HTML & CSS

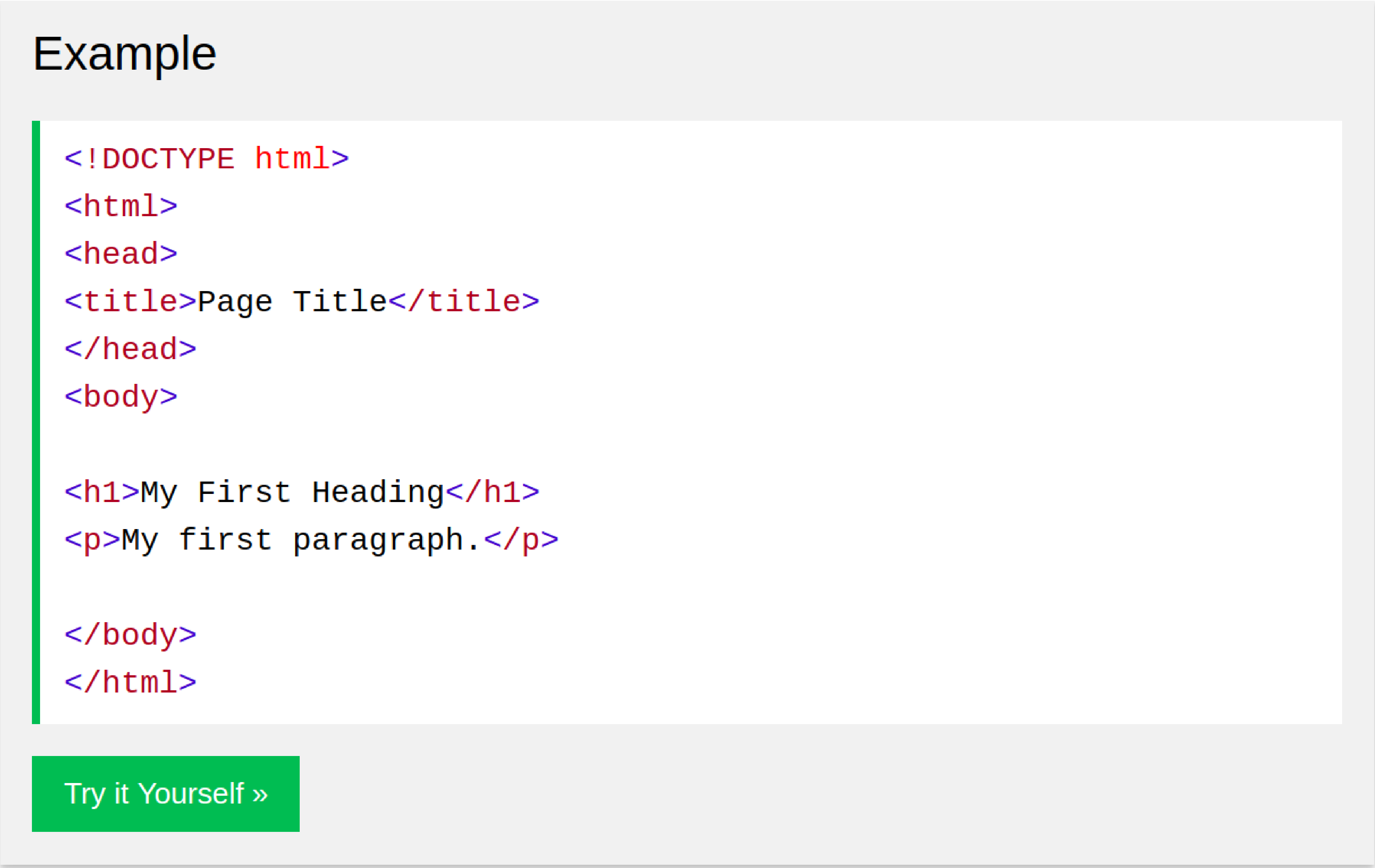
Making Cool Websites!

TechX @ IIIT-H

What is HTML?

HTML is the standard markup language for creating Web pages.

- HTML stands for Hyper Text Markup Language
- HTML describes the structure of Web pages using markup
- HTML elements are the building blocks of HTML pages
- HTML elements are represented by tags
- HTML tags label pieces of content such as "heading", "paragraph", "table", and so on
- Browsers do not display the HTML tags, but use them to render the content of the page



Example

```
<!DOCTYPE html>
<html>
<head>
<title>Page Title</title>
</head>
<body>

<h1>My First Heading</h1>
<p>My first paragraph.</p>

</body>
</html>
```

- The `<!DOCTYPE html>` declaration defines this document to be HTML5
- The `<html>` element is the root element of an HTML page
- The `<head>` element contains meta information about the document
- The `<title>` element specifies a title for the document
- The `<body>` element contains the visible page content
- The `<h1>` element defines a large heading
- The `<p>` element defines a paragraph

HTML Tags

HTML tags are element names surrounded by angle brackets:

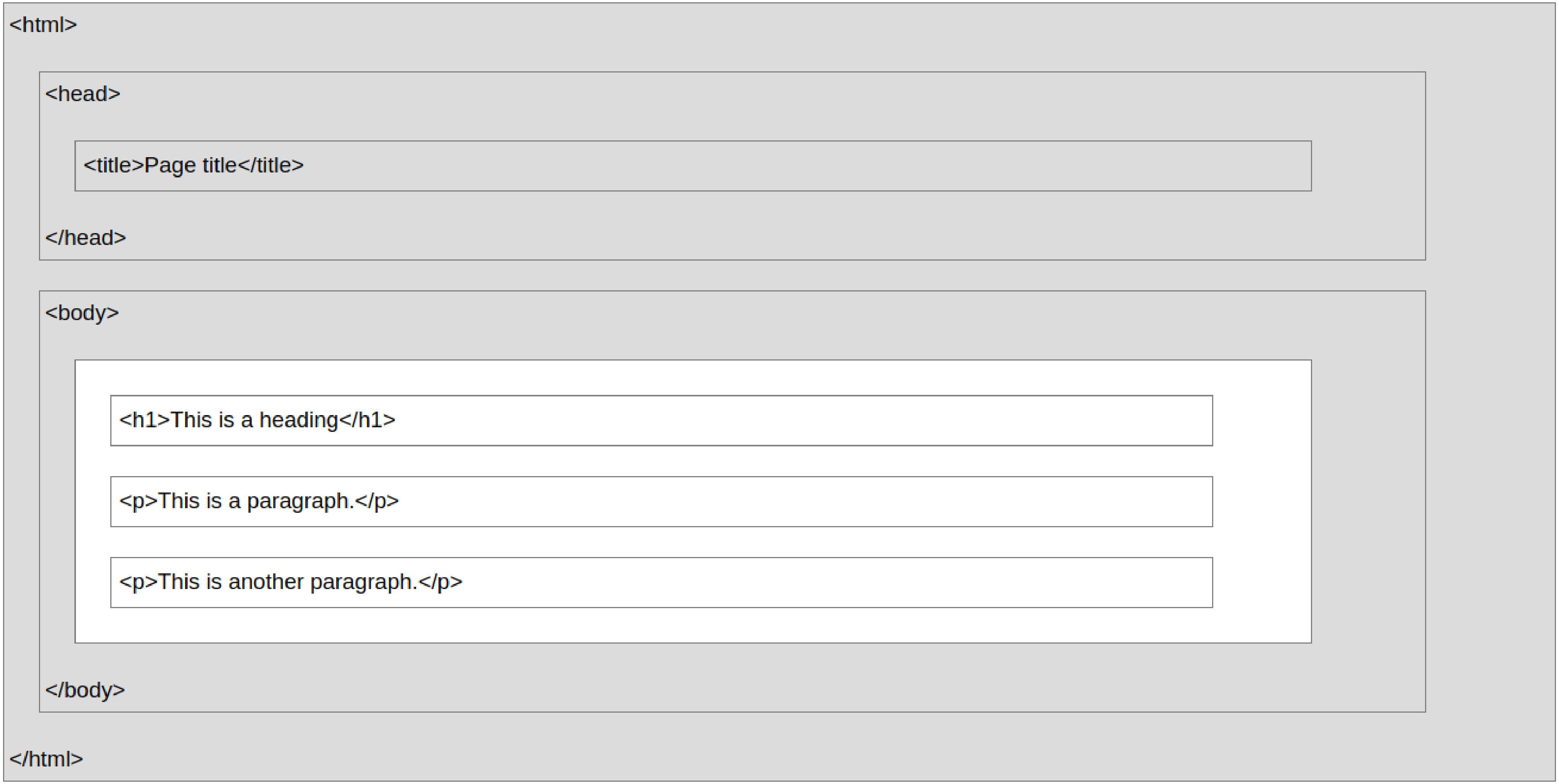
```
<tagname>content goes here...</tagname>
```

- HTML tags normally come **in pairs** like `<p>` and `</p>`
- The first tag in a pair is the **start tag,** the second tag is the **end tag**
- The end tag is written like the start tag, but with a **forward slash** inserted before the tag name

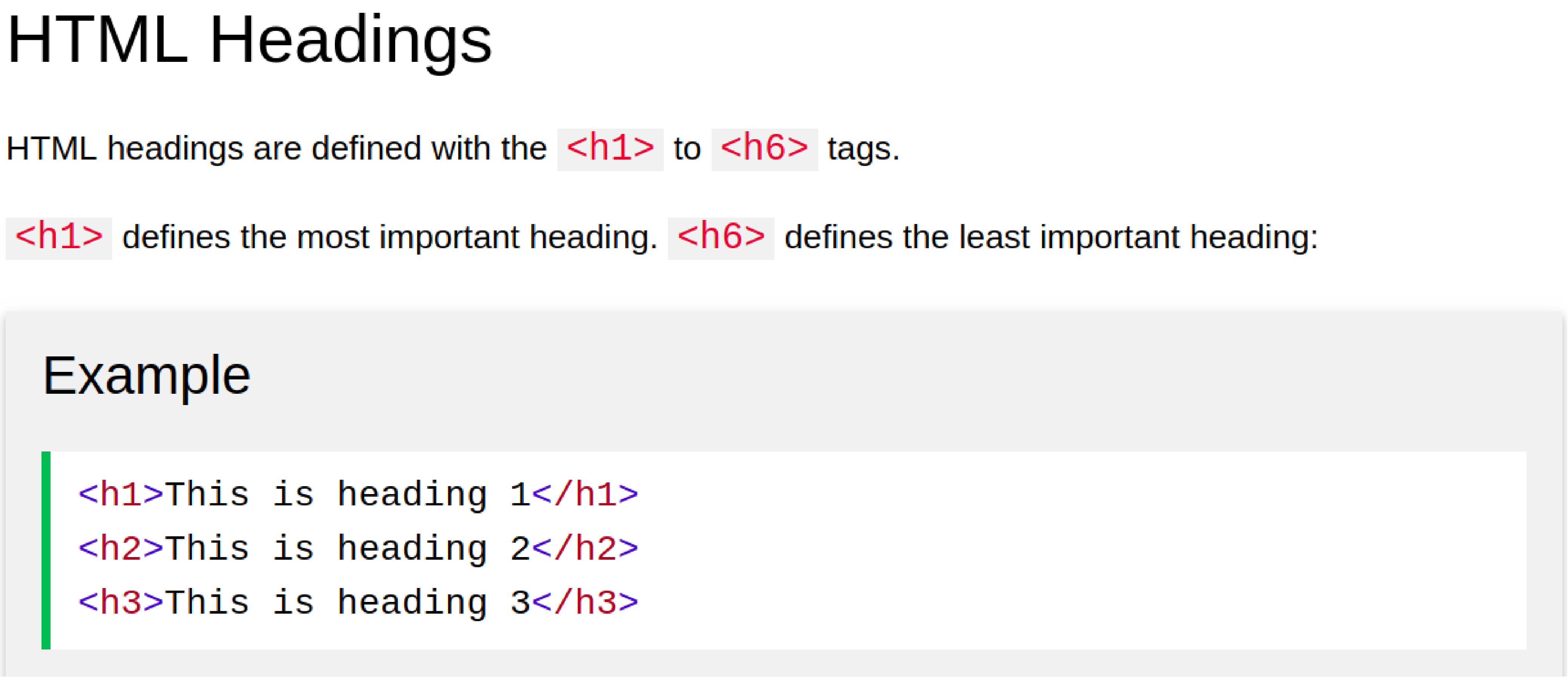
Tip: The start tag is also called the **opening tag**, and the end tag the **closing tag**.

