



Department of Software and
Computing Systems



Universitat d'Alacant
Universidad de Alicante

CSS

Cascading Style Sheets

Sergio Luján Mora

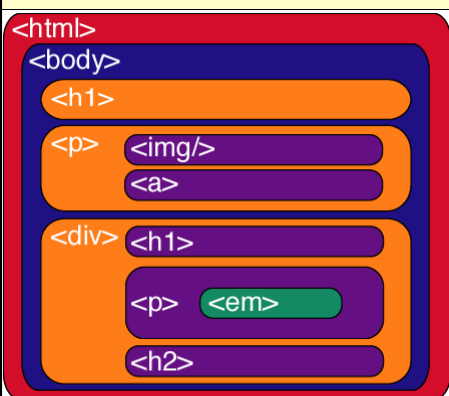
Cascading Style Sheets

Content

- Introduction
- Linking HTML and CSS
- Rules, selectors, and properties
- Text properties
- Background
- Links
- Box model
- Layout

Introduction

- CSS (Cascading Style Sheets):
 - A style sheet is a set of instructions each of which tells a browser how to draw a particular element on a page
 - HTML documents are a collection of elements arranged in a hierarchy

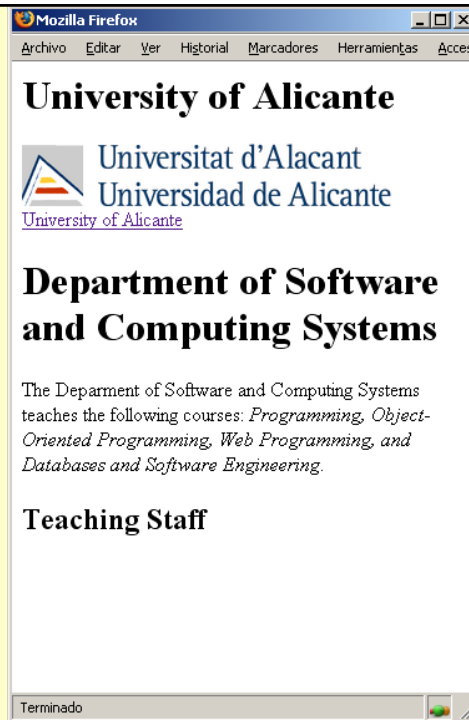


```
about:blank - View Source Chart of: - Mozilla Firefox
<HTML>
<head>
</head>
<body>
<h1>
University of Alicante
</h1>
<p>

<a href="http://www.ua.es/">
University of Alicante
</a>
</p>
<div>
<h1>
Department of Software and Computing Systems
</h1>
<p>
The Department of Software and Computing Systems
teaches the following courses:
<em>
Programming, Object-Oriented Programming, Web
Programming, and Databases and Software Engineering
</em>
</p>
<h2>
Teaching Staff
</h2>
</div>
</body>
</html>
```

Cascading Style Sheets

```
<html>
<body>
  <h1>
  <p> <img/>
    <a>
  <div> <h1>
    <p> <em>
    <h2>
```



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Terminado

Cascading Style Sheets

Introduction

- Hierarchy → inheritance:
 - If you apply style to an element (*parent*) which contains other elements (*children*) then this will be inherited by the elements inside

Introduction

- **Rules** have two parts: a **selector** and a **declaration**
 - The **selector** tells a browser which elements in a page will be affected by the rule. There are a number of different types of selector.
 - The **declaration** tells the browser which set of **properties** to apply. There are many different properties.

Introduction

```
<html>
<head><title>CSS example</title></head>
<body>
<h1>University of Alicante</h1>
<p>

<a href="http://www.ua.es/">University of Alicante</a>
</p>
<div>
<h1>Department of Software and Computing Systems</h1>
<p>
The Department of Software and Computing Systems teaches the following
courses:
<em>Programming, Object-Oriented Programming, Web Programming, and
Databases and Software Engineering</em>.
</p>
<h2>Teaching Staff</h2>
</div>
</body>
</html>
```

