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UNIVERSITY OF SCIENCE
AND TECHNOLOGY

VIDEOS ABOUT HTML

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LEARNING HTML

- Slides give the 'backbone'
- Practical demos and development
- All examples available on the web site
- Assessment at the end

IF YOU KNOW HTML

Check the *After this presentation...* message

Check the list of html elements & attributes covered

Check the list of style properties covered

EXAMPLE LIST OF ELEMENTS

For a large area	<div>
For a few words	<span>

EXAMPLE LIST OF STYLE PROPERTIES

font-size	font-family
background	align
width	position
top	left

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ABOUT HTML

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AFTER THIS PRESENTATION

- You'll understand the way in which HTML is used
- You'll appreciate the Single Page Application as a modern model
- You'll be able to differentiate between HTML and SVG

HTML

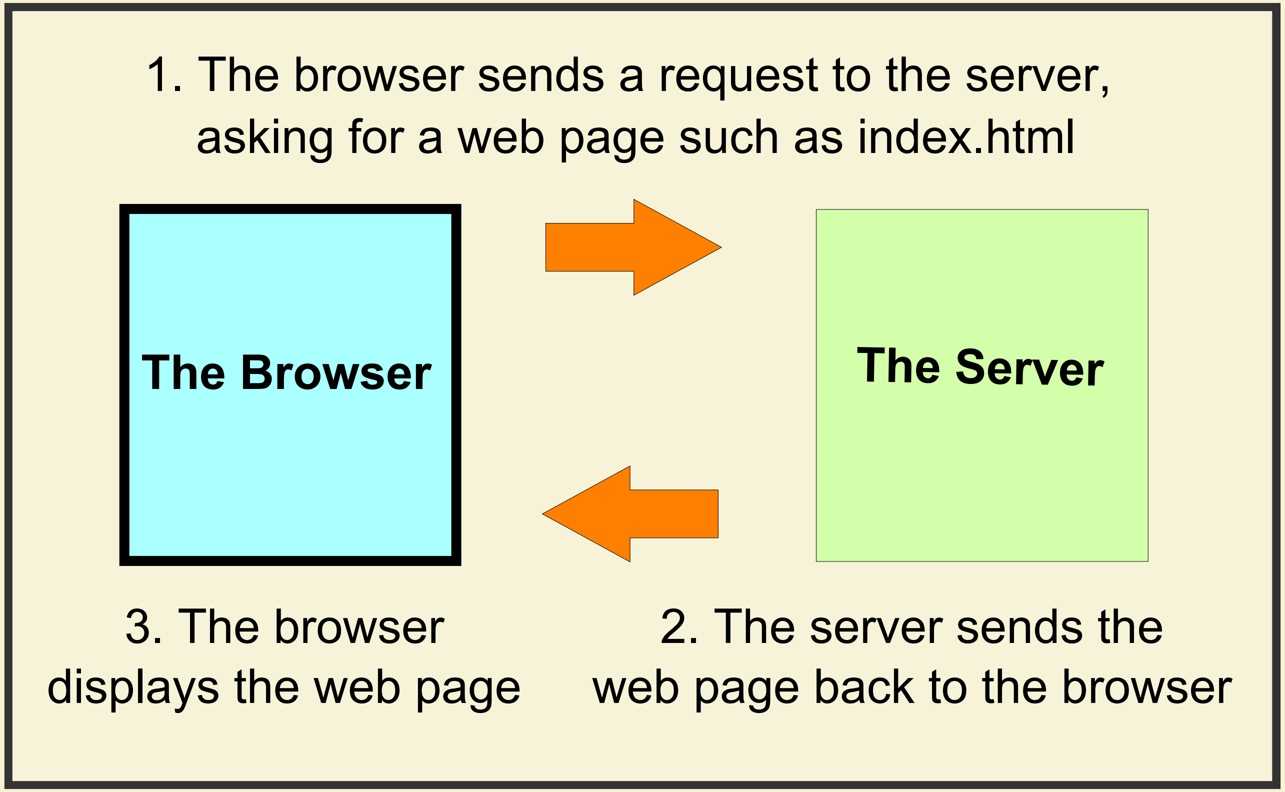
HTML is the main language for building a web page

Around since the 1990's

Latest version is HTML 5, which we use

USING HTML

This is the original way in which HTML was conceived



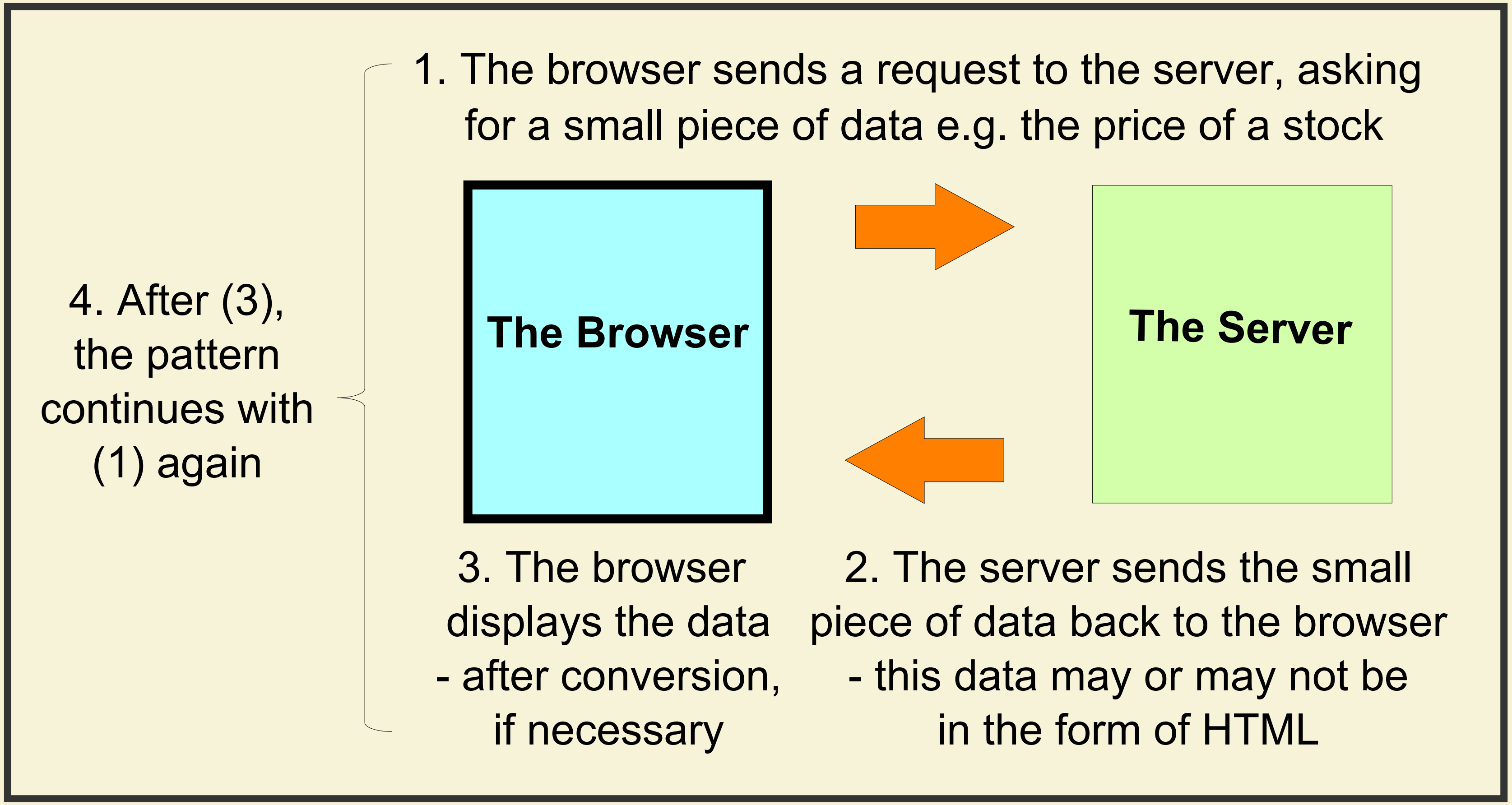
1. The browser sends a request to the server, asking for a web page such as index.html

3. The browser displays the web page

2. The server sends the web page back to the browser

SINGLE PAGE APPLICATION (SPA)

HTML usage now can be more complex



1. The browser sends a request to the server, asking for a small piece of data e.g. the price of a stock

2. The server sends the small piece of data back to the browser - this data may or may not be in the form of HTML

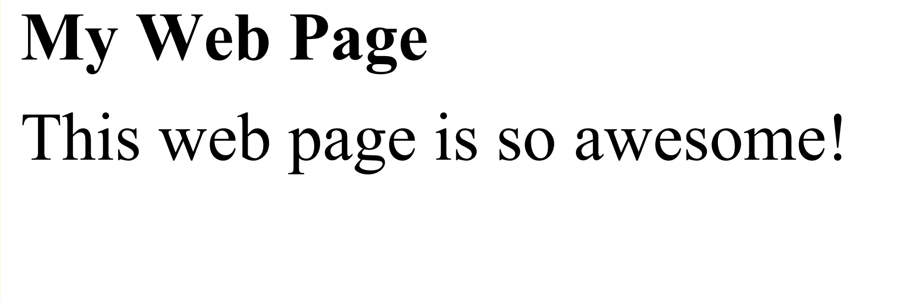
3. The browser displays the data - after conversion, if necessary

4. After (3), the pattern continues with (1) again

AN ALTERNATIVE TO HTML

Here's a simple web page which uses only SVG

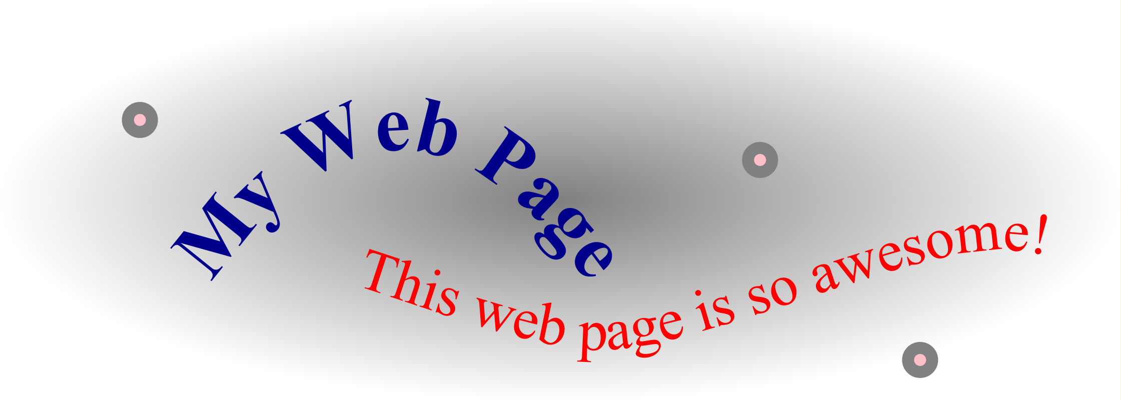
```
<svg xmlns="http://www.w3.org/2000/svg">
        <text x="10" y="30"
          style="font-weight:bold; font-size:34">My Web Page</text>
        <text x="10" y="80"
          style="font-size:34">This web page is so awesome!</text>
</svg>
```



My Web Page

This web page is so awesome!

ANOTHER SVG EXAMPLE



Select here to open

COMPARISON

- SVG - graphics approach, few libraries
- HTML - text approach, many libraries

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GETTING TO KNOW HTML

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AFTER THIS PRESENTATION

- You'll be able to build a simple web page
- You'll appreciate the use of an HTML editor

HTML ELEMENTS WE WILL LOOK AT

Structure	<html> <head> <body>
In <head>	<meta> <author>
	<style> <link> <script> <base>
In <body>	<h1> <p>

THE HTML SPECIFICATION

HTML is designed by the World Wide Web Consortium (W3C)

The HTML 5 specification is http://www.w3.org/TR/html5/

If you are a beginner, don't go there!

HTML COMMANDS

HTML commands are called *elements*

Usually, an element has a start tag and an end tag e.g.

```
<p> . . . </p>
```

There are some exceptions, discussed later

HTML PAGE STRUCTURE

```
<!DOCTYPE html>
<html>
```

```
<head>
```

... header elements go here ...

```
</head>
```

```
<body>
```

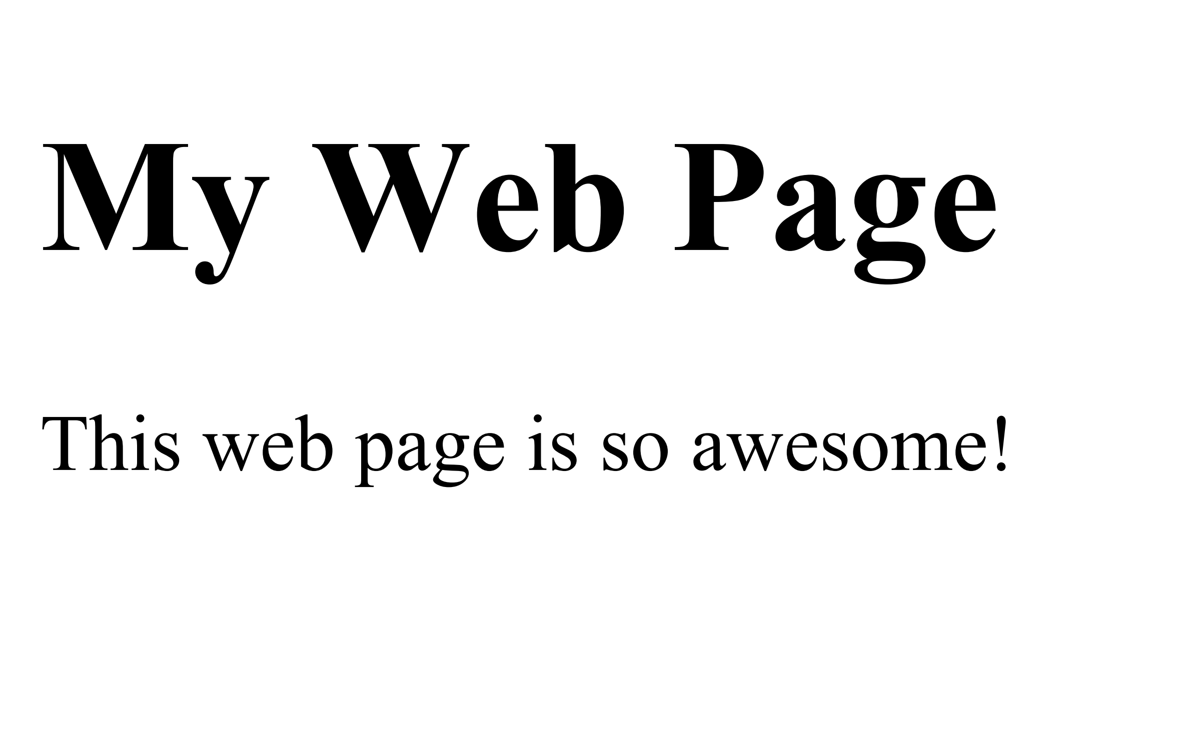
... the main web page content goes here ...

```
</body>
```

```
</html>
```

A VERY SIMPLE WEB PAGE

```
<!DOCTYPE html>
<html>
<head>
    <title>A Simple Web Page</title>
    <meta name="author" content="David Rossiter">
</head>
<body>
    <h1>My Web Page</h1>
    <p>This web page is so awesome!</p>
</body>
</html>
```



My Web Page

This web page is so awesome!

H1 AND P

Let's look at main content

<h1> means *level 1 heading*

```
<h1>My Web Page</h1>
```

<p> means *paragraph*

```
<p>This web page is so awesome!</p>
```

CODE THAT GOES IN HEAD

Anything in <head> is information *about* the web page, and does not usually get shown in the page

Let's look at the two lines in <head>

```
    <title>A Simple Web Page</title>

    <meta name="author" content="David Rossiter">
```

Obviously, these state the title and author

OTHER THINGS YOU MIGHT USE IN HEAD

Style - later

```
<style>
body {background-color:yellow}
</style>
```

```
<link rel="stylesheet" href="stylerules.css">
```

Other meta information

```
<meta name="description" content="An example">
<meta name="keywords" content="HTML, CSS, JavaScript">
<meta charset="UTF-8">
```

OTHER THINGS YOU MIGHT USE IN HEAD

Script - later

```
<script>
function surprise() {
    alert("Hello!");
}
</script>
```

```
<script src="mycode.js"></script>
```

The location of the main file

```
<base href="http://www.ust.hk/" target="_blank">
```

ATTRIBUTES

You need to use speech marks for any HTML attributes:

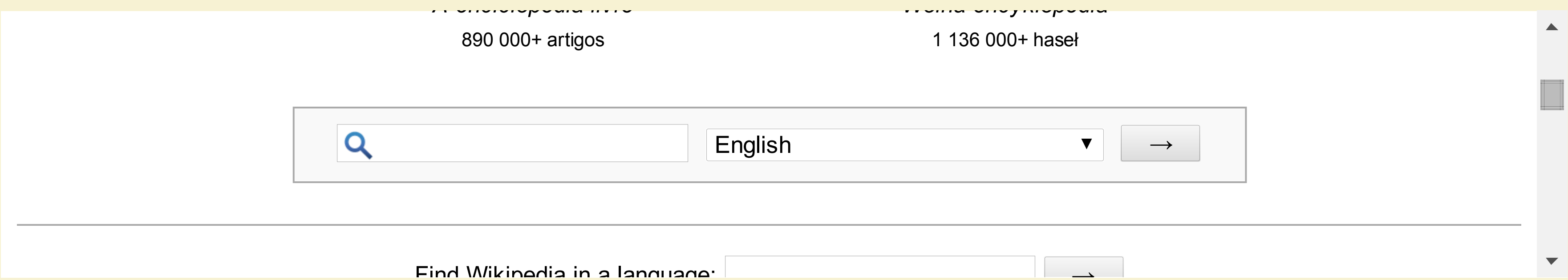
```
<meta name="author" content="David Rossiter">
```

Double speech marks " and single speech marks ' are both OK:

```
<meta name='author' content='David Rossiter'>
```

VIEWING THE HTML OF ANY PAGE

For example: http://www.wikipedia.com



Keyboard: Ctrl-U (PC browsers) *or*
⌥⌘U (Mac Chrome, Safari) *or* ⌘U (Mac Firefox)

```
<!DOCTYPE html>
<html lang="en" dir="ltr" class="client-nojs">
<head>
<meta charset="UTF-8" />
<title>Wikipedia, the free encyclopedia</title>
<meta name="generator" content="MediaWiki 1.26wmf8" />
. . .
```

THIS PRESENTATION

This presentation is written in HTML

The presentation system is called reveal.js

It uses some of the HTML we will learn

You can view the source code to learn more

HTML EDITORS

There are hundreds of HTML editors (google search!)

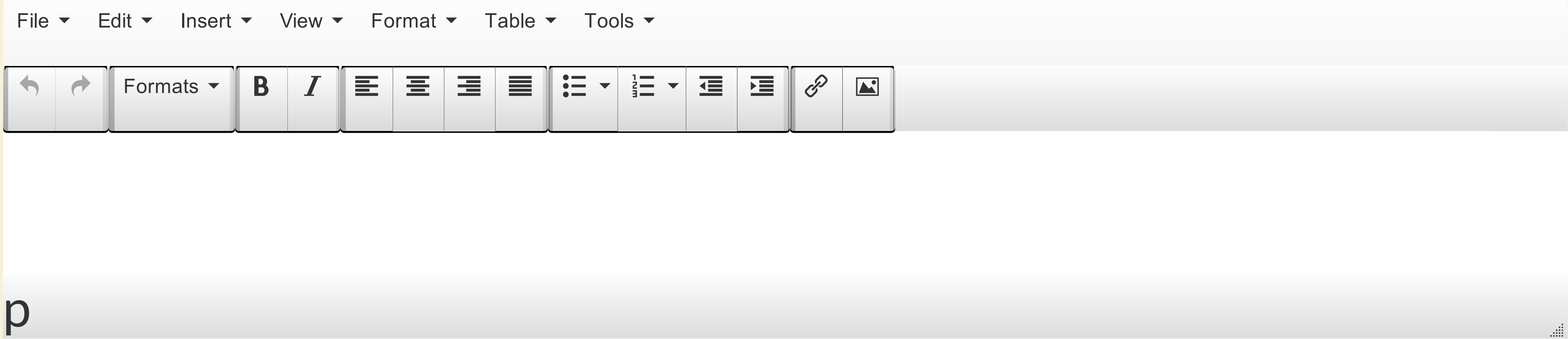
They give you a GUI environment to help create HTML

HTML editors are good for *complementing* learning

EXAMPLE OF AN HTML EDITOR

Here's an example of an HTML editor

This particular editor is called TinyMCE



SOME COMMON HTML ELEMENTS

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AFTER THIS PRESENTATION

- You'll be able to apply headings and sections within your page
- You'll be able to create different types of lists
- You'll be able to write comments in the code

ELEMENTS WE WILL LOOK AT

Headings	`<h1>` `<h2>` `<h3>` `<h4>` `<h5>` `<h6>`
Sections	`<section>`
Lists	`<ul>` and `<ol>` together with `<li>`
Comments	<!-- a comment -->

QUICK REMINDER - SIMPLE WEB PAGE

```html
<!DOCTYPE html>
<html>
<head>
    <title>A Simple Web Page</title>
    <meta name="author" content="David Rossiter">
</head>
<body>
    <h1>My Web Page</h1>
    <p>This web page is so awesome!</p>
</body>
</html>
```

HTML HEADINGS

`<h1>` `<h2>` `<h3>` . . . `<h6>` are used for headings

Browsers show `<h1>` bigger than `<h2>`
`<h2>` bigger than `<h3>`, and so on

People often 'cheat' by using these elements
to easily generate different size text

HEADING TAGS

A simple example of heading elements

```html
<h1>Introduction to Something</h1>
<h2>An Area of Something</h2>
<h3>A Sub-Area...</h3>
<p>This sub-area is fun! Let's discuss it here in detail.</p>
```

Introduction to Something

An Area of Something

A Sub-Area...

