Cascading Style Sheets





Objectives

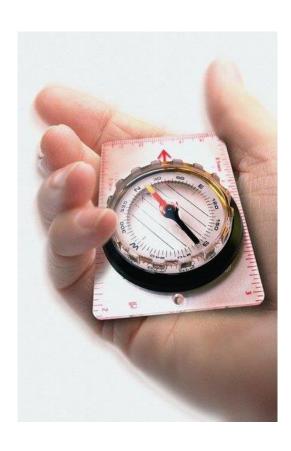
By completing this course you will be able to:

Define what is CSS

Use CSS in your websites



Course plan



- Introduction to CSS
- How to CSS
- Float & Position
- Display property
- Pseudo-Classes & Elements
- Directives
- Selector's Precedence

INTRODUCTION





Before diving in...

- HTML, CSS and JavaScript have different tasks:
 - HTML:
 - Create the page structure
 - Define the content (pictures, text...)
 - CSS:
 - Makes your page beautiful
 - JavaScript:
 - Create interactions with user (buttons, validation, ...)
 - Create interactions with browser (redirect, set data, ...)
 - Look like any other functional language (loops, variables, ...)



Before diving in...

Combination of these makes the Web





An analogy

• HTML:





An analogy

• CSS:





An analogy

JavaScript:





Definition

Introduction to CSS

• CSS: <u>Cascading Style Sheet</u>

Language really different from (x)HTML

Allows to design a HTML document

Currently CSS 3



Advantages

- Centralizes and factories the layout elements in an external file
- Separates design and content
- Simplifies maintenance of Web pages
- Reduces page size



Possibilities

- Define document layout in acting on elements like:
 - Background (color and/or image)
 - Font style (color, weight, family...)
 - Borders and margins
- Properties can be set on:
 - Element type (<h1>, , , <a>, ...)
 - Element class (class attribute)
 - Identified element (id attribute)
 - Etc...



Warning about CSS

Syntax is very easy to understand.
You need to focus on **vocabulary**, because CSS has many properties with even more values.

Your CSS level will mostly rely on practice and experiments, because it's a **descriptive language**. No variables, no loops, no conditional operator.

HOW TO CSS



Splitting up the page

- Defines a section (division) in the document
 - Block tag
 - Used to separate each important part
 - Facilitates styling with CSS
 - No special behavior

```
<div id="banner">
  <img src="ban.jpg" alt="banner" />
                                       Banner
</div>
<nav>
<l
  <a href="home.html">Home</a>
                                        Menu
  <a href="forum.html">Forum</a>
</nav>
<header>
                                 Main content
  <h1>Welcome on my Website</h1>
</header>
<footer>
                                       Footer
  Copyright WebDev © 2012
</footer>
```



Without CSS

WebDev

- Home
- Forum

Welcome on my Website

Copyright WebDev © 2012



Display of the previous page with CSS





Where to place CSS?

HTML Style / "inline" style

- Discouraged method
 - Hard to maintain
 - Targets only one tag



Where to place CSS?

Internal style sheet

- OK to use, but:
 - CSS code usable in only one page
 - Increase page size and length



Where to place CSS?

Extern style sheet

```
<!-- Place this code in the head tag -->
k href="main.css" media="all" rel="stylesheet"
type="text/css" />
```

- Best way to place CSS
 - Usable on many pages
 - Easier to maintain
 - Separation of concerns



Syntax

How to CSS

selector {
 property: value;
 ...
}

```
background-color: white;
color: black;
font-family: Verdana, "Sans serif";
}
```

Syntax

How to CSS

Selectors can be grouped

```
h1 { background-color: white; color: red; }
p, h1 { font-family: Verdana, "Sans serif";}
```

- Style are applied in the definition order
- In case of conflicts, the last property "overrides" the previous ones

How to CSS

Comments

- Syntax: /* ... */
 - It's not possible to use //

```
/* Document font family */
body { font-family: Verdana, "Sans serif";}
```