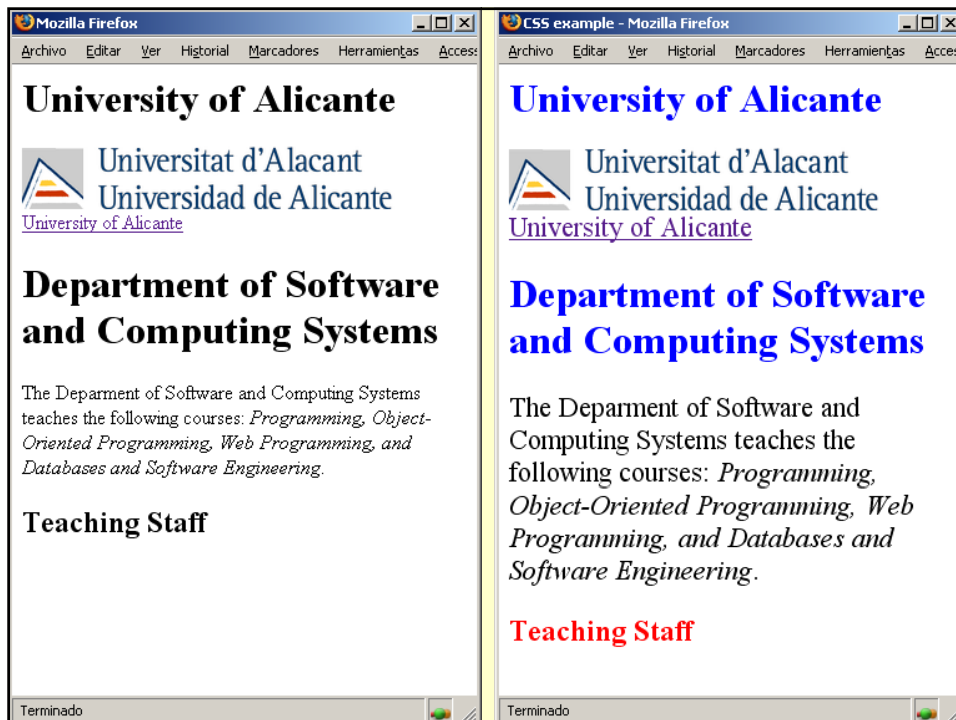
Cascading Style Sheets

Introduction

```
<style type="text/css">
h1 {color: blue;}

h2 {color: red;}

p {font-size: 1.4em;}
</style>
```



Exercise

- Give color green for the paragraph



Exercise - Solution

- One solution:

```
p {font-size: 1.4em;}
```

```
p {color: green;}
```

- Also (better):

```
p {font-size: 1.4em; color: green;}
```

Introduction

- Some examples:

```
body {background: white; color: black;
      font-size: 15px;}
```

```
h1 {background: blue; font-size: 30px;}
```

```
p {background: yellow;}
```

```
strong {background: red;}
```

```
em {background: red; color: yellow;}
```

- If the value has two or more words:

```
p {font-family: "Times New Roman", serif}
```

Introduction

- Comments (1 or more lines):

```
/*
```

```
...
```

```
*/
```

- Example:

```
/* Paragraph */
```

```
p {
```

```
text-align: center; /* Center */
```

```
color: black; /* Black */
```

```
font-family: Arial; /* Font face */
```

```
}
```

Introduction

- Different versions:
 - CSS1: CSS level 1. 1996.
 - <http://www.w3.org/TR/REC-CSS1>
 - CSS2: CSS level 2. 1998.
 - <http://www.w3.org/TR/REC-CSS2/>
 - CSS2 revision 1. 2003.
 - CSS3: CSS level 3. (Working draft)
- Problem: incompatibilities between browsers

Introduction

- More information:
 - W3C: <http://www.w3.org/>
 - W3 Schools: <http://www.w3schools.com/>

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CASCADING STYLE SHEETS HOME PAGE

Cascading Style Sheets (CSS) is a simple mechanism for adding style (e.g. fonts, colors, spacing) to Web documents. Tutorials, books, mailing lists for users, etc. can be found on the [Learning CSS](#) page. For background information on style sheets, see the [Web style sheets](#) page. Discussions about CSS are carried out on the ([archived](#)) [www.style@w3.org](#) mailing list and on [comp.infosystems.www.authoring.stylesheets](#).

WHAT'S NEW?

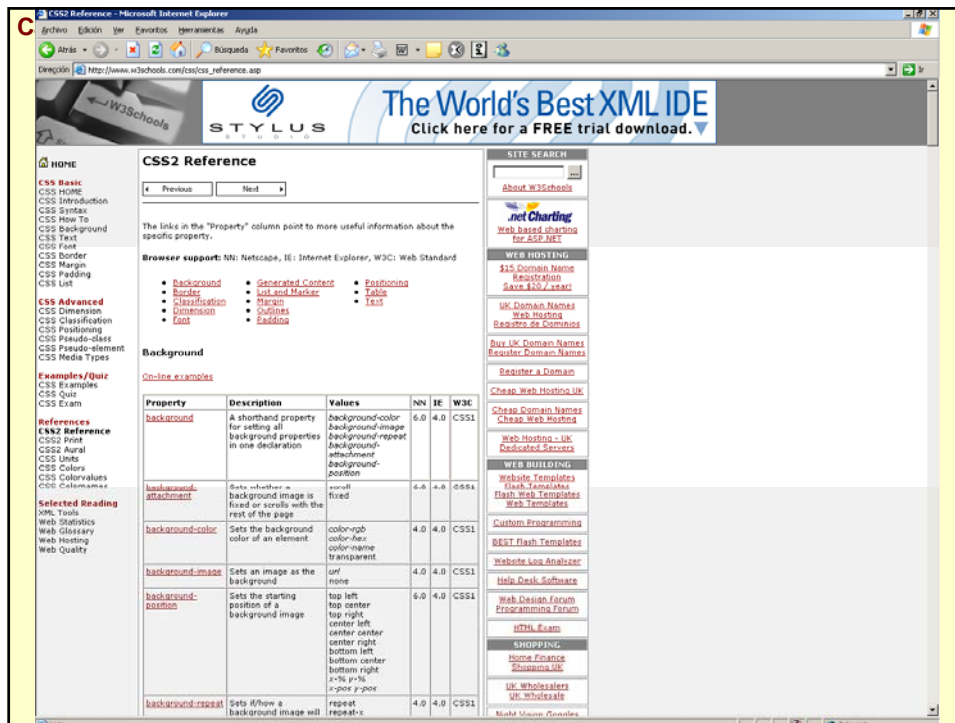
(For announcements of new CSS (draft) specifications, see "[CSS under construction](#)".)