This sub-area is fun! Let's discuss it here in detail.

LOOKS BORING?

The elements are shown using the default browser style

We can apply a different style to make things look better

Let's apply the style used by this presentation

Later we will look at style in depth

INTRODUCTION TO SOMETHING

AN AREA OF SOMETHING

A SUB-AREA...

This sub-area is fun! Let's discuss it here in detail.

USING SECTION

`<section>` is used to indicate a section

```
<section>
        <h1>Introduction to Something</h1>
        <p>Let's discuss something here!</p>
</section>
```

Introduction to Something

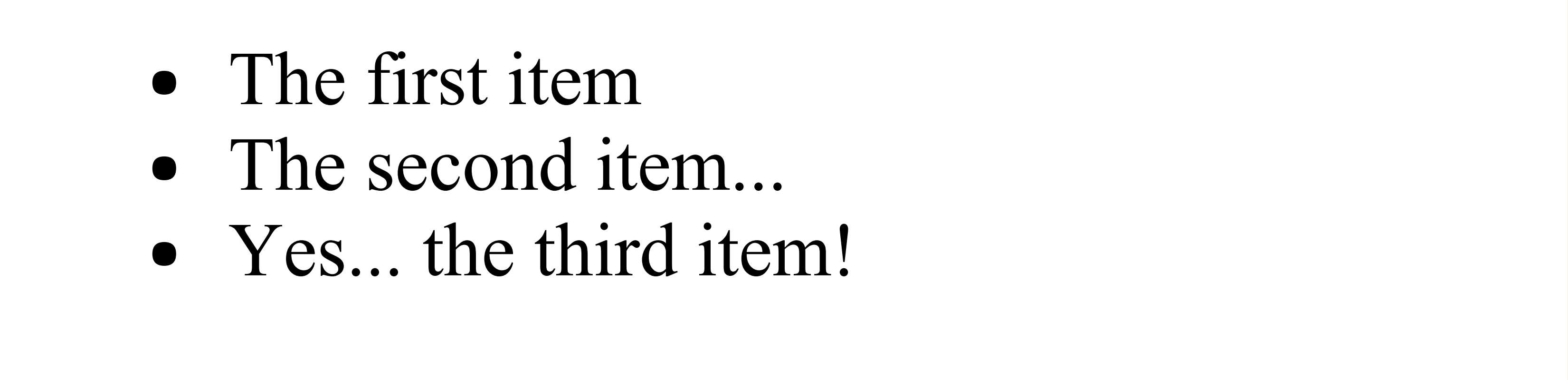
Let's discuss something here!

A SIMPLE LIST USING BULLETS

Now let's consider HTML lists

`<ul>` means *unordered list*, `<li>` means *list item*

```
<ul>
    <li>The first item</li>
    <li>The second item...</li>
    <li>Yes... the third item!</li>
</ul>
```

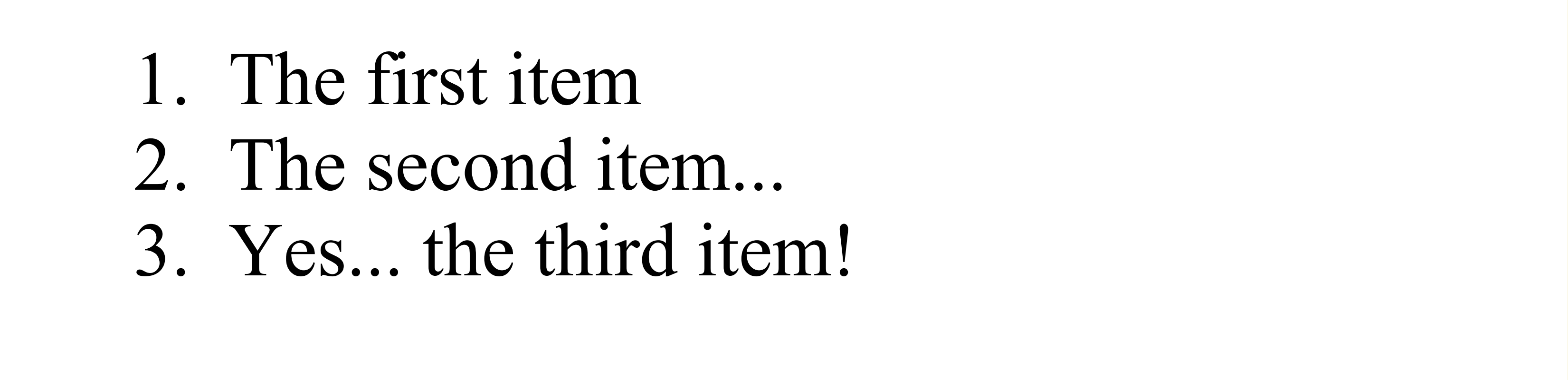


- The first item
- The second item...
- Yes... the third item!

A SIMPLE LIST USING NUMBERS

`<ol>` means *ordered list*

```
<ol>
    <li>The first item</li>
    <li>The second item...</li>
    <li>Yes... the third item!</li>
</ol>
```



1. The first item
2. The second item...
3. Yes... the third item!

CHANGING THE START NUMBER

Add `start="`**number**`"` to fix the starting number

```html
<ol start="1999">
    <li>In this year I was born...</li>
    <li>In this year I learned to walk...</li>
    <li>In this year I learned to program...</li>
    <li>In this year I learned SPA techniques...</li>
</ol>
```

1999. In this year I was born...
2000. In this year I learned to walk...
2001. In this year I learned to program...
2002. In this year I learned SPA techniques...

REVERSING THE ORDER

Add reversed to reverse the order

```
<ol start="2002" reversed>
    <li>In this year I learned SPA techniques...</li>
    <li>In this year I learned to program...</li>
    <li>In this year I learned to walk...</li>
    <li>In this year I was born...</li>
</ol>
```

2002. In this year I learned SPA techniques...

2001. In this year I learned to program...

2000. In this year I learned to walk...

1999. In this year I was born...

USING A LETTER

Add type="A" to use a letter

```
<ol type="A">
    <li>is for 'Anchor'...</li>
    <li>is for 'Body'...</li>
    <li>is for 'Cdata'...</li>
    <li>is for 'Div'...</li>
</ol>
```

A. is for 'Anchor'...
B. is for 'Body'...
C. is for 'Cdata'...
D. is for 'Div'...

COMMENTS

A comment looks like this: <!-- *a comment* -->

```
<html>
<!-- This is a simple demonstration of using comments in a web page -->
<head>
        <meta name="author" content="David Rossiter">
        <!-- I can't believe how amazing that guy really is! -->
</head>
<body>
        <!-- Here's my simple 'to do' list -->
        <p>Items I need to fix in my business:</p>
        <ol> <li>The people</li>
                 <li>The process</li>
                 <li>The product</li> </ol>
        <!-- That's a lot of things to fix! I better get started soon. -->
</body>
</html>
```

Comments can be added anywhere

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FORMATTING HTML TEXT

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AFTER THIS PRESENTATION

- You'll be able to apply many types of text formatting

ELEMENTS WE WILL LOOK AT

Italic and Bold	`<i>` `<em>` `<b>` `<strong>`
Underline	`<u>`
Big and Small	`<big>` `<small>`
Highlighted	`<mark>`
Subscript & Superscript	`<sub>` `<sup>`
Inserted & Deleted	`<ins>` `<del>`

ITALIC TEXT

`<i>` makes the text italic; `<em>` does the same thing. The difference is that `<em>` emphasises importance

```
<p>He said <i>I am just going outside and may be some time</i>.</p>

<p>If you don't have a vaccination <em>you may catch malaria and die</em>.</p>
```

He said *I am just going outside and may be some time*.

If you don't have a vaccination *you may catch malaria and die*.

BOLD TEXT

<b> makes the text bold; <strong> does the same thing. The difference is that <strong> emphasises importance.

```
<p>She said <b>If you want something said, ask a man;
         if you want something done, ask a woman</b>.</p>

<p>If you can't repay your mortgage <strong>you may lose your home</strong>.</p>
```

She said **If you want something said, ask a man; if you want something done, ask a woman**.

If you can't repay your mortgage **you may lose your home**.

UNDERLINE

Try not to use underline - confusing/multiple meanings

```
<p>The viewer <u>may be confused</u> if you use underline.</p>

<p>Her name is <u>Cheng</u> Sin Ying.</p>
```

The viewer may be confused if you use underline.

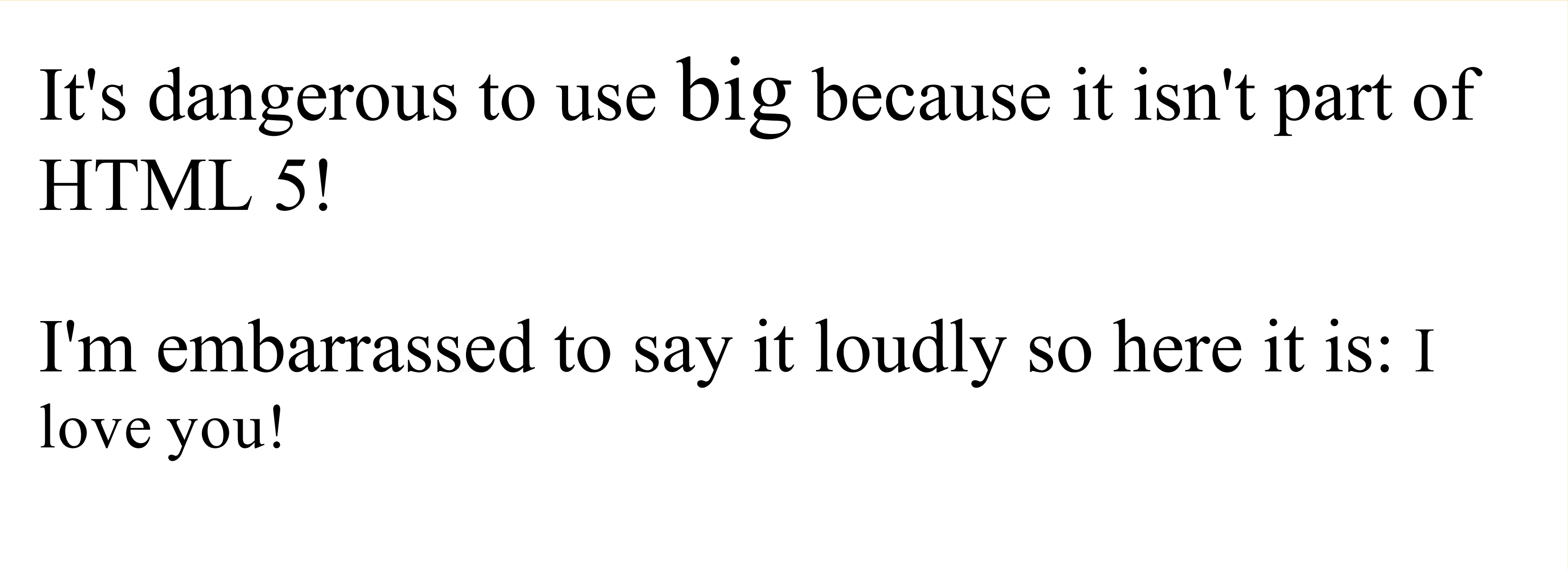
Her name is Cheng Sin Ying.

BIG AND SMALL TEXT

`<big>` and `<small>` do exactly what you expect.
However, `<big>` is not part of the latest HTML standard.

```
<p>It's dangerous to use <big>big</big> because it isn't part of HTML 5!</p>

<p>I'm embarrassed to say it loudly so here it is: <small>I love you!</small></p>
```



It's dangerous to use big because it isn't part of HTML 5!

I'm embarrassed to say it loudly so here it is: I love you!

HIGHLIGHTING TEXT

`<mark>` highlights the text

```html
<p>Send us your bank details and you may become a <mark>millionaire</mark>!</p>
```

Send us your bank details and you may become a millionaire!

SUBSCRIPT AND SUPERSCRIPT

<sub> and <sup> are used for offsetting

```
<p>
If x<sub>1</sub>=2 and x<sub>2</sub>=4 then
x<sub>1</sub><sup>2</sup> + x<sub>2</sub><sup>3</sup> equals 68
</p>

<p>
Some video streaming may use XML<sup>1</sup>
</p>

<p>
<sup>1</sup> G. Lam & D. Rossiter, 'A Web Service Framework
Supporting Multimedia Streaming', IEEE Transactions on Services Computing, 2013
</p>
```

If $x_1=2$ and $x_2=4$ then $x_1^2 + x_2^3$ equals 68

Some video streaming may use XML[1]

[1] G. Lam & D. Rossiter, 'A Web Service Framework Supporting Multimedia Streaming', IEEE Transactions on Services Computing, 2013

INSERTED AND DELETED TEXT

`<ins>` and `<del>` are used for showing edits

```html
<p>Let's do this edit: Prof. Rossiter is <ins>truly</ins> the most intelligent.</p>

<p>Also this: Prof. Rossiter has an <del>astonishingly</del> old car.</p>
```

Let's do this edit: Prof. Rossiter is truly the most intelligent.

Also this: Prof. Rossiter has an ~~astonishingly~~ old car.

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IMAGES

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AFTER THIS PRESENTATION

- You'll be able to handle images

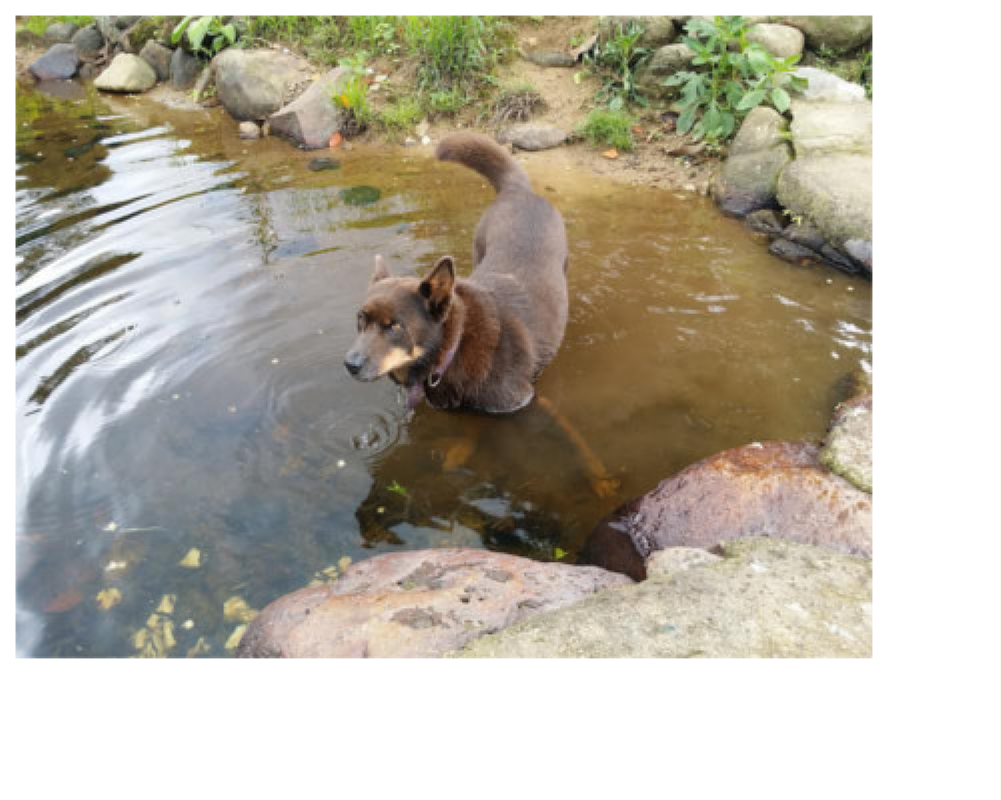
ELEMENTS & ATTRIBUTES WE WILL LOOK AT

`<img>`	`src` attribute
	`width` attribute
	`height` attribute

IMAGES

Use `img` to bring an image into the web page

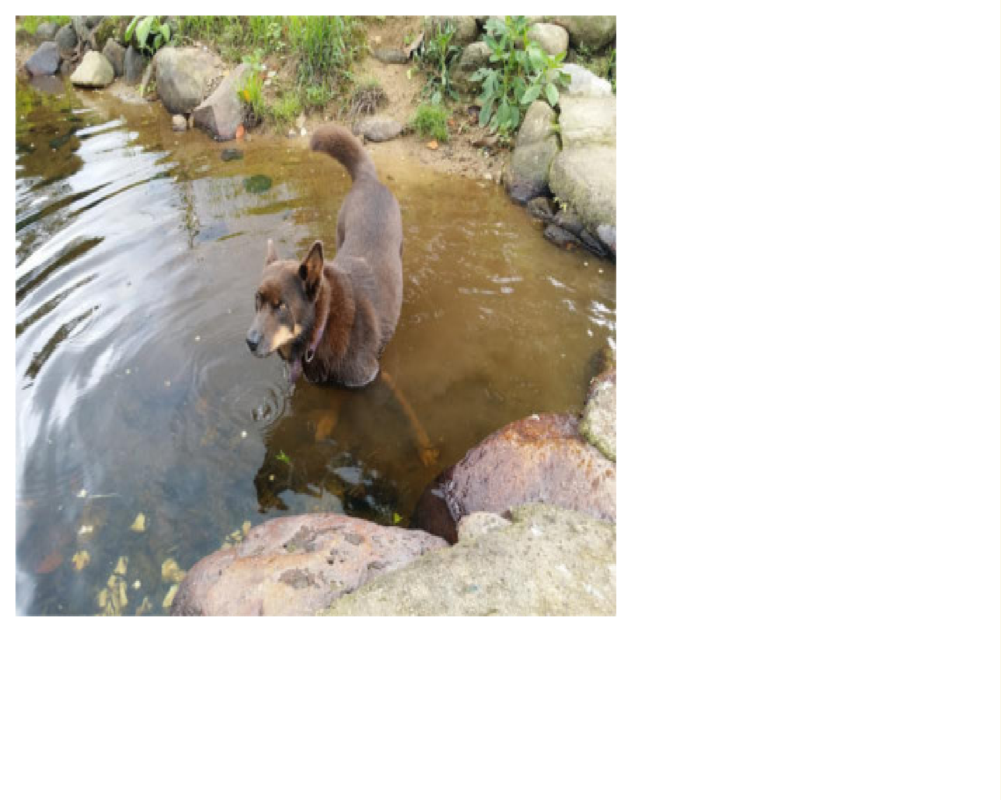
```
<img src="stella_photo.jpg">
```



CONTROLLING THE EXACT SIZE

Add `width="`**number**`"` and `height="`**number**`"`

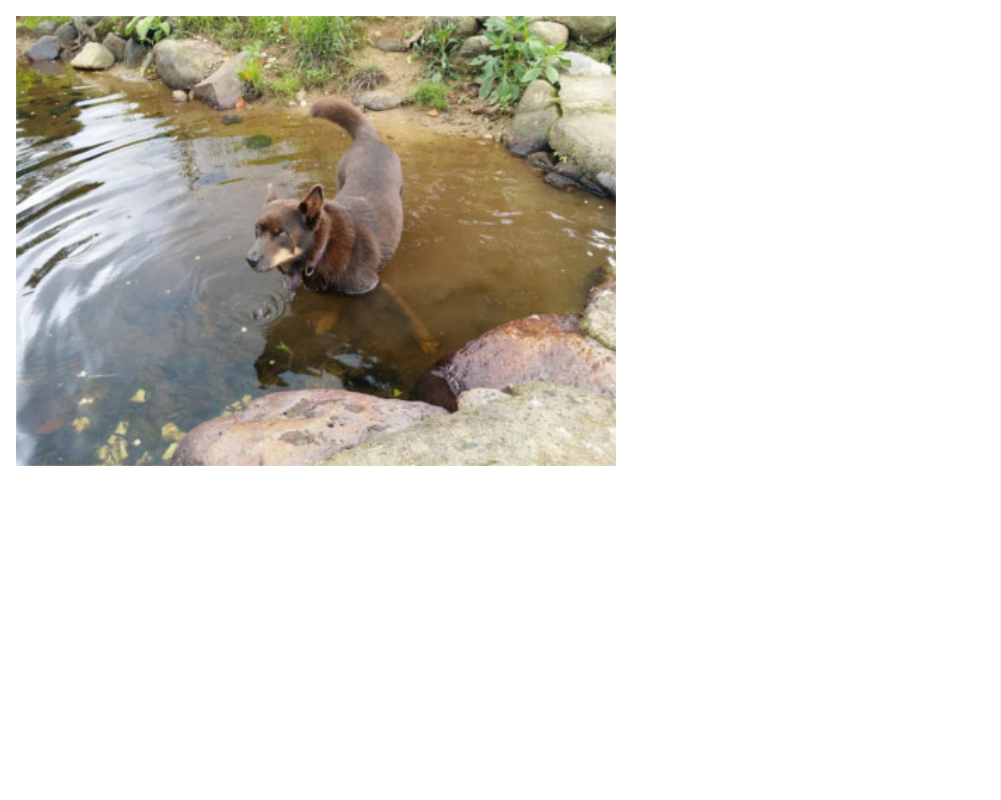
```
<img src="stella_photo.jpg" width="300" height="300">
```