Selectors

CSS selectors overview

Selector	Targets	Example
*	All elements	* { }
E	All E elements	div { }
E F	All elements downward F of E	div p { }
E > F	All elements F son of E	div > p { }
#myld	The element with id « myld »	<pre>#banner { }</pre>
E#myId	The E element with id « myld »	<pre>img#logo { }</pre>



Selectors

CSS selectors overview

Selector	Targets
.myClass	All elements having the class « myClass »
E.myClass	All E elements having the class « myClass »

How to CSS

Attribute *class*

- Apply a style on a set of defined tags
 - This CSS code:

```
h1.section { background-color: red; }
```

Can be associated with any h1 tag:

```
<h1 class="section">My Title</h1>
```

Attribute id

- Apply a style on only one and unique tag
 - This CSS code:

```
#MyObjectId { background-color: red; }
```

— Can be associated with any tag:

```
<div id="MyObjectId">My Text</div>
```



Colors

Can be defined in several ways

Method	Restriction	Example
colorname	Already CSS build-in colors	red
rgb(r, g, b)	$0 \le (r, g, b) \le 255$	rgb(255, 0, 0)
rgb(r%, g%, b%)	$0 \le (r, g, b) \le 100$	rgb(100%, 0, 0)
#rrggbb	00 ≤ (rr, gg, bb) ≤ FF	#FF0000
#rgb	$0 \le (r, g, b) \le F$	#F00



Size unit

- Available measure units:
 - **-** %
 - in, cm, mm
 - em, px
 - pt, pc
 - px

```
body { font-size: 1.2em; }
```



Attributes: Text

• Important text properties:

Property	Description
text-align	Align to left, center or right
text-decoration	<u>Underline</u> text
text-indent	Move text to right or left
text-transform	Uppercase, lowercase, Capitalize Every Single Word
color	What we just saw about colors
line-height	Set height of each text line
letter-spacing	Set some space between each letter



Attributes: Text

• Important text properties:

Property	Description
font-size	Set size of text
font-family	Define the used fonts. Can be several for a fallback
font-weight	Set text to bold
font-style	Set text to italic
text-shadow	Create some shadows on texts



Attributes: Text

```
color: orange;
text-align: center;
text-decoration: underline;
text-transform: uppercase;
letter-spacing: 10px;
font-style: italic;
font-weight: bold;
line-height: 1.4em;
                                       C S S
font-family: "Serif";
font-size: 1.2em;
```



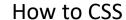
Attribute: Background

- background-color
- background-image
- background-repeat
- background-attachment
- background-position



Attribute: Background

```
body {
   background-color: black;
   background-image: url('kaleidoscope.jpg');
   background-repeat: repeat-x;
   background-attachment: fixed;
   background-position: 0% 50%;
```

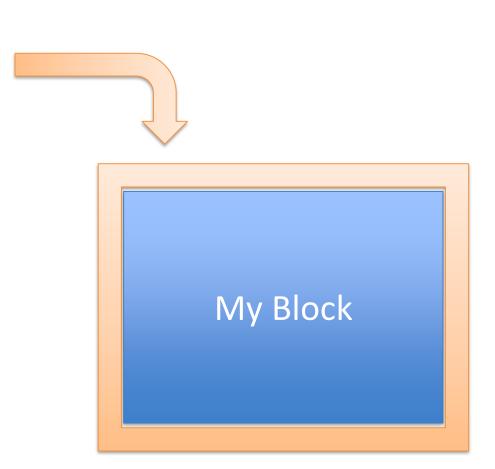




Attribute: margin

Specify outside margins

- margin-position:
 - margin-top
 - margin-right
 - margin-bottom
 - margin-left





Attribute: margin

```
p { margin: 40px; }
```

Without style:

With style:

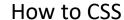
SUPINFO est l'une des rares écoles d'informatique françaises à vocation professionalisante qui soit à la fois reconnue par l'Etat par décret du 10 janvier 1972, qui délivre un titre homologué par l'Etat par décret au niveau I (BAC+5, Master, Ingénieur).