- 2005-09-01: Re has published version 1.0 of [CSSToXSLFO](#), a program that converts an XML document with a CSS style sheet to XSLFO. It has special support for XHTML and supports CSS columns and named pages. (Java, Open source)
- 2005-08-19: [Disruptive Innovations](#) published [CSS Selector builder 0.11](#), a program to interactively construct CSS selectors (written in XUL/XBL, requires Firefox)
- 2005-08-14: [Webmascon](#) publishes Russian translations of several well-known articles on CSS.
- 2005-07-21: [Disruptive Innovations](#) and [Linspire](#) published version 1.0 of [Nou](#), a WYSIWYG Web site editor, based on [Gacko](#) (Windows, Mac, Linux/X, Open Source)
- 2005-07-01: Dzianis Koshkin started the project [MYTHcode](#), a code library including parsers for CSS and XML. (Object Pascal, Open Source)
- 2005-06-07: The organizers of the [Web Essentials](#) conference series propose four [Web Essentials Workshops](#) in Australia in July on standards-based Web design with XHTML and CSS.
- 2005-05-28: Mauricio Samy Silva created "[Interactive CSS - Style in action](#)", a form to test the effect of some CSS properties interactively.
- 2005-04-26: [Cultured Code](#) released [Xyle Scope](#), a browser that helps you analyze the HTML and CSS structure of each page. (Mac OS X, German & English, free trial)
- 2005-05-09: [Web-color list](#) is an on-line tool that suggests matching foreground and link colors, given a background color. (Warning requires JavaScript)
- 2005-05-08: [Web Essentials 2005](#) is a conference for developers, designers and decision makers about standards-based Web development (CSS, XHTML, SVG, accessibility, etc.) It will take place in Sydney on 29-30 September 2005.

What's new?

- Learning CSS
- CSS Browsers
- Authoring Tools
- Specs, 1, 2, 1, 3
- CSS Test Suites
- W3C Core Styles

Also, info for developers, SAC, translators, working group



Cascading Style Sheets

Linking HTML and CSS

- Three ways of making a style sheet affect the appearance of an HTML document:
 - External (linking):


```
<head>
<link rel="stylesheet" href="style.css" type="text/css"
      media="screen" />
</head>
```
 - Internal (embedded):


```
<head>
<style type="text/css" media="screen">
  p {text-indent: 10pt}
</style>
</head>
```
 - Inline:


```
<p style="text-indent: 10pt">indented paragraph</p>
```

Exercise

- Change the previous example: link the web page to an external style sheet



Linking HTML and CSS

- External:
 - Many pages can be linked to a single style sheet
 - Making changes to this style sheet can then change the appearance of all the web pages linked to it
- Internal:
 - When the style sheet is used for only one web page
- Inline:
 - When the style is used for only one HTML element

Linking HTML and CSS

- The most popular method is the external style sheet:

```
<link rel="stylesheet" href="style.css"
      type="text/css" media="screen" />
```

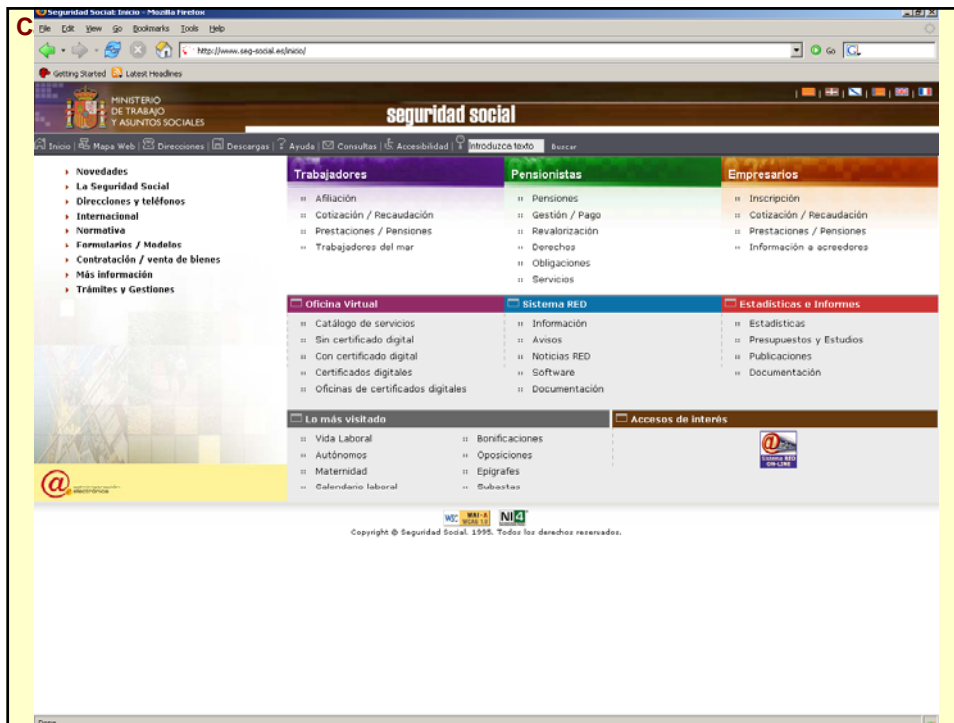
- href :
 - Tells the browser where to locate the style sheet, with either a relative or absolute URL
- rel :
 - Tells the browser what to expect
 - stylesheet
 - alternate stylesheet