CONTROLLING SIZE WITH CORRECT RATIO

Use only one of `width` or `height`

```
<img src="stella_photo.jpg" width="300">
```

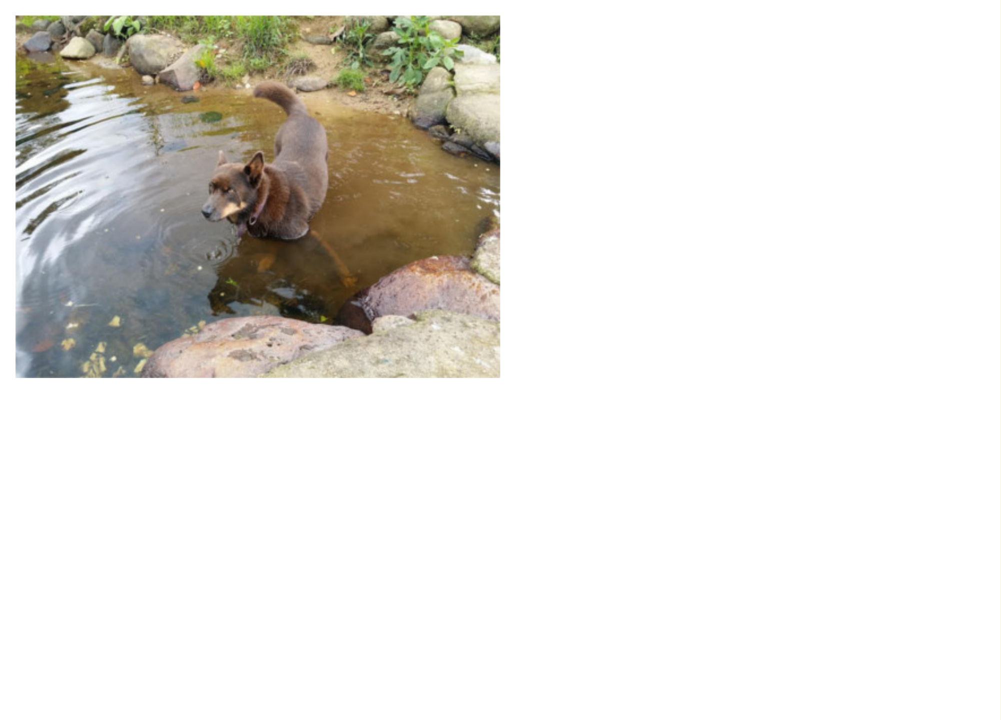


CONTROLLING THE RELATIVE SIZE

Add `width="`**number%**`"` and `height="`**number%**`"`

```
<img src="stella_photo.jpg" width="50%">
```

The percentage value is relative to the thing which contains the image, which we call the *parent*



AUDIO

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AFTER THIS PRESENTATION

- You'll be able to handle audio

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

<audio>	src attribute
	autoplay attribute
	controls attribute
	loop attribute
	~~alt attribute~~

HANDLING SOUND

`<audio>` by itself adds a soundfile, but doesn't play it

```
<audio src="beets_turnips.mp3"></audio>
```

`autoplay` makes the sound start as soon as the page loads

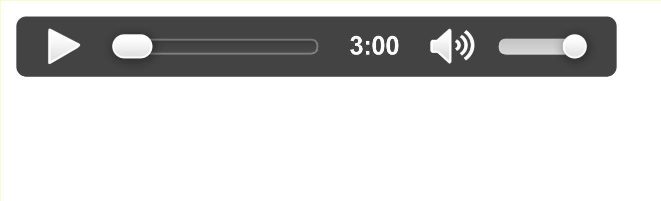
```
<audio src="beets_turnips.mp3" autoplay></audio>
```

Open the example to experience it

SOUND CONTROLS

```
<audio src="beets_turnips.mp3" controls></audio>
```

Add `controls` to tell the browser to show playback controls



LOOPING SOUND

Add `loop` to repeat the sound indefinitely

```
<audio src="drum_loop.mp3" autoplay loop></audio>
```

Open the example to experience it

SOUND IN OLDER BROWSERS

In general, for sound it's wise to use MP3 format sound

This is supposed to work in all modern browsers

HANDLING NEW TAGS IN OLDER BROWSERS

Older browsers can't handle newer HTML tags

To be friendly, you can warn the user:

```
<this_new_html_tag>
        <p>Sorry, your browser can't handle <i>this_new_html_tag</i>!</p>
</this_new_html_tag>
```

- An older browser ignores `<this_new_html_tag>` because it doesn't understand it, but it does understand `<p>` so it correctly displays the paragraph
- A newer browser understands everything, but deliberately ignores the paragraph

AN EXAMPLE OF HANDLING OLDER BROWSERS

Here's an example using audio:

```
<audio src="drum_loop.mp3" autoplay>
        <p>Sorry! Your browser does not support the <i>audio</i> tag</p>
</audio>
```

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VIDEO

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AFTER THIS PRESENTATION

- You'll be able to handle video

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

`<video>`	`src` attribute
	`autoplay` attribute
	`controls` attribute
	`loop` attribute
	`alt` attribute

ADDING A VIDEO

Handling video is very similar to handling audio

`<video>` adds a video to the web page, but doesn't play it

```
<video src="walking_video.mp4"></video>
```

PLAYING VIDEO

`autoplay` makes the video start as soon as the page loads

```
<video src="walking_video.mp4" autoplay></video>
```

Open the example to experience it

ADDING VIDEO CONTROLS

Add `controls` to give the user some video controls

```
<video src="walking_video.mp4" controls></video>
```

Open the example to experience it

SOME WAYS OF HANDLING VIDEO

Use `loop` if you want the video to repeat

```
<video src="walking_video.mp4" loop></video>
```

Use `alt` for search engines and disabled people

```
<video src="walking_video.mp4" alt="Walking the High Junk Peak trail"></video>
```

Handle older browsers with a message

```
<video src="walking_video.mp4" controls>
        <p>Sorry! Your browser does not support the <i>video</i> tag</p>
</video>
```

LINKS

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AFTER THIS PRESENTATION

- You'll be able to add a link to any web page
- You'll be able to add a link to any position within a page
- You'll appreciate the role of lorem ipsum text

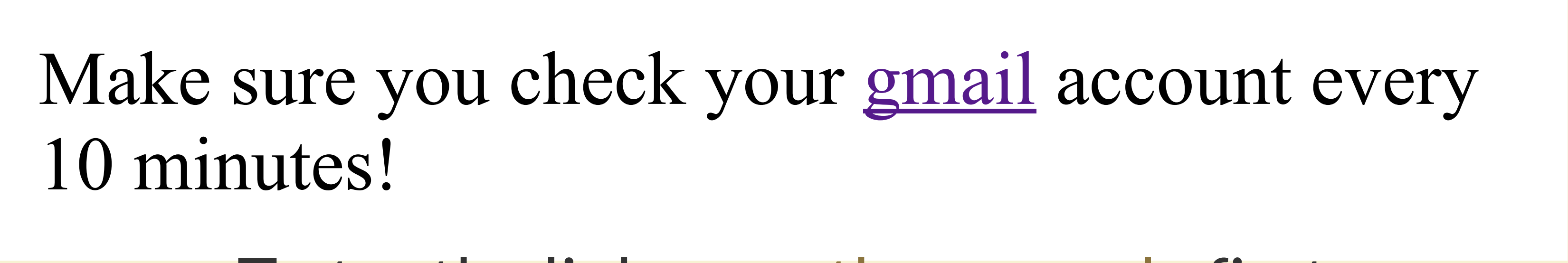
ELEMENTS WE WILL LOOK AT

`<a>`	`href` attribute
	~~`name` attribute~~
Any element	`id` attribute

LINKS

```
Make sure you check your
<a href="https://www.gmail.com/">gmail</a> account every 10 minutes!
```

<a> means *anchor* i.e. attaching something to something else



Make sure you check your gmail account every 10 minutes!

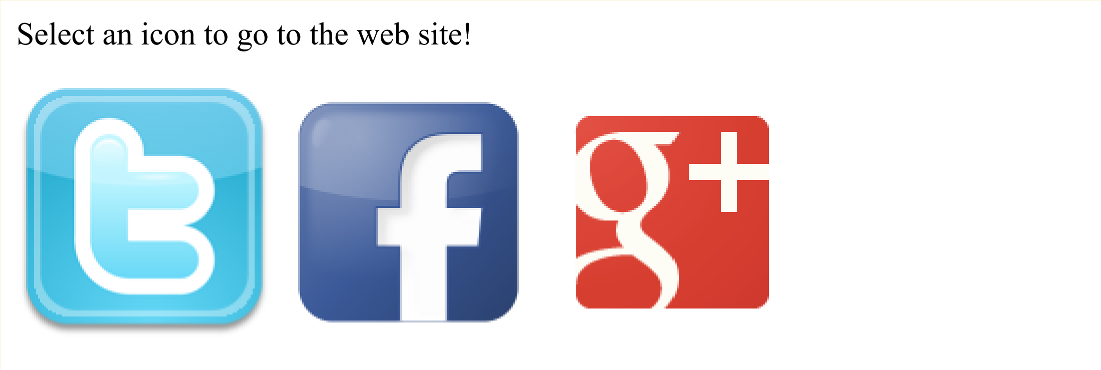
To try the link open the example first

ANCHORING LINKS

The anchor could be anything, such as an image

```
<p>Select an icon to go to the web site!</p>

<a href="https://twitter.com/"><img src="twitter_icon.png"></a>
<a href="https://www.facebook.com"><img src="facebook_icon.png"></a>
<a href="https://plus.google.com"><img src="google_plus_icon.png"></a>
```



Select an icon to go to the web site!

To try the links open the example first

A POSITION WITHIN A PAGE

A link may go to any position in a page. For example:

1. Add `id="here"` to the element you will link to
2. Then use `<a href="#here">Go here</a>`
3. From another web page use `<a href="web_page.html#here">Go here</a>`

An example is here

LOREM IPSUM TEXT

For temporary text, use Lorem Ipsum

Lorem Ipsum is used by the publishing industry

Lots of generators on the web e.g. http://www.lipsum.com/

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AND TECHNOLOGY

VOID ELEMENTS & BREAKS

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COMPUTER SCIENCE & ENGINEERING
計算機科學及工程學系

AFTER THIS PRESENTATION

- You'll appreciate what a void element is
- You'll be able to differentiate between and use 3 types of break

ELEMENTS WE WILL LOOK AT

Handling breaks `<br>` `<wbr>` `<hr>`

VOID ELEMENTS

All elements we have seen so far have this structure:

```
<start_tag> . . . </end_tag>
```

Some elements do not have any content

These are called 'void elements'

They *must not* use an end tag

A VOID ELEMENT WE HAVE ALREADY SEEN

```
<meta name="author" content="David Rossiter">
```

Void elements may or may not have attributes

SOME OTHER VOID ELEMENTS

Handling multimedia	`<img>`	- before
Handling forms	`<input>`	- later
Handling breaks	`<br>` `<wbr>` `<hr>`	- now

BREAKS

```
<p>
My favourite word is supercalifragilisticexpialidocious. It comes
from the movie 'Mary Poppins' and is hard to spell correctly.
</p>
<p>
My favourite word is supercalifragilisticexpialidocious.<br>It comes
from the movie 'Mary Poppins' and is hard to spell correctly.
</p>
<p>
My favourite word is supercalifragilistic<wbr>expialidocious. It comes
from the movie 'Mary Poppins' and is hard to spell correctly.
</p>
<p>
My favourite word is supercalifragilisticexpialidocious.<hr>It comes
from the movie 'Mary Poppins' and is hard to spell correctly.
</p>
```

Open this example to experience it

STYLE

PROF. DAVID ROSSITER

AFTER THIS PRESENTATION

- You'll appreciate the concept of style with html
- You know how to create different types of style rules

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

`<link>`	`href` attribute
	`rel` attribute
	`type` attribute
`<style>`	
Any HTML element	`id` attribute

STYLE PROPERTIES WE WILL LOOK AT

Foreground color	`color`
Background color	`background`

WE NEED STYLE!

We need to learn *style*

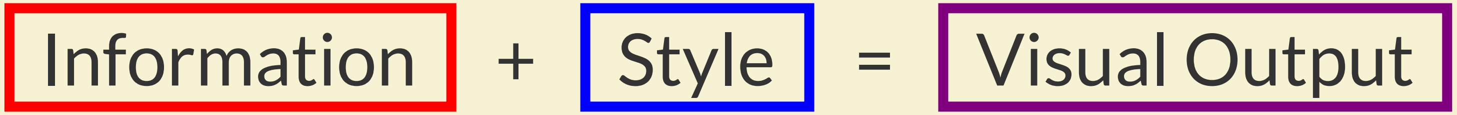
Without style your page is visually boring!

Style is also a major control feature for JavaScript libraries

The language for style on the web is CSS,
Cascading Style Sheets

THE GENERAL CONCEPT

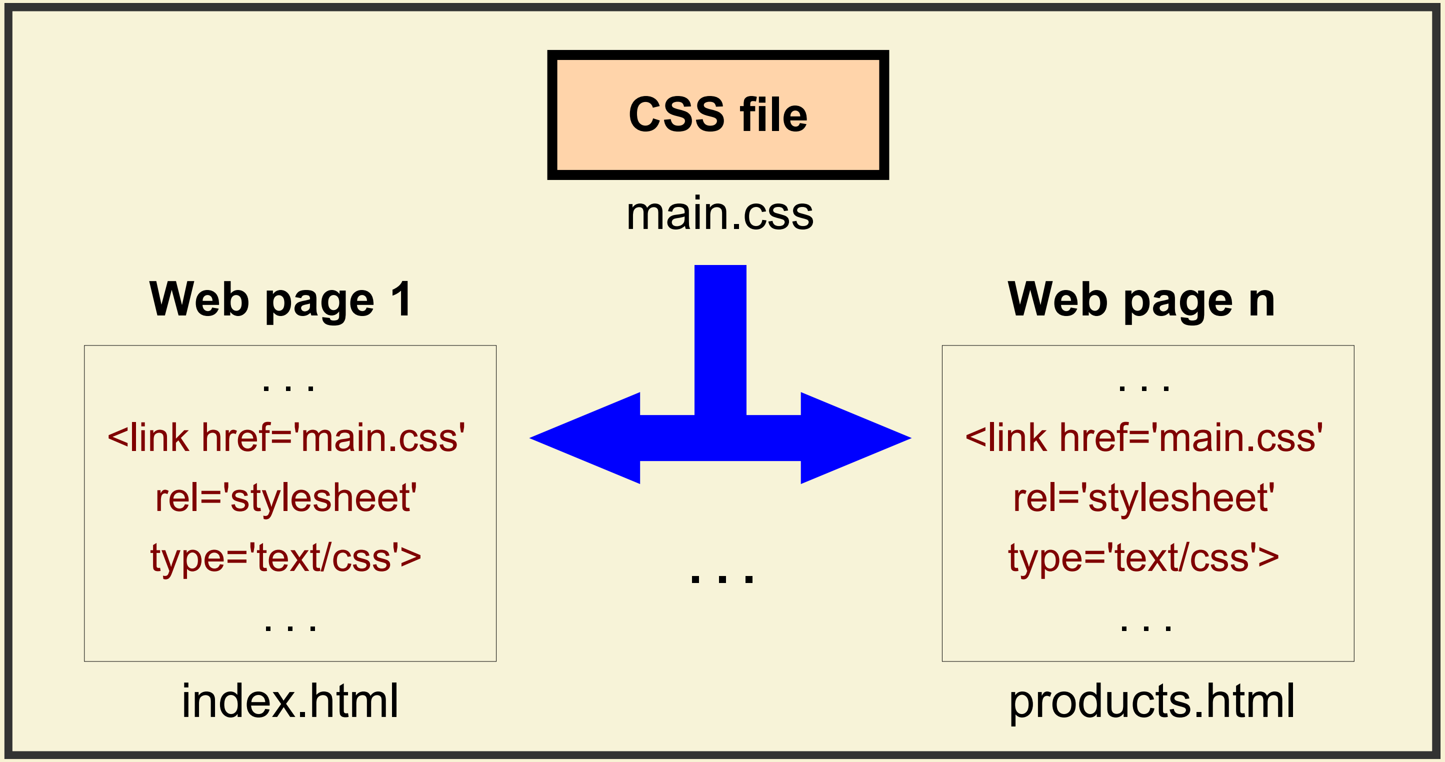
We separate the **information** in the web page from the **visual properties** used to display it



Information + Style = Visual Output

1 CSS FILE, MULTIPLE WEB PAGES

One CSS file can be used by multiple pages



LINKING TO A CSS FILE

```
<!DOCTYPE html>
<html>
```

```
<head>
    <title>Demonstration of Linking to a Style File</title>
    <link href="html_example_css_file.css" rel="stylesheet" type="text/css">
</head>
```

```
<body>
```

. . . elements which use the style rules go here . . .

```
</body>
```

```
</html>
```

