a new scene in a play — you can add a horizontal rule between sections using the `<hr />` tag.

There are a few elements that do not have any words between an opening and closing tag. They are known as **empty elements** and they are written differently.

An empty element usually has only one tag. Before the closing angled bracket of an empty element there will often be a space and a forward slash character. Some web page authors miss this out but it is a good habit to get into.

Visual editors & Their code Views

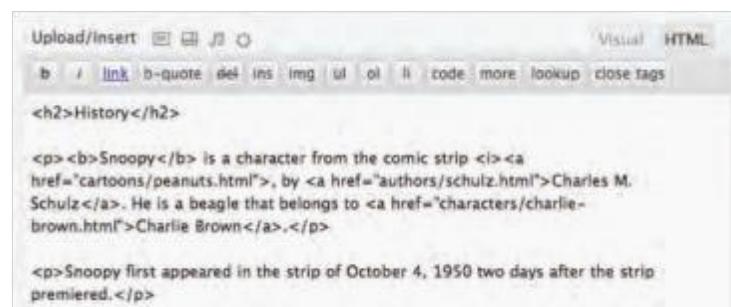
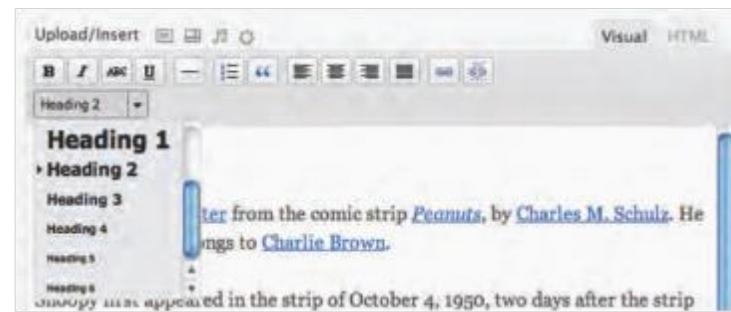
Content management systems and HTML editors such as Dreamweaver usually have two views of the page you are creating: a visual editor and a code view.

Visual editors often resemble word processors. Although each editor will differ slightly, there are some features that are common to most editors that allow you to control the presentation of text.

- Headings are created by highlighting text then using a drop-down box to select a heading.
- Bold and italic text are created by highlighting some text and pressing a **b** or *i* button.
- New paragraphs are created using the return or the enter key.
- Line breaks are created by pressing the shift key and the return key at the same time.
- Horizontal rules are created using a button with a straight line on it.

If you copy and paste text from a program that allows you to format text (such as Word) into a visual editor, it may add extra markup. To prevent this copy the text into a plain text editor first (such as Notepad on a PC orTextEdit on a Mac) and then copy it from that program and paste it into the visual editor.

Code views show you the code created by the visual editor so you can manually edit it, or so you can just enter new code yourself. It is often activated using a button with an icon that says HTML or has angled brackets. White space may be added to the code by the editor to make the code easier to read.



semanTic markuP

There are some text elements that are not intended to affect the structure of your web pages, but they do add extra information to the pages — they are known as semantic markup.

In the rest of the chapter you will meet some more elements that will help you when you are adding text to web pages. For example, you are going to meet the `` element that allows you to indicate where emphasis should be placed on selected words and the `<blockquote>` element which indicates that a block of text is a quotation.

Browsers often display the contents of these elements in a different way. For example, the content of the `` element is shown in italics, and a `<blockquote>` is usually indented. But you should not use them to change the way that your text looks; their purpose is to describe the content of your web pages more accurately.

The reason for using these elements is that other programs, such as screen readers or search engines, can use this extra information. For example, the voice of a screen reader may add emphasis to the words inside the `` element, or a search engine might register that your page features a quote if you use the `<blockquote>` element.

sTrong & emPhasis

The use of the `` element indicates that its content has strong importance. For example, the words contained in this element might be said with strong emphasis.

By default, browsers will show the contents of a `` element in bold.

chapter-02/strong.html

HTML

```
<p><strong>Beware:</strong> Pickpockets operate in  
this area.</p>  
<p>This toy has many small pieces and is <strong>not  
suitable for children under five years old.  
</strong></p>
```

Result

Beware: Pickpockets operate in this area.

This toy has many small pieces and is **not
suitable for children under five years old.**

The `` element indicates emphasis that subtly changes the meaning of a sentence.

By default browsers will show the contents of an `` element in italic.

chapter-02/emphasis.html

HTML

```
<p>I <em>think</em> Ivy was the first.</p>  
<p>I think <em>Ivy</em> was the first.</p>  
<p>I think Ivy was the <em>first</em>.</p>
```

Result

I think Ivy was the first.

I think Ivy was the first.

*I think Ivy was the *first*.*

Quotations

HTML

chapter-02/quotations.html

```
<blockquote cite="http://en.wikipedia.org/wiki/Winnie-the-Pooh">
<p>Did you ever stop to think, and forget to start again?</p>
</blockquote>
<p>As A.A. Milne said, <q>Some people talk to animals. Not many listen though. That's the problem.</q></p>
```

There are two elements commonly used for marking up quotations:

<blockquote>

The **<blockquote>** element is used for longer quotes that take up an entire paragraph. Note how the **<p>** element is still used inside the **<blockquote>** element.

Result

Did you ever stop to think, and forget to start again?

As A.A. Milne said, "Some people talk to animals. Not many listen though. That's the problem."

Browsers tend to indent the contents of the **<blockquote>** element, however you should not use this element just to indent a piece of text — rather you should achieve this effect using CSS.

<q>

The **<q>** element is used for shorter quotes that sit within a paragraph. Browsers are supposed to put quotes around the **<q>** element, however Internet Explorer does not — therefore many people avoid using the **<q>** element.

Both elements may use the **cite** attribute to indicate where the quote is from. Its value should be a URL that will have more information about the source of the quotation.

aBBreVia iōńs & acronyms

<abbr>

If you use an abbreviation or an acronym, then the `<abbr>` element can be used. A `title` attribute on the opening tag is used to specify the full term.

In HTML 4 there was a separate `<acronym>` element for acronyms. To spell out the full form of the acronym, the `title` attribute was used (as with the `<abbr>` element above). HTML5 just uses the `<abbr>` element for both abbreviations and acronyms.

chapter-02/abbreviations.html

HtMl

```
<p><abbr title="Professor">Prof</abbr> Stephen  
Hawking is a theoretical physicist and  
cosmologist.</p>  
<p><acronym title="National Aeronautics and Space  
Administration">NASA</acronym> do some crazy  
space stuff.</p>
```

Prof Stephen Hawking is a theoretical physicist and cosmologist.

NASA do some crazy space stuff.

National Aeronautics and Space
Administration

R e S u l t

citations & definitions

HTML

chapter-02/citations.html

```
<p><cite>A Brief History of Time</cite> by Stephen Hawking has sold over ten million copies worldwide.</p>
```

Result

A Brief History of Time by Stephen Hawking has sold over ten million copies worldwide.

<cite>

When you are referencing a piece of work such as a book, film or research paper, the `<cite>` element can be used to indicate where the citation is from.

In HTML5, `<cite>` should not really be used for a person's name — but it was allowed in HTML 4, so most people are likely to continue to use it.

Browsers will render the content of a `<cite>` element in italics.

HTML

chapter-02/definitions.html

```
<p>A <dfn>black hole</dfn> is a region of space from which nothing, not even light, can escape.</p>
```

Result

A black hole is a region of space from which nothing, not even light, can escape.

<dfn>

The first time you explain some new terminology (perhaps an academic concept or some jargon) in a document, it is known as the defining instance of it.

The `<dfn>` element is used to indicate the defining instance of a new term.

Some browsers show the content of the `<dfn>` element in italics. Safari and Chrome do not change its appearance.

auTHor deT ails

<address>

The <address> element has quite a specific use: to contain contact details for the author of the page.

It can contain a physical address, but it does not have to. For example, it may also contain a phone number or email address.

Browsers often display the content of the <address> element in italics.

You may also be interested in something called the hCard microformat for adding physical address information to your markup.

online exTra:

You can find out more about hCards on the website accompanying this book.

chapter-02/address.html

HTML

```
<address>
  <p><a href="mailto:homer@example.org">
    homer@example.org</a></p>
  <p>742 Evergreen Terrace, Springfield.</p>
</address>
```

homer@example.org

Result

742 Evergreen Terrace, Springfield.

cHanges To conTenT

HTML

chapter-02/insert-and-delete.html

```
<p>It was the <del>worst</del> <ins>best</ins> idea  
she had ever had.</p>
```

Result

It was the worst **best** idea she had ever had.

<ins>

The `<ins>` element can be used to show content that has been inserted into a document, while the `` element can show text that has been deleted from it.

The content of a `<ins>` element is usually underlined, while the content of a `` element usually has a line through it.

HTML

chapter-02/strikethrough.html

```
<p>Laptop computer:</p>  
<p><s>Was $995</s></p>  
<p>Now only $375</p>
```