HTML Page Structure

Below is a visualization of an HTML page structure:



```
<html>
    <head>
        <title>Page title</title>
    </head>
    <body>
            <h1>This is a heading</h1>
            <p>This is a paragraph.</p>
            <p>This is another paragraph.</p>
    </body>
</html>
```



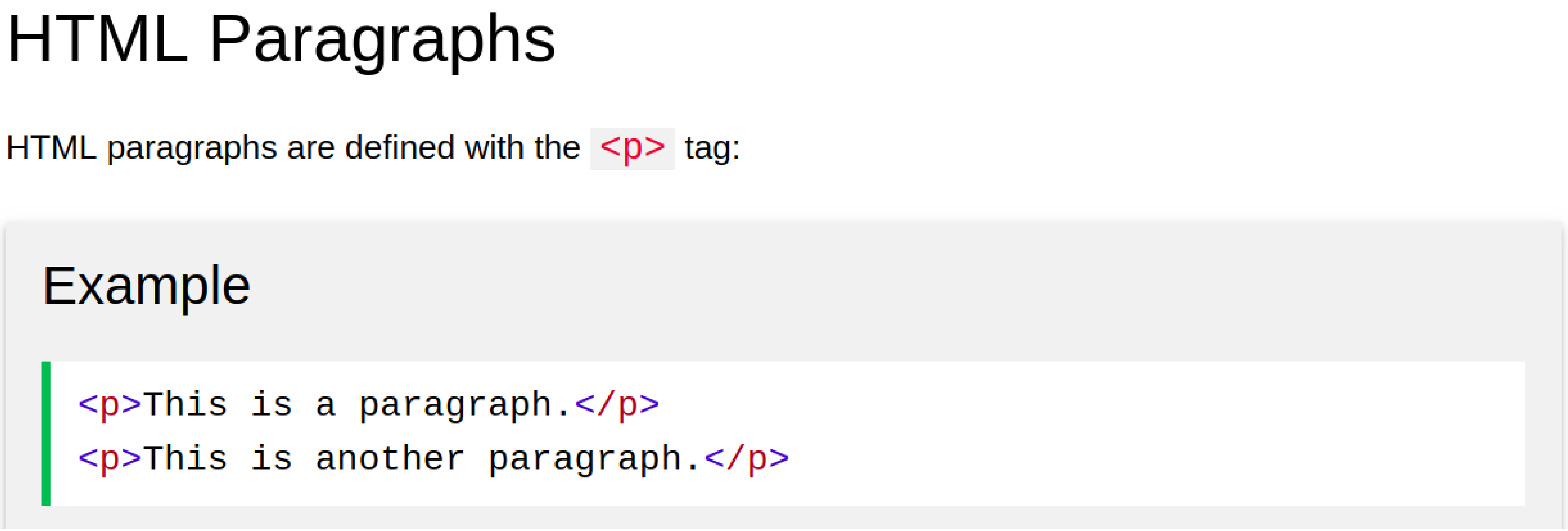
HTML Headings

HTML headings are defined with the `<h1>` to `<h6>` tags.

`<h1>` defines the most important heading. `<h6>` defines the least important heading:

Example

```
<h1>This is heading 1</h1>
<h2>This is heading 2</h2>
<h3>This is heading 3</h3>
```

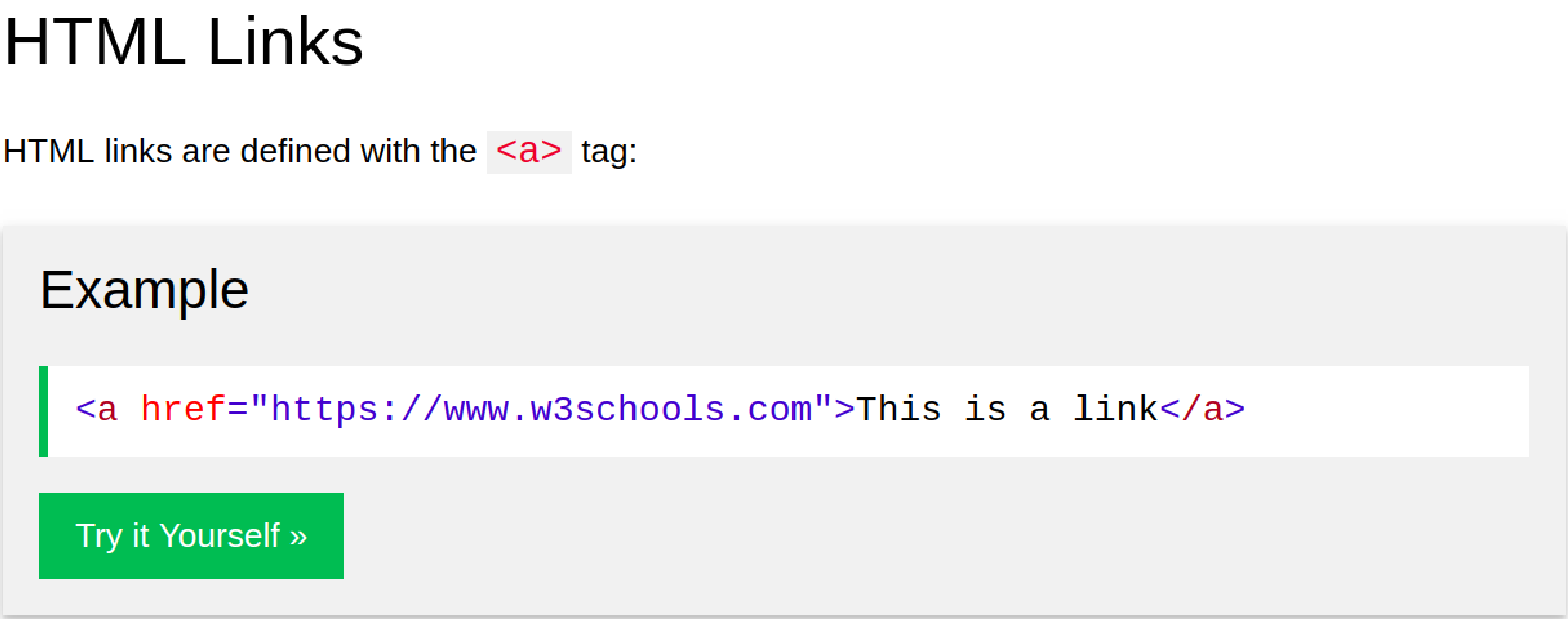


HTML Paragraphs

HTML paragraphs are defined with the `<p>` tag:

Example

```
<p>This is a paragraph.</p>
<p>This is another paragraph.</p>
```



HTML Links

HTML links are defined with the `<a>` tag:

Example

```
<a href="https://www.w3schools.com">This is a link</a>
```

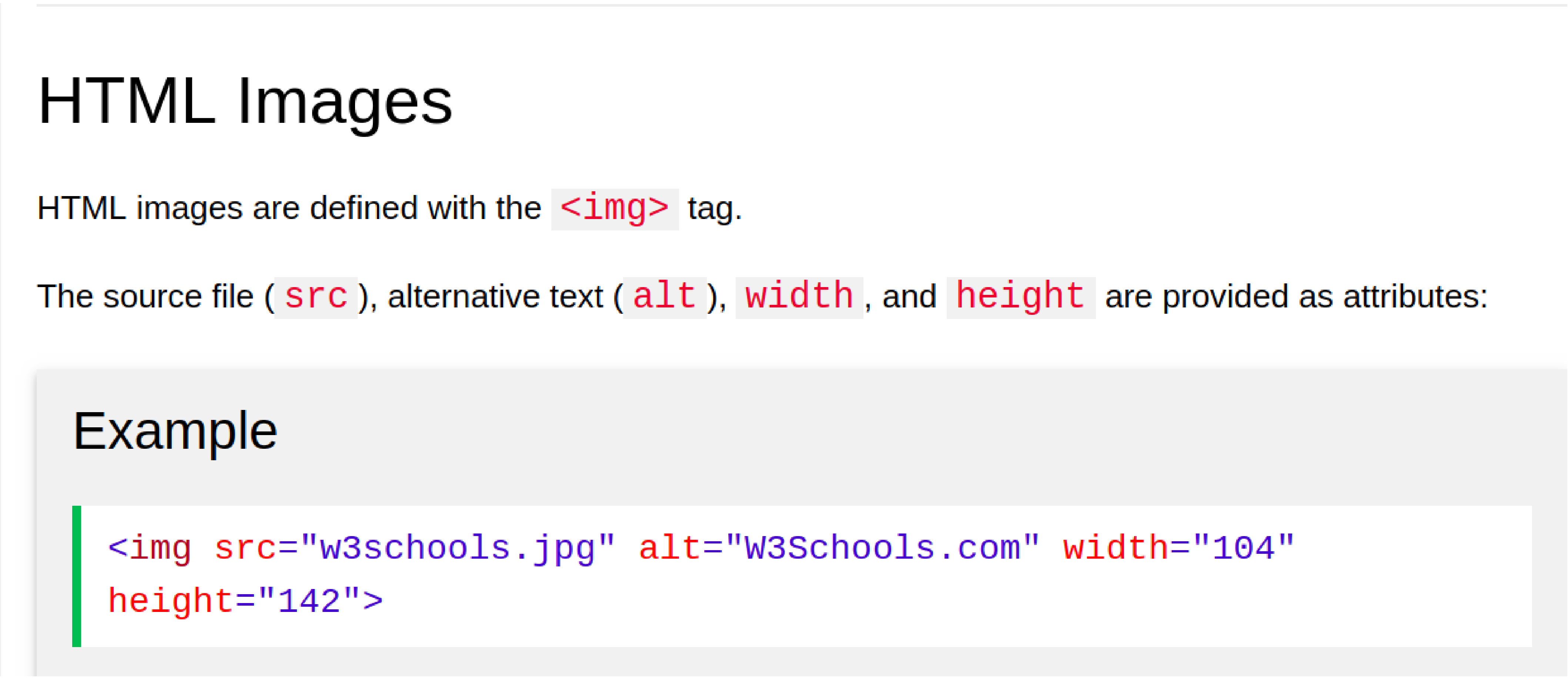
Empty HTML Elements

HTML elements with no content are called empty elements.