SUPINFO travaille régulièrement sur la baisse des frais de scolarité qui passent pour 2006 à 5990 euros tout compris quelle que soit l'année d'étude, en baisse pour la 3ème année consécutive. En plus de cette volonté d'accessibilité financière des études, SUPINFO est fière de constater que, la sélection se faisant à l'admission dans l'école et pas en cours d'études, plus de 90% des étudiants qui sont admis en première année du cycle préparatoire, réussissent leur cursus complet. 5 ans plus tard.

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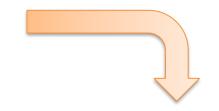


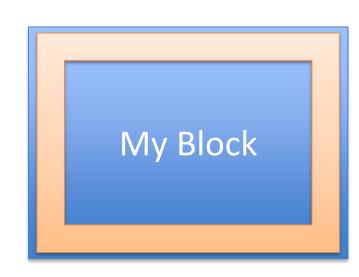


Attribute: padding

Specify inside margins

- padding-position:
 - padding-top
 - padding-right
 - padding-bottom
 - padding-left







Attribute: padding

```
th { padding: 10px 40px 10px 40px; }
td { padding: 20px; text-align: right; }
```

• Without style:

Nom du jeu	Nombre de cartes en main
Texas Hold'em	2
Omaha	4

• With style:

Nom du jeu	Nombre de cartes en main
Texas Hold'em	2
Omaha	4



Attribute: border

- Usable on any element
 - border-width
 - border-style
 - border-color
 - border-collapse
 - border-position
 - border-top
 - border-bottom
 - border-left
 - border-right



```
table {
   border: 5px solid green;
   border-collapse: collapse;
th {
   padding: 10px 40px 10px 40px;
   border-bottom: 3px dotted red;
   border-left: 1px solid blue;
                                                Nombre de cartes en main
                                      Nom du jeu
                                      Texas Hold'em
td {
   padding: 20px;
                                         Omaha
   text-align: right;
   border-left: 1px solid blue;
   border-bottom: 1px solid blue;
```



Attributes: list

- list-style-type
- list-style-position
- list-style-image

```
ul {
    list-style-type: disc;
    list-style-position: outside;
    list-style-image: url('orange.gif');
}
Pomme
Banane
Pêche
Pêche
Mirabelle
```



Debug in your browser

Before we start off, how to debug your CSS!

- You can use your favorite browser to debug
 - Right click on any element and select « Inspect element »
 - Any CSS rule can be edited
 - You can even add CSS in your browser
- Be careful, if you refresh, all modification will be lost ☺



Debug in your browser

Example in Chrome:

```
Console Sources Network Timeline
                                                       Profiles
                                                              Resources Audits
          Elements
 <!DOCTYPE html>
                                                            Styles Computed Event Listeners >>>
 <html>
 <head>...</head>
                                                            Filter
 ▼ <body>
                                                           element.style {
   ► <div id="nav">...</div>
   ▼ <div>
    <aside>...</aside>
                                                           media="all"
                                                                                        resume.html
    ▼ <div>
                                                           #picture {
                                                                                       style.css:15
        <h1>John Doe</h1>
                                                              text-align: center;
      ▶ <div id="picture">...</div>
      ▶ ...
                                                           div {
                                                                              user agent stylesheet
        <h2>Programming Languages</h2>
                                                              display: block;
      ▶ ...
        <h2>Operating Systems</h2>
                                                            Inherited from body
      ▶ ...
        <h2>Foreign Languages</h2>
                                                           media="all"
                                                                                        resume.html
      ...
                                                            body {
                                                                                        style.css:1
html body div div div#picture
                                                              margin: ▶0;
```

Design and CSS

FLOAT & POSITION





Understand the flow

• Simple structure:

```
<div>
 Lorem ipsum dolor sit amet
 <div style="height: 50px; background: red;"></div>
 <div style="height: 50px; background: blue;"></div>
</div>
                    Lorem ipsum dolor sit amet
```



Understand the flow

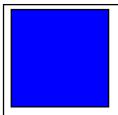
- The flow is predictible
 - If we change the order...