Result

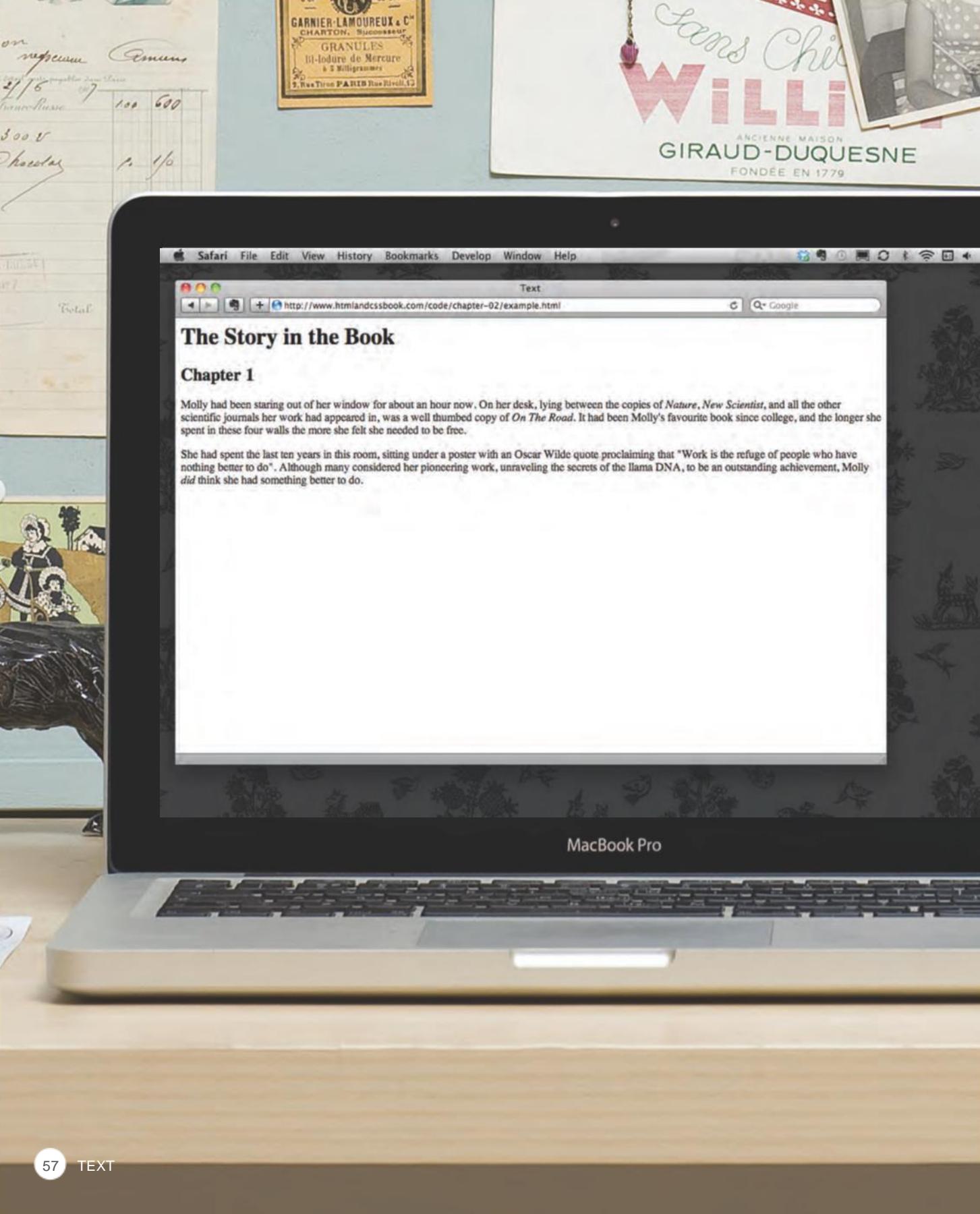
Laptop computer:
~~Was \$995~~
Now only \$375

<s>

The `<s>` element indicates something that is no longer accurate or relevant (but that should not be deleted).

Visually the content of an `<s>` element will usually be displayed with a line through the center.

Older versions of HTML had a `<u>` element for content that was underlined, but this is being phased out.





examPle

TexT

This is a very simple HTML page that demonstrates text markup.

Structural markup includes elements such as `<h1>`, `<h2>`, and `<p>`. Semantic information is carried in elements such as `<cite>` and ``.

```
<html>
  <head>
    <title>Text</title>
  </head>
  <body>
    <h1>The Story in the Book</h1>
    <h2>Chapter 1</h2>
    <p>Molly had been staring out of her window for about
       an hour now. On her desk, lying between the copies
       of <i>Nature</i>, <i>New Scientist</i>, and all
       the other scientific journals her work had
       appeared in, was a well thumbed copy of <cite>On
       The Road</cite>. It had been Molly's favorite book
       since college, and the longer she spent in these
       four walls the more she felt she needed to be
       free.</p>
    <p>She had spent the last ten years in this room,
       sitting under a poster with an Oscar Wilde quote
       proclaiming that <q>Work is the refuge of
       people who have nothing better to do</q>. Although
       many considered her pioneering work, unraveling
       the secrets of the llama <abbr
       title="Deoxyribonucleic acid">DNA</abbr>, to be an
       outstanding achievement, Molly <em>did</em> think
       she had something better to do.</p>
  </body>
</html>
```



summary

TexT

- HTML elements are used to describe the structure of the page (e.g. headings, subheadings, paragraphs).
- They also provide semantic information (e.g. where emphasis should be placed, the definition of any acronyms used, when given text is a quotation).



3

Lists

- ☝ Numbered lists
- ☝ Bulletlists
- ☝ Definition lists

There are lots of occasions when we need to use lists. HTML provides us with three different types:

- **Ordered lists** are lists where each item in the list is numbered. For example, the list might be a set of steps for a recipe that must be performed in order, or a legal contract where each point needs to be identified by a section number.
- **Unordered lists** are lists that begin with a bullet point (rather than characters that indicate order).
- **Definition lists** are made up of a set of terms along with the definitions for each of those terms.



Ordered Lists

The ordered list is created with the element.

Each item in the list is placed between an opening tag and a closing tag. (The li stands for list item.)

Browsers indent lists by default.

Sometimes you may see a type attribute used with the element to specify the type of numbering (numbers, letters, roman numerals and so on). It is better to use the CSS list-style-type property covered on pages 333-335.

chapter-03/ordered-lists.html

HTML

```
<ol>
  <li>Chop potatoes into quarters</li>
  <li>Simmer in salted water for 15-20
      minutes until tender</li>
  <li>Heat milk, butter and nutmeg</li>
  <li>Drain potatoes and mash</li>
  <li>Mix in the milk mixture</li>
</ol>
```

Result

1. Chop potatoes into quarters
2. Simmer in salted water for 15-20 minutes until tender
3. Heat milk, butter and nutmeg
4. Drain potatoes and mash
5. Mix in the milk mixture

UnOrdered Lists

HTML

chapter-03/unordered-lists.html

```
<ul>
<li>1kg King Edward potatoes</li>
<li>100ml milk</li>
<li>50g salted butter</li>
<li>Freshly grated nutmeg</li>
<li>Salt and pepper to taste</li>
</ul>
```

Result

- 1kg King Edward potatoes
- 100ml milk
- 50g salted butter
- Freshly grated nutmeg
- Salt and pepper to taste

The unordered list is created with the `` element.

Each item in the list is placed between an opening `` tag and a closing `` tag. (The `li` stands for list item.)

Browsers indent lists by default.

Sometimes you may see a `type` attribute used with the `` element to specify the type of bullet point (circles, squares, diamonds and so on). It is better to use the CSS `list-style-type` property covered on pages 333-335.

definition Lists

<dl>

The definition list is created with the <dl> element and usually consists of a series of terms and their definitions.

Inside the <dl> element you will usually see pairs of <dt> and <dd> elements.

<dt>

This is used to contain the term being defined (the definition term).

chapter-03/definition-lists.html HTML

```
<dl>
  <dt>Sashimi</dt>
  <dd>Sliced raw fish that is served with
    condiments such as shredded daikon radish or
    ginger root, wasabi and soy sauce</dd>
  <dt>Scale</dt>
  <dd>A device used to accurately measure the
    weight of ingredients</dd>
  <dd>A technique by which the scales are removed
    from the skin of a fish</dd>
  <dt>Scamorze</dt>
  <dt>Scamorzo</dt>
  <dd>An Italian cheese usually made from whole
```

```
cow's milk (although it was traditionally made
from buffalo milk)</dd>
</dl>
```

Result

Sashimi	Sliced raw fish that is served with condiments such as shredded daikon radish or ginger root, wasabi and soy sauce
Scale	A device used to accurately measure the weight of ingredients A technique by which the scales are removed from the skin of a fish
Scamorze	Scamorzo
	An Italian cheese usually made from whole cow's milk (although it was traditionally made from buffalo milk)

nested Lists

HTML

chapter-03/nested-lists.html

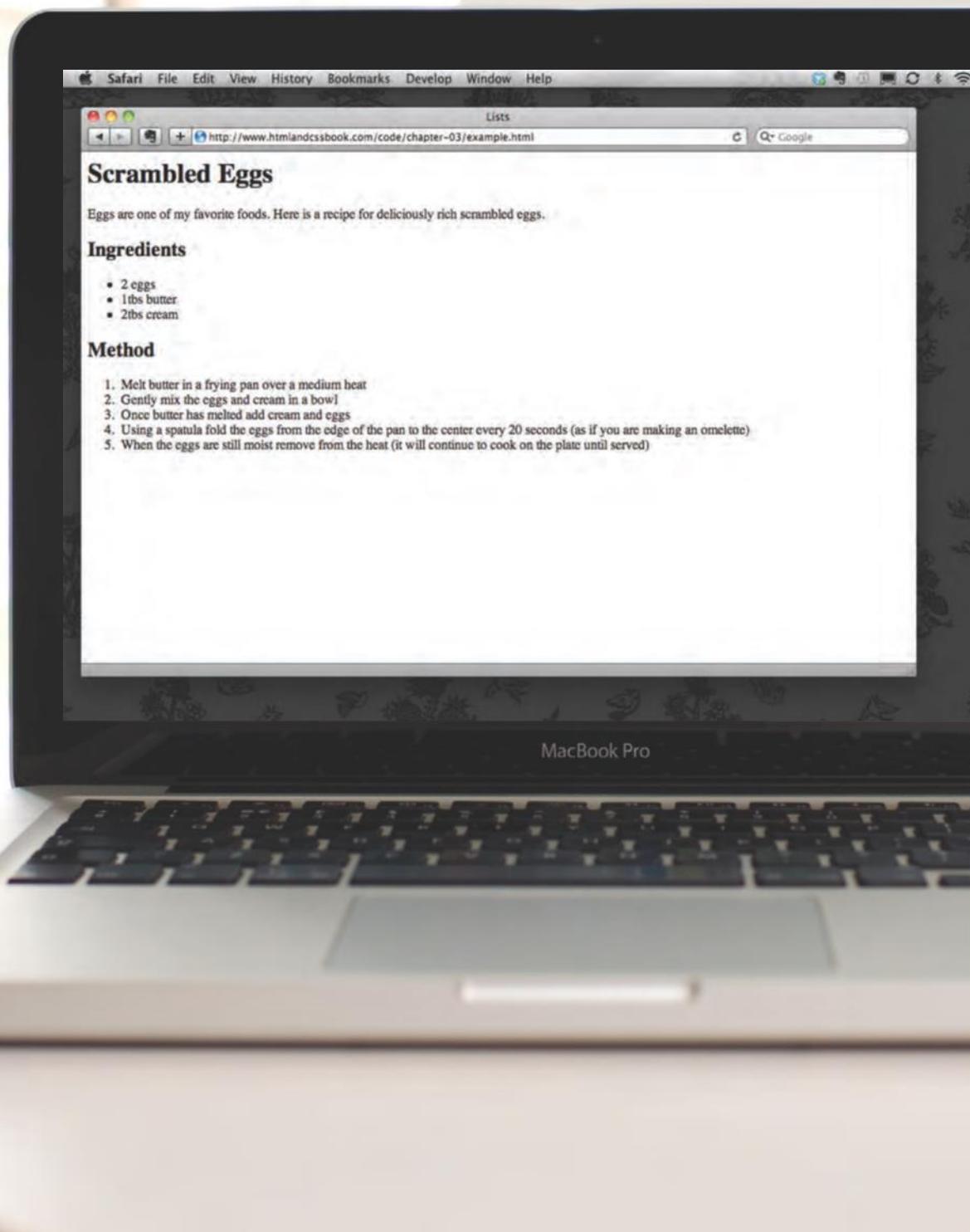
```
<ul>
  <li>Mousses</li>
  <li>Pastries
    <ul>
      <li>Croissant</li>
      <li>Mille-feuille</li>
      <li>Palmier</li>
      <li>Profiterole</li>
    </ul>
  </li>
  <li>Tarts</li>
</ul>
```

You can put a second list inside an `` element to create a sub-list or nested list.