`<br>` is an empty element without a closing tag (the `<br>` tag defines a line break).

Empty elements can be "closed" in the opening tag like this: <br />.

HTML5 does not require empty elements to be closed. But if you want stricter validation, or if you need to make your document readable by XML parsers, you must close all HTML elements properly.



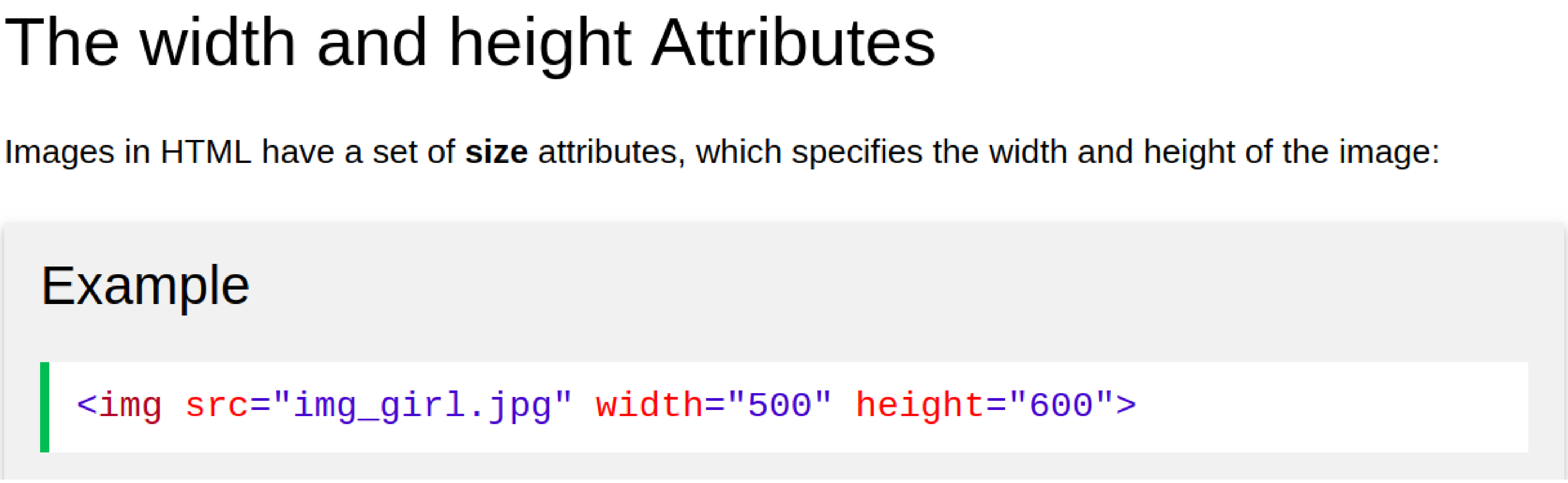
HTML Images

HTML images are defined with the `<img>` tag.

The source file (`src`), alternative text (`alt`), `width`, and `height` are provided as attributes:

Example

```
<img src="w3schools.jpg" alt="W3Schools.com" width="104"
height="142">
```

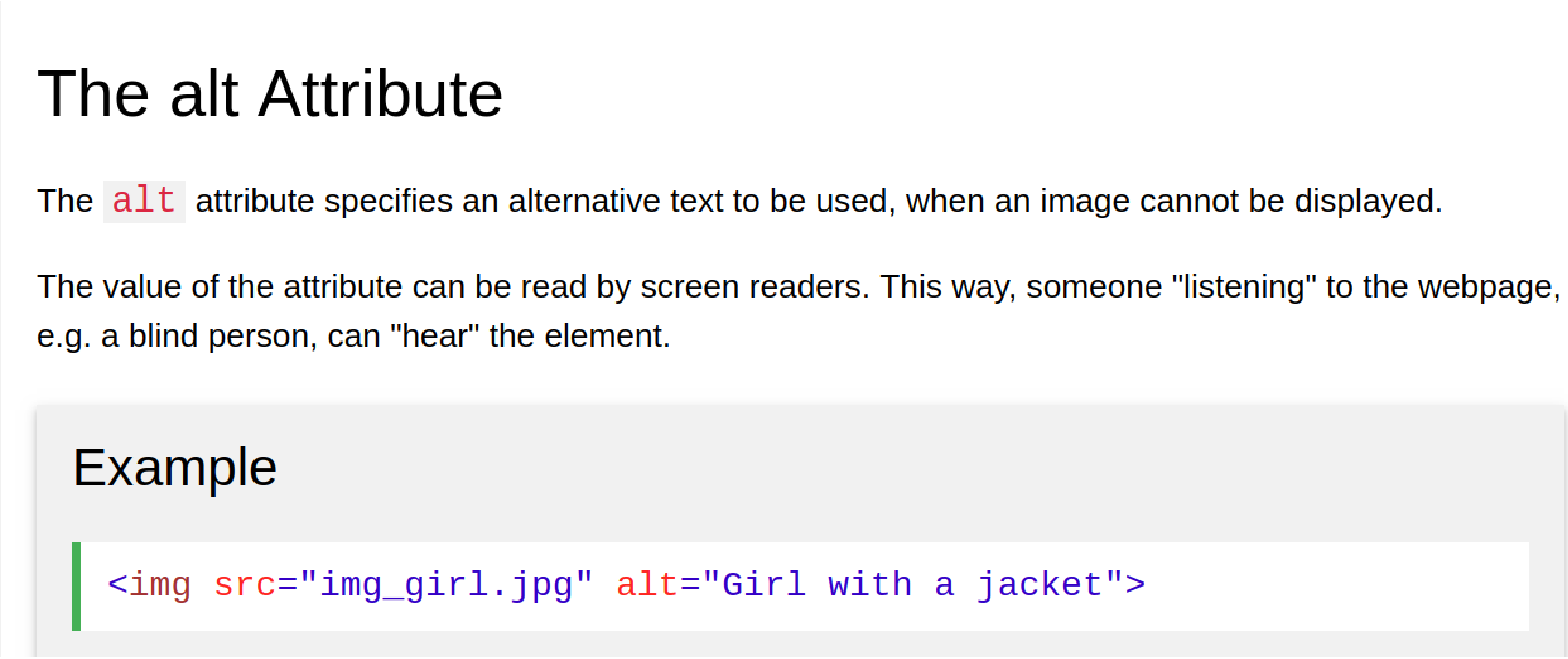


The width and height Attributes

Images in HTML have a set of **size** attributes, which specifies the width and height of the image:

Example

```html
<img src="img_girl.jpg" width="500" height="600">
```



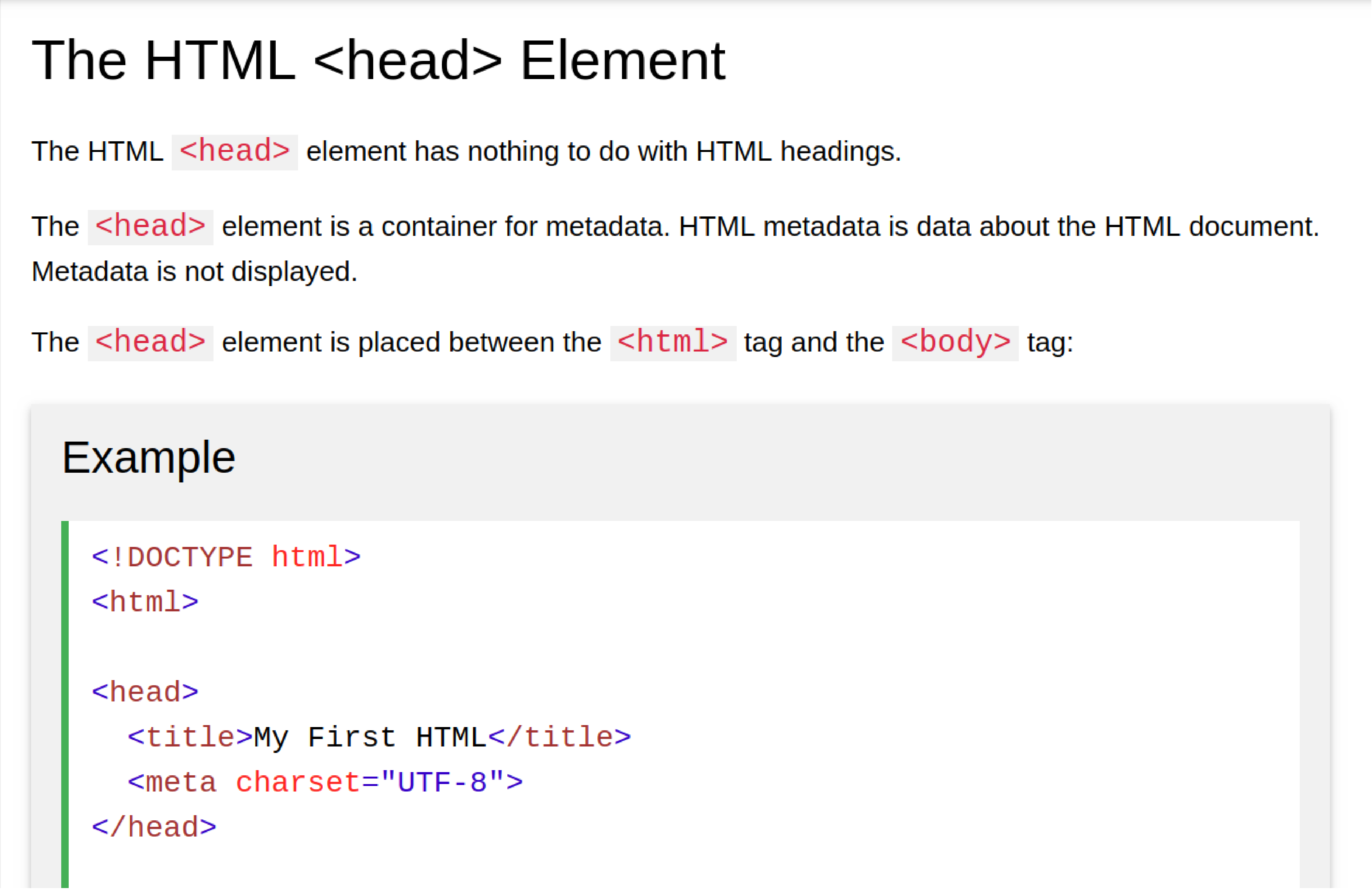
The alt Attribute

The `alt` attribute specifies an alternative text to be used, when an image cannot be displayed.