Linking HTML and CSS

- If you define different alternative style sheets, you have to assign a title to each style sheet

```
<link rel="alternate stylesheet"
      href="style.css" type="text/css" media="screen"
      title="Style 1" />
```

- Example: webpage of Spanish Social System (Seguridad Social)



Cascading Style Sheets

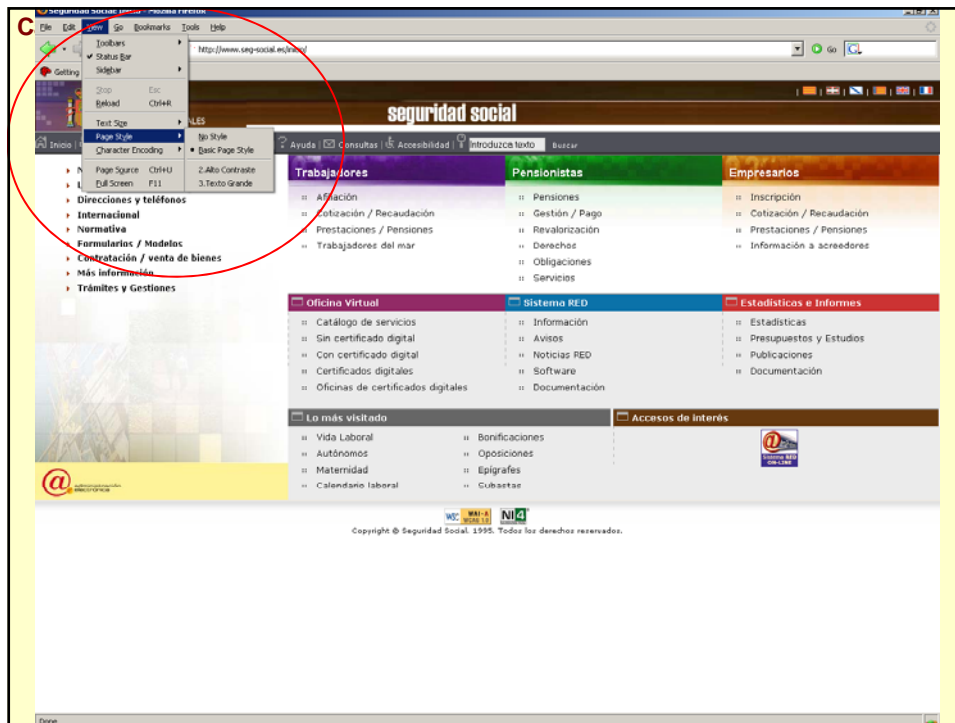
Linking HTML and CSS

```
<link rel="stylesheet"
      href="/ireach/internet/css/estilos_B.css"
      media="screen" type="text/css">
```

```
<link rel="alternate stylesheet"
      href="/ireach/internet/css/estilosHC_B.css"
      media="screen" type="text/css" title="2.Alto
      Contraste">
```

```
<link rel="alternate stylesheet"
      href="/ireach/internet/css/estilosHT_B.css"
      media="screen" type="text/css" title="3.Texto
      Grande">
```

```
<link rel="stylesheet"
      href="/ireach/internet/css/estilosP_B.css"
      media="print" type="text/css">
```



Cascading Style Sheets

Linking HTML and CSS

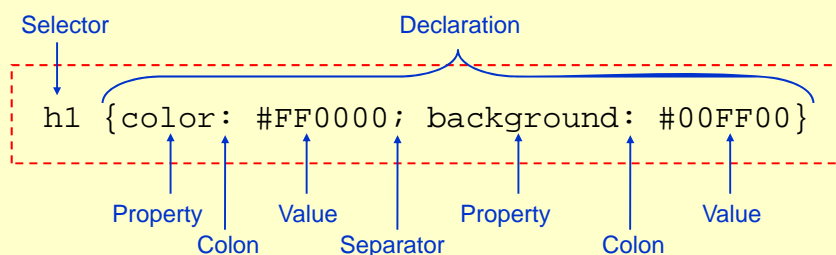
- type:
 - Tells the browser the type of document linked
 - Common values:
 - text/css
 - text/javascript

Linking HTML and CSS

- **media:**
 - Tells the browser the type of device the style sheet is for:
 - **screen:** Computer display
 - **print:** Printer
 - **projection:** Projector
 - **aural:** Speech syntetizer
 - **braille:** Braille line
 - **tty:** Console (text) display
 - **tv:** Television
 - **all:** All devices (*default value*)