SIMPLE HTML FILE

```
<!DOCTYPE html>
<html>
```

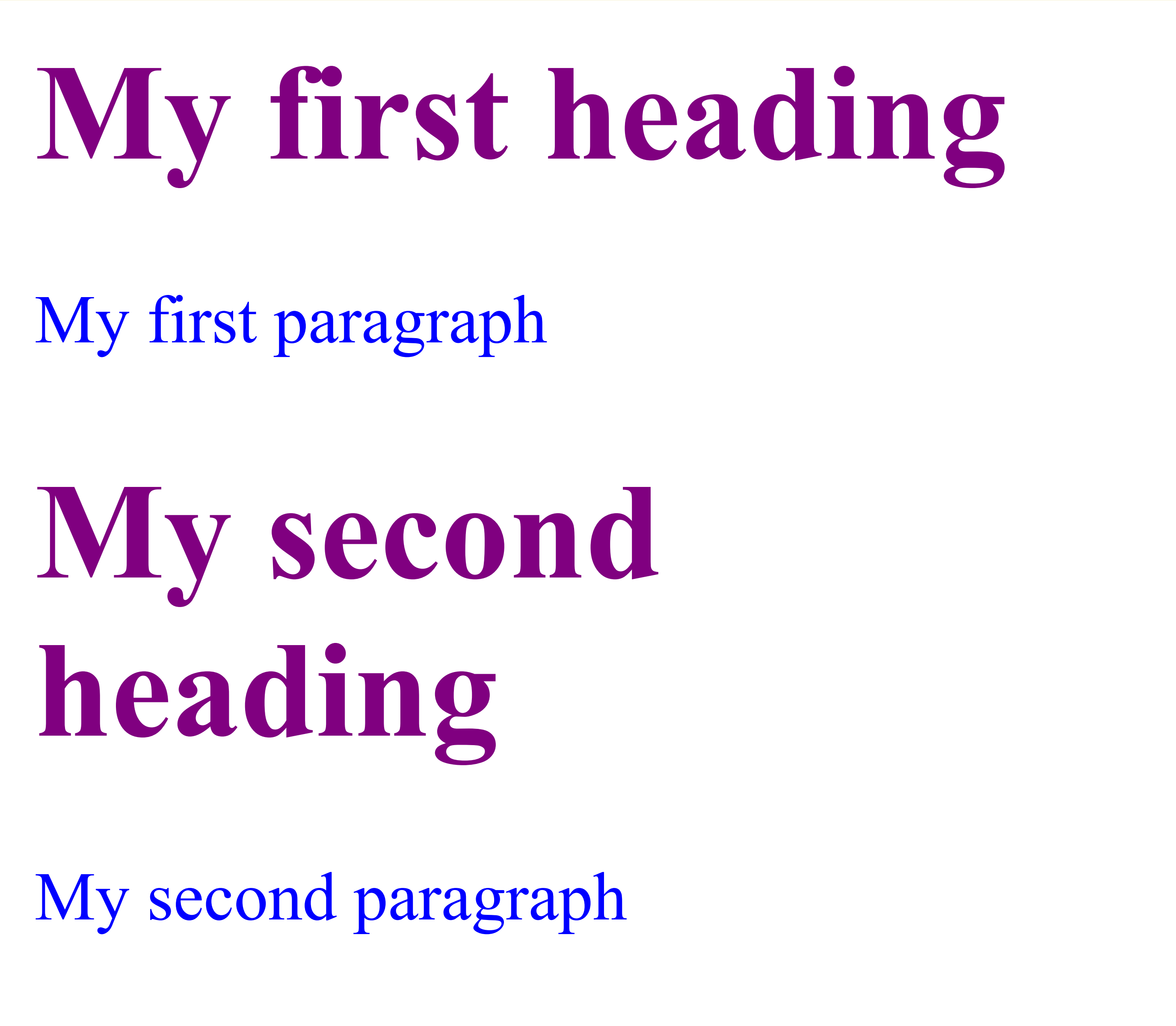
```
<head>
    <title>Demonstration of Linking to a Style File</title>
    <link href="html_example_css_file.css" rel="stylesheet" type="text/css">
</head>
```

```
<body>
        <h1>My first heading</h1>
        <p>My first paragraph</p>
        <h1>My second heading</h1>
        <p>My second paragraph</p>
</body>
```

```
</html>
```

SIMPLE CSS FILE

```css
h1 { color:purple }
p { color:blue }
```



My first heading

My first paragraph

My second heading

My second paragraph

COMMONLY USED STYLE PROPERTIES

- `color` for text color
- `background` for background color
- `font-family` for text fonts
- `font-size` for text sizes
- `text-align` for text alignment

DEFINING STYLE AT THE TOP OF THE PAGE

```
<!DOCTYPE html>
<html>
```

```
<head>
    <style>
```

. . . style rules for this web page go here . . .

```
    </style>
</head>
```

```
<body>
```

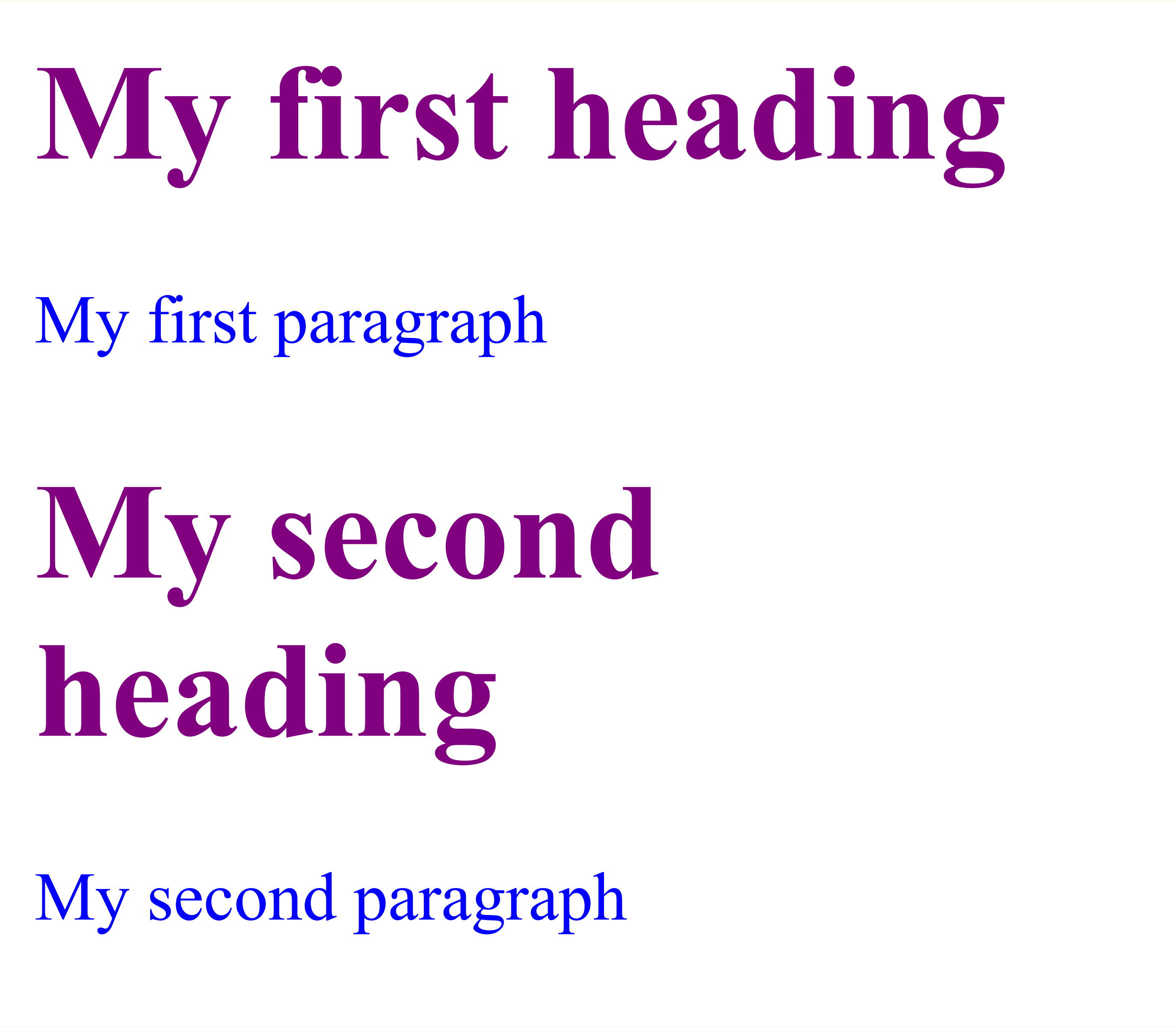
. . . elements which use the style rules go here . . .

```
</body>
```

```
</html>
```

SIMPLE EXAMPLE

```
<html>
        <head>
                <style>
                h1 {color:purple}
                p {color:blue}
                </style>
        </head>
        <body>
                <h1>My first heading</h1>
                <p>My first paragraph</p>
                <h1>My second heading</h1>
                <p>My second paragraph</p>
        </body>
</html>
```



My first heading

My first paragraph

My second heading

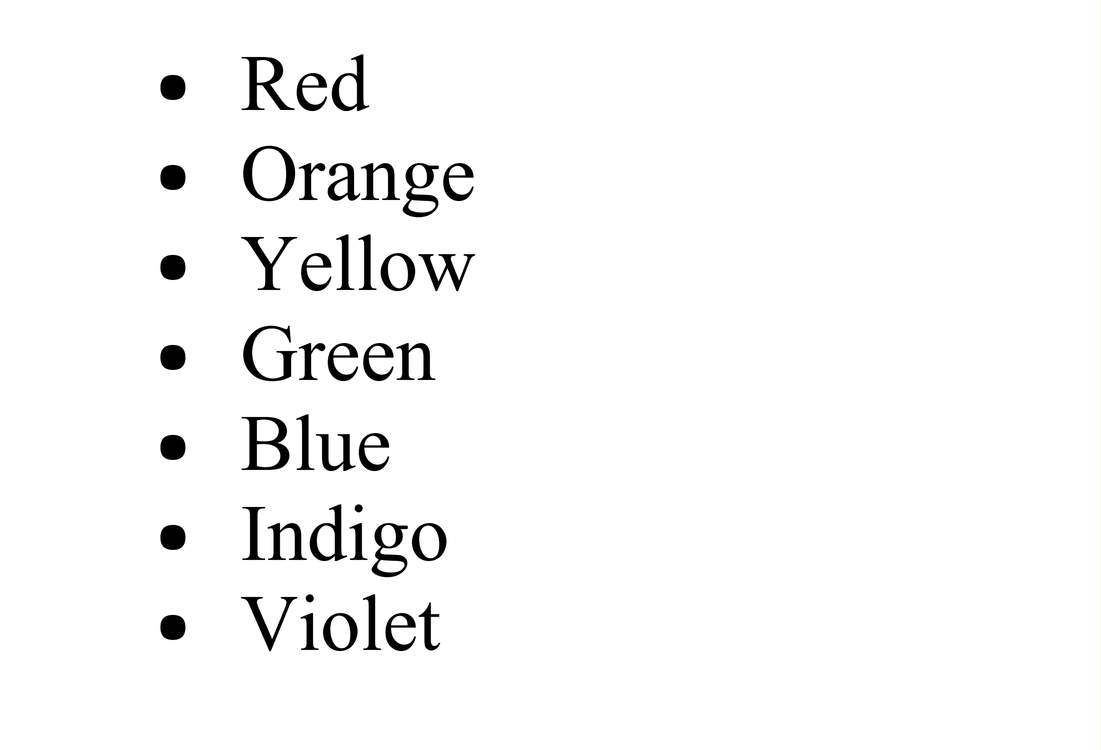
My second paragraph

USE A UNIQUE ID

Every element can have an `id` attribute

`id` has no effect for visual display

```
<html>
    <body>
        <ul id="rainbowColors">
            <li id="red">Red</li>
            <li id="orange">Orange</li>
            <li id="yellow">Yellow</li>
            <li id="green">Green</li>
            <li id="blue">Blue</li>
            <li id="indigo">Indigo</li>
            <li id="violet">Violet</li>
        </ul>
    </body>
</html>
```



- Red
- Orange
- Yellow
- Green
- Blue
- Indigo
- Violet

USING ID FOR STYLE

You can use *#id* for select the target of the style rule

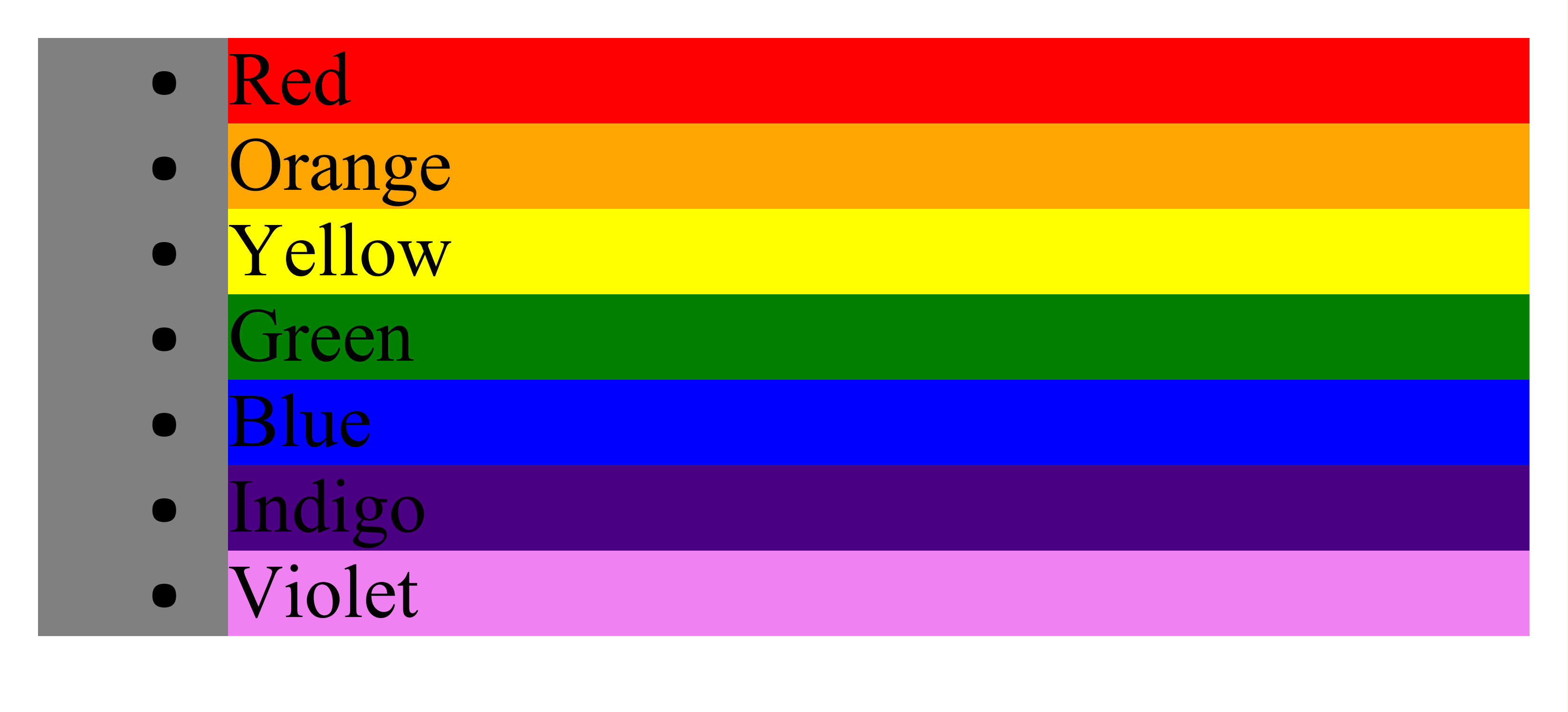
```
#theElementID {color: red}
```

STYLE USING ID <HEAD> PART

```
<html>
    <head>
        <style>
            #rainbowColors {background: grey}
            #red {background: red}
            #orange {background: orange}
            #yellow {background: yellow}
            #green {background: green}
            #blue {background: blue}
            #indigo {background: indigo}
            #violet {background: violet}
        </style>
    </head>
```

STYLE USING ID <BODY> PART

```
    <body>
        <ul id="rainbowColors">
            <li id="red">Red</li>
            <li id="orange">Orange</li>
            <li id="yellow">Yellow</li>
            <li id="green">Green</li>
            <li id="blue">Blue</li>
            <li id="indigo">Indigo</li>
            <li id="violet">Violet</li>
        </ul>
    </body>
</html>
```



- Red
- Orange
- Yellow
- Green
- Blue
- Indigo
- Violet

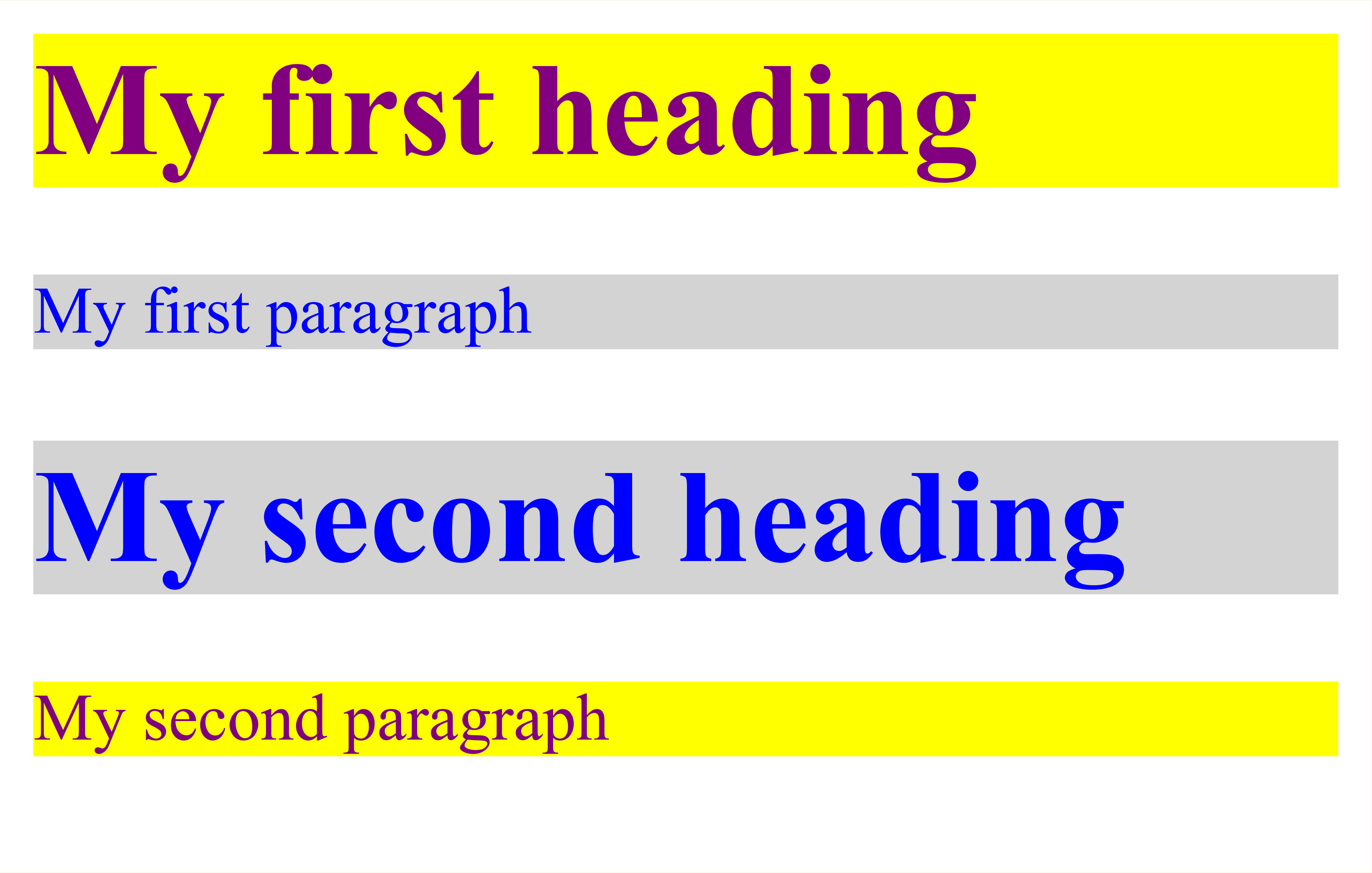
USING CLASS

Make your own rule, apply to anything

One rule can be used for multiple elements

CLASS EXAMPLE

```
<html>
        <head>
                <style>
                .zappy {color:purple; background:yellow}
                .wow {color:blue; background:lightgrey}
                </style>
        </head>
        <body>
                <h1 class="zappy">My first heading</h1>
                <p class="wow">My first paragraph</p>
                <h1 class="wow">My second heading</h1>
                <p class="zappy">My second paragraph</p>
        </body>
</html>
```