The value of the attribute can be read by screen readers. This way, someone "listening" to the webpage, e.g. a blind person, can "hear" the element.

Example

```
<img src="img_girl.jpg" alt="Girl with a jacket">
```



The HTML <head> Element

The HTML `<head>` element has nothing to do with HTML headings.

The `<head>` element is a container for metadata. HTML metadata is data about the HTML document. Metadata is not displayed.

The `<head>` element is placed between the `<html>` tag and the `<body>` tag:

Example

```
<!DOCTYPE html>
<html>

<head>
  <title>My First HTML</title>
  <meta charset="UTF-8">
</head>
```

HTML Comment Tags

You can add comments to your HTML source by using the following syntax:

```
<!-- Write your comments here -->
```

HTML Tables

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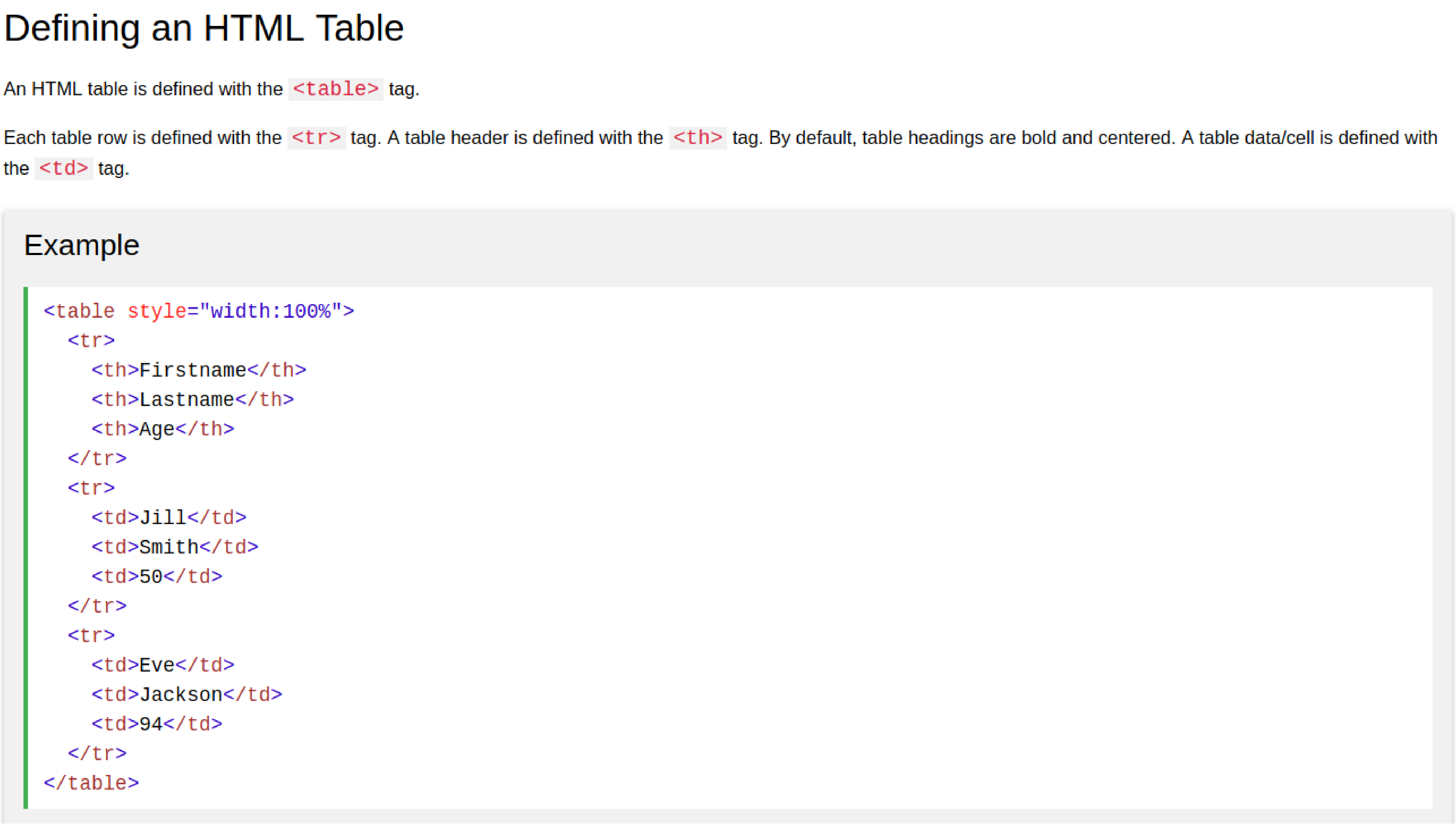
HTML Table Example

Company	Contact	Country
Alfreds Futterkiste	Maria Anders	Germany
Centro comercial Moctezuma	Francisco Chang	Mexico
Ernst Handel	Roland Mendel	Austria
Island Trading	Helen Bennett	UK
Laughing Bacchus Winecellars	Yoshi Tannamuri	Canada
Magazzini Alimentari Riuniti	Giovanni Rovelli	Italy

Try it Yourself »



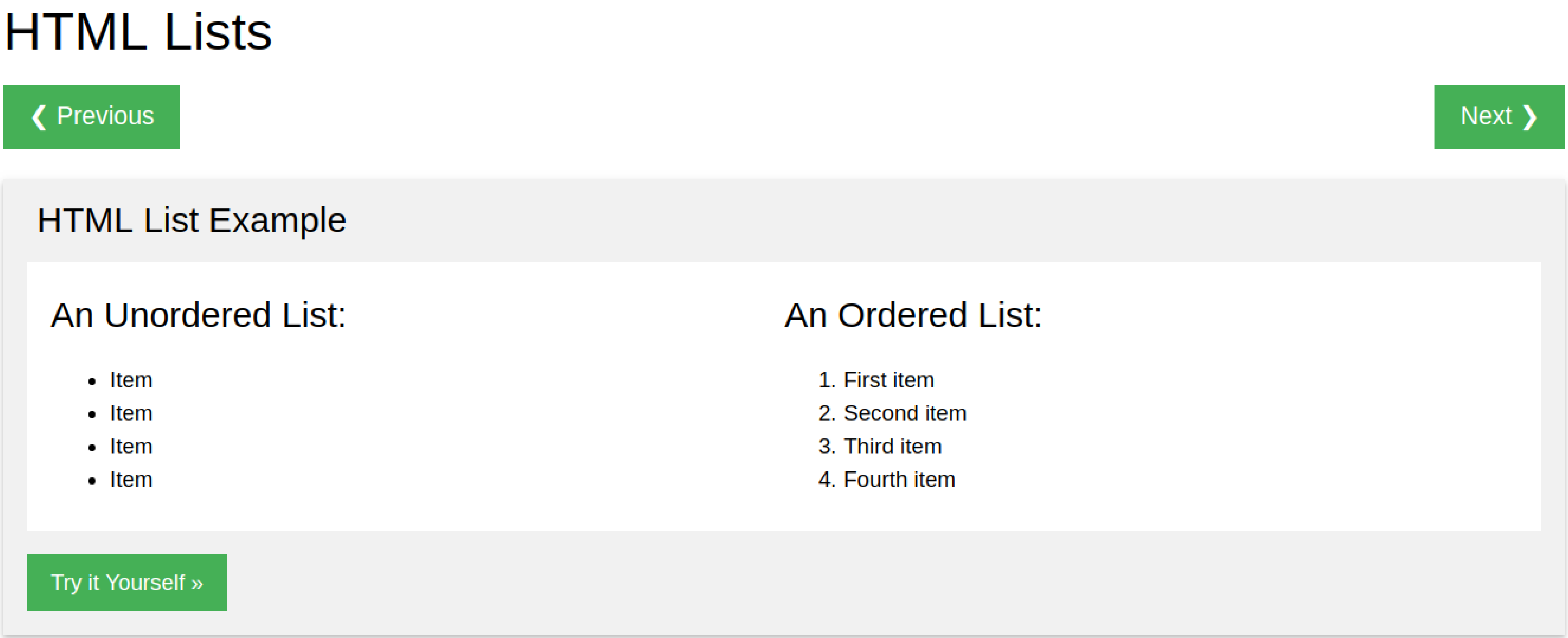
Defining an HTML Table

An HTML table is defined with the `<table>` tag.

Each table row is defined with the `<tr>` tag. A table header is defined with the `<th>` tag. By default, table headings are bold and centered. A table data/cell is defined with the `<td>` tag.

Example

```
<table style="width:100%">
  <tr>
    <th>Firstname</th>
    <th>Lastname</th>
    <th>Age</th>
  </tr>
  <tr>
    <td>Jill</td>
    <td>Smith</td>
    <td>50</td>
  </tr>
  <tr>
    <td>Eve</td>
    <td>Jackson</td>
    <td>94</td>
  </tr>
</table>
```



HTML Lists

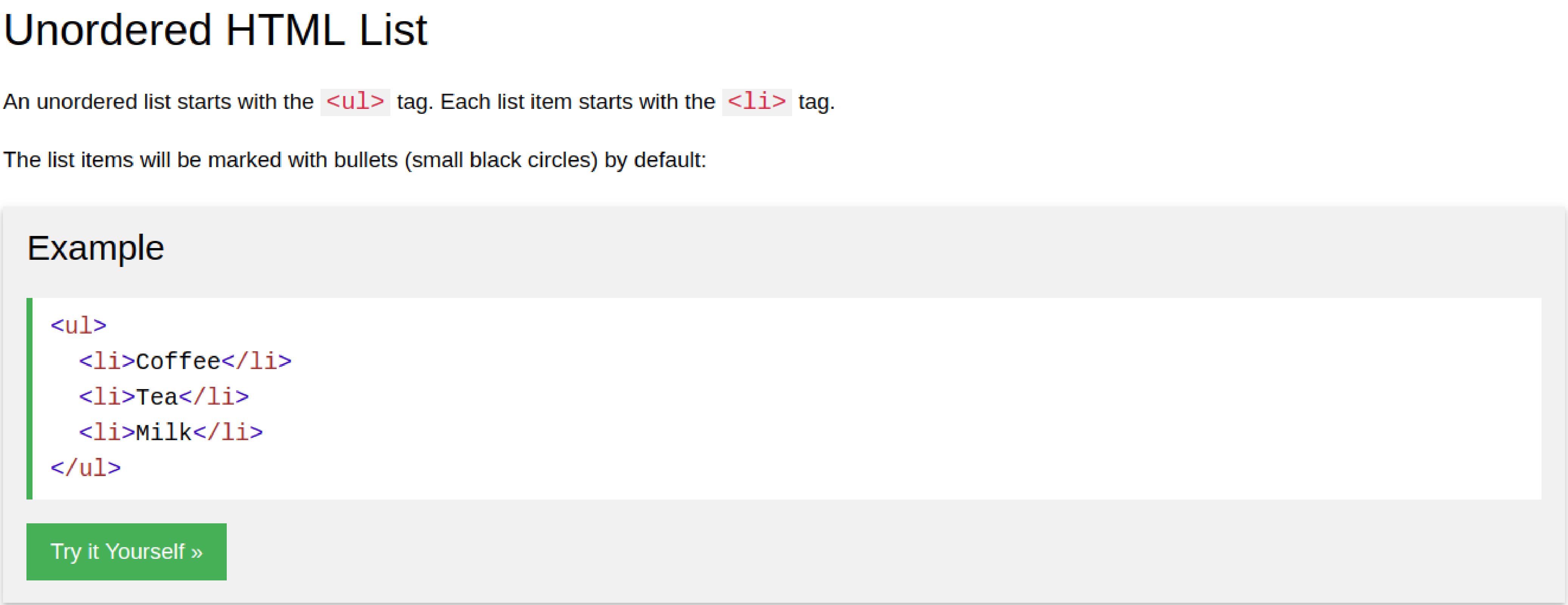
HTML List Example

An Unordered List:

- Item
- Item
- Item
- Item

An Ordered List:

1. First item
2. Second item
3. Third item
4. Fourth item



Unordered HTML List

An unordered list starts with the `<ul>` tag. Each list item starts with the `<li>` tag.