Examples – Normal

```
.block {
  height: 98px; width: 98px;
  background: blue;
  border: 1px black solid;
}
```



Lorem ipsum dolor sit amet, consectet molestie orci. Vivamus cursus metus q metus dapibus. Nullam maximus pretir Proin laoreet dictum consectetur. Sed i gravida vel. Vivamus in consectetur ni convallis.

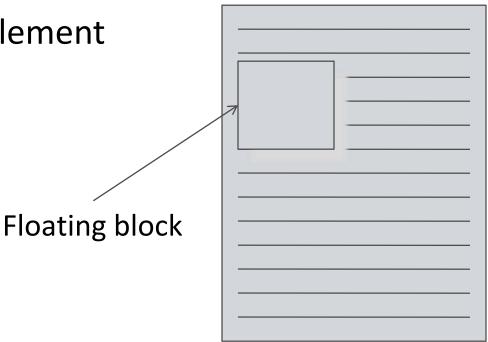
Praesent scelerisque magna non conse porttitor leo ultrices rutrum eget eget e nec bibendum dui commodo sit amet. ultricies dapibus. Aenean cursus vitae vitae sapien bibendum, pellentesque vi arcu. Pellentesque maximus volutpat p hendrerit nulla et, volutpat magna. Pha in, posuere bibendum ante. Morbi curs





Attribute: float

- Determines floating element
- Possible values:
 - left
 - right
 - none
 - inherit



.menu { float: left; }

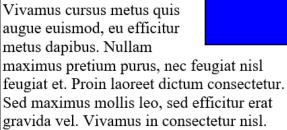




Examples – Float

```
.block {
  height: 98px; width: 98px;
  background: blue;
  border: 1px black solid;
  float: right;
}
```

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Proin quis molestie orci. Vivamus cursus metus quis augue euismod, eu efficitur metus dapibus. Nullam



Donec ornare ullamcorper convallis.

Praesent scelerisque magna non consequat semper. Duis non neque porttitor leo ultrices rutrum eget eget elit. Quisque suscipit euismod velit, nec bibendum dui commodo sit amet. Nunc facilisis risus eu massa ultricies dapibus. Aenean cursus vitae odio id facilisis. Duis luctus erat vitae sapien bibendum, pellentesque viverra eros tempor. Etiam sed dictum arcu. Pellentesque maximus volutpat placerat. Nulla a risus egestas, hendrerit nulla



Examples – Multi blocks

```
<div class="block red"></div>
<div class="block blue"></div>
<div class="block yellow"></div>
```

```
.block {
  height: 98px; width: 98px;
  border: 1px black solid;
}
.red { background: red; }
.blue { background: blue; }
.yellow { background: yellow; }
```



Examples – Multi blocks float left

```
<div class="block red"></div>
<div class="block blue"></div>
<div class="block yellow"></div>
```

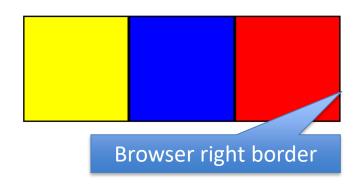
```
.block {
  height: 98px; width: 98px;
  border: 1px black solid;
  float: left;
}
.red { background: red; }
.blue { background: blue; }
.yellow { background: yellow; }
```



Examples – Multi blocks float right

```
<div class="block red"></div>
<div class="block blue"></div>
<div class="block yellow"></div>
```

```
.block {
  height: 98px; width: 98px;
  border: 1px black solid;
  float: right;
}
.red { background: red; }
.blue { background: blue; }
.yellow { background: yellow; }
```







Attribute: position

- Move an element out of the flow
- Possible values:
 - static: element is at his normal position
 - relative: element position is relative to its normal position
 - absolute: element position is relative to parent position origin
 - fixed: like absolute but the element follows user scrolling

```
.menu { position: fixed; }
```



Examples – Without position

static

```
.static {
   position: static;
}
```

<div class="static">

static est la valeur par défaut de tous les éléments. Un élément avec position: static; n'est positionné d'aucune manière spéciale. Un élément static est dit *non positionné* et un élément avec une propriété position ayant une valeur autre que static est dit *positionné*.