Rules, selectors, and properties

- **Rules:** the selector, followed by the set of properties, which are surrounded by curly braces (that is { and })



Rules, selectors, and properties

- **Selector:**
 - Type: select every instance of the specified type of HTML element
 - Class: class name preceded by “.”
 - ID: identifier name preceded by “#”
 - Pseudo-classes: name of the pseudo-class

Rules, selectors, and properties

- Property and value: the **property name** followed by a **colon**, a **space** and then the **value** (if necessary, with its **unit**, though **no space** before the unit!)
- Advices:
 - Make sure you get the property name exactly right: it's got to be color, not colour or collar
 - All CSS properties can only take a specified range of values: get used to consulting the specification
 - Don't get the punctuation wrong (don't forget the semi-colon between properties)

Exercise

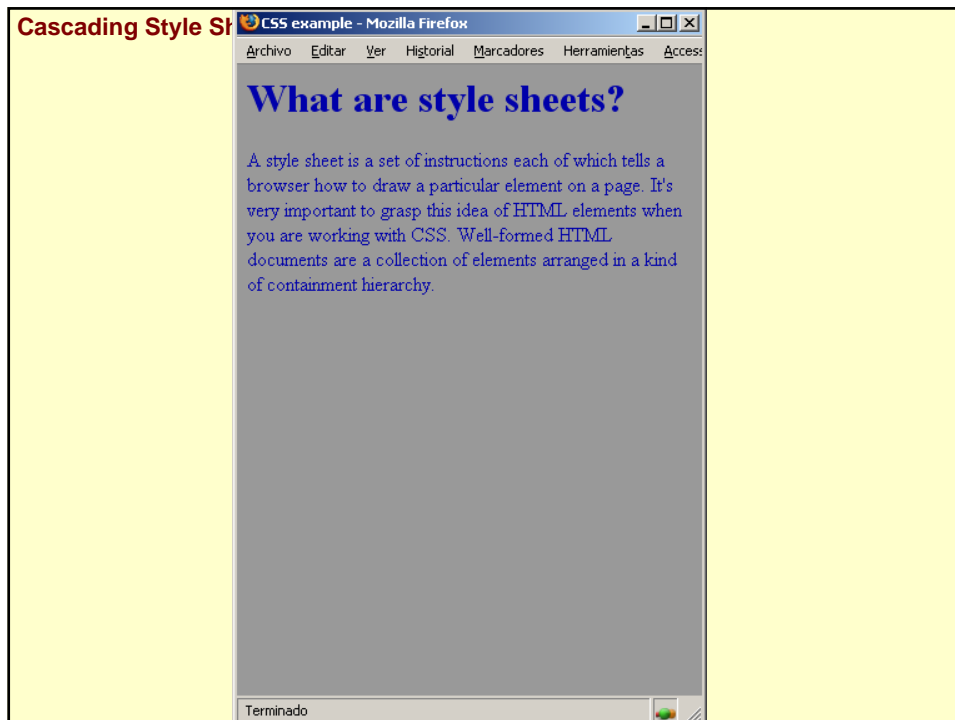
- Write a new webpage
- Give a background color (light gray) and a color (dark blue) to the whole page
 - Selector: html or body
 - Property: background-color
 - Value: #999999
 - Property: color
 - Value: #0000AA



Exercise - Solution

```
html {  
  background-color: #999999;  
  color: #0000AA;  
}
```

- **Tips:**
 - The style sheet is easier to read if you put each property on a new line
 - it's very easy to forget semi-colons. Always put that extra one on the last property in a statement. You won't forget to do it when you add a new property later on



Cascading Style Sheets

Rules, selectors, and properties

- Class: is an attribute we can add to HTML elements so that we can identify them from the style sheet, using a class selector, and give them their own style
- The form of a class selector is very simple, and it would select the specified element with the class attribute class-name

```
<p class="footer">
```

```
p.footer {  
    color: blue;  
}
```

Cascading Style Sheets

Rules, selectors, and properties

- If you don't specify an element, the class name applies to all the elements:

```
.important {  
  color: red;  
}
```

```
<p class="important">  
Bla, bla, bla.  
</p>  
<ul class="important">  
<li>Bla, bla.</li>  
<li>Bla, bla.</li>  
</ul>
```

Cascading Style Sheets

Exercise

- Write a new webpage with three paragraphs
- Define three classes for the three paragraphs:
 - < p class="normal"> → Color dark blue
 - < p class="important"> → Color red, background color yellow
 - < p class="extra"> → Color green, background color gold