The list items will be marked with bullets (small black circles) by default:

Example

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

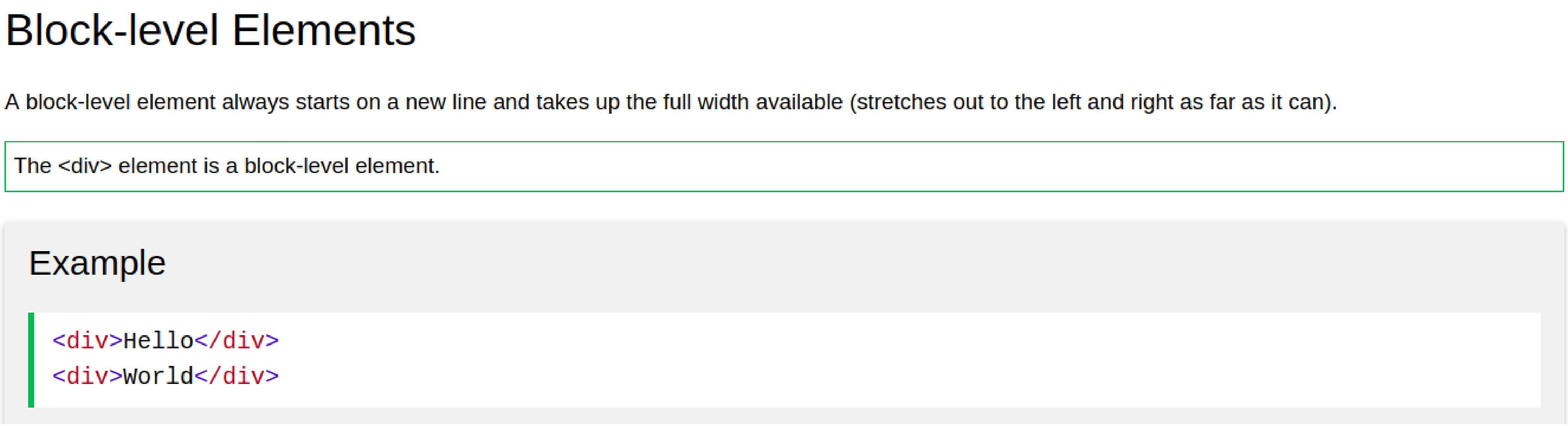
Nested HTML Lists

List can be nested (lists inside lists):

Example

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

Try it Yourself »



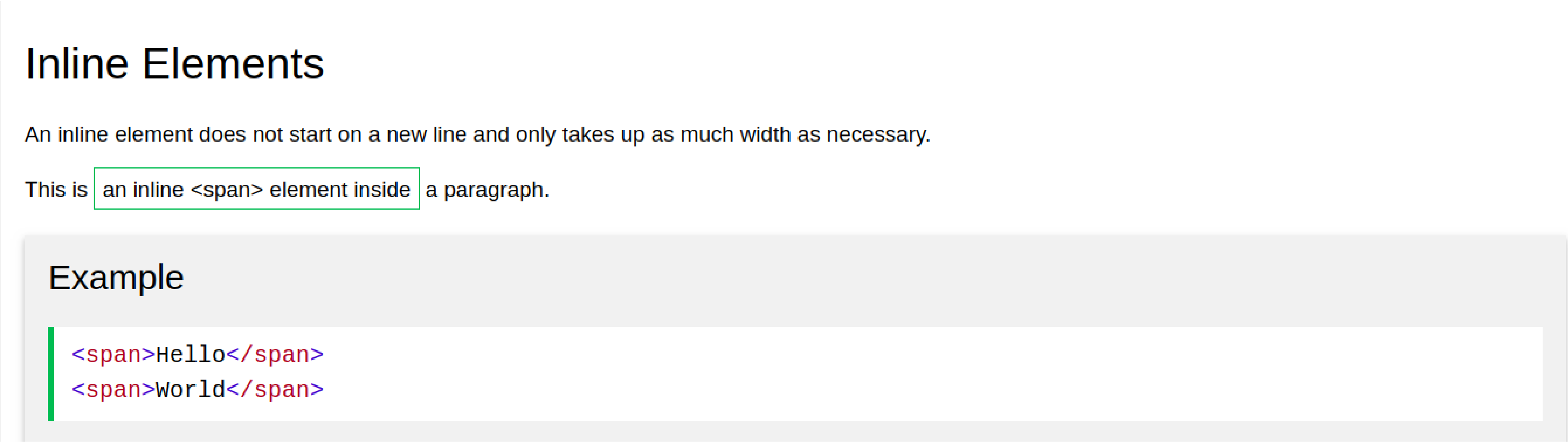
Block-level Elements

A block-level element always starts on a new line and takes up the full width available (stretches out to the left and right as far as it can).

The <div> element is a block-level element.

Example

```
<div>Hello</div>
<div>World</div>
```



Inline Elements

An inline element does not start on a new line and only takes up as much width as necessary.

This is an inline <span> element inside a paragraph.

Example

```
<span>Hello</span>
<span>World</span>
```

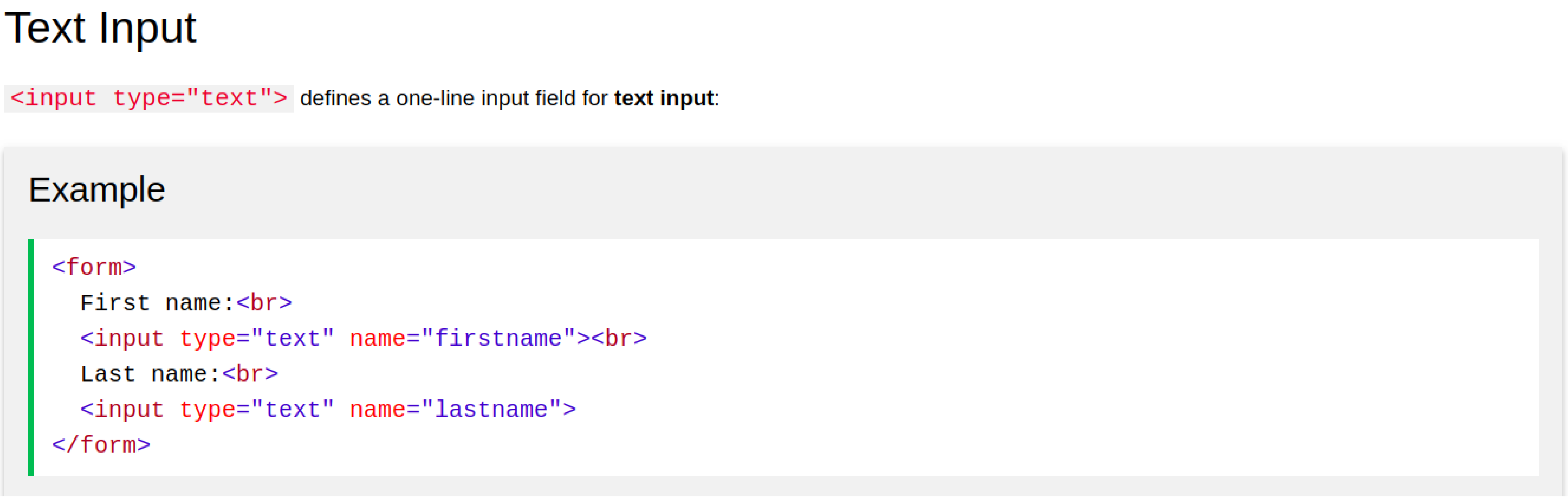
The <form> Element

The HTML `<form>` element defines a form that is used to collect user input:

```
<form>
.
form elements
.
</form>
```

An HTML form contains **form elements**.

Form elements are different types of input elements, like text fields, checkboxes, radio buttons, submit buttons, and more.

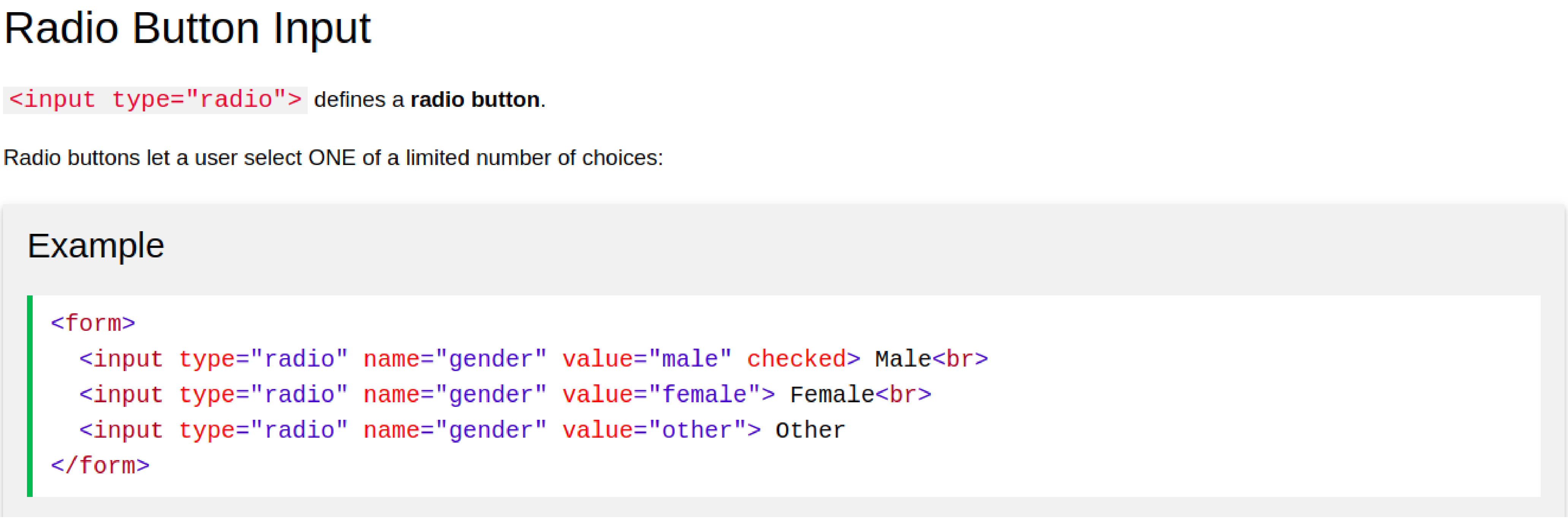


Text Input

`<input type="text">` defines a one-line input field for **text input**:

Example

```
<form>
  First name:<br>
  <input type="text" name="firstname"><br>
  Last name:<br>
  <input type="text" name="lastname">
</form>
```



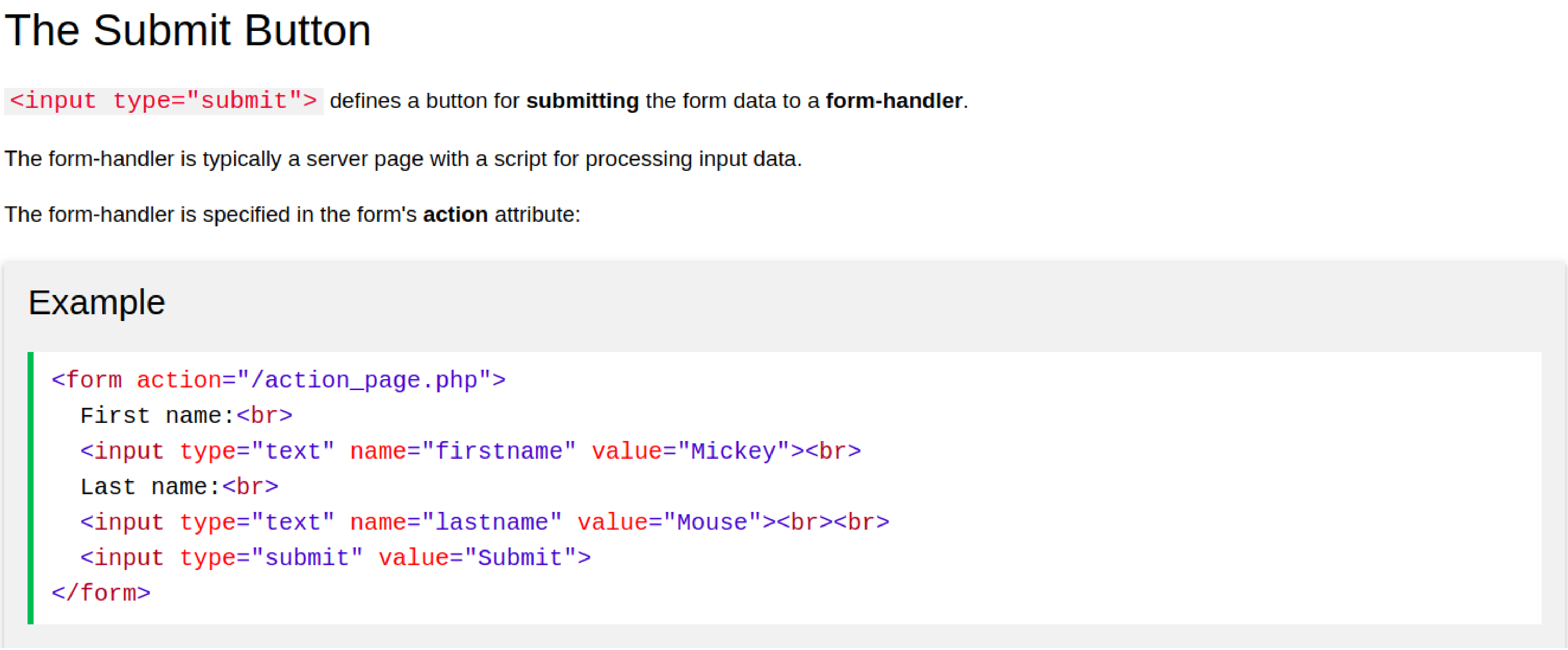
Radio Button Input

`<input type="radio">` defines a **radio button**.

Radio buttons let a user select ONE of a limited number of choices:

Example

```
<form>
  <input type="radio" name="gender" value="male" checked> Male<br>
  <input type="radio" name="gender" value="female"> Female<br>
  <input type="radio" name="gender" value="other"> Other
</form>
```



The Submit Button

`<input type="submit">` defines a button for **submitting** the form data to a **form-handler**.

The form-handler is typically a server page with a script for processing input data.

The form-handler is specified in the form's **action** attribute:

Example

```
<form action="/action_page.php">
  First name:<br>
  <input type="text" name="firstname" value="Mickey"><br>
  Last name:<br>
  <input type="text" name="lastname" value="Mouse"><br><br>
  <input type="submit" value="Submit">
</form>
```

Styling HTML with CSS

CSS stands for **C**ascading **S**tyle **S**heets.

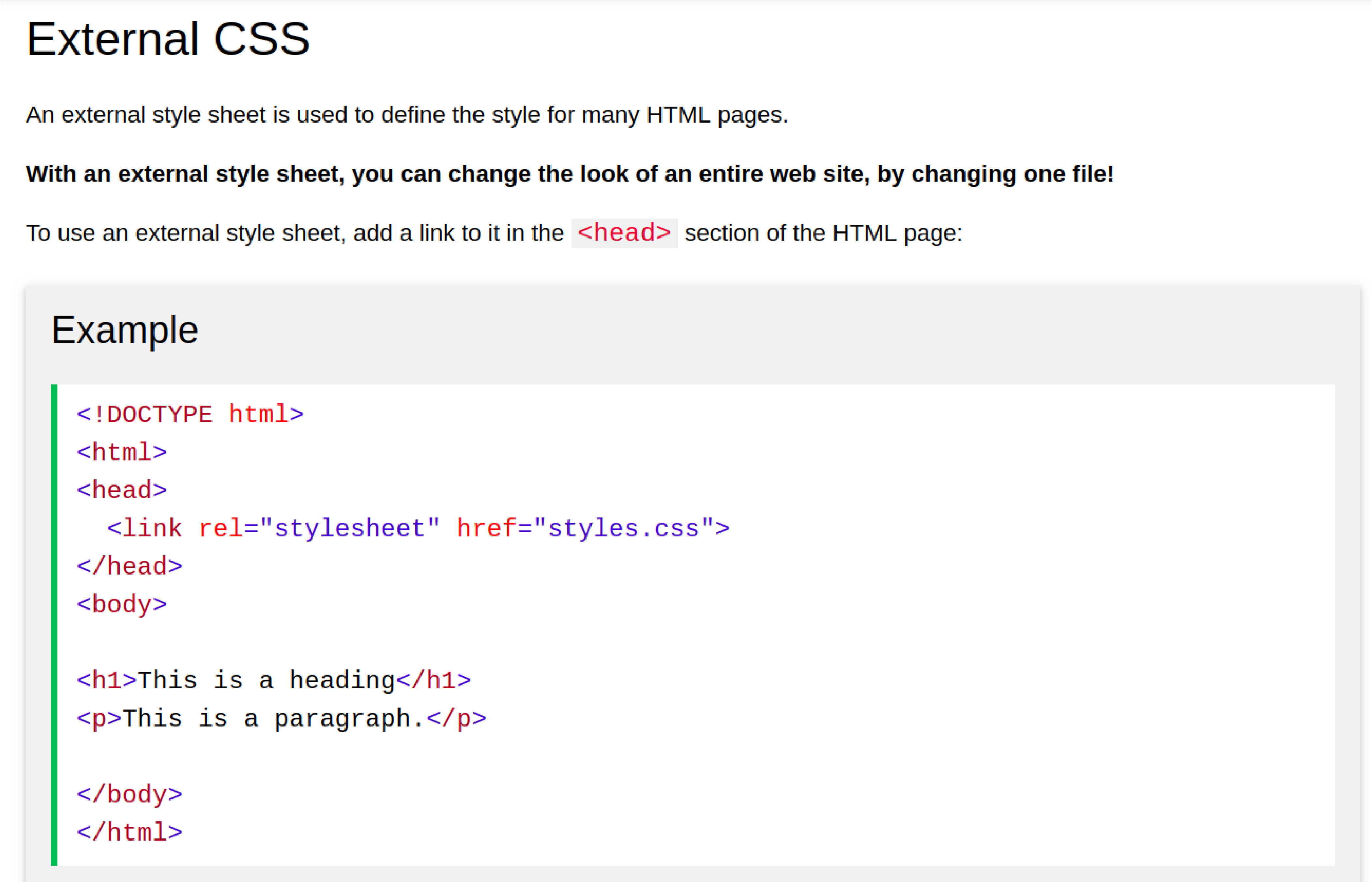
CSS describes **how HTML elements are to be displayed on screen, paper, or in other media**.

CSS **saves a lot of work**. It can control the layout of multiple web pages all at once.

CSS can be added to HTML elements in 3 ways:

- **Inline** - by using the style attribute in HTML elements
- **Internal** - by using a `<style>` element in the `<head>` section
- **External** - by using an external CSS file

The most common way to add CSS, is to keep the styles in separate CSS files. However, here we will use inline and internal styling, because this is easier to demonstrate, and easier for you to try it yourself.



External CSS

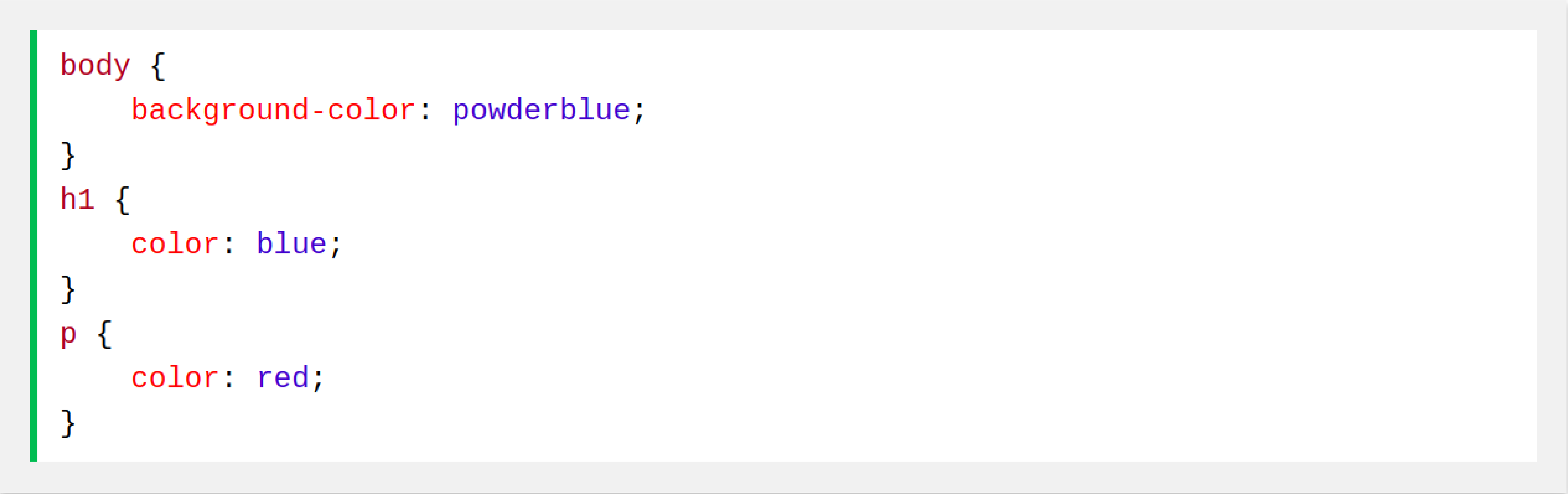
An external style sheet is used to define the style for many HTML pages.