Examples – Relative position

relative

```
.relative1 {
  position: relative;
}
.relative2 {
  position: relative;
  top: -20px;
  left: 20px;
  background-color: white;
  width: 500px;
}
```

<div class="relative1">

relative se comporte de la même façon que static sauf si vous ajoutez quelques propriétés en plus.

<div class="relative2">

Ajouter les propriétés top, right, bottom et left à un élément positionné en relative va le placer ailleurs que sa position normale. Le reste du contenu ne sera pas ajusté pour prendre la place dans l'espace laissé par l'élément.

</div>



Examples – Absolute position

<div class="relative">

Cet élément est positionné en relative. S'il était positionné en position: static; son élément enfant positionné en absolute s'échapperait et serait positionné de manière relative au corps du document.

<div class="absolute">

Cet élément est positionné en absolute. Sa position est relative à son parent.

</div>

</div>

```
.relative {
   position: relative;
   width: 600px;
   height: 400px;
}
.absolute {
   position: absolute;
   top: 120px;
   right: 0;
   width: 300px;
   height: 200px;
}
```





Examples – Position

```
<div>
     <div class="block"></div>
     ...
     ...
</div>
```

```
.block {
  height: 98px; width: 98px;
  background: blue;
  border: 1px black solid;
  position: absolute;
}
```

olor sit amet, consectetur Proin quis molestie orci. s metus quis augue euismod, eu dapibus. Nullam maximus nec feugiat nisl feugiat et.

rrom naoreet dictum consectetur. Sed maximus mollis leo, sed efficitur erat gravida vel. Vivamus in consectetur nisl. Donec ornare ullamcorper convallis.

Praesent scelerisque magna non consequat semper. Duis non neque porttitor leo ultrices rutrum eget eget elit. Quisque suscipit euismod velit, nec bibendum dui commodo sit amet. Nunc facilisis risus eu massa ultricies dapibus. Aenean cursus vitae odio id facilisis. Duis luctus erat vitae sapien bibendum, pellentesque viverra eros tempor. Etiam sed dictum arcu. Pellentesque maximus volutpat placerat. Nulla a risus egestas, hendrerit nulla et, volutpat magna. Phasellus nibh tellus, suscipit in quam in, posuere bibendum ante. Morbi cursus blandit vulputate.



Examples – Fixed position

```
.fixed {
  position: fixed;
  bottom: 0;
  right: 0;
  width: 200px;
  background-color: white;
}
```

<div class="fixed">
 Bonjour ! Ne faites pas
 attention à moi pour
 l'instant.
 </div>

Design and CSS

DISPLAY PROPERTY





What is « display »?

- Remember block and inline tags in HTML?
 - Block tags: , <div>, <hn>, ...
 - Inline tags: , , , ...
- Note this is default behavior, it can be overriden





What is « display »?

- Difference between block and inline:
 - A block tag will take all possible width
 - An inline tag will take the smallest possible width
 - You can't set an inline tag height and width



Overriden span display example

```
<span class="block one">Block text</span>
<span class="block two">Block text</span>
<span class="block thr">Block text</span>
<span class="one">Inline text</span>
<span class="two">Inline text</span>
<span class="two">Inline text</span>
<span class="thr">Inline text</span>
```

```
Block text

Block text

Block text

Inline text

Inline text
```



Many display values

Most used display values:

Display value	Description	Example tags
Block	For every container element	div, p, ol, ul, hr
Inline	For every content element	span, strong, em
Inline-Block	Inline, access to block properties*	img, button, textarea
None	The element is hidden	script, style
Table-cell	Acts like a table-cell	td
List-item	Acts like a list-item	li





INLINE / INLINE-BLOCK / BLOCK

display: inline

Ach, was muß man oft von bösen Kindern hören oder lesen! Wie zum Beispiel hier von diesen Welche Max und Moritz hießen. Die, anstatt durch weise Lehren Sich zum Guten zu bekehren, Oftmals noch darüber lachten Und sich heimlich lustig machten.

display: block

Ach, was muß man oft von bösen Kindern hören oder lesen! Wie zum Beispiel hier von diesen Welche Max und Moritz

hießen.