Browsers display nested lists indented further than the parent list. In nested unordered lists, the browser will usually change the style of the bullet point too.

Result

- Mousses
- Pastries
 - Croissant
 - Mille-feuille
 - Palmier
 - Profiterole
- Tarts



exAmpLe

Lists



Here you can see a main heading followed by an introductory paragraph. An unordered list is used to outline the ingredients and an ordered list is used to describe the steps.

```
<html>
<head>
  <title>Lists</title>
</head>
<body>
  <h1>Scrambled Eggs</h1>
  <p>Eggs are one of my favourite foods. Here is a recipe for deliciously rich scrambled eggs.</p>
  <h2>Ingredients</h2>
  <ul>
    <li>2 eggs</li>
    <li>1tbs butter</li>
    <li>2tbs cream</li>
  </ul>
  <h2>Method</h2>
  <ol>
    <li>Melt butter in a frying pan over a medium heat</li>
    <li>Gently mix the eggs and cream in a bowl</li>
    <li>Once butter has melted add cream and eggs</li>
    <li>Using a spatula fold the eggs from the edge of
  </ol>
</body>
</html>
```

the pan to the center every 20 seconds (as if you are making an omelette)
When the eggs are still moist remove from the heat (it will continue to cook on the plate until served)



sUmmAry

Lists

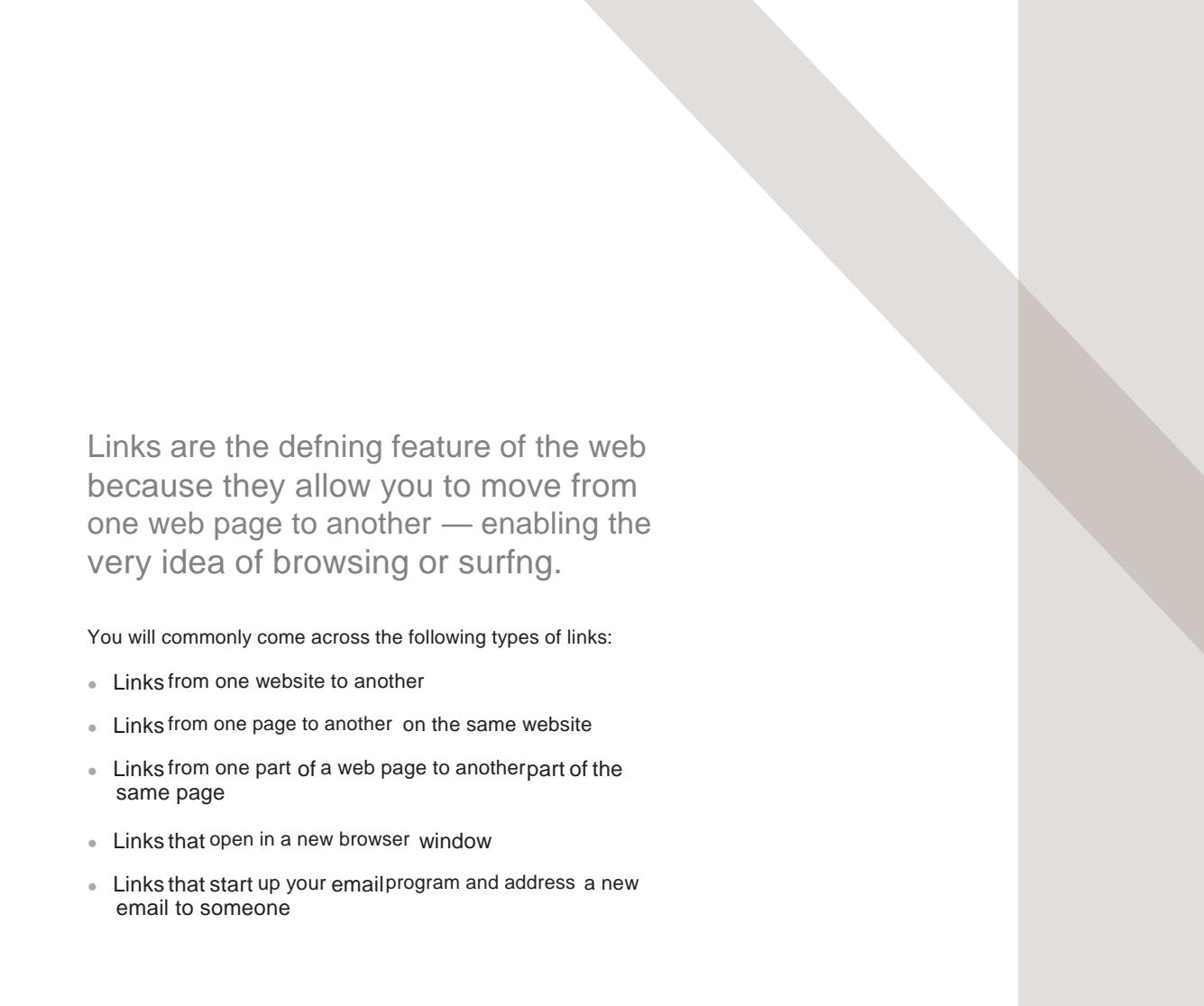
- ☞ There are three types of HTML lists: ordered, unordered, and definition.
- ☞ Ordered lists use numbers.
- ☞ Unordered lists use bullets.
- ☞ Definition lists are used to define terminology.
- ☞ Lists can be nested inside one another.



4

Links

- ↳ Creating links between pages
- ↳ Linking to other sites
- ↳ Emaillinks



Links are the defining feature of the web because they allow you to move from one web page to another — enabling the very idea of browsing or surfing.

You will commonly come across the following types of links:

- Links from one website to another
- Links from one page to another on the same website
- Links from one part of a web page to another part of the same page
- Links that open in a new browser window
- Links that start up your email program and address a new email to someone



Writing Links

Links are created using the `<a>` element. Users can click on anything between the opening `<a>` tag and the closing `` tag. You specify which page you want to link to using the `href` attribute.



The text between the opening `<a>` tag and closing `` tag is known as link text. Where possible, your link text should explain where visitors will be taken if they click on it (rather than just saying "click here"). Below you can see the link to IMDB that was created on the previous page.

Many people navigate websites by scanning the text for links. Clear link text can help visitors find what they want. This will give them a more positive impression of your site and may encourage them to visit it for longer. (It also helps people using screen reader software.)

To write good link text, you can think of words people might use when searching for the page that you are linking to. (For example, rather than write "places to stay" you could use something more specific such as "hotels in New York.")



IMDB

Linking to other sites

<a>

Links are created using the `<a>` element which has an attribute called `href`. The value of the `href` attribute is the page that you want people to go to when they click on the link.

Users can click on anything that appears between the opening `<a>` tag and the closing `` tag and will be taken to the page specified in the `href` attribute.

When you link to a different website, the value of the `href` attribute will be the full web address for the site, which is known as an **absolute URL**.

Browsers show links in blue with an underline by default.

chapter-04/linking-to-other-sites.html

HTML

```
<p>Movie Reviews:  
<ul>  
  <li><a href="http://www.empireonline.com">  
    Empire</a></li>  
  <li><a href="http://www.metacritic.com">  
    Metacritic</a></li>  
  <li><a href="http://www.rottentomatoes.com">  
    Rotten Tomatoes</a></li>  
  <li><a href="http://www.variety.com">  
    Variety</a></li>  
</ul>  
</p>
```

Result

Movie Reviews:

- [Empire](http://www.empireonline.com)
- [Metacritic](http://www.metacritic.com)
- [Rotten Tomatoes](http://www.rottentomatoes.com)
- [Variety](http://www.variety.com)

Absolute URLs

URL stands for Uniform Resource Locator. Every web page has its own URL. This is the web address that you would type into a browser if you wanted to visit that specific page.

An absolute URL starts with the domain name for that site, and can be followed by the path to a specific page. If no page is specified, the site will display the homepage.

Linking to other PAgEs on the sAme site

HTML

chapter-04/linking-to-other-pages.html

```
<p>
<ul>
  <li><a href="index.html">Home</a></li>
  <li><a href="about-us.html">About</a></li>
  <li><a href="movies.html">Movies</a></li>
  <li><a href="contact.html">Contact</a></li>
</ul>
</p>
```

Result

- [Home](#)
- [About](#)
- [Movies](#)
- [Contact](#)

<a>

When you are linking to other pages within the same site, you do not need to specify the domain name in the URL. You can use a shorthand known as a **relative URL**.

If all the pages of the site are in the same folder, then the value of the `href` attribute is just the name of the file.

If you have different pages of a site in different folders, then you can use a slightly more complex syntax to indicate where the page is in relation to the current page. You will learn more about these on the pages 81-84.

If you look at the download code for each chapter, you will see that the `index.html` file contains links that use relative URLs.

reLAtive urLs

When linking to other pages within the same site, you can use relative URLs. These are like a shorthand version of absolute URLs because you do not need to specify the domain name.

We will take a closer look at relative URLs on pages 83-84 as there are several helpful shortcuts you can use to write links to other pages on your own website.

Relative URLs help when building a site on your computer because you can create links between pages without having to set up your domain name or hosting.

Directory structure

On larger websites it's a good idea to organize your code by placing the pages for each different section of the site into a new folder. Folders on a website are sometimes referred to as **directories**.

structure

The diagram on the right shows the directory structure for a fictional entertainment listings website called *ExampleArts*.

The top-level folder is known as the **root** folder. (In this example, the root folder is called *examplearts*.) The root folder contains all of the other files and folders for a website.

Each section of the site is placed in a separate folder; this helps organize the files.

If you are working with a content management system, blogging software, or an e-commerce system, you might not have individual files for each page of the website.

reLAtionshiPs

The relationship between files and folders on a website is described using the same terminology as a family tree.

In the diagram on the right, you can see some relationships have been drawn in.

The *examplearts* folder is a parent of the *movies*, *music* and *theater* folders. And the *movies*, *music* and *theater* folders are children of the *examplearts* folder.