My first heading

My first paragraph

My second heading

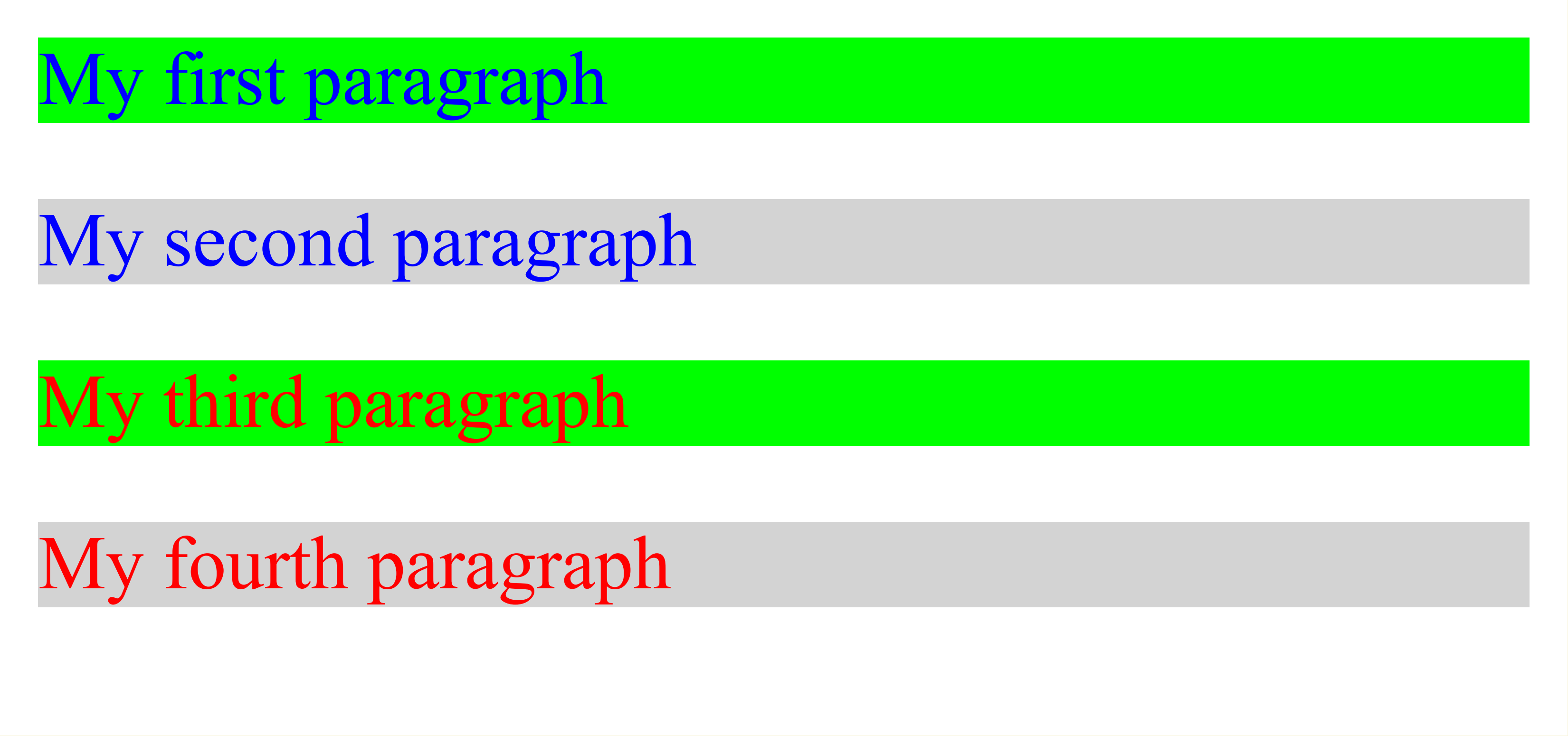
My second paragraph

USING MULTIPLE CLASSES

One element can use multiple classes

MULTIPLE CLASS EXAMPLE

```
<html>
        <head>
                <style>
                .zappy {color:blue}
                .spicy {color:red}
                .wow {background:lime}
                .lol {background:lightgrey}
                </style>
        </head>
        <body>
                <p class="zappy wow">My first paragraph</p>
                <p class="zappy lol">My second paragraph</p>
                <p class="spicy wow">My third paragraph</p>
                <p class="spicy lol">My fourth paragraph</p>
        </body>
</html>
```



My first paragraph

My second paragraph

My third paragraph

My fourth paragraph

MORE ON STYLE

PROF. DAVID ROSSITER

AFTER THIS PRESENTATION

- You'll be able to use inline style
- You'll know what pseudo-classes are and how to use them
- You'll appreciate the priorities of style rules

STYLE PROPERTIES WE WILL LOOK AT

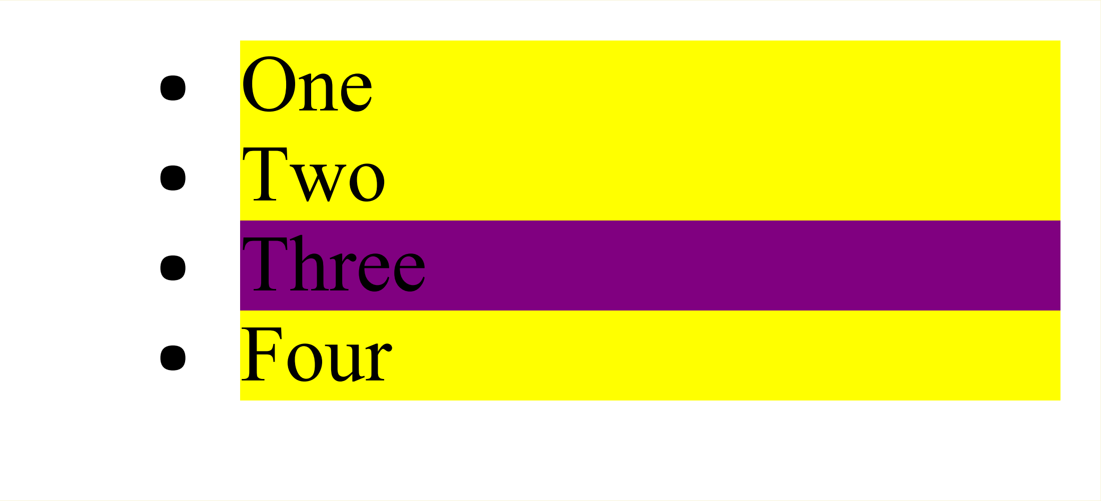
Pseudo-classes	`link`
	`visited`
	`hover`
	`active`
	`empty`

INLINE STYLE

A style rule which directly applies to a particular element

```
<p style="text-align:right">Welcome.</p>
```

```html
<html>
    <head>
        <style>
        li {background:yellow}
        </style>
    </head>
    <body>
        <ul>
            <li>One</li>
            <li>Two</li>
            <li style="background:purple">Three</li>
            <li>Four</li>
        </ul>
    </body>
</html>
```



- One
- Two
- Three
- Four

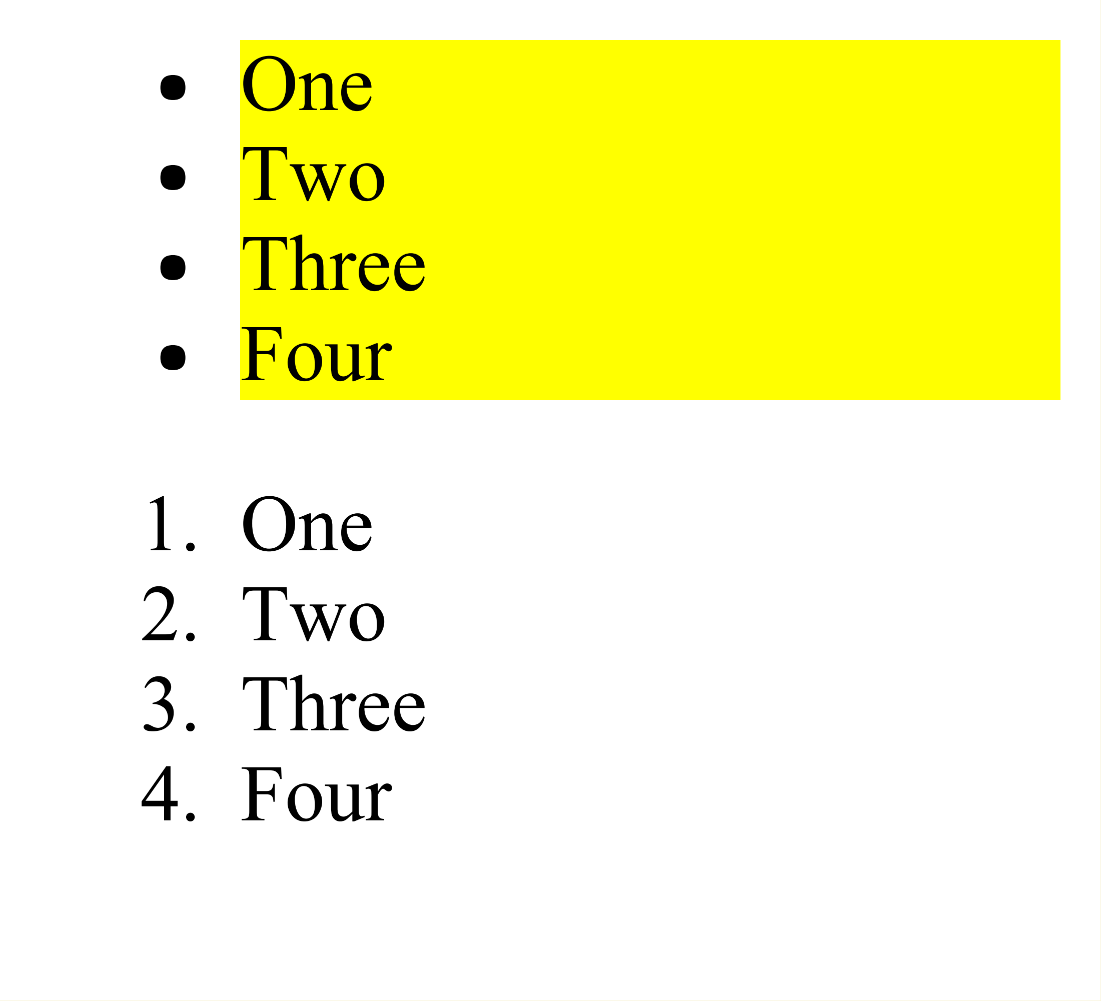
CONTEXT CONTROL

- You can apply a style rule to a specific context

```
ul li {color: red}
```

- Here the style rule is applied to all `li` that are inside a `ul`

```html
<html>
    <head>
        <style>
        ul li {background:yellow}
        </style>
    </head>
    <body>
        <ul>
            <li>One</li>
            <li>Two</li>
            <li>Three</li>
            <li>Four</li>
        </ul>
        <ol>
            <li>One</li>
            <li>Two</li>
            <li>Three</li>
            <li>Four</li>
        </ol>
    </body>
</html>
```



- One
- Two
- Three
- Four

1. One
2. Two
3. Three
4. Four

PSEUDO-CLASSES

- Pseudo-classes are classes with some kind of 'intelligence'

```
h1:hover {color: red}
```

- When the mouse moves over any h1
  the text temporarily changes to red

- `link` means a link

```
a:link {color: red}
```

- `visited` means a link that has been visited

```
a:visited {color: red}
```

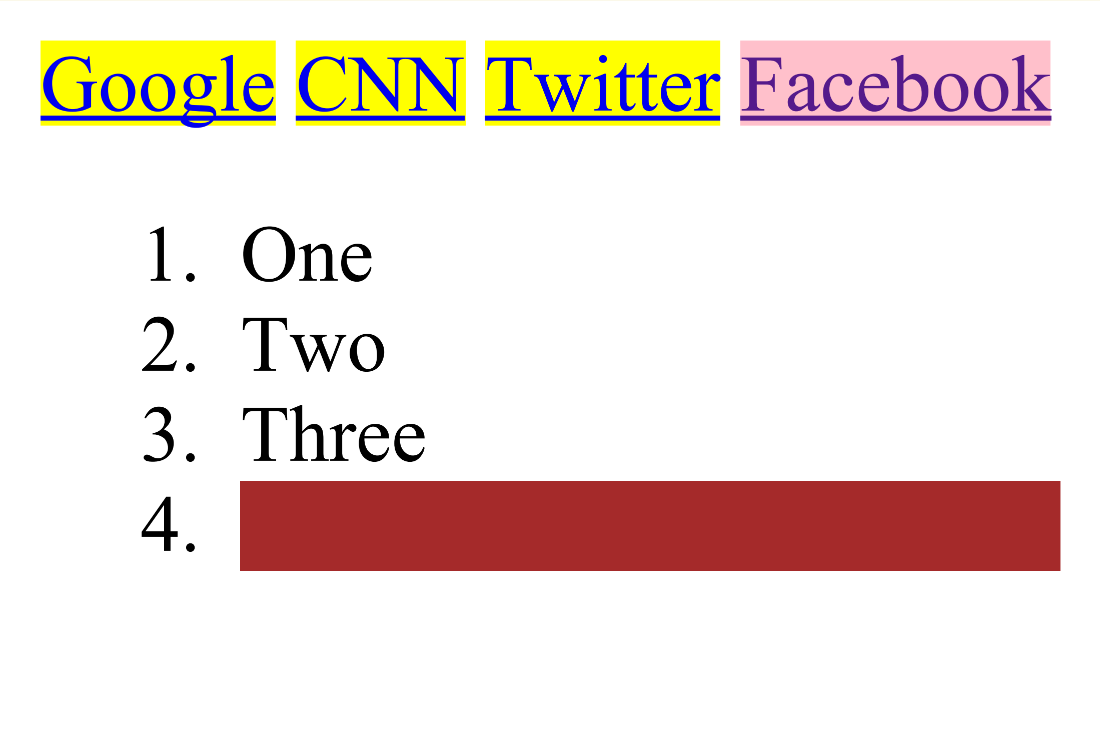
- `active` means a link that is currently being followed

```
a:active {color: red}
```

- `empty` means an empty element

```
p:empty {color: red}
```

```
<html>
    <head>
        <style>
        a:link {background:yellow}
        a:visited {background:pink}
        a:hover {background:lightgreen}
        a:active {background:purple}
        li:empty {background:brown}
        </style>
    </head>
    <body>
        <a href="http://www.google.com">Google</a>
        <a href="http://www.cnn.com">CNN</a>
        <a href="http://www.twitter.com">Twitter</a>
        <a href="http://www.facebook.com">Facebook</a>
        <ol>
            <li>One</li>
            <li>Two</li>
            <li>Three</li>
            <li></li>
        </ol>
    </body>
</html>
```



Google CNN Twitter Facebook

1. One
2. Two
3. Three
4.

Click here to open the example

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TABLES

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COMPUTER SCIENCE & ENGINEERING
計算機科學及工程學系

AFTER THIS PRESENTATION

- You'll able to construct a table

TABLES

HTML tables are a way to get a structured layout

To do this, several different tags work together

ELEMENTS WE WILL LOOK AT

The structure	`<table>` `<thead>` `<tbody>`
The header	`<th>`
The body	`<tr>` `<td>`

STYLE PROPERTIES WE WILL LOOK AT

Table borders	`border`
Table width	`width`
Table height	`height`
Vertical alignment	`vertical-align`
Table padding	`padding`

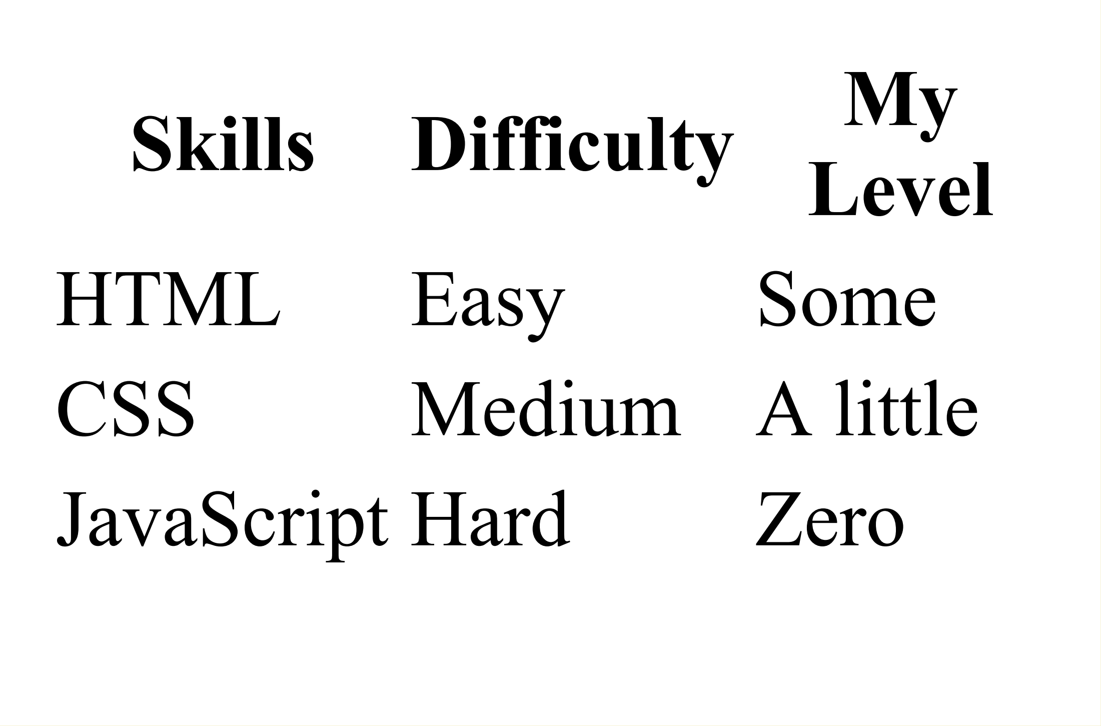
TABLE STRUCTURE

```
<table>

    <thead>

        <tr> <th>...</th> <th>...</th> <th>...</th> </tr>

    </thead>

    <tbody>

        <tr> <td>...</td> <td>...</td> <td>...</td>  </tr>
        <tr> <td>...</td> <td>...</td> <td>...</td>  </tr>

    </tbody>

</table>
```

A SIMPLE EXAMPLE

```html
<table>
   <thead>
      <tr> <th>Skills</th> <th>Difficulty</th> <th>My Level</th> </tr>
   </thead>
   <tbody>
      <tr> <td>HTML</td> <td>Easy</td> <td>Some</td> </tr>
      <tr> <td>CSS</td> <td>Medium</td> <td>A little</td> </tr>
      <tr> <td>JavaScript</td> <td>Hard</td> <td>Zero</td> </tr>
   </tbody>
</table>
```

A SIMPLE EXAMPLE



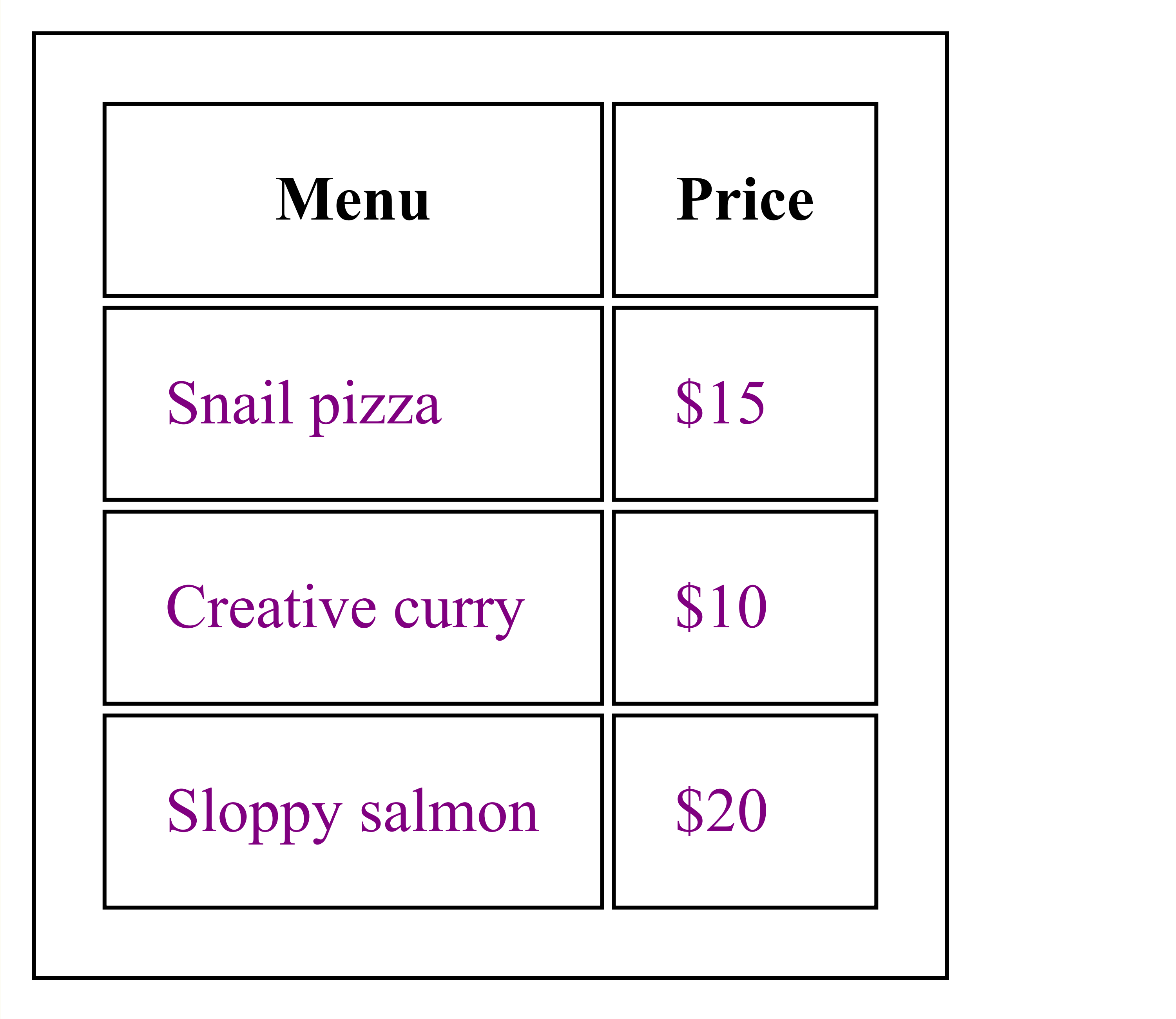
Skills	Difficulty	My Level
HTML	Easy	Some
CSS	Medium	A little
JavaScript	Hard	Zero