With an external style sheet, you can change the look of an entire web site, by changing one file!

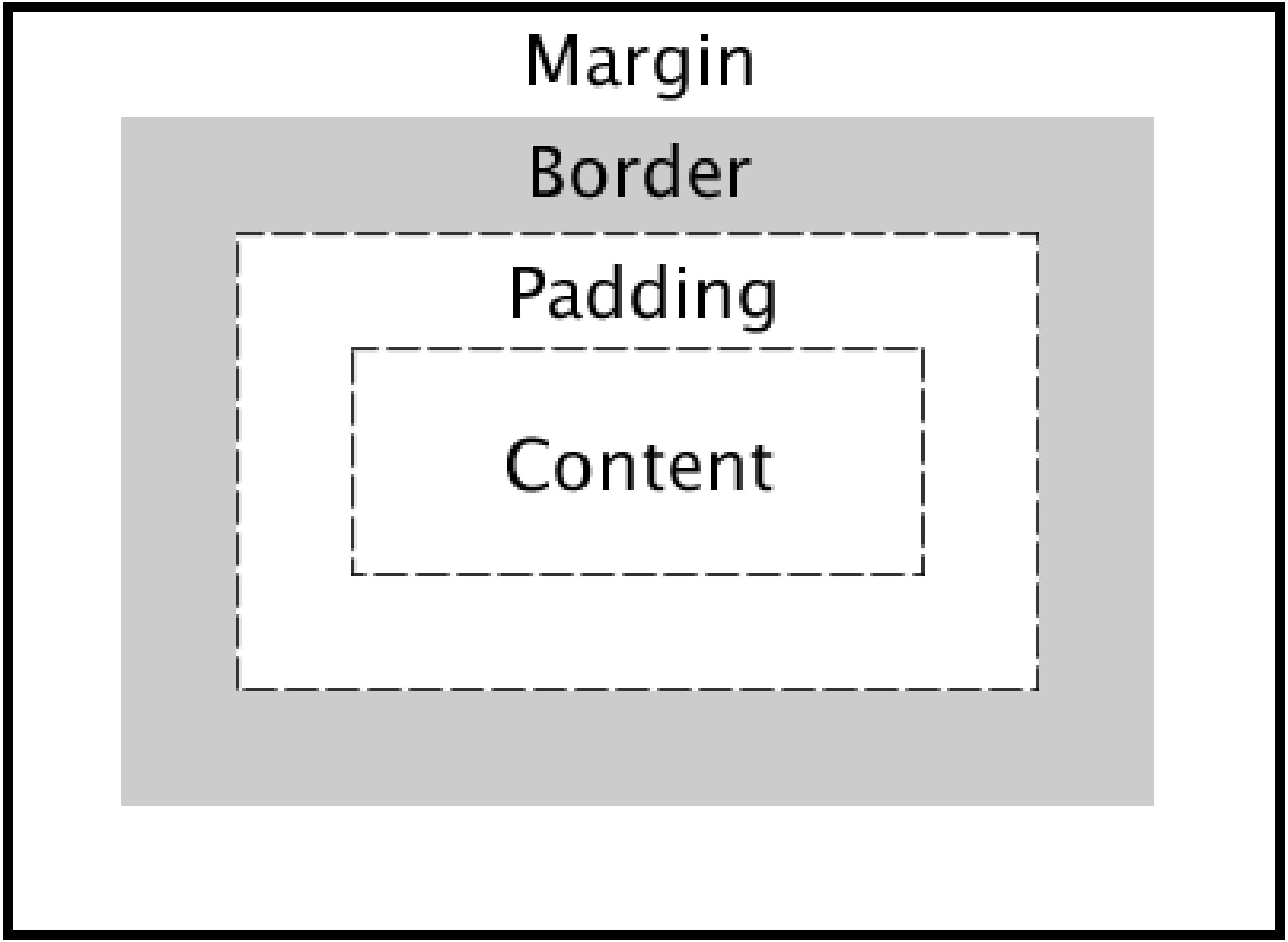
To use an external style sheet, add a link to it in the `<head>` section of the HTML page:

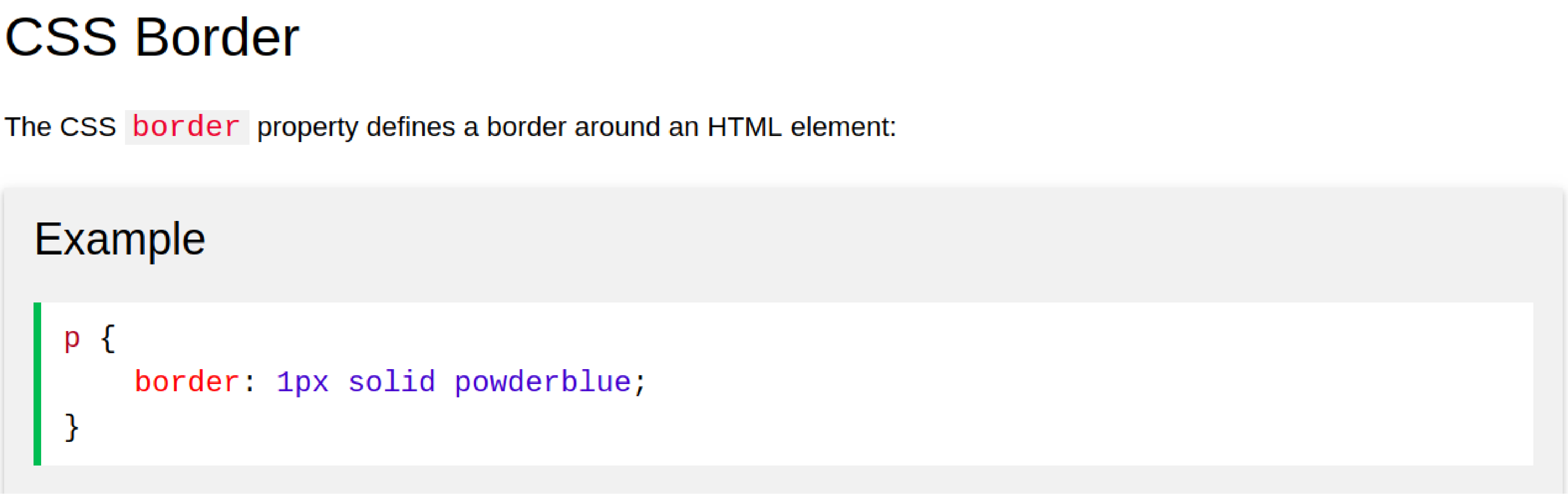
Example

```
<!DOCTYPE html>
<html>
<head>
  <link rel="stylesheet" href="styles.css">
</head>
<body>

<h1>This is a heading</h1>
<p>This is a paragraph.</p>

</body>
</html>
```



```
body {
    background-color: powderblue;
}
h1 {
    color: blue;
}
p {
    color: red;
}
```


Margin
Border
Padding
Content

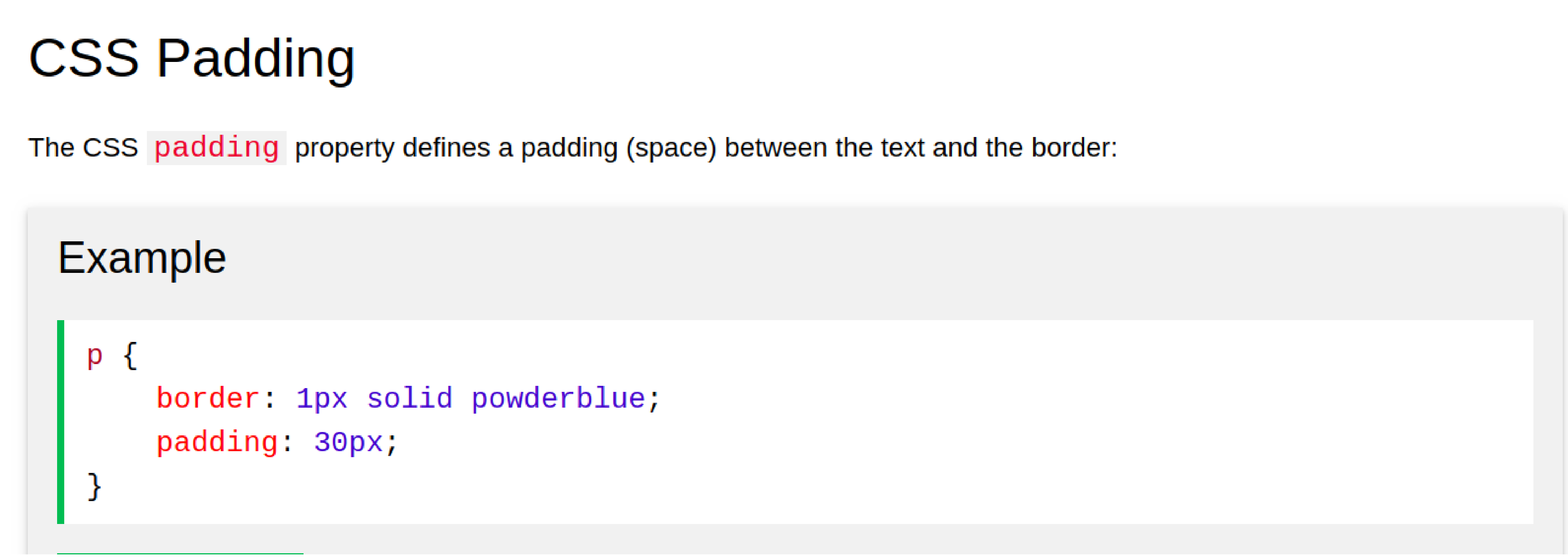


CSS Border

The CSS `border` property defines a border around an HTML element:

Example

```
p {
    border: 1px solid powderblue;
}
```

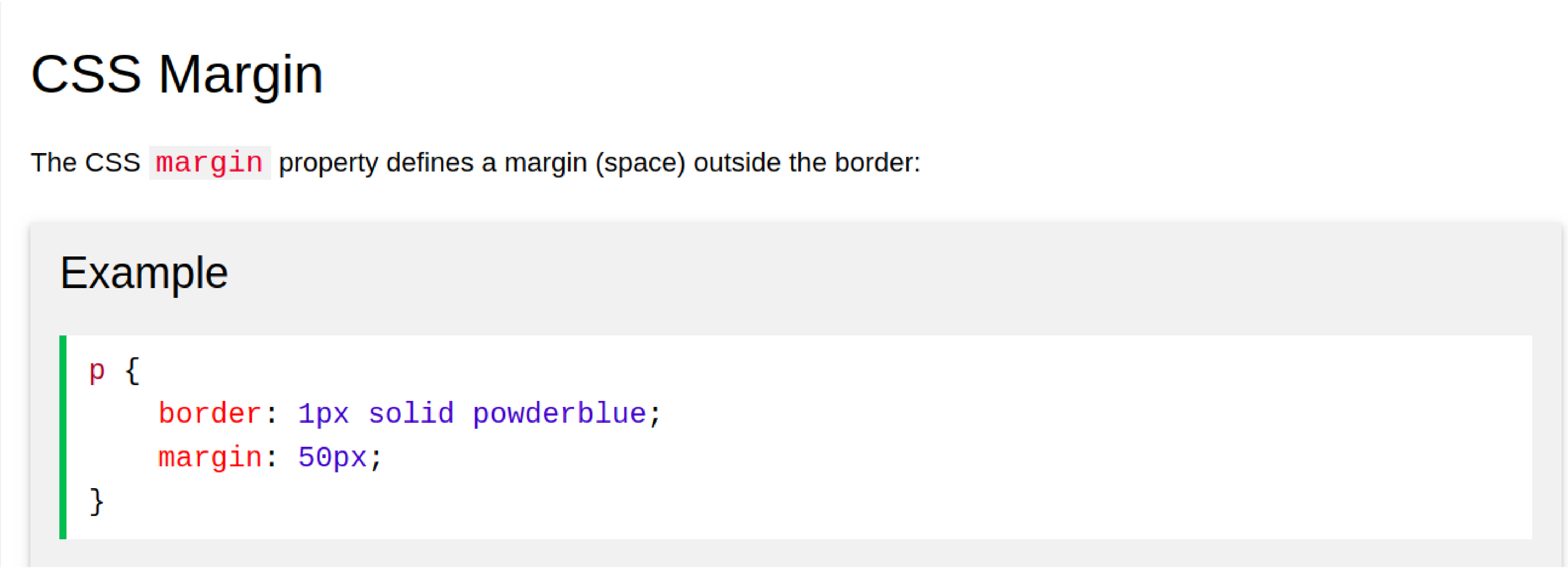


CSS Padding

The CSS `padding` property defines a padding (space) between the text and the border:

Example

```
p {
    border: 1px solid powderblue;
    padding: 30px;
}
```

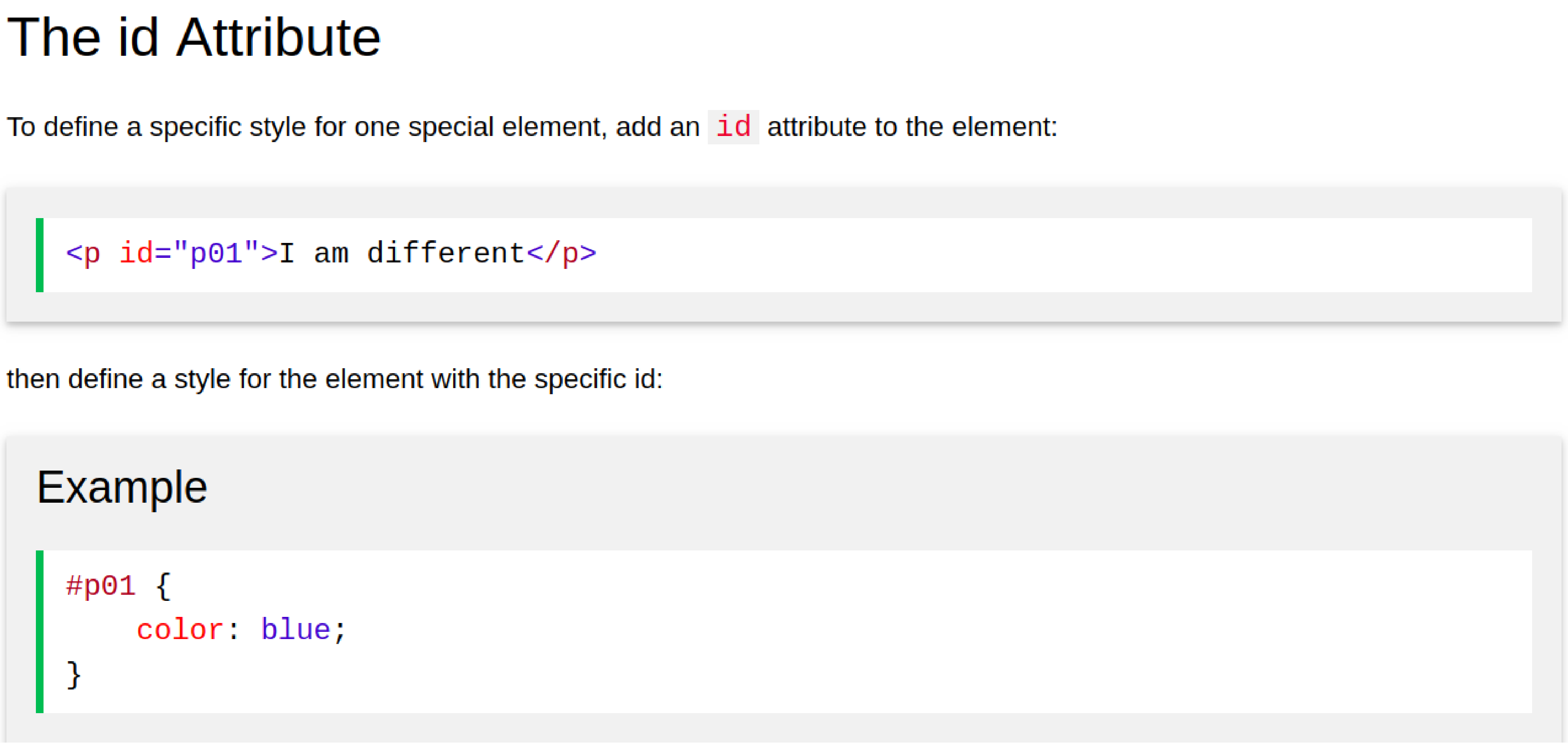


CSS Margin

The CSS `margin` property defines a margin (space) outside the border:

Example

```
p {
    border: 1px solid powderblue;
    margin: 50px;
}
```



The id Attribute

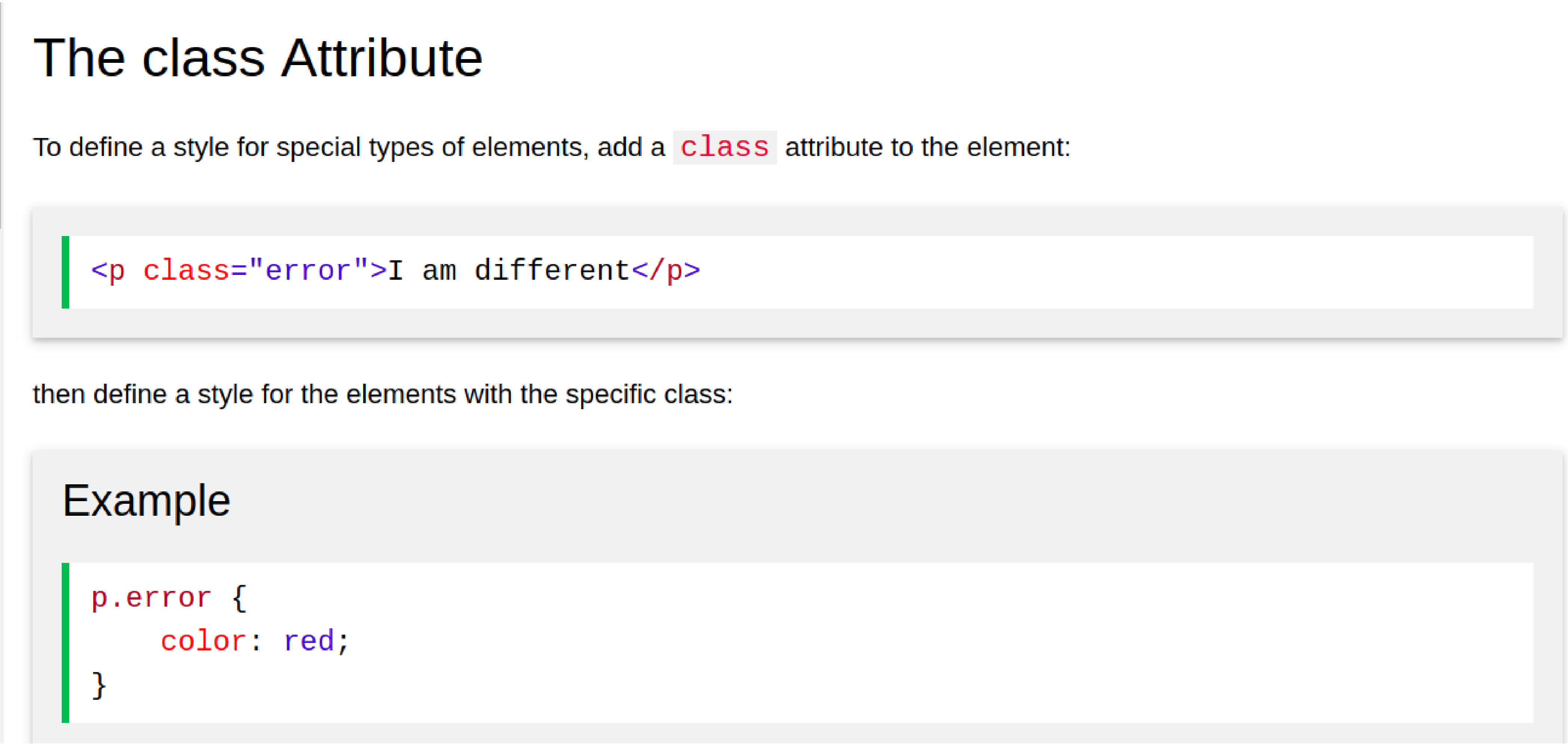
To define a specific style for one special element, add an `id` attribute to the element:

```
<p id="p01">I am different</p>
```

then define a style for the element with the specific id:

Example

```
#p01 {
    color: blue;
}
```



The class Attribute

To define a style for special types of elements, add a `class` attribute to the element:

```
<p class="error">I am different</p>
```

then define a style for the elements with the specific class:

Example

```
p.error {
    color: red;
}
```