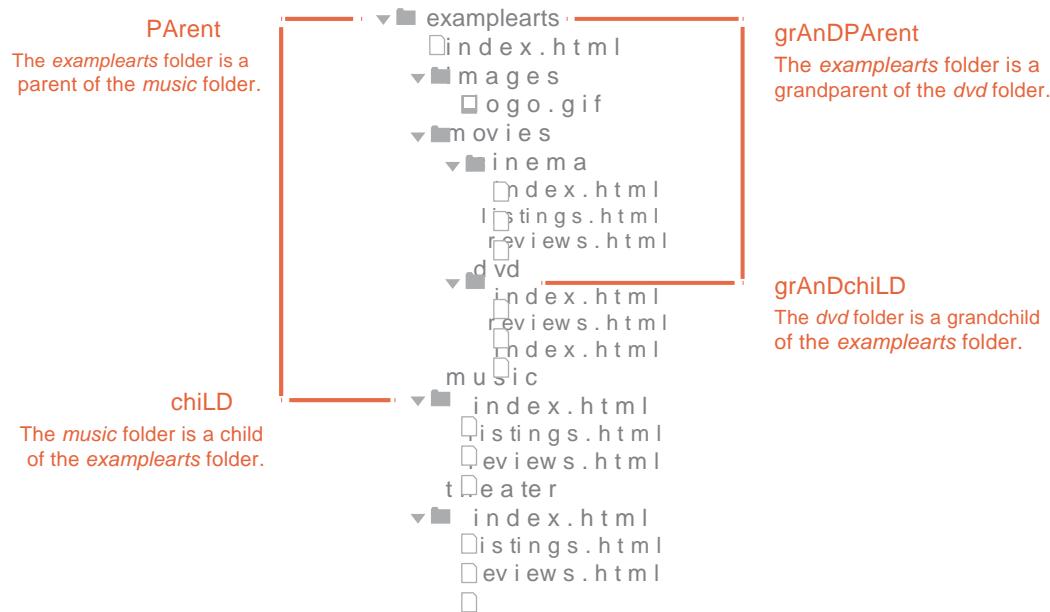
h o m ePAg e s

The main homepage of a site written in HTML (and the homepages of each section in a child folder) is called *index.html*.

Web servers are usually set up to return the *index.html* file if no file name is specified.

Therefore, if you enter *examplearts.com* it will return *examplearts.com/index.html*, and *examplearts.com/music* will return *examplearts.com/music/index.html*.

Instead, these systems often use one template file for each different type of page (such as news articles, blog posts, or products). Editing the template file would change all of the pages that use that template. Do not change any code that is not HTML or you may break the page.



Every page and every image on a website has a **uRI** (or Uniform Resource Locator). The URL is made up of the domain name followed by the **path** to that page or image.

The path to the homepage of this site is **www.examplearts.com/index.html**. The path to the logo for the site is **examplearts.com/images/logo.gif**.

You use URLs when linking to other web pages and when including images in your own site. On the next page, you will meet a shorthand way to link to files on your own site.

The root folder contains:

- A file called *index.html* which is the homepage for the entire site
- Individual folders for the movies, music and theatre sections of the site

Each sub-directory contains:

- A file called *index.html* which is the homepage for that section
- A reviews page called *reviews.html*
- A listings page called *listings.html* (except for the DVD section)

The movies section contains:

- A folder called *cinema*
- A folder called *DVD*.

reLAtive urLs

Relative URLs can be used when linking to pages within your own website. They provide a shorthand way of telling the browser where to find your files.

When you are linking to a page on your own website, you do not need to specify the domain name. You can use **relative URLs** which are a shorthand way to tell the browser where a page is in relation to the current page.

This is especially helpful when creating a new website or learning about HTML because you can create links between pages when they are only on your personal computer (before you have got a domain name and uploaded them to the web).

Because you do not need to repeat the domain name in each link, they are also quicker to write.

If all of the files in your site are in one folder, you simply use the file name for that page.

If your site is organized into separate folders (or directories), you need to tell the browser how to get from the page it is currently on to the page that you are *linking to*.

If you link to the same page from two different pages you might, therefore, need to write two different relative URLs.

These links make use of the same terminology (borrowed from that of family trees) you met on the previous page which introduces directory structure.

reLAtive Link tyPe

exAmPLe (from diagram on previous page)

sAme FoLDer

To link to a file in the same folder, just use the file name. (Nothing else is needed.)

To link to music reviews from the music homepage:
`Reviews`

chiLD FoLDer

For a child folder, use the name of the child folder, followed by a forward slash, then the file name.

To link to music listings from the homepage:
`Listings`

grAnDchiLD FoLDer

Use the name of the child folder, followed by a forward slash, then the name of the grandchild folder, followed by another forward slash, then the file name.

To link to DVD reviews from the homepage:
`Reviews`

PArent FoLDer

Use .. / to indicate the folder above the current one, then follow it with the file name.

To link to the homepage from the music reviews:
`Home`

grAnDPARENT FoLDer

Repeat the .. / to indicate that you want to go up two folders (rather than one), then follow it with the file name.

To link to the homepage from the DVD reviews:
`Home`

When a website is live (that is, uploaded to a web server) you may see a couple of other techniques used that do not work when the files are on your local computer.

Forexample, you may see the name of a child folder without the name of a file. In this case the web server will usually try to show the homepage for that section.

A forward slash will return the homepage for the entire site, and a forward slash followed by a file name will return that file providing it is in the root directory.

emAiL Links

mailto:

To create a link that starts up the user's email program and addresses an email to a specified email address, you use the `<a>` element. However, this time the value of the `href` attribute starts with `mailto:` and is followed by the email address you want the email to be sent to.

On the right you can see that an email link looks just like any other link but, when it is clicked on, the user's email program will open a new email message and address it to the person specified in the link.

chapter-04/email-links.html

```
<a href="mailto:jon@example.org">Email Jon</a>
```

HtMI

R e s u l t

[Email Jon](mailto:jon@example.org)



oPeninG Links in A neW WinDoW

HTMl

chapter-04/opening-links-in-a-new-window.html

```
<a href="http://www.imdb.com" target="_blank">  
Internet Movie Database</a> (opens in new window)
```

Result

[Internet Movie Database](http://www.imdb.com) (opens in new window)

target

If you want a link to open in a new window, you can use the **target** attribute on the opening **<a>** tag. The value of this attribute should be `_blank`.

One of the most common reasons a web page author might want a link to be opened in a new window is if it points to another website. In such cases, they hope the user will return to the window containing their site after finishing looking at the other one.

Generally you should avoid opening links in a new window, but if you do, it is considered good practice to inform users that the link will open a new window before they click on it.

Linking to A sPeciFic PArt oF the sAme PAge

At the top of a long page you might want to add a list of contents that links to the corresponding sections lower down. Or you might want to add a link from part way down the page back to the top of it to save users from having to scroll back to the top.

Before you can link to a specific part of a page, you need to identify the points in the page that the link will go to. You do this using the `id` attribute (which can be used on every HTML element). You can see that the `<h1>` and `<h2>` elements in this example have been given `id` attributes that identify those sections of the page.

The value of the `id` attribute should start with a letter or an underscore (not a number or any other character) and, on a single page, no two `id` attributes should have the same value.

To link to an element that uses an `id` attribute you use the `<a>` element again, but the value of the `href` attribute starts with the `#` symbol, followed by the value of the `id` attribute of the element you want to link to. In this example, `` links to the `<h1>` element at the top of the page whose `id` attribute has a value of `top`.

chapter-05/linking-to-a-specific-part.html

HTML

```
<h1 id="top">Film-Making Terms</h1>
<a href="#arc_shot">Arc Shot</a><br /> <a href="#interlude">Interlude</a><br />
<a href="#prologue">Prologue</a><br /><br />
<h2 id="arc_shot">Arc Shot</h2>
<p>A shot in which the subject is photographed by an encircling or moving camera</p>
<h2 id="interlude">Interlude</h2>
<p>A brief, intervening film scene or sequence, not
    specifically tied to the plot, that appears
    within a film</p>
<h2 id="prologue">Prologue</h2>
<p>A speech, preface, introduction, or brief scene
    preceding the the main action or plot of a film;
    contrast to epilogue</p>
<p><a href="#top">Top</a></p>
```

Linking to A sPeciFic PArt oF Another PAge

Result

Film-Making Terms

[Arc Shot](#)
[Interlude](#)
[Prologue](#)

Arc Shot

A shot in which the subject is photographed by an encircling or moving camera

Interlude

A brief, intervening film scene or sequence, not specifically tied to the plot, that appears within a film

Prologue

A speech, preface, introduction, or brief scene preceding the main action or plot of a film; contrast to epilogue

[Top](#)

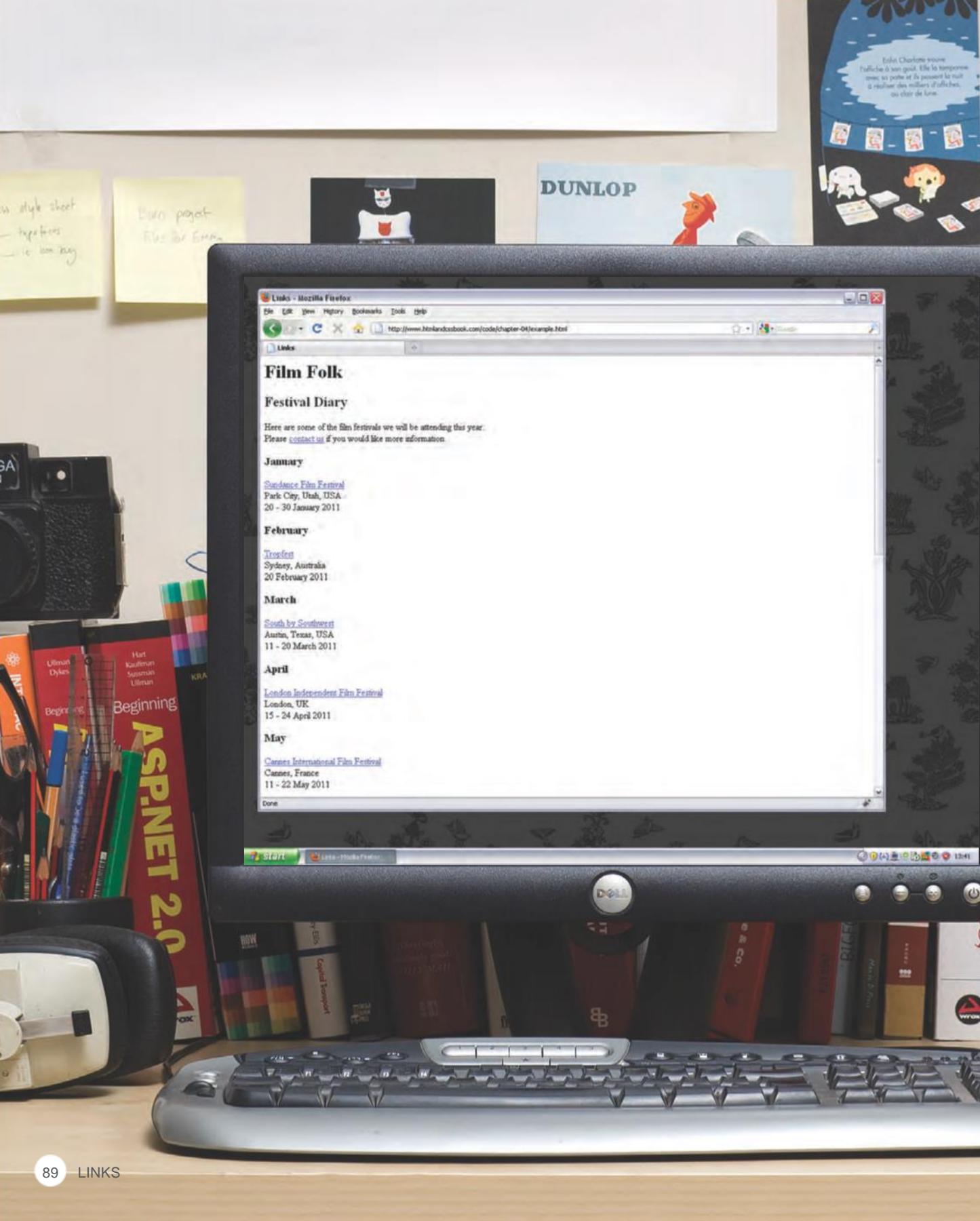
If you want to link to a specific part of a different page (whether on your own site or a different website) you can use a similar technique.