COMMONLY USED STYLE PROPERTIES

- `color` for text color
- `text-align` for horizontal text alignment
- `border` for table borders
- `width` for table width
- `height` for table height
- `vertical-align` for vertical text alignment
- `padding` for table padding

USING STYLE

```
<html>
    <head>
        <style>
            table, td, th {border:1px solid black; padding:15px}
            td {color:purple}
        </style>
    </head>
    <body>
        <table>
            <tr><th>Menu</th><th>Price</th></tr>
            <tr><td>Snail pizza</td><td>$15</td></tr>
            <tr><td>Creative curry</td><td>$10</td></tr>
            <tr><td>Sloppy salmon</td><td>$20</td></tr>
        </table>
    </body>
</html>
```

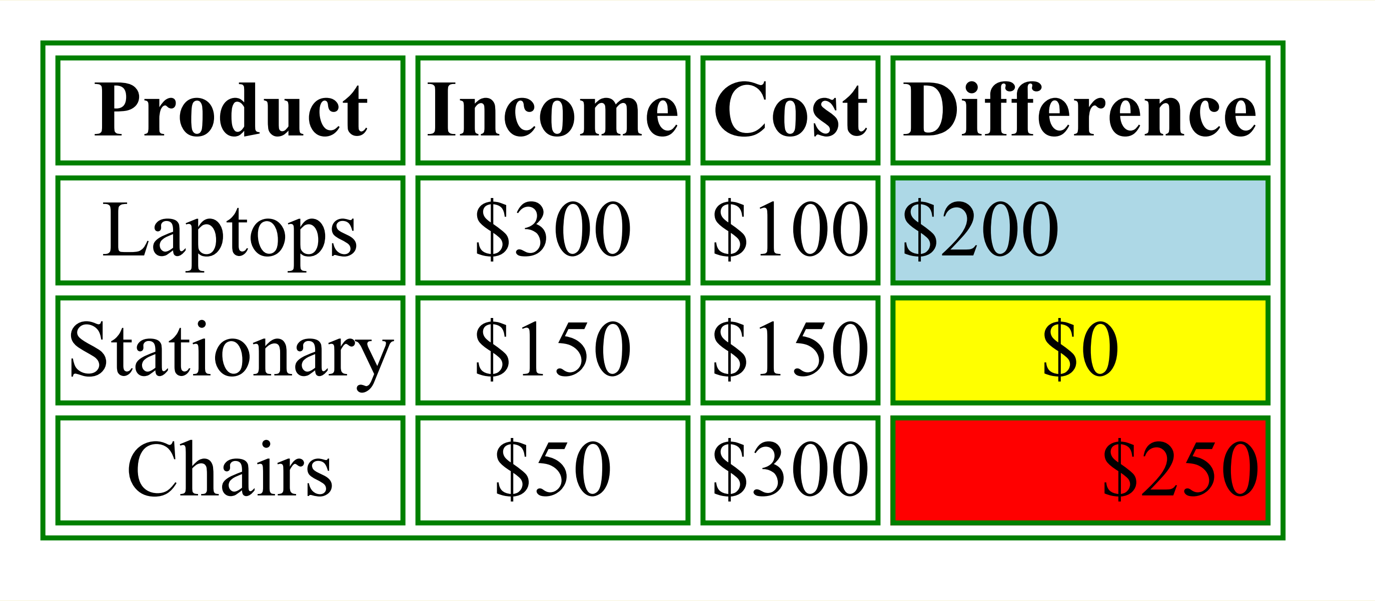


Menu	Price
Snail pizza	$15
Creative curry	$10
Sloppy salmon	$20

CLASS RULES

```
<html>
  <head> <style>
    table, td, th {border: 1px solid green; width:50%; text-align:center}
    .profit {text-align:left; background-color:lightblue}
    .zero {text-align:center; background-color:yellow}
    .loss {text-align:right; background-color:red}
  </style> </head>
  <body>
    <table>
      <tr><th>Product</th><th>Income</th><th>Cost</th><th>Difference</th></tr>
      <tr><td>Laptops</td><td>$300</td><td>$100</td><td class="profit">$200</td></t
      <tr><td>Stationary</td><td>$150</td><td>$150</td><td class="zero">$0</td></tr
      <tr><td>Chairs</td><td>$50</td><td>$300</td><td class="loss">$250</td></tr>
    </table>
  </body>
</html>
```

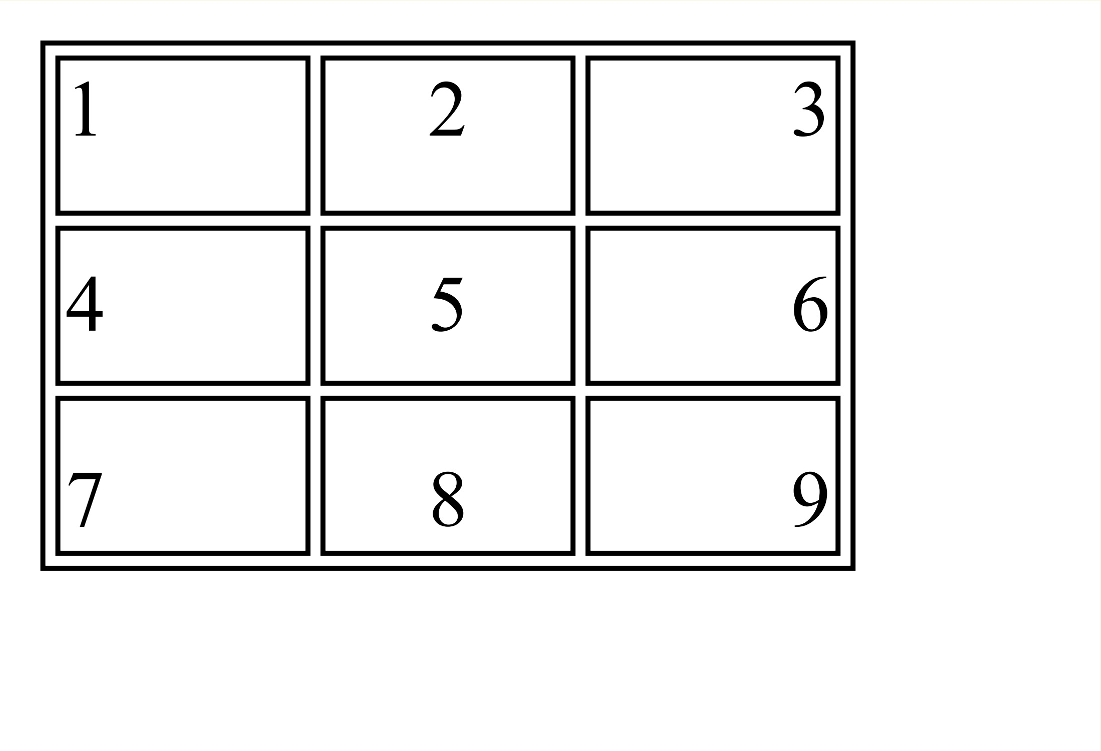
CLASS RULES



Product	Income	Cost	Difference
Laptops	$300	$100	$200
Stationary	$150	$150	$0
Chairs	$50	$300	$250

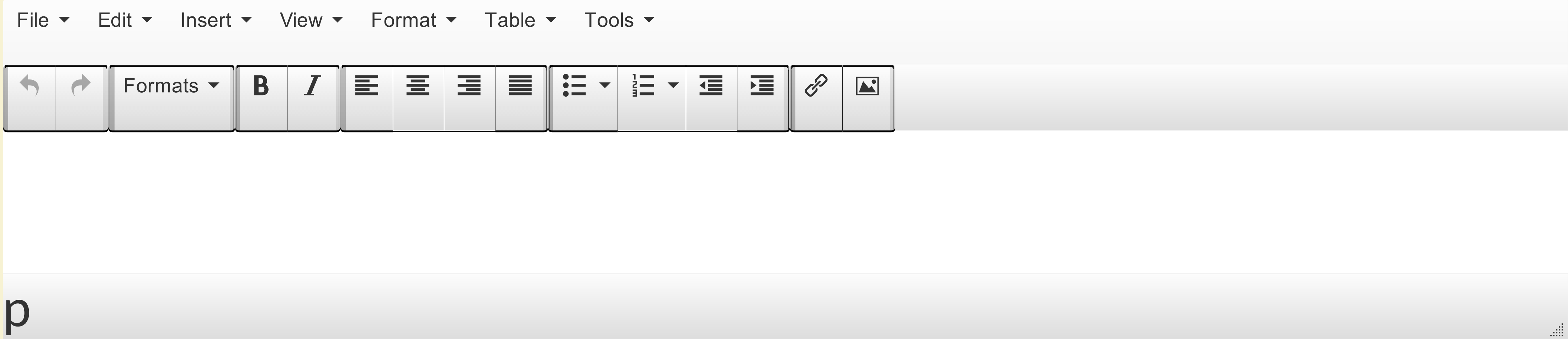
POSITIONING EXAMPLE

```
<html>
  <head>  <style>
    table, td {border:1px solid black; width:80%; height:80%}
    td {width:33.33%; height:33.33%}
    .t {vertical-align:top} .m {vertical-align:middle} .b {vertical-align:bottom}
    .l {text-align:left} .c {text-align:center} .r {text-align:right}
   </style>  </head>
  <body>
    <table>
      <tr><td class="t l">1</td><td class="t c">2</td><td class="t r">3</td></tr>
      <tr><td class="m l">4</td><td class="m c">5</td><td class="m r">6</td></tr>
      <tr><td class="b l">7</td><td class="b c">8</td><td class="b r">9</td></tr>
    </table>
  </body>
</html>
```



1	2	3
4	5	6
7	8	9

USING AN HTML EDITOR



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DIV AND SPAN

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COMPUTER SCIENCE & ENGINEERING
計算機科學及工程學系

AFTER THIS PRESENTATION

- You'll appreciate the role of `<div>` and how to use it
- You'll appreciate the role of `<span>` and how to use it

ELEMENTS WE WILL LOOK AT

For a large area	<div>
For a few words	<span>

STYLE PROPERTIES WE WILL LOOK AT

font-size	font-family
background	position
top	left
width	

DIV

`div` has no default style

`div` has no default meaning

HTML developers can use it for any purpose

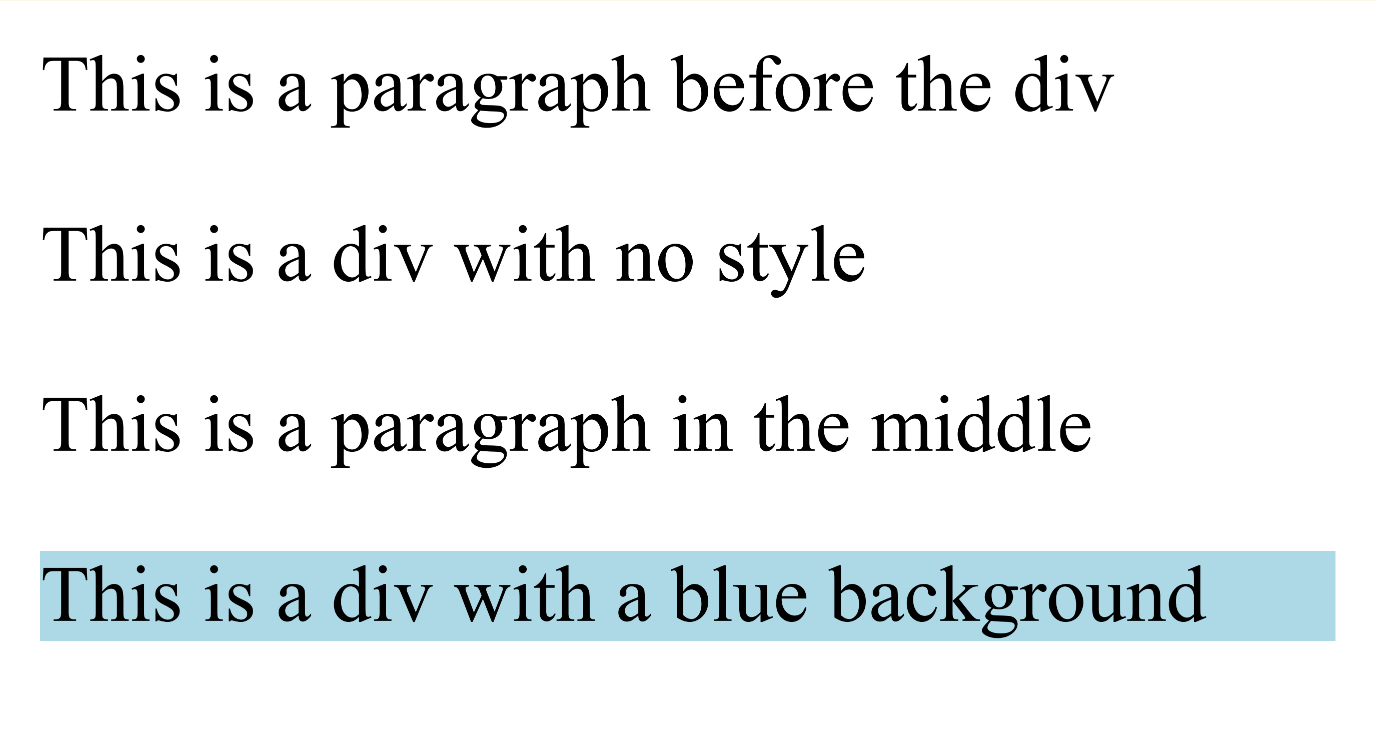
UNDERSTANDING DIV

```html
<p>This is a paragraph before the div</p>

<div>
This is a div with no style
</div>

<p>This is a paragraph in the middle</p>

<div style="background:lightblue">
This is a div with a blue background
</div>
```



This is a paragraph before the div

This is a div with no style

This is a paragraph in the middle

This is a div with a blue background

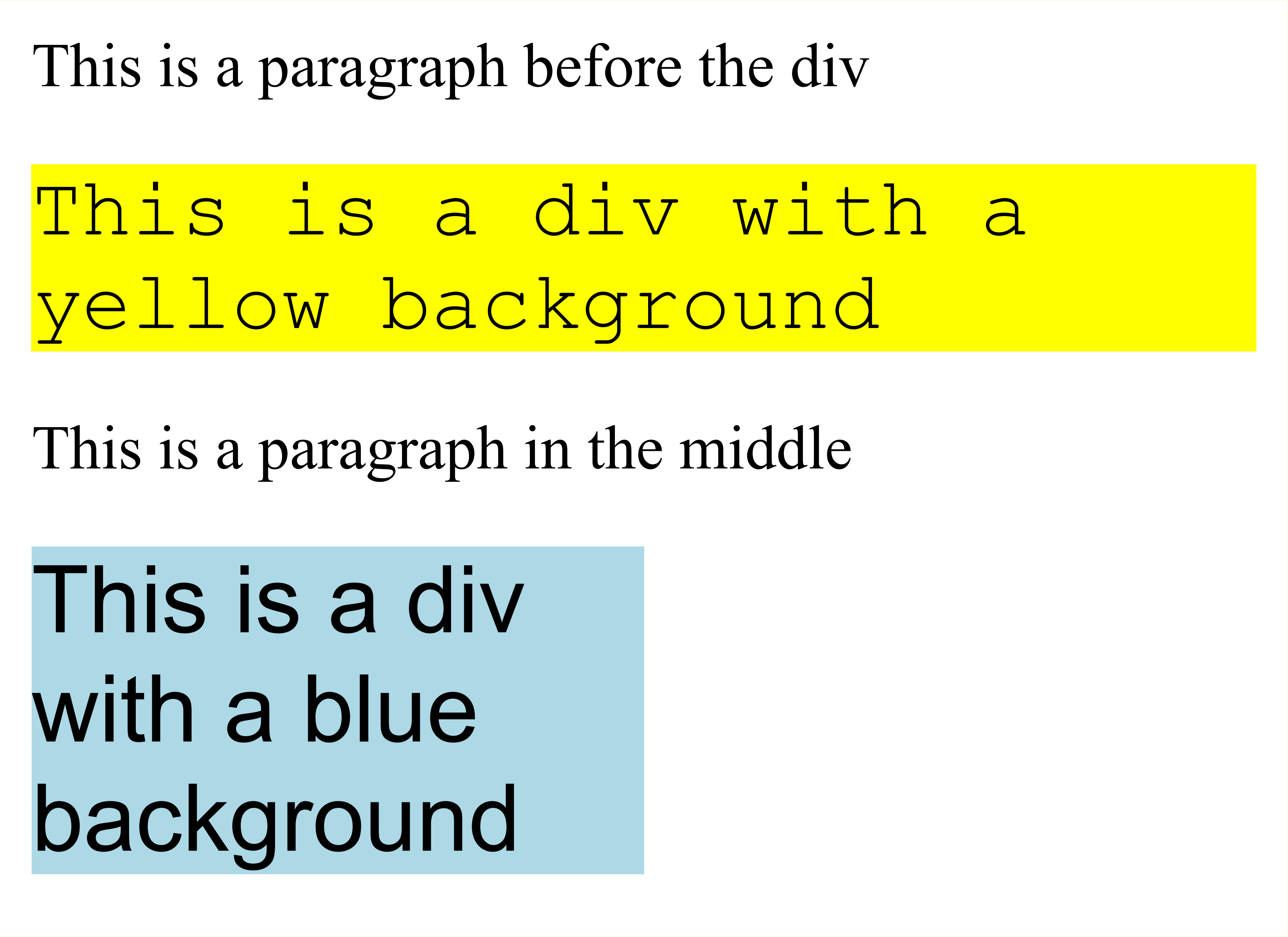
EXAMPLES

```
<p>This is a paragraph before the div</p>

<div style="background:yellow; font-size:16pt; font-family:courier">
This is a div with a yellow background
</div>

<p>This is a paragraph in the middle</p>

<div style="background:lightblue; font-size:18pt;
     font-family:Arial; width:50%">
This is a div with a blue background
</div>
```



This is a paragraph before the div

```
This is a div with a
yellow background
```

This is a paragraph in the middle

This is a div
with a blue
background

POSITIONING AN ELEMENT

Like many elements, a `div` can be put anywhere

Use `position:absolute` with `top:`*xxx* and `left:`*yyy*

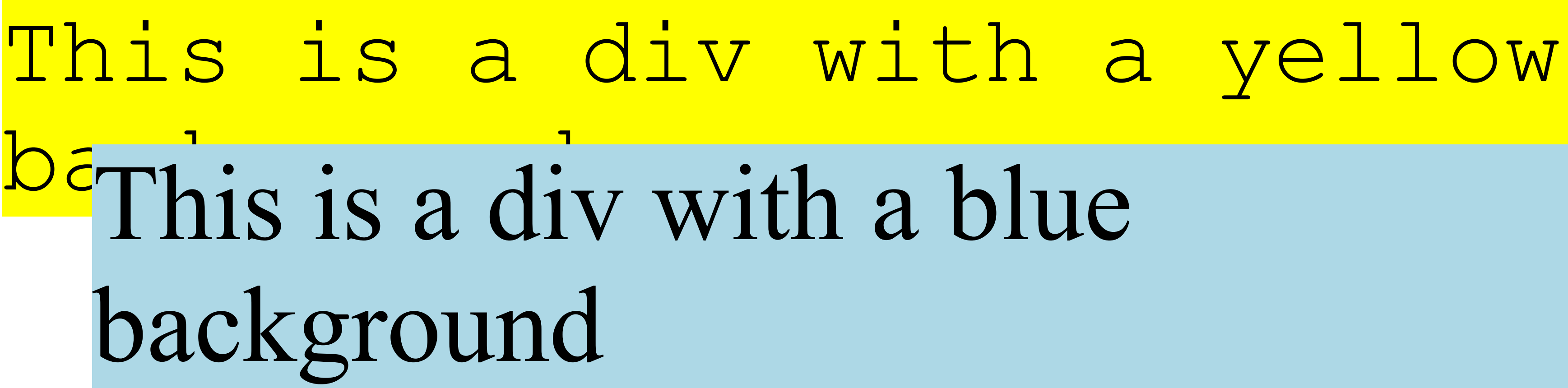
`top` and `left` refer to the top left corner of the div