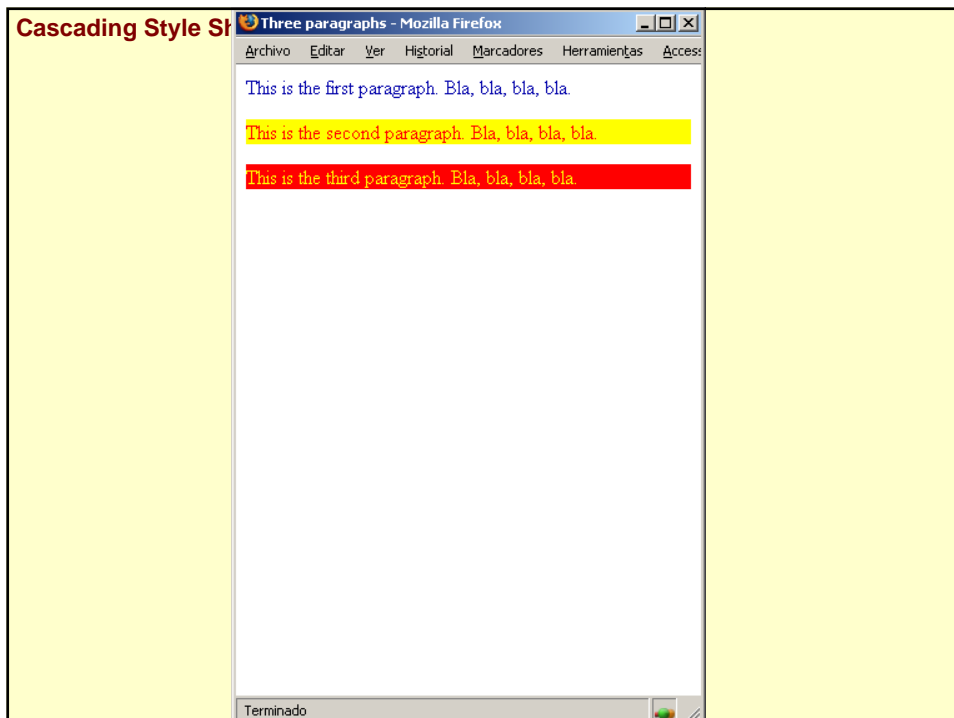
Cascading Style Sheets

Exercise - Solution

```
<html>
<head><title>Three paragraphs</title>
<style type="text/css">
.normal {color: #0000AA;}

.important {color: red; background-color: yellow;}

.veryimportant {color: yellow; background-color: red;}
</style>
<body>
<p class="normal">
This is the first paragraph. Bla, bla, bla, bla.</p>
<p class="important">
This is the second paragraph. Bla, bla, bla, bla.</p>
<p class="veryimportant">
This is the third paragraph. Bla, bla, bla, bla.</p>
</body></html>
```



Text properties

- `background-color`: background color of element
- `color`: color of text

Text properties

- Colors:
 - Name of color → red
 - `rgb(x,x,x)` → `rgb(255,0,0)`
 - `rgb(y%, y%, y%)` → `rgb(100%,0%,0%)`
 - `#rrggbb` → `#ff0000`
 - `#rgb = #rrggbb` → `#f00 = #ff0000`

Text properties

- `font-family`: specifies a list of one or more fonts using the family name of each
 - The font names are separated by commas
 - A browser then uses the first font in the list that is installed on its system
 - At the end of that list you should always put one of five generic font names:
 - serif (e.g. Times)
 - sans-serif (e.g. Helvetica)
 - cursive (e.g. Zapf-Chancery)
 - fantasy (e.g. Western)
 - monospace (e.g. Courier)
 - If you want to use a font with more than a single word name make sure you put it between quote marks, like this: "Times New Roman"

Text properties

- `font-size`: can take what is referred to in CSS as length values

Text properties

- Units:
 - %: percentage
 - in: inches
 - cm: centimeters
 - mm: millimeters
 - em: equal to the current size of text
 - ex: equal to letter “x” height
 - pt: point (1 pt = 1/72 inches)
 - pc: pica (1 pc = 12 points)
 - px: pixels

Text properties

- Units:
 - Keywords:
 - xx-small, x-small, small, medium, large, x-large, xx-large
 - smaller, larger
 - Absolute:
 - in, cm, mm, pt, pc, px
 - Relative:
 - %, em, ex

Text properties

- Best unit: **em**
 - If you set the font-size using em units, they will always remain relative to the main text on the page, whatever that might be
 - For example, if you set `<h1>` to `2em`, it will be twice as big as the rest of the text on the page

Text properties

- `font-style`: sets the style of the font
 - `normal`: default, normal font
 - `italic`: an italic font
 - `oblique`: an oblique font
- `font-variant`: displays text in normal or small-caps font
 - `normal`
 - `small-caps`

Text properties

- `font-weight`: controls the boldness of text
 - normal
 - bold
 - bolder
 - lighter
 - 100, 200, ..., 900

Text properties

- `text-align`: controls the justification of text
 - left
 - right
 - center
 - justify

Text properties

- `text-decoration`: for underlining and striking through text
 - none
 - underline
 - overline
 - line-through
 - blink

Text properties

- `text-transform`: controls the letters in an element
 - none
 - capitalize: each word in a text starts with a capital letter
 - uppercase
 - lowercase

Text properties

- `letter-spacing`: controls the spacing between characters
- `word-spacing`: controls the spacing between words
- `line-height`: sets the distance between lines

Exercise

- Use the different text properties:
 - Add some special styles to make the headings stand out more from the main text
 - Make the text in the paragraphs look more clean and attractive



Background

- `background-color`: defines the background color
- `background-image`: puts an image in the background
`background-image: url(logo.png);`
- `background-repeat`: defines how the background image is going to be repeated
- `background-position`: defines the position of the background image