As long as the page you are linking to has **id** attributes that identify specific parts of the page, you can simply add the same syntax to the end of the link for that page.

Therefore, the **href** attribute will contain the address for the page (either an absolute URL or a relative URL), followed by the **#** symbol, followed by the value of the **id** attribute that is used on the element you are linking to.

For example, to link to the bottom of the homepage of the website that accompanies this book, you would write:

```
<a href="http://www.  
htmlandcssbook.com/  
#bottom">
```





exAmPLe

Links

This example is of a web page about flm.

The `<h1>` element is used with an `id` attribute at the top of the page so that a link can be added to take readers from the bottom of the page to the top. There is an email link to allow readers to contact the author of the web page. There are also a number of links to qualified URLs. These link to various flm festivals. Below this list is a link to a relative URL which is an "about" page that lives in the same directory.

```
<html>
  <head>
    <title>Links</title>
  </head>
  <body>
    <h1 id="top">Film Folk</h1>
    <h2>Festival Diary</h2>
    <p>Here are some of the film festivals we
      will be attending this year.<br />Please
      <a href="mailto:filmfolk@example.org">
```

contact us if you would like more information.</p>
<h3>January</h3>
<p>
 Sundance Film Festival

 Park City, Utah, USA

 20 - 30 January 2011</p>
<h3>February</h3>
<p>
 Tropfest

 Sydney, Australia

 20 February 2011</p>
<!-- additional content -->
<p>About Film Folk</p>
<p>Top of page</p>
</body>
</html>



summAry

Links

- ↳ Links are created using the `<a>` element.
- ↳ The `<a>` element uses the `href` attribute to indicate the page you are linking to.
- ↳ If you are linking to a page within your own site, it is best to use relative links rather than qualified URLs.
- ↳ You can create links to open email programs with an email address in the "to" field.
- ↳ You can use the `id` attribute to target elements within a page that can be linked to.



5

Images

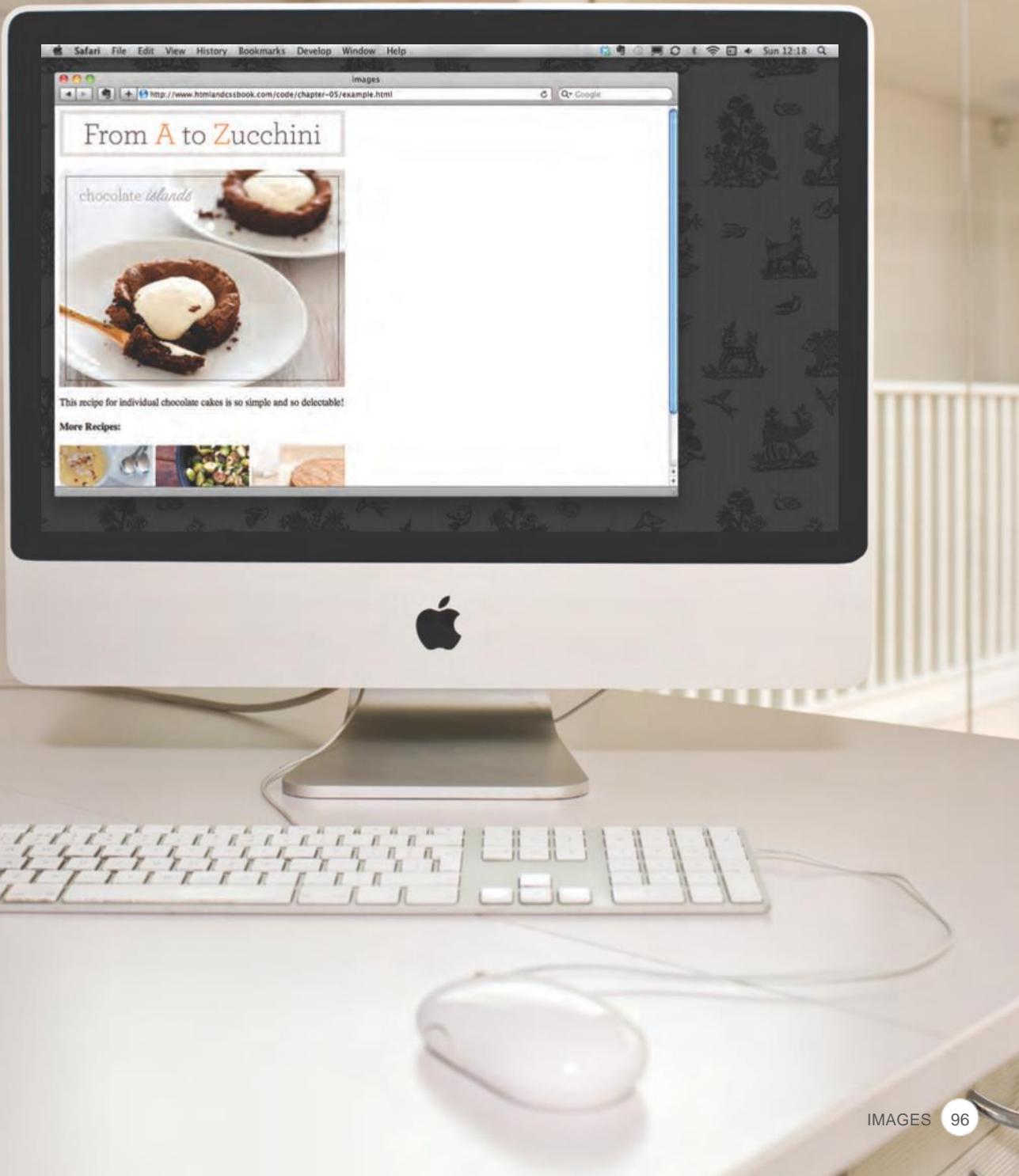
- ↳ How to add images to pages
- ↳ Choosing the right format
- ↳ Optimizing images for the web

There are many reasons why you might want to add an image to a web page: you might want to include a logo, photograph, illustration, diagram, or chart.

There are several things to consider when selecting and preparing images for your site, but taking time to get them right will make it look more attractive and professional. In this chapter you will learn how to:

- Include an image in your web pages using HTML
- Pick which image format to use
- Show an image at the right size
- Optimize an image for use on the web to make pages load faster

You can also use CSS to include images in your pages using the `background-image` property, which you will meet on pages 413-420.



Choosing Images for Your Site

A picture can say a thousand words, and great images help make the difference between an average-looking site and a really engaging one.

Images can be used to set the tone for a site in less time than it takes to read a description. If you do not have photographs to use on your website, there are companies who sell **stock images**; these are images you

pay to use (there is a list of stock photography websites below). Remember that all images are subject to copyright, and you can get in trouble for simply taking photographs from another website.

If you have a page that shows several images (such as product photographs or members of a team) then putting them on a simple, consistent background helps them look better as a group.

Images should...

- ✓ Be relevant
- ✓ Convey information
- ✓ Convey the right mood
- ✓ Be instantly recognisable
- ✓ Fit the color palette

to Click photos

www.istockphoto.com
www.gettyimages.com
www.veer.com
www.sxc.hu
www.fotolia.com

online extra

We have provided an online gallery that helps you choose the right image for your website. You can find it in the tools section of the site accompanying this book.

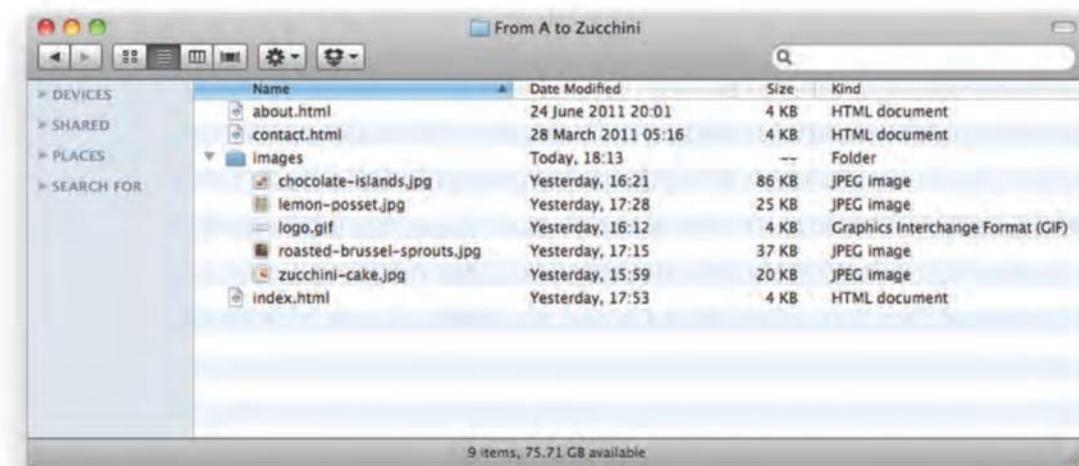
Storing Images on Your Site

If you are building a site from scratch, it is good practice to create a folder for all of the images the site uses.

As a website grows, keeping images in a separate folder helps you understand how the site is organized. Here you can see an example of the files for a website; all of the images are stored in a folder called *images*.