`top:0` and `left:0` means the div is in the top left corner

ABSOLUTE POSITION

```
<div style="background:yellow; font-size:16pt; font-family:courier;
                        position:absolute; top:60px; left:60px">
This is a div with a yellow background
</div>

<div style="background:lightblue; font-size:18pt;
                        position:absolute; top:92px; left:80px">
This is a div with a blue background
</div>
```



This is a div with a yellow ba

This is a div with a blue background

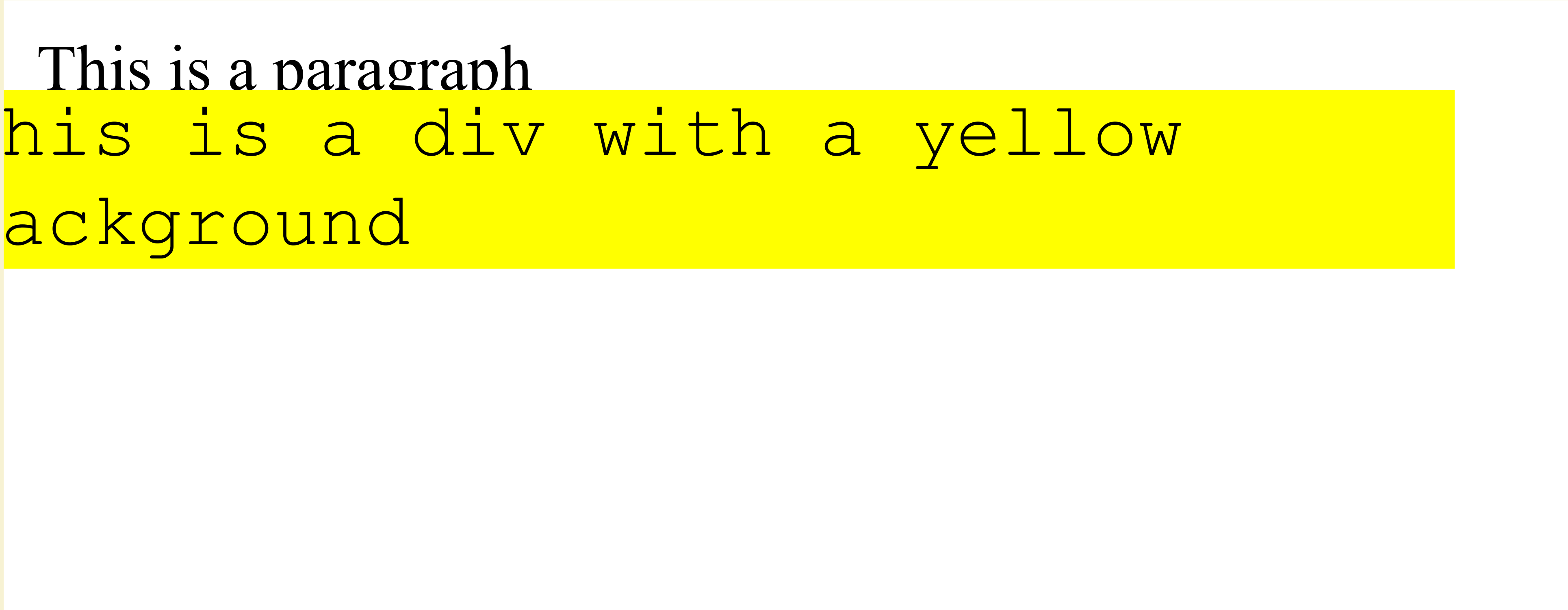
RELATIVE POSITION

`position:relative` sets the position relative to the normal position

RELATIVE POSITION

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

<div style="background:yellow; font-size:14pt; font-family:courier;
                position:relative; top:-20px; left:-20px">
This is a div with a yellow background
</div>
```



This is a paragraph

```
his is a div with a yellow
ackground
```

SPAN

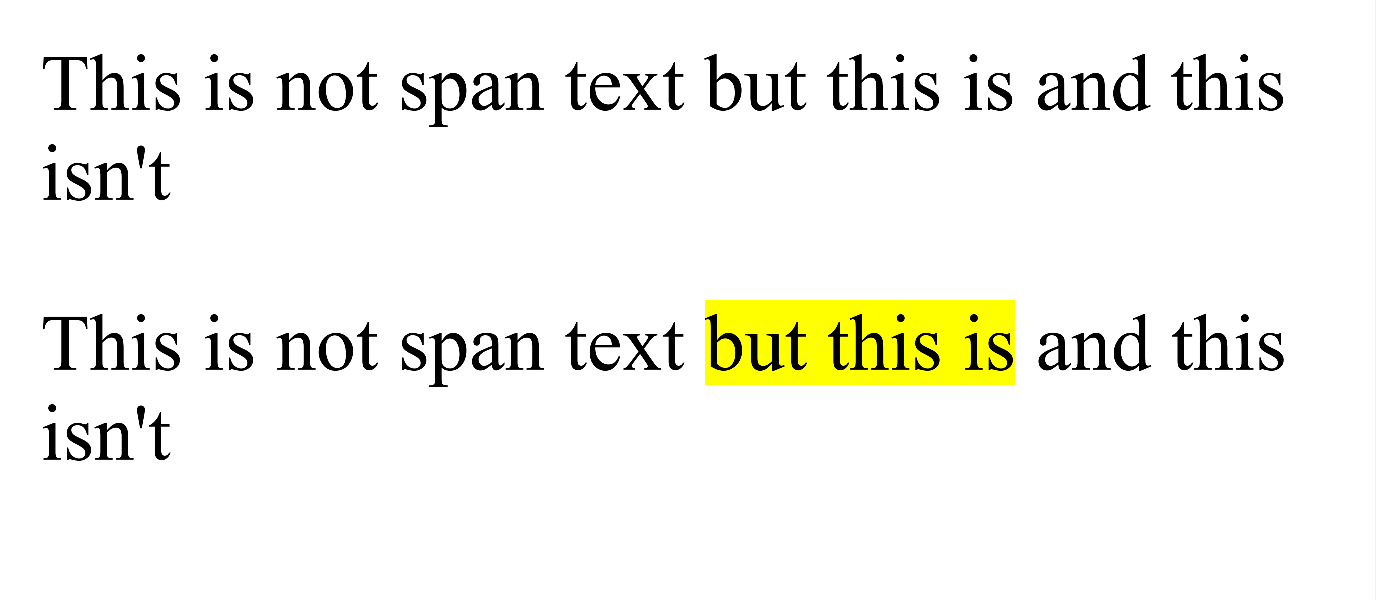
Like `div`, `span` has no default style

`span` is used for a few words

EXAMPLES OF SPAN

```
<p>This is not span text <span>but this is</span> and this isn't</p>

<p>This is not span text <span style="background:yellow">but this is</span>
and this isn't</p>
```



This is not span text but this is and this isn't

This is not span text but this is and this isn't

香港科技大學
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UNIVERSITY OF SCIENCE
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HTML FORM BASICS

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AFTER THIS PRESENTATION

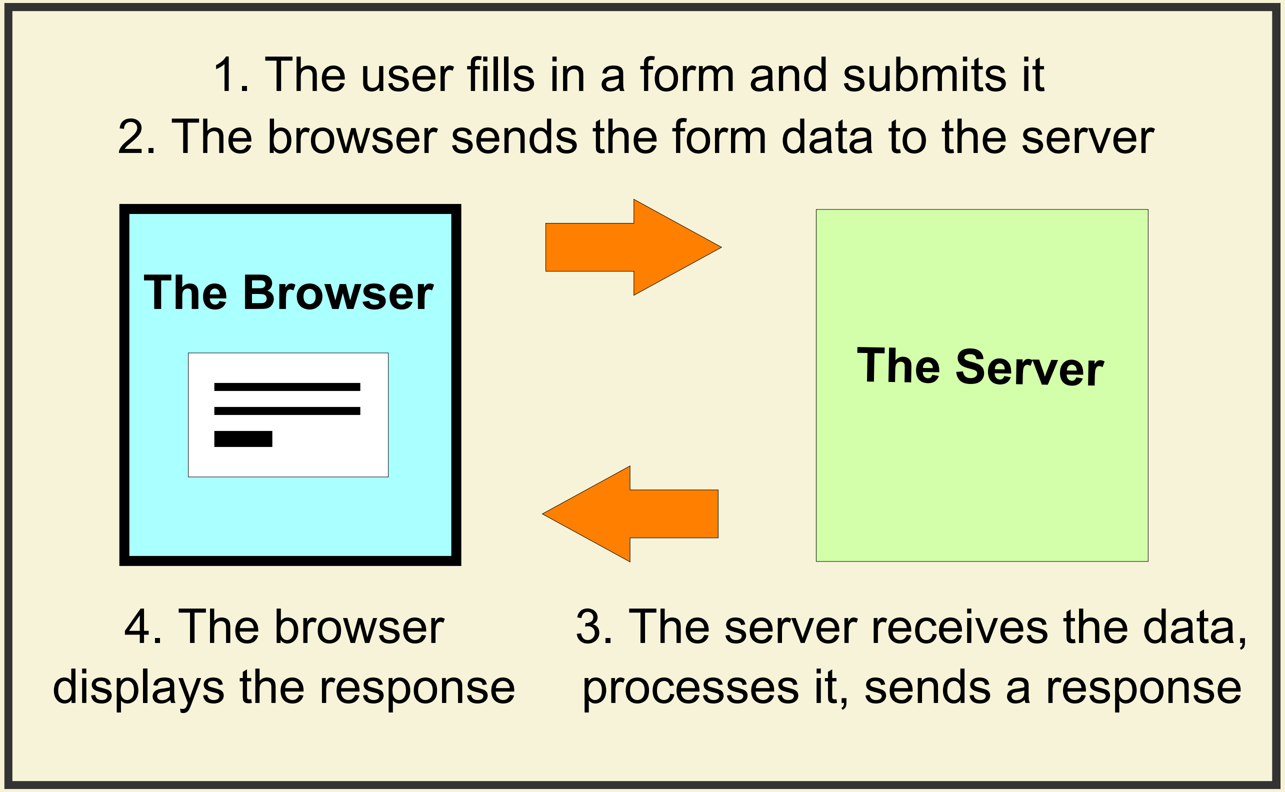
- You'll be able to create an HTML form
- You'll appreciate the two most common form elements

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

<form>	*method* attribute
	action attribute
<textarea>	
<input type="submit">	

FROM BROWSER TO SERVER

Forms are the simplest method



1. The user fills in a form and submits it
2. The browser sends the form data to the server

3. The server receives the data, processes it, sends a response

4. The browser displays the response

BASIC FORM STRUCTURE

```
<form action="destination" method="get or post">
```

. . . form elements go here . . .

```
    <input type="submit">
```

```
</form>
```

DESTINATION

`action="`*destination*`"` tells the browser what program to send the form data to e.g.:

```
<form action="http://www.server.com/subdirectory/program.php">
```

If the program is on same server as the html file:

```
<form action="subdirectory/program.php">
```

If the program in same directory as the html file:

```
<form action="program.php">
```

GET OR POST

`method="get"`

`get` is the default method

Example: search for *cats* using bing.com

The URL will be *http://www.bing.com/search?q=cats* . . .

THE GET METHOD

For a project you are developing, using `get` is a good idea

Seeing the form data in the URL is useful

However, you cannot keep any secrets

`get` can only handle a small transmission
e.g. a few hundred letters/characters

THE POST METHOD

`method="post"`

The main difference to `get` is you cannot see any data

Using `post` is better for keeping secrets

`post` can handle a big transmission e.g. files

SIMPLE EXAMPLE - TEXTAREA

```
<form>

        <p>Please enter any feedback you have.</p>

        <textarea rows="3" cols="60" name="feedback" >
        Please enter your text here
        </textarea>

</form>
```

Please enter any feedback you have.

Please enter your text here

ADDING A SUBMIT BUTTON

```
<form action="http://ihome.ust.hk/~rossiter/cgi-bin/show_everything.php"
      method="get">
        <p>Please enter any feedback you have.</p>

        <textarea rows="3" cols="60" name="feedback" >
        Please enter your text here
        </textarea>
        <br>
        <input type="submit" value="Send">
</form>
```

Select here to open the HTML file

Please enter any feedback you have.

Please enter your text here

Send

MORE ON FORMS

PROF. DAVID ROSSITER

AFTER THIS PRESENTATION

- You'll be able to differentiate between the many form elements

ELEMENTS WE WILL LOOK AT

<select>	<option>
<input type="text">	<input type="password">
<input type="checkbox">	<input type="radio">

ATTRIBUTES WE WILL LOOK AT

- *placeholder* attribute
- *value* attribute
- *autofocus* attribute
- *required* attribute

A REMINDER

```
<form action="http://ihome.ust.hk/~rossiter/cgi-bin/show_everything.php"
      method="get">
        <p>Please enter any feedback you have.</p>

        <textarea rows="3" cols="60" name="feedback" >
        Please enter your text here
        </textarea>
        <br>
        <input type="submit" value="Send">
</form>
```

FORM INPUT ELEMENTS

Submit button	<input type="submit">
Plain text	<input type="text">
Checkbox	<input type="checkbox">
Radio button	<input type="radio">
Password field	<input type="password">

TEXT, CHECKBOX & RADIO

```
<form>
        Please enter your name. <br>
        <input type="text" name="feedback"> <br> <br>

        Please select each of the following that you have. <br>
        <input type="checkbox" name="items" value="car">Car <br>
        <input type="checkbox" name="items" value="teddy bear">Teddy bear <br>
        <input type="checkbox" name="items" value="toothbrush">Toothbrush <br> <br>

        Please indicate your intelligence level. <br>
        <input type="radio" name="iq" value="high">High <br>
        <input type="radio" name="iq" value="medium" checked>Medium <br>
        <input type="radio" name="iq" value="low">Low <br> <br>
</form>
```

Please enter your name.

Please select each of the following that you have.

☐ Car

☐ Teddy bear

☐ Toothbrush

Please indicate your intelligence level.

○ High

● Medium

○ Low

PASSWORD

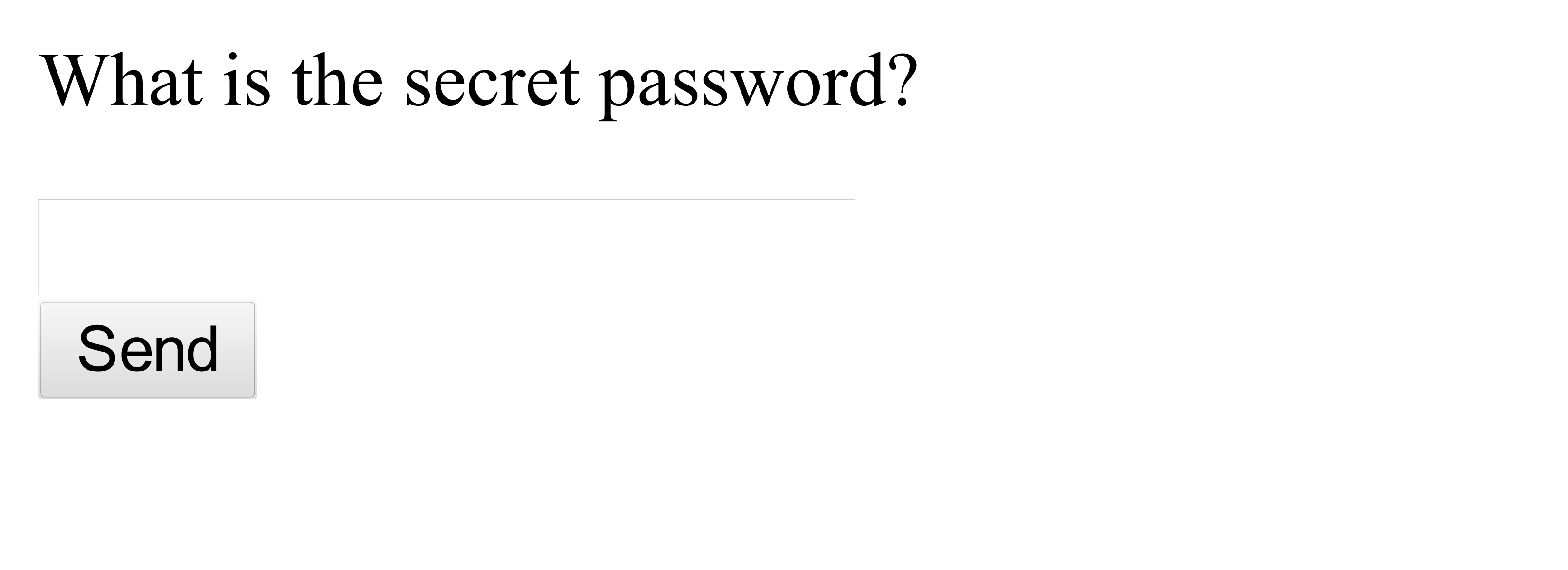
```
<form>
        <p>What is the secret password?</p>
        <input type="password" name="userpassword"> <br>
</form>
```

What is the secret password?

BE CAREFUL!

```
<form action="http://ihome.ust.hk/~rossiter/cgi-bin/show_everything.php">
        <p>What is the secret password?</p>
        <input type="password" name="userpassword"> <br>

        <input type="submit" value="Send">
</form>
```



What is the secret password?

Select here to open the HTML file

SELECTING FROM A LIST

```
<form>
        <p>What city would you like to go to?</p>

        <select name="cities">
                <option value="hk">Hong Kong</option>
                <option value="vc">Vancouver</option>
                <option value="sf">San Francisco</option>
        </select>
</form>
```

What city would you like to go to?

Hong Kong ▼

USEFUL ATTRIBUTES

`value="something"` fixes what is shown at the start

`placeholder="something"` shows useful text which disappears when the user enters something

`autofocus` sets which field is given focus at the start

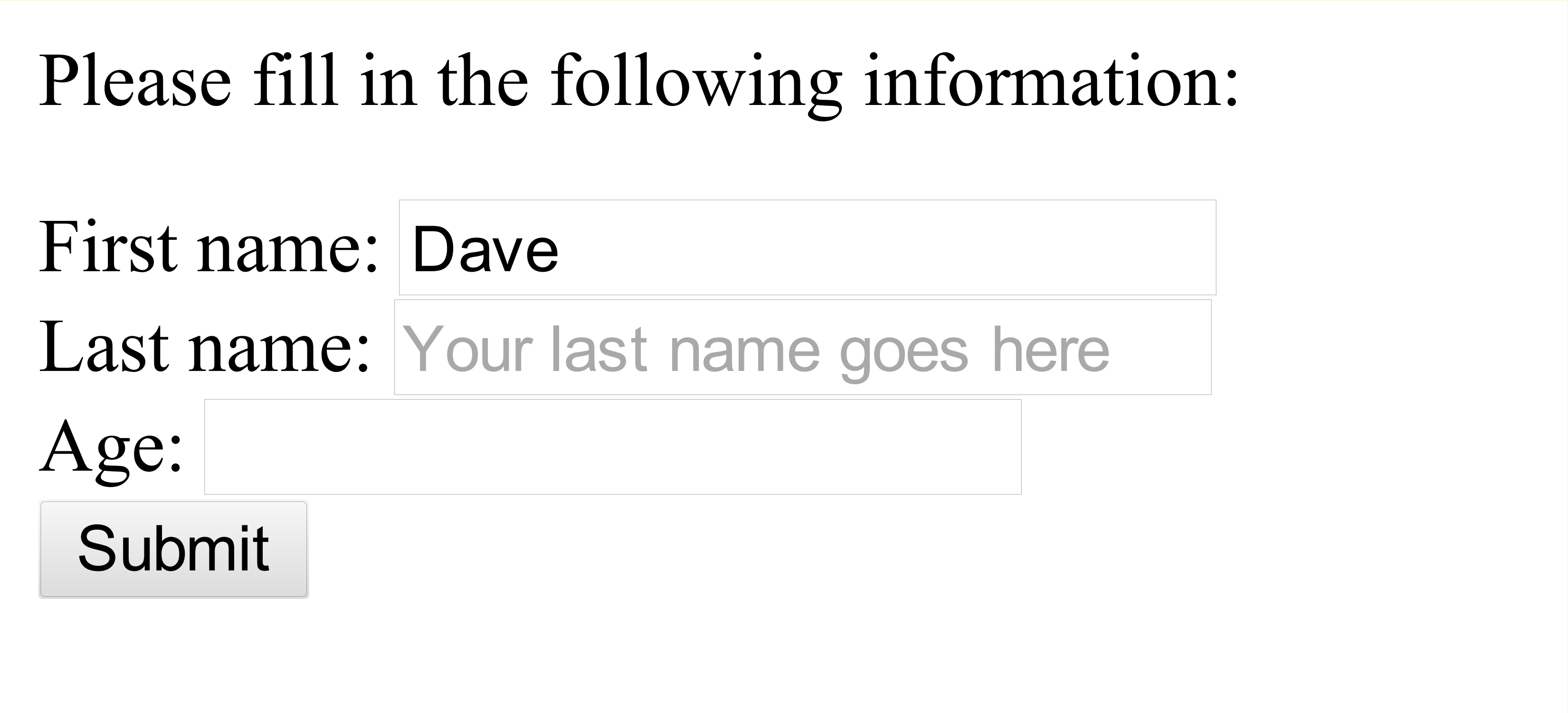
`required` means this field must be completed

EXAMPLE

```html
<form>
        <p>Please fill in the following information:</p>

        <label for="firstname">First name:</label>
        <input type="text" name="firstname" value="Dave" autofocus>
        <br>
        <label for="lastname">Last name:</label>
        <input type="text" name="lastname" placeholder="Your last name goes here">
        <br>
        <label for="age">Age:</label>
        <input type="text" name="age" required>
        <br>

        <input type="submit" value="Submit">
</form>
```



Please fill in the following information:

First name: Dave

Last name: Your last name goes here

Age:

HANDLING FILE UPLOAD

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AFTER THIS PRESENTATION

- You'll be able to handle file upload in a form

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

```
<input type="file">
```

UPLOADING FILES

Two parts: the browser and the server

The server part is discussed later

UPLOADING FILES - FORM STRUCTURE

```
<form action="destination" method="post" enctype="multipart/form-data">
```

. . . other form input elements go here, if any . . .