Background

- `background-repeat`:
 - `repeat`: the image will tile to fill the whole element
 - `repeat-x`: the image will only repeat horizontally across the element
 - `repeat-y`: the image will only repeat vertically down the element
 - `no-repeat`: only a single instance of the element will appear

Exercise

- Create a new web page
- Put an image as background image
- Try the different “repeat” values



Background

- `background-position`: specify 2 values, the first for where you want the image to be horizontally, the second for where it will be vertically
 - Length values
 - Keyword values: `top`, `bottom`, `left`, `right`, `center`

Background

- Example:
 - `background-position: center center` - places the image right in the center of the element, both horizontally and vertically
 - `background-position: top left` - places the image in the top left corner
 - `background-position: right bottom` - places the image in the bottom right corner

Exercise

- Create a new web page
- Put an image as background image in the center of the web page



Links

- Links can have four different states:
 - `link`: this is the normal state
 - `visited`: when a browser has visited that destination recently
 - `hover`: while the cursor is over the link
 - `active`: while the link is being clicked
- We can create rules that apply to links in any of these states

Links

- Pseudo-classes:
 - `a:link {...}`
 - `a:visited {...}`
 - `a:hover {...}`
 - `a:active {...}`

Cascading Style Sheets

Exercise

- Give links in both their normal and visited state a background-color of #95b7cd and make their text color the same as the regular text on the page → A user can't tell whether a link is to a page they have recently viewed or not.
- Give links in their hover state a background-color of #aaddee
- Give links in their active state a background-color of #3cc7f0



Cascading Style Sheets

Exercise - Solution

```
a:link {
  color: #666666;
  background-color: #95b7cd;
}
a:visited {
  color: #666666;
  background-color: #95b7cd;
}
a:hover {
  background-color: #aaddee;
}
a:active {
  background-color: #3cc7f0;
}
```

Roll over and click the links to see the effect of the hover and active states

Exercise

- Most browsers have a default setting for links, which is to underline them → How can we change this?
- How can we draw a line through the text of visited links?

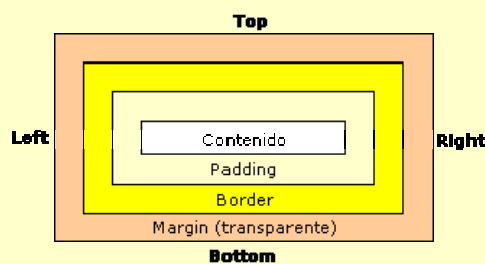


Exercise - Solution

```
a:link {  
  ...  
  text-decoration: none;  
}  
  
a:visited {  
  ...  
  text-decoration: line-through;  
}
```

Box model

- Boxes: each element of the web page is represented by a “box”



Box model

- `margin` is the distance between the edge of an element and its adjacent elements
- `padding` is the distance between the edge of an element and its content

Box model

- padding, border and margin are divided into four edges: top, bottom, left y right
- Therefore, we have: border-left, border-right, border-top and border-bottom (and the same for margin and padding)
- padding, border and margin apply the values to all four edges

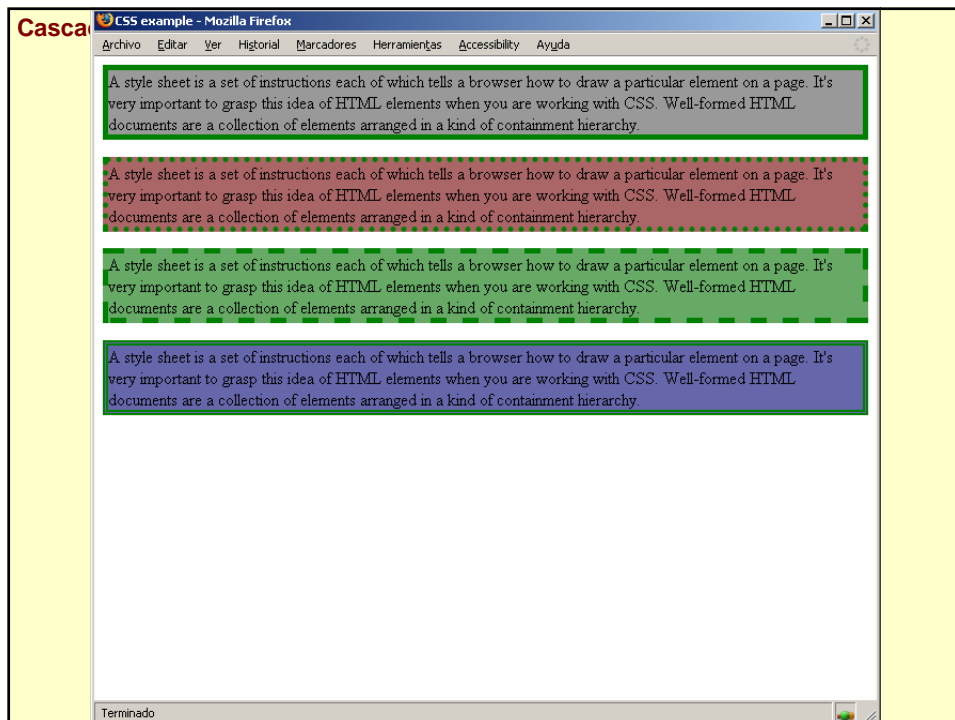
Box model

- Borders can be applied either to all edges of an element, or each edge individually
- There are three characteristics of a border you can control:
 - Its style, using values like
 - solid
 - dotted
 - dashed
 - double
 - Its width, using all the usual length values
 - Its color, using the color values