On a big site you might like to add subfolders inside the *images* folder. For example, images such as logos and buttons might sit in a folder called *interface*, product photographs might sit in a page called *products*, and images related to news might live in a folder called *news*.

If you are using a content management system or blogging platform, there are usually tools built into the admin site that allow you to upload images, and the program will probably already have a separate folder for image files and any other uploads.



adding Images

To add an image into the page you need to use an element. This is an empty element (which means there is no closing tag). It must carry the following two attributes:

src

This tells the browser where it can find the image file. This will usually be a relative URL pointing to an image on your own site. (Here you can see that the images are in a child folder called *images* — relative URLs were covered on pages 83-84).

alt

This provides a text description of the image which describes the image if you cannot see it.

title

You can also use the title attribute with the element to provide additional information about the image. Most browsers will display the content of this attribute in a tooltip when the user hovers over the image.

chapter-05/adding-images.html

HTML

```

```

Result



The text used in the alt attribute is often referred to as **alt text**. It should give an accurate description of the image content so it can be understood by screen reader software (used by people with visual impairments) and search engines.

If the image is just to make a page look more attractive (and it has no meaning, such as a graphic dividing line), then the alt attribute should still be used but the quotes should be left empty.

height & Width of Images

HTML

chapter-05/height-and-width-of-images.html

```

```

Result



You will also often see an `` element use two other attributes that specify its size:

height

This specifies the height of the image in pixels.

width

This specifies the width of the image in pixels.

Images often take longer to load than the HTML code that makes up the rest of the page. It is, therefore, a good idea to specify the size of the image so that the browser can render the rest of the text on the page while leaving the right amount of space for the image that is still loading.

The size of images is increasingly being specified using CSS rather than HTML — see pages 409-410 for more information about this.

Where to place Images In Your Code

Where an image is placed in the code will affect how it is displayed. Here are three examples of image placement that produce different results:

1: before a paragraph

The paragraph starts on a new line after the image.

2: Inside the start of a paragraph

The first row of text aligns with the bottom of the image.

3: In the middle of a paragraph

The image is placed between the words of the paragraph that it appears in.

chapter-05/where-to-place-images.html

HTML

```

```

```
<p>There are around 10,000 living species of birds
```

```
that inhabit different ecosystems from the  
Arctic to the Antarctic. Many species undertake  
long distance annual migrations, and many more  
perform shorter irregular journeys.</p>
```

```
<hr />
```

```
<p>There are around 10,000 living
```

```
species of birds that inhabit different  
ecosystems from the Arctic to the Antarctic. Many  
species undertake long distance annual  
migrations, and many more perform shorter  
irregular journeys.</p>
```

```
<hr />
```

```
<p>There are around 10,000 living species of birds
```

```
that inhabit different ecosystems from the  
Arctic to the Antarctic.Many species undertake long
```

```
distance annual migrations, and many more perform  
shorter irregular journeys.</p>
```

Result



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

There are around 10,000 living species of birds that inhabit different



ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

Where you place the image in the code is important because browsers show HTML elements in one of two ways:

Block elements always appear on a new line. Examples of block elements include the `<h1>` and `<p>` elements.

If the `` is followed by a block level element (such as a paragraph) then the block level element will sit on a new line after the image as shown in the first example on this page.

Inline elements sit within a block level element and do not start on a new line. Examples of inline elements include the ``, ``, and `` elements.

If the `` element is inside a block level element, any text or other inline elements will flow around the image as shown in the second and third examples on this page.

Block and inline elements are discussed in greater depth on pages 185-186.

old Code: aligning Images horizontally

Y

align

The `align` attribute was commonly used to indicate how the other parts of a page should flow around an image. It has been removed from HTML5 and new websites should use CSS to control the alignment of images (as you will see on pages 411-412).

I have discussed it here because you are likely to come across it if you look at older code, and because some visual editors still insert this attribute when you indicate how an image should be aligned.

The `align` attribute can take these horizontal values:

left

This aligns the image to the left (allowing text to flow around its right-hand side).

right

This aligns the image to the right (allowing text to flow around its left-hand side).

chapter-05/aligning-images-horizontally.html

HTML

```
<p>There are around  
10,000 living species of birds that inhabit  
different ecosystems from the Arctic to the  
Antarctic. Many species undertake long distance  
annual migrations, and many more perform shorter  
irregular journeys.</p>
```

```
<hr />  
<p>There are around  
10,000 living species of birds that inhabit  
different ecosystems from the Arctic to the  
Antarctic. Many species undertake long distance  
annual migrations, and many more perform shorter  
irregular journeys.</p>
```

Result



There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

There are around 10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.



This looks a lot neater than having one line of text next to the image (as shown on the previous example).

When you give the `align` attribute a value of `left`, the image is placed on the left and text flows around it.

When you give the `align` attribute a value of `right`, the image is placed on the right and the text flows around it.

When text flows right up to the edge of an image it can make it harder to read. You will learn how to add a gap between text and images on pages 313-314 using the CSS `padding` and `margin` properties.

old Code: aligning Images Vertically

As you saw on the last page, the `align` attribute is no longer used in HTML5, but it is covered here because you may see it used in older websites and it is still used in the code created by some visual editors.

You can see how to use CSS to achieve the same effects on pages 285-286.

There are three values that the `align` attribute can take that control how the image should align vertically with the text that surrounds it:

top

This aligns the first line of the surrounding text with the top of the image.

middle

This aligns the first line of the surrounding text with the middle of the image.

bottom

This aligns the first line of the surrounding text with the bottom of the image.

chapter-05/aligning-images-vertically.html

HTML

```
<p>There are around
```

10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.</p>

```
<hr />
```

```
<p>There are around
```

10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.</p>

```
<hr />
```

```
<p>There are around
```

10,000 living species of birds that inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.</p>

Result



There are around 10,000 living species of birds that

inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.



There are around 10,000 living species of birds that

inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.



There are around 10,000 living species of birds that

inhabit different ecosystems from the Arctic to the Antarctic. Many species undertake long distance annual migrations, and many more perform shorter irregular journeys.

The value of **top** places the first line of text near the top of the image and subsequent lines of text appear under the image.

The value of **middle** places the first line of text near the vertical middle of the image and subsequent lines of text appear under the image.

The value of **bottom** places the first line of text near the bottom of the image and subsequent lines of text under the image.

When text flows right up to the edge of an image it can make it harder to read. You will learn how to add a gap between text and images on pages 313-314 using the CSS padding and margin properties.

If you would like all of the text to wrap around the image (rather than just one line of text), you should use the CSS **float** property discussed on pages 370-372.

In older code, you may see the **align** attribute used with the values **left** or **right** to achieve the same effect (as described on the previous page), although its use is no longer recommended.

three rules for Creating Images

There are three rules to remember when you are creating images for your website which are summarized below. We go into greater detail on each topic over the next nine pages.

1

saVe Images In the rIght format

Websites mainly use images in jpeg, gif, or png format. If you choose the wrong image format then your image might not look as sharp as it should and can make the web page slower to load.

2

saVe Images at the rIght size

You should save the image at the same width and height it will appear on the website. If the image is smaller than the width or height that you have specified, the image can be distorted and stretched. If the image is larger than the width and height if you have specified, the image will take longer to display on the page.

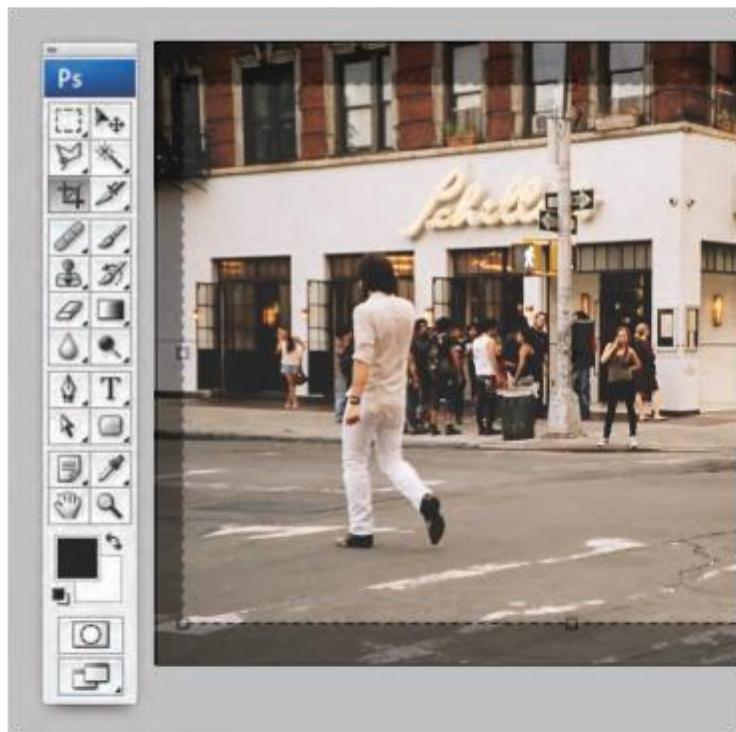
3

use the CorreCt resolutlon

Computer screens are made up of dots known as pixels. Images used on the web are also made up of tiny dots. Resolution refers to the number of dots per inch, and most computer screens only show web pages at 72 pixels per inch. So saving images at a higher resolution results in images that are larger than necessary and take longer to download.

tools to edit & save Images

There are several tools you can use to edit and save images to ensure that they are the right size, format, and resolution.



The most popular tool amongst web professionals is **Adobe Photoshop**. (In fact, professional web designers often use this software to design entire sites.) The full version of Photoshop is expensive, but there is a cheaper version called Photoshop Elements which would suit the needs of most beginners.

other softWare
Adobe Fireworks
Pixelmator
PaintShop Pro
Paint.net

online editors
www.photoshop.com
www.pixlr.com
www.splashup.com
www.ipiccy.com

online extra
Watch videos that demonstrate how to resize images and save them in the correct format using both of these applications.