```
    <input type="file" name="fileToUpload">
```

```
    <input type="submit">
```

```
</form>
```

FILE UPLOAD EXAMPLE

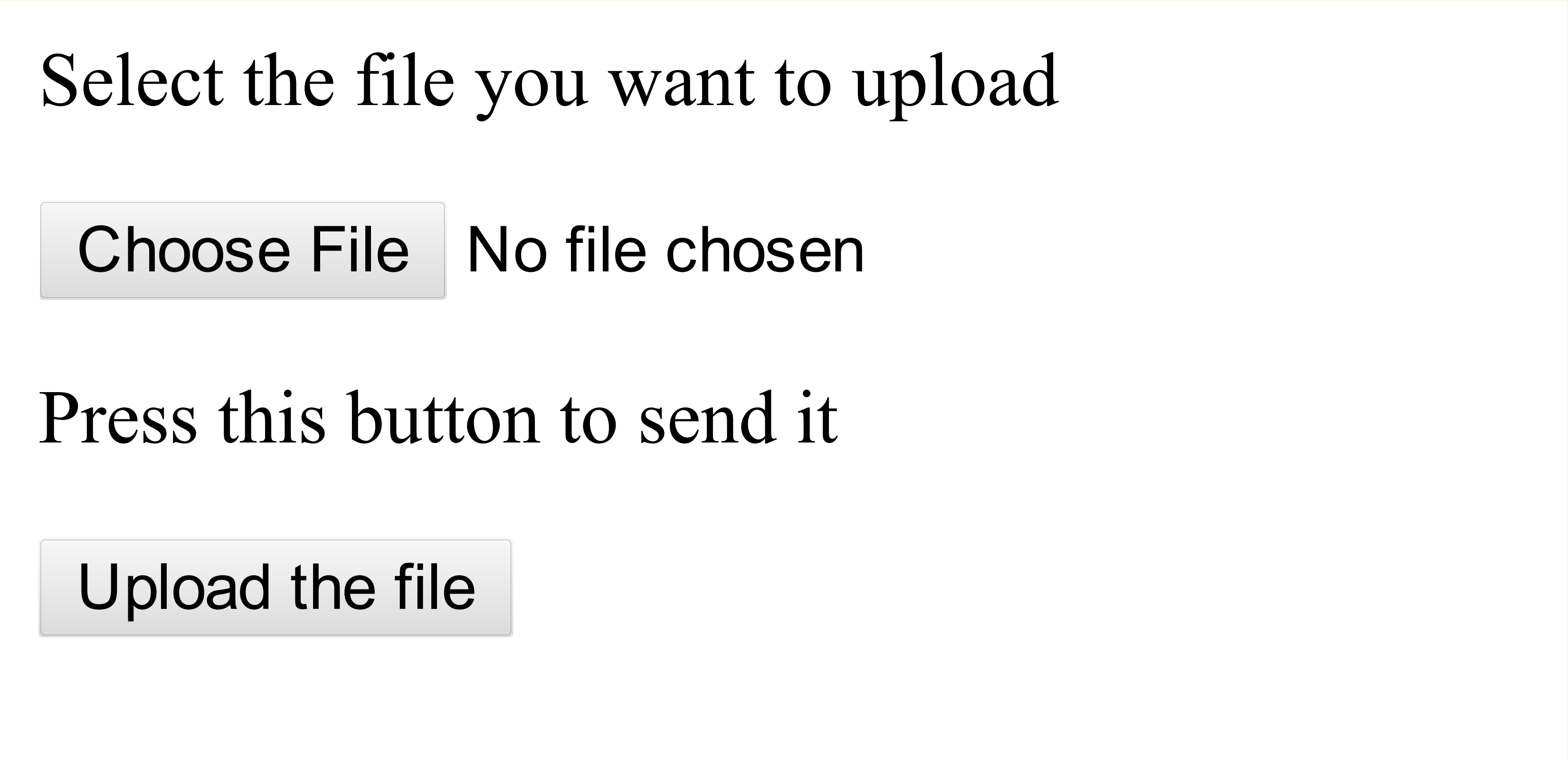
```
<form method="post" enctype="multipart/form-data"
  action="http://ihome.ust.hk/~rossiter/cgi-bin/show_everything.php">

  <p>Select the file you want to upload</p>
        <input type="file" name="fileToUpload">

        <p>Press this button to send it</p>
        <input type="submit" value="Upload the file">

</form>
```

Select here to open the HTML file



Select the file you want to upload

Press this button to send it

Select here to open the HTML file

THE SERVER PROGRAM

The file is given to the required server program

The server program may do several things

It may move the file into another directory

It may save the file in a database

SOME NEW HTML5 INPUT ELEMENTS

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AFTER THIS PRESENTATION

- You'll be able to use some new HTML5 input elements

ELEMENTS & ATTRIBUTES WE WILL LOOK AT

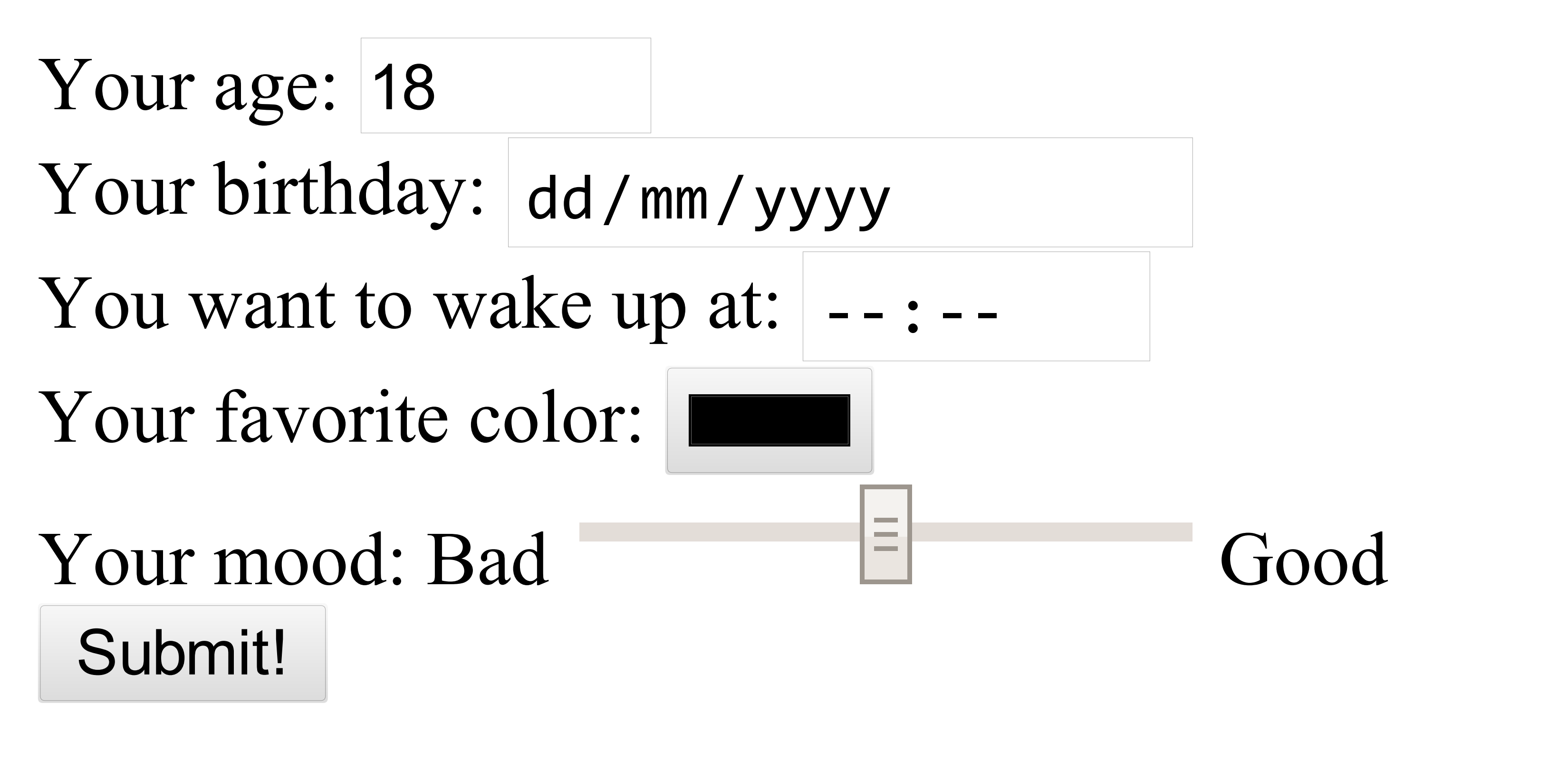
- <input type="number">
- <input type="date">
- <input type="color">
- <input type="range">
- <input type="time">

NEW HTML5 INPUT ELEMENTS

Number Input	<input type="number">
Date Input	<input type="date">
Time Input	<input type="time">
Color Picker	<input type="color">
Slider	<input type="range">

EXAMPLE

```
<form action="http://ihome.ust.hk/~rossiter/cgi-bin/show_everything.php">
  <label for="age">Your age:</label>
  <input type="number" min="0" max="99" step="1" value="18" name="age" required><br
  <label for="birthday">Your birthday:</label>
  <input type="date" name="birthday"><br>
  <label for="wakeup">You want to wake up at:</label>
  <input type="time" name="wakeup"><br>
  <label for="color">Your favorite color:</label>
  <input type="color" name="color"> <br>
  <label for="mood">Your mood:</label>
  Bad <input type="range" min="0" max="100" step="5" value="50" name="mood"> Good<b
  <input type="submit" value="Submit!">
</form>
```



Your age: 18

Your birthday: dd/mm/yyyy

You want to wake up at: --:--

Your favorite color: ■

Your mood: Bad Good

Select here to open the example

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ELEMENT GROUPING

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AFTER THIS PRESENTATION

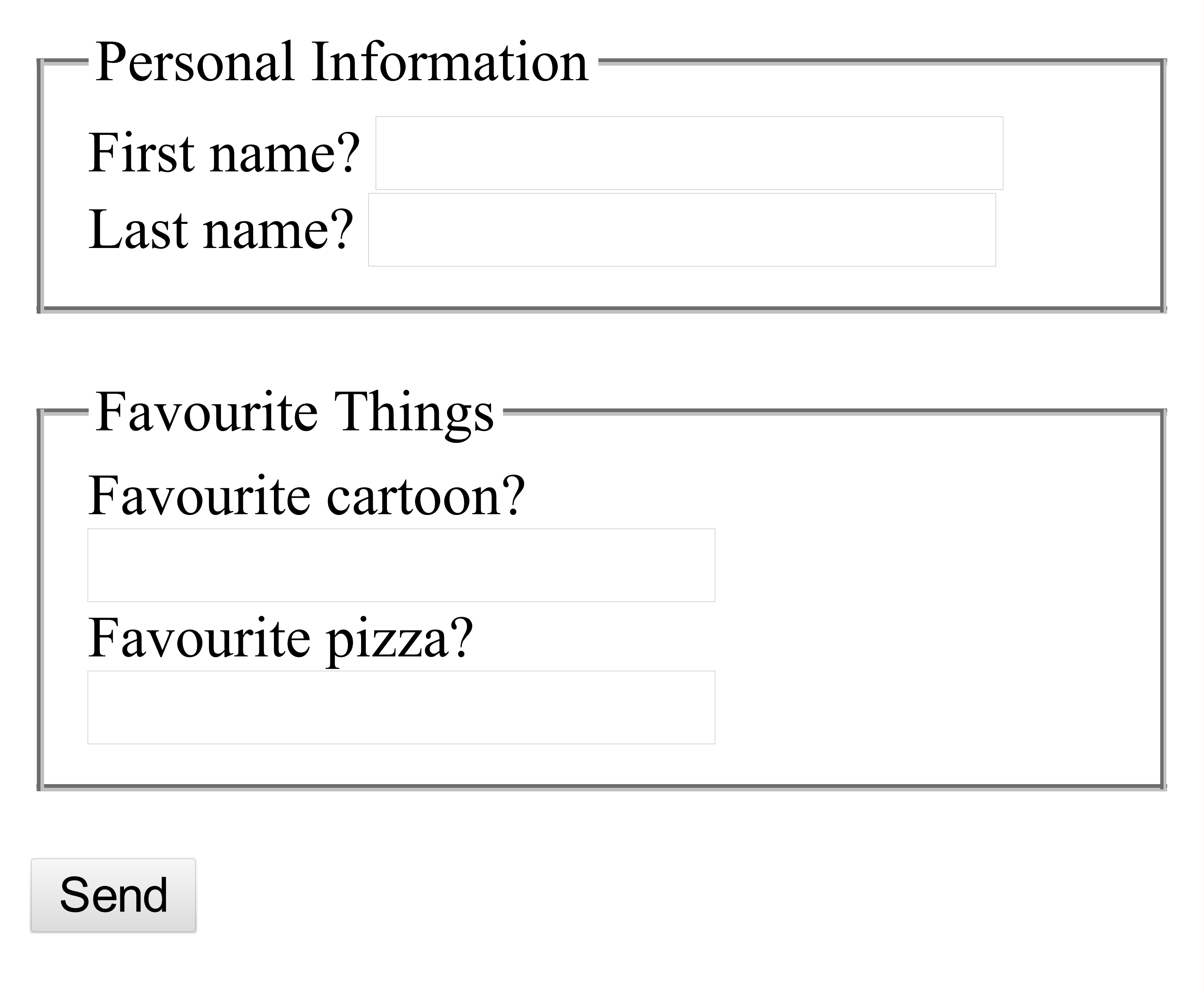
- You'll be able to group elements into nice structures

ELEMENTS WE WILL LOOK AT

Grouping things	<fieldset>
Giving a title	<legend>

AN EXAMPLE USING FORM INPUTS

```
<form>
        <fieldset>
                <legend>Personal Information</legend>
                First name? <input type="text" name="firstName"> <br>
                Last name? <input type="text" name="lastName"> <br>
        </fieldset> <br>
        <fieldset>
                <legend>Favourite Things</legend>
                Favourite cartoon? <input type="text" name="favCartoon"> <br>
                Favourite pizza? <input type="text" name="lastName"> <br>
        </fieldset> <br>
        <input type="submit" value="Send">
</form>
```



Personal Information

First name?

Last name?

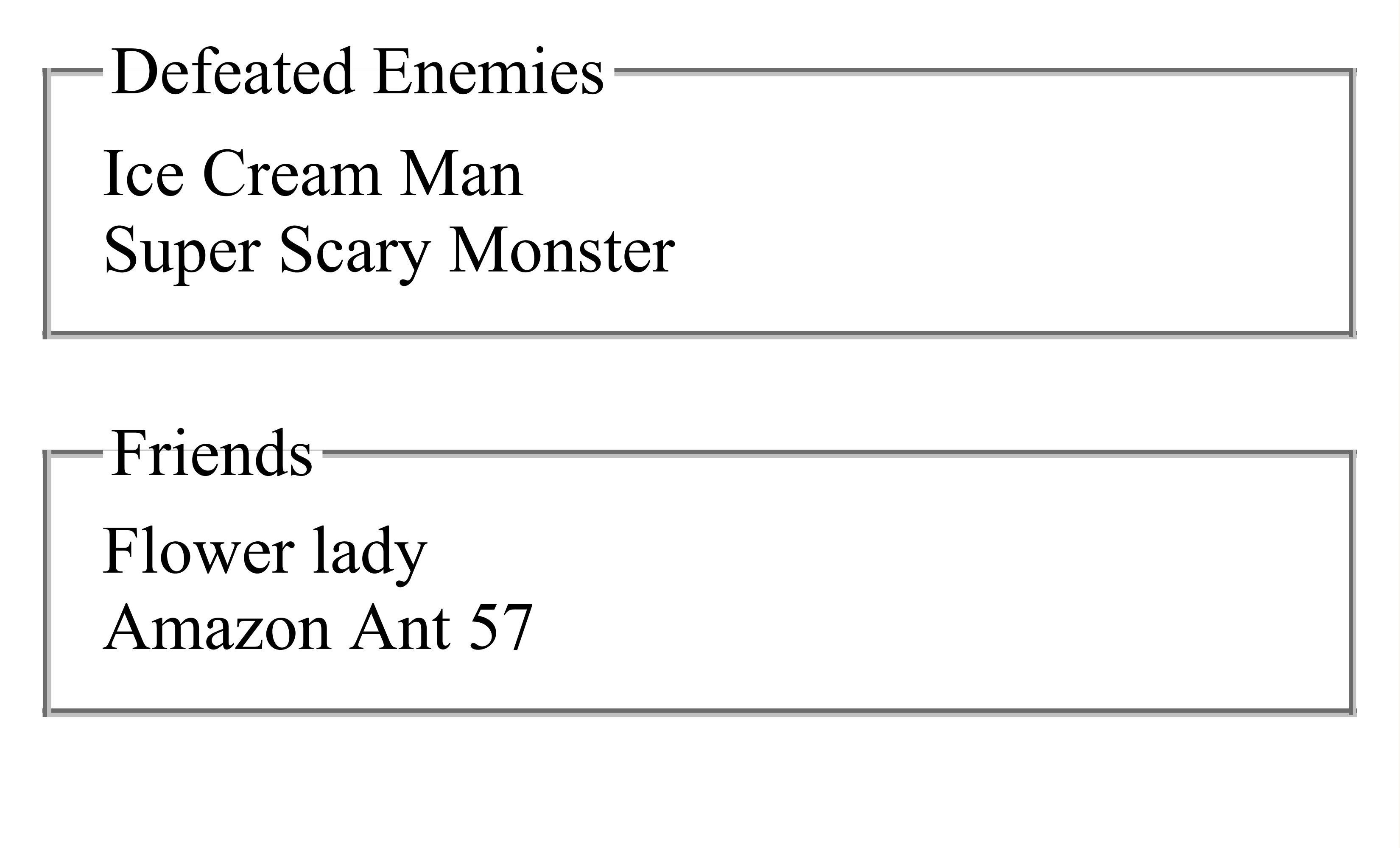
Favourite Things

Favourite cartoon?

Favourite pizza?

AN EXAMPLE USING OTHER ELEMENTS

```
<div>
        <fieldset>
                <legend>Defeated Enemies</legend>
                Ice Cream Man <br>
                Super Scary Monster <br>
        </fieldset> <br>
        <fieldset>
                <legend>Friends</legend>
                Flower lady<br>
                Amazon Ant 57 <br>
        </fieldset> <br>
</div>
```



Defeated Enemies

Ice Cream Man
Super Scary Monster

Friends

Flower lady
Amazon Ant 57