Die, anstatt durch weise Lehren Sich zum Guten zu bekehren, Oftmals noch darüber lachten Und sich heimlich lustig machten. display: inline-block

Ach, was muß man oft von bösen Kindern hören oder lesen! Wie zum Beispiel hier von diesen Welche Max und Moritz hießen.

Die, anstatt durch weise Lehren Sich zum Guten zu bekehren, Oftmals noch darüber lachten Und sich heimlich lustig machten.

Difference of supported styles as summary:

- inline: Only margin-left, margin-right, padding-left, padding-right
- inline-block: margin , padding , height , width

Design and CSS

PSEUDO-CLASSES & ELEMENTS



Target something else

- Pseudo-classes/elements target specific cases:
 - When you hover an element
 - When you click on an element
 - When an element is odd/even son of its parent
 - When a link has already been clicked
 - - ...

• Global syntax : element:pseudoclass



Pseudo-classes

- Pseudo-classes target external factors
 - Can be in relation with the element position in HTML
 - Can be in relation with the client behavior

Global syntax : element:pseudoclass



Pseudo-classes

CSS pseudo-classes overview

Selector	Targets
E:link	All E elements when it's a link
E:visited	All E link elements when the user already navigated to
E:hover	All E elements hovered by the user's cursor
E:active	The E element whose clicked by the user right now
E:nth-child	When an element is <i>n</i> th child



Pseudo-classes example

```
<a href="page2.html">My second page</a>
```

```
a:link, a:visited, a:active {
  text-decoration: none;
  color: red;
}
a:hover {
  text-shadow: 1px 1px 5px black;
  color: black;
}
```

My second page



My second page



Pseudo-classes example

```
        <ttr>
        Col1
        Col2

        <ttr>
        ValA1
        ValA2

        <ttr>
        ValB1
        ValB2

        ValC1
        ValC2
```

```
Col1Col2ValA1ValA2ValB1ValB2ValC1ValC2ValD1ValD2
```



Pseudo-elements

- Pseudo-classes style parts of the document
 - First letter of a paragraph
 - Style before/after an element

Global syntax : element: :pseudoelement



Pseudo-elements

CSS pseudo-classes overview

Selector	Targets
E::first-letter	First letter of all E elements
E::first-line	First line of all E elements
E::before	A "virtual" generated element before every E elements
E:after	A "virtual" generated element after every E elements



Pseudo-elements example

```
Lorem ipsum...
```

```
p::first-letter {
  font-size: 24px;
  color: whitesmoke;
  text-shadow: 0px 0px 2px black,
      1px 1px 2px black;
  letter-spacing: 2px;
}
```

Lorem ipsum ultricies felis. S Nunc sagittis, d tellus enim sed lacinia ac mass porttitor eu, ten <u>congue Morbi</u>



Pseudo-elements example

```
Lorem ipsum...
```

```
p::first-line {
  font-size: 24px;
  color: whitesmoke;
  text-shadow: 0px 0px 2px black,
        1px 1px 2px black;
  letter-spacing: 2px;
}
```

Lorem adipiscing elit volutpat vitae tortor gravida magna quis co ligula tellus, v



Pseudo-elements example

```
<h1>Ace of Spades</h1>
```

```
★ Ace of Spades ◆
```

Design and CSS

DIRECTIVES





Programming in CSS

Inclusion

Instead of a second <link/> tag, you can also include another stylesheet with @import directive

```
@import "style.css"

@import "http://awebsite.com/style/s5.css"

@import url("http://awebsite.com/style/s5.css")
```



Supports

- Attribute media of the <link> tag
- Allows the support of printers, Braille, etc.

```
@media print {
    p {
        font-family: serif;
        font-size: 12pt;
    }
}
```

 Complete supported list: http://www.w3.org/TR/CSS2/media.html



@media Use case

- You know, when you want to print a web page
 - Or save it as a PDF file...
 - ...which is perfect for a resume

Remove unnecessary style

```
@media print {
    #navigation { display: none; }
    body { background: none; }
    table { background: none; }
}
```





@media print example

- After a Ctrl+P (Print) shortcut...
 - Magic operates!