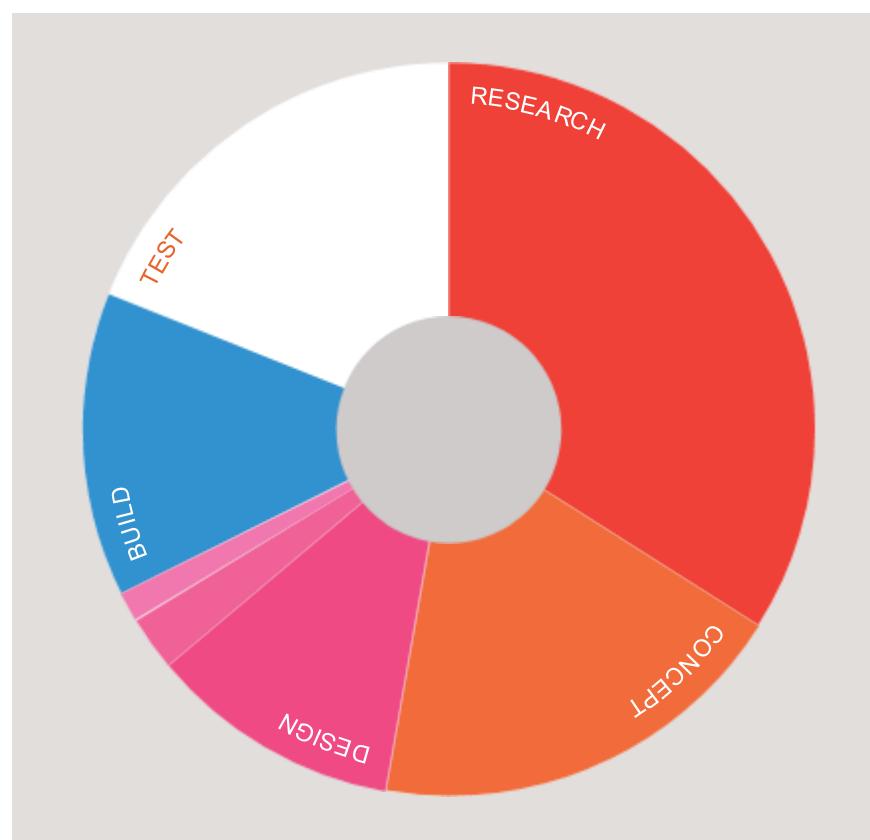
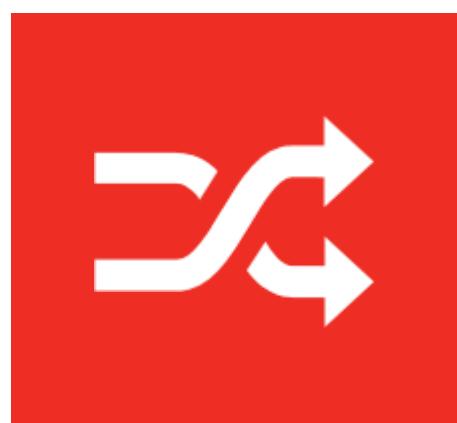
Image formats: Jpeg



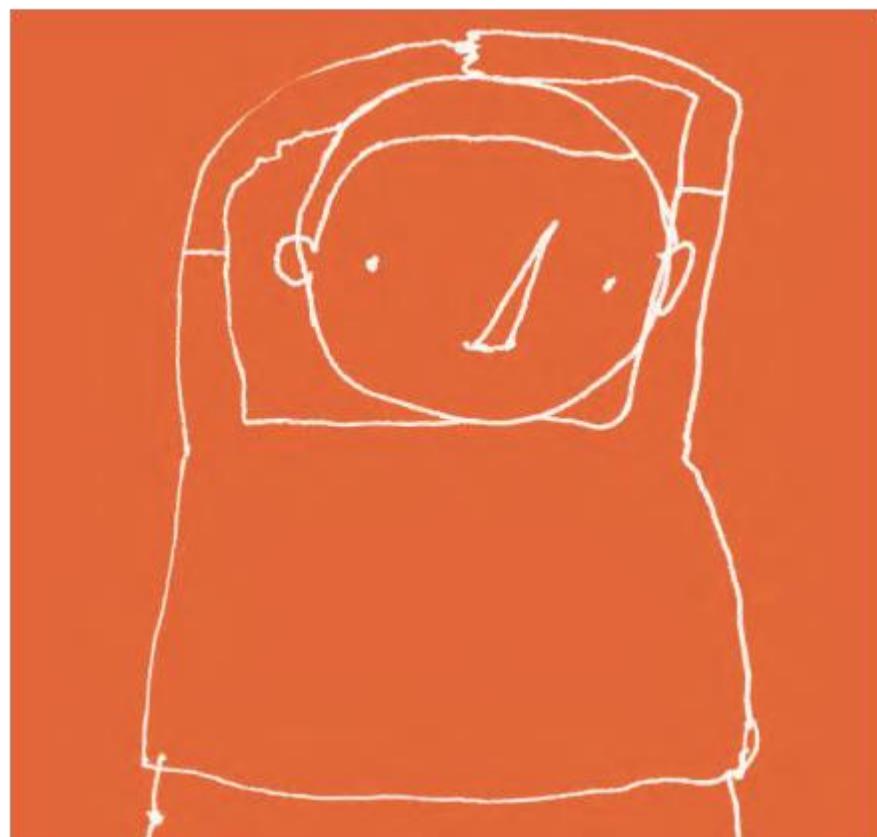
Whenever you have many different colors in a picture you should use a JPEG. A photograph that features snow or an overcast sky might look like it has large areas that are just white or gray, but the picture is usually made up of many different colors that are subtly different.



Image formats: glf



Use GIF or PNG format
when saving images
with few colors or large
areas of the same color.



When a picture has an area that is filled with exactly the same color, it is known as fat color. Logos, illustrations, and diagrams often use fat colors. (Note that photographs of snow, sky, or grass are not fat colors, they are made up of many subtly different shades of the same color and are not as suited to GIF or PNG format.)

Image dimensions

The images you use on your website should be saved at the same width and height that you want them to appear on the page.

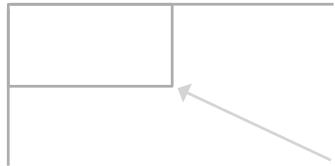
For example, if you have designed a page to include an image that is 300 pixels wide by 150 pixels tall, the image you use should be 300 x 150 pixels. You may need to use image editing tools to resize and crop the

image. When sourcing images, it is important to understand how you can alter the dimensions of an image; imagine that you had designed a web page to include an image that is 300 pixels wide by 150 pixels tall:

online extra

Visit the tools section of the website accompanying this book to watch a video guide to resizing images in Photoshop and GIMP.

reduCing Image size
You can reduce the size of images to create a smaller version of the image.



example: If your image is 600 pixels wide and 300 pixels tall, you can reduce the size of the image by 50%.

Result: This will create an image that is quicker to download.

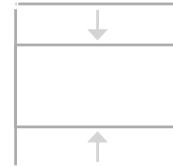
In Creas Ing Image sIze
You can't increase the size of photos significantly without affecting the image quality.



example: If your image is only 100 pixels wide by 50 pixels tall, increasing the size by 300% would result in poor quality.

Result: The image will look blurry or blocky.

Chang Ing shape
Only some images can be cropped without losing valuable information (see next page).



example: If your image is 300 pixels square, you can remove parts of it, but in doing so you might lose valuable information.

Result: Only some images can be cropped and still make sense.

Cropping Images

When cropping images it is important not to lose valuable information. It is best to source images that are the correct shape if possible.



Here you can see an illustration of a giraffe that is best suited to appearing in **portrait**.



If we **crop** this illustration to make it landscape we lose the head and feet.



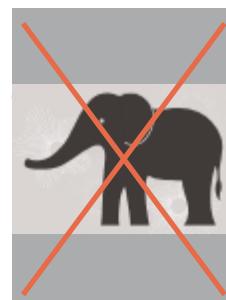
If we **add extra space** to the left and right of the illustration the background is not continued.



Here you can see an illustration of an elephant that is best suited to appearing in **landscape**.



If we **crop** this illustration to make it portrait we lose the trunk and the hindquarters.



If we **add extra space** to the top and bottom of the illustration the background is not continued.

Image resolution

Images created for the web should be saved at a resolution of 72 ppi. The higher the resolution of the image, the larger the size of the file.

JPGs, GIFs, and PNGs belong to a type of image format known as **bitmap**. They are made up of lots of miniature squares. The **resolution** of an image is the number of squares that fit within a 1 inch x 1 inch square area.

Images appearing on **computer** screens are made of tiny squares called **pixels**. A small segment of this photograph has been magnified to show how it is made up of pixels. The web browsers on most desktop

computers display images at a resolution of **72 pixels per inch (ppi)**. Images in **print** materials (such as books and magazines) are made up of tiny circles called **dots**. These images are usually printed at a resolution of **300 dots per inch (dpi)**.



For this image:
JPEG at 300 dpi = 1,526kb
JPEG at 72 ppi = 368kb

Due to the fact that computer displays are capped at a resolution of 72 ppi, using images on the web with a higher resolution will not result in better image quality — only in larger file sizes, which will increase the time needed to load them and therefore slow down viewing of your web pages.

VeCtor Images

Vector images differ from bitmap images and are resolution-independent. Vector images are commonly created in programs such as Adobe Illustrator.

When an image is a line drawing (such as a logo, illustration, or diagram), designers will often create it in vector format. Vector formatted images are very different to bitmap images.

Vector images are created by placing points on a grid, and drawing lines between those points. A color can then be added to "fill in" the lines that have been created.

The advantage of creating line drawings in vector format is that you can increase the dimensions of the image without affecting the quality of it.

The current method of using vector images for display on websites involves saving a bitmap version of the original vector image and using that.

Scalable Vector Graphics (SVG) are a relatively new format used to display vector images directly on the web (eliminating the need to create bitmap versions of them), however its use is not yet widespread.



anlmated glfs

Animated GIFs show several frames of an image in sequence and therefore can be used to create simple animations.

Below you can see the individual frames that make up an animated GIF that shows an orange dot revolving around a circle — like the kind of animation you might see when a web page is loading.

Some image editing applications such as Adobe Photoshop allow you to create animated GIFs. There are several tutorials about how to do this on the web. There are also several websites that allow you to upload the graphics for the individual frames and create the animated GIF for you.

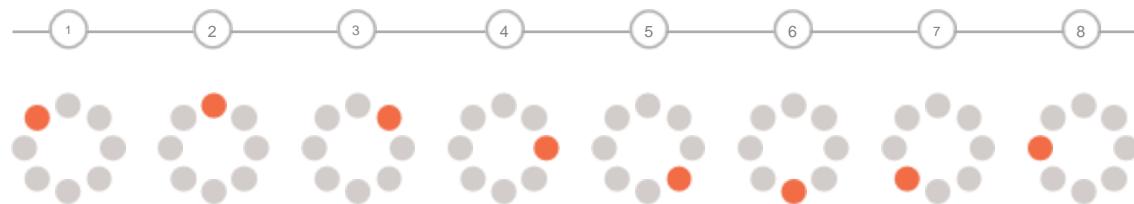
It Is Important to remember:

Each extra frame of the image increases the size of the file, and can therefore add to the time it takes for an image to download (and web users do not like

waiting a long time for images to download).

Because GIFs are not an ideal format for displaying photographs, animated GIFs are really only suitable for simple illustrations.