Cascading Style Sheets

Exercise

- Create a new web page
- Write four paragraphs
- Apply a different border style and background to each paragraph



Exercise - Solution

```
.p1 {  
  background-color: #999999;  
  border: solid 5px green;  
}  
.p2 {  
  background-color: #aa6666;  
  border: dotted 5px green;  
}  
.p3 {  
  background-color: #66aa66;  
  border: dashed 5px green;  
}  
.p4 {  
  background-color: #6666aa;  
  border: double 5px green;  
}
```

Exercise 1

- Read exercise document: Curriculum vitae



Layout

- `` and `<div>` are the main building blocks used in CSS page layouts
- They are simply generic HTML block element
 - `span`: inline
 - `div`: block
- You can wrap it around the different blocks of content you want to position on your page

Layout

- `` and `<div>` need unique `id` attributes so that we can identify them and give them positioning properties in the style sheet
- `ids` must be unique in any single HTML document, otherwise HTML document is not valid

Layout

- Example:
 - HTML:

```
<div id="header">  
...  
</div>
```
 - CSS:

```
#header {background-color: gray; color: red}
```

Layout

- Basic three column layout with a navigation bar (navbar) on the left and a sidebar on the right
 - It uses a combination of static, relative and absolute positioning

Layout

```
<div id="header"></div>
<div id="content">
  <div id="navbar"></div>
  <div id="main-text"></div>
  <div id="sidebar"></div>
</div>
```

Layout

- Both #header and #main-text are going to be positioned statically
 - They simply flow down the page, one after the other, in the same order as they occur in the XHTML

Cascading Style Sheets

Layout

```
body {
  margin: 0;
  background-color: #aaaaaa;
  text-align: center;
}

#header {
  background-color: #0000ff;
  color: #ffffff;
  text-align: center;
  font-size: 2em;
}

#content {
  position: relative;
}
```

Cascading Style Sheets

Layout

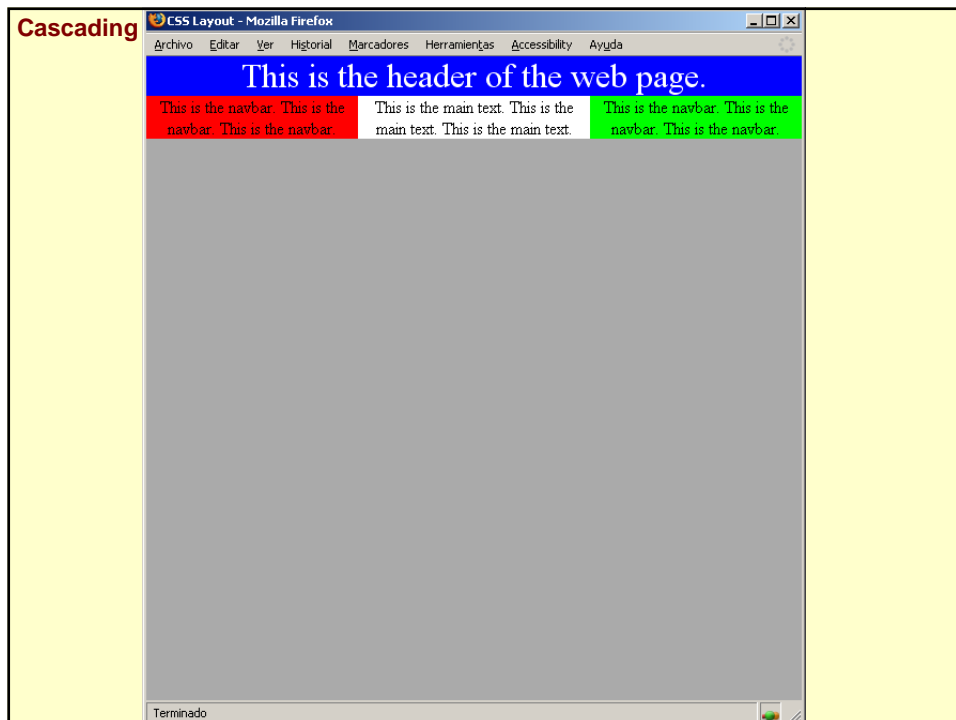
```
#navbar {
  position: absolute;
  top: 0;
  left: 0;
  width: 198px;
  background-color: #ff0000;
}

#main-text {
  margin-left: 198px;
  margin-right: 198px;
  background-color: #ffffff;
}
```

Cascading Style Sheets

Layout

```
#sidebar {  
  position: absolute;  
  top: 0;  
  right: 0;  
  width: 198px;  
  background-color: #00ff00;  
}
```



Exercise 2

- Read exercise document: 2-columns layout for curriculum vitae