Some designers frown on animated GIFs because they remember a lot of amateur web designers overusing them in the 1990's.



transparenCY

Creating an image that is partially transparent (or "see-through") for the web involves selecting one of two formats:

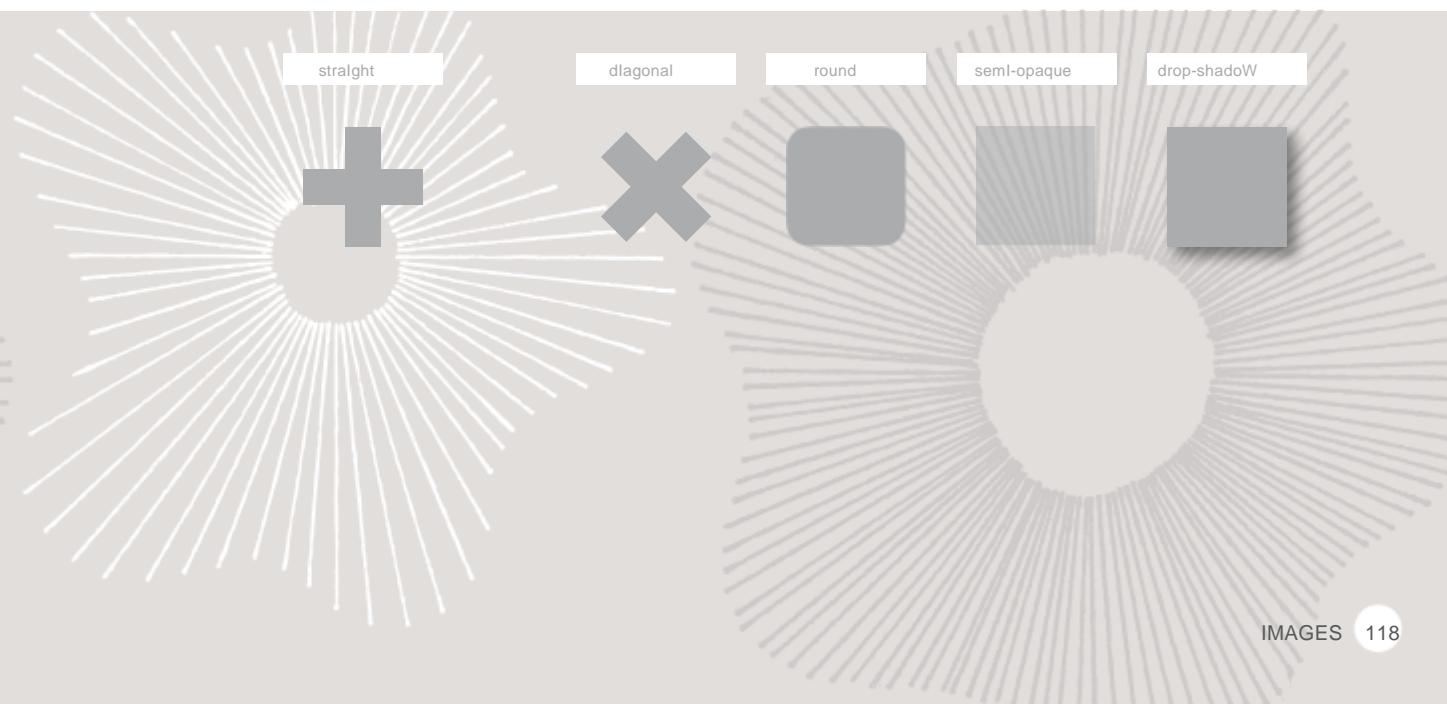
transparent gif

If the transparent part of the image has straight edges and it is 100% transparent (that is, not semi-opaque), you can save the image as a GIF (with the transparency option selected).

png

If the transparent part of the image has diagonal or rounded edges or if you want a semi-opaque transparency or a drop-shadow, then you will need to save it as a PNG.

Transparent PNGs are not fully supported in older browsers, most notably Internet Explorer 6 (IE6). There is some JavaScript you can use to get around this issue. The details of this script can be found in the tools section of the website accompanying this book.



examInIng Images on the Web

CheCkIng the size of Images

If you are updating a website, you might need to check the size of an existing image before creating a new one to replace it. This can be achieved by right-clicking on the image and making a selection from the pop-up menu that appears. (Mac users will need to hold down the control key and click rather than right-click.)



On the left you can see how to check the size of images and how to download them using Safari. Below is a brief overview of what to select in the pop-up menu to perform these functions in various browsers.

Chrome

Size: *Open Image in New Tab*
Size appears in new tab
Download: *Save Image As*

firefox

Size: *View Image Info*
Size appears in pop-up window
Download: *Save Image As*

Internet explorer

Size: **Properties**
Size appears in pop-up window
Download: **save Image**

safari

Size: **Open Image in New tab**
Size appears in title bar
Download: **save Image As**

doWnloading Images

If you want to download images from a website, you can do so by accessing the same pop-up menu. (Please remember however that all images online are subject to copyright and require explicit permission to reuse.)



html5: figure and figure Caption

HTML

chapter-05/figure-and-figure-caption.html

```
<figure>

<br />
<figcaption>Sea otters hold hands when they
sleep so they don't drift away from each
other.</figcaption>
</figure>
```

Result



Sea otters hold hands when they sleep so they don't drift away from each other.

<figure>

Images often come with captions. HTML5 has introduced a new `<figure>` element to contain images and their caption so that the two are associated.

You can have more than one image inside the `<figure>` element as long as they all share the same caption.

<figcaption>

The `<figcaption>` element has been added to HTML5 in order to allow web page authors to add a caption to an image.

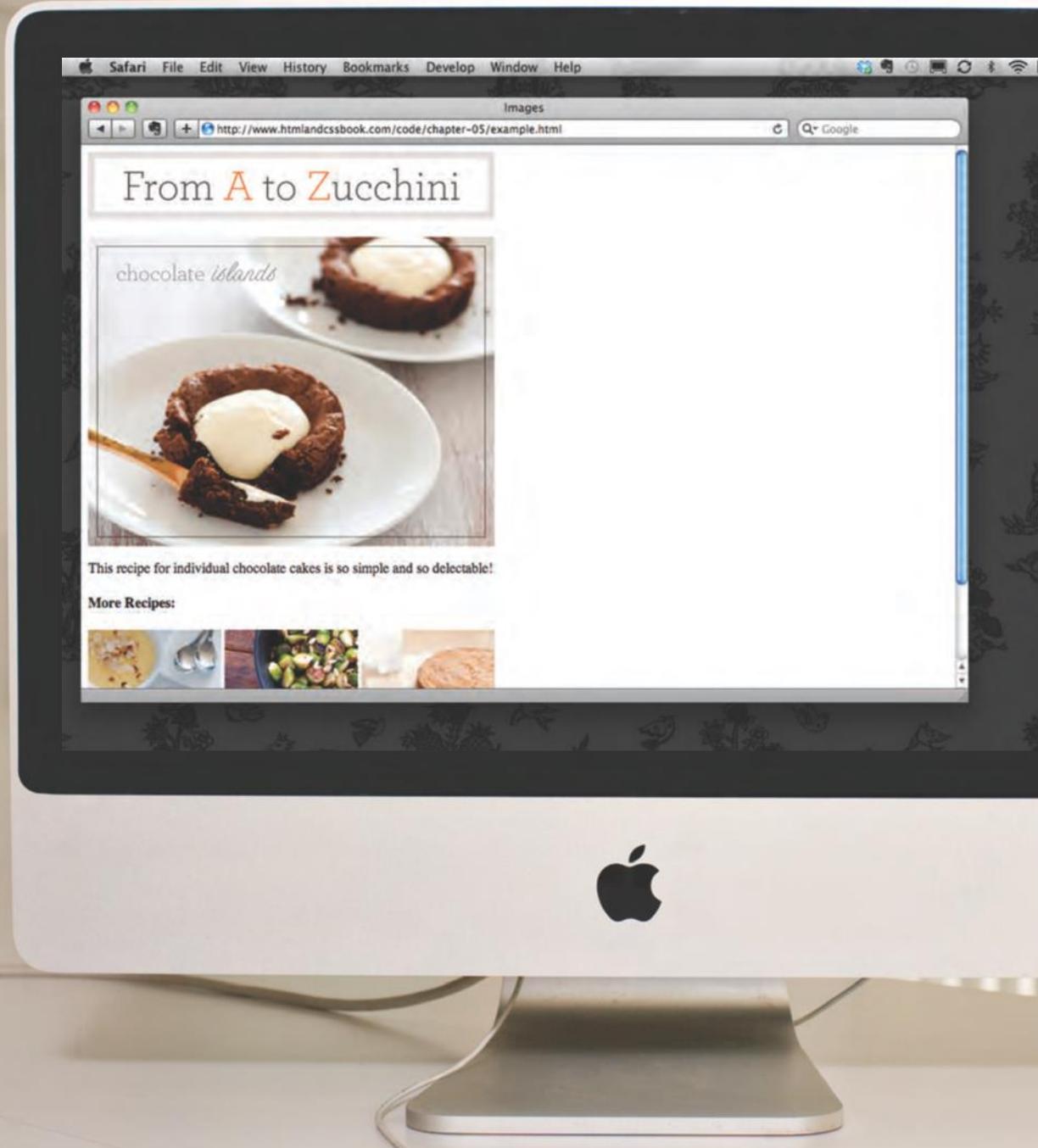
Before these elements were created there was no way to associate an `` element with its caption.

Older browsers that do not understand HTML5 elements simply ignore the new elements and display the content of them.

In this example, the logo is a GIF because it uses fat colors, while the photographs are JPEGs. The main photo is placed inside the HTML5 `<figure>` element and has its own caption.

The `alt` attribute on each image provides a description for those using screen readers and the `title` attribute provides additional information. (This is shown in the tooltip.)

This example does not use the `height`, `width`, or `align` attributes as these are being phased out and you are encouraged to use CSS properties instead.



example

Images

```
<html>
<head>
  <title>Images</title>
</head>
<body>
  <h1>
    
  </h1>
  <figure>
    
    <p>
      <figcaption>
        This recipe for individual chocolate

```

 cakes is so simple and so delectable!

```
      </figcaption>
    </p>
  </figure>
  <h4>More Recipes:</h4>
  <p>
    
    
    
  </p>
</body>
</html>
```



summarY

Images

- ☞ The `` elements used to add images to a web page.
- ☞ You must always specify a `src` attribute to indicate the source of an image and an `alt` attribute to describe the content of an image.
- ☞ You should save images at the size you will be using them on the web page and in the appropriate format.
- ☞ Photographs are best saved as JPEGs; illustrations or logos that use flat colors are better saved as GIFs.