HTML & CSS crash course

What is HTML

- HTML is a computer language devised to allow website creation.
- It is relatively **easy to learn**, with the basics being accessible to most people in one sitting;
- It is quite **powerful** in what it allows you to create
- It is constantly undergoing revision and evolution
- The most recent incarnation is HTML5 (» W3C)
  - Has many improvements but
  - Basic grammar has not changed → one of the *most important standards for working with and on the Web*.

General characteristics

- HTML: HyperText Markup Language
  - Based on “tags” like latex or markdown
  - Relates to: tags-based text processing (TeX, IBM-script, Wordstar).
  - Combines power & simplicity
    - Hypertext and Hypermedia
    - HTML documentos are text (ASCII) files.
    - HTML is (intended to be) “portable”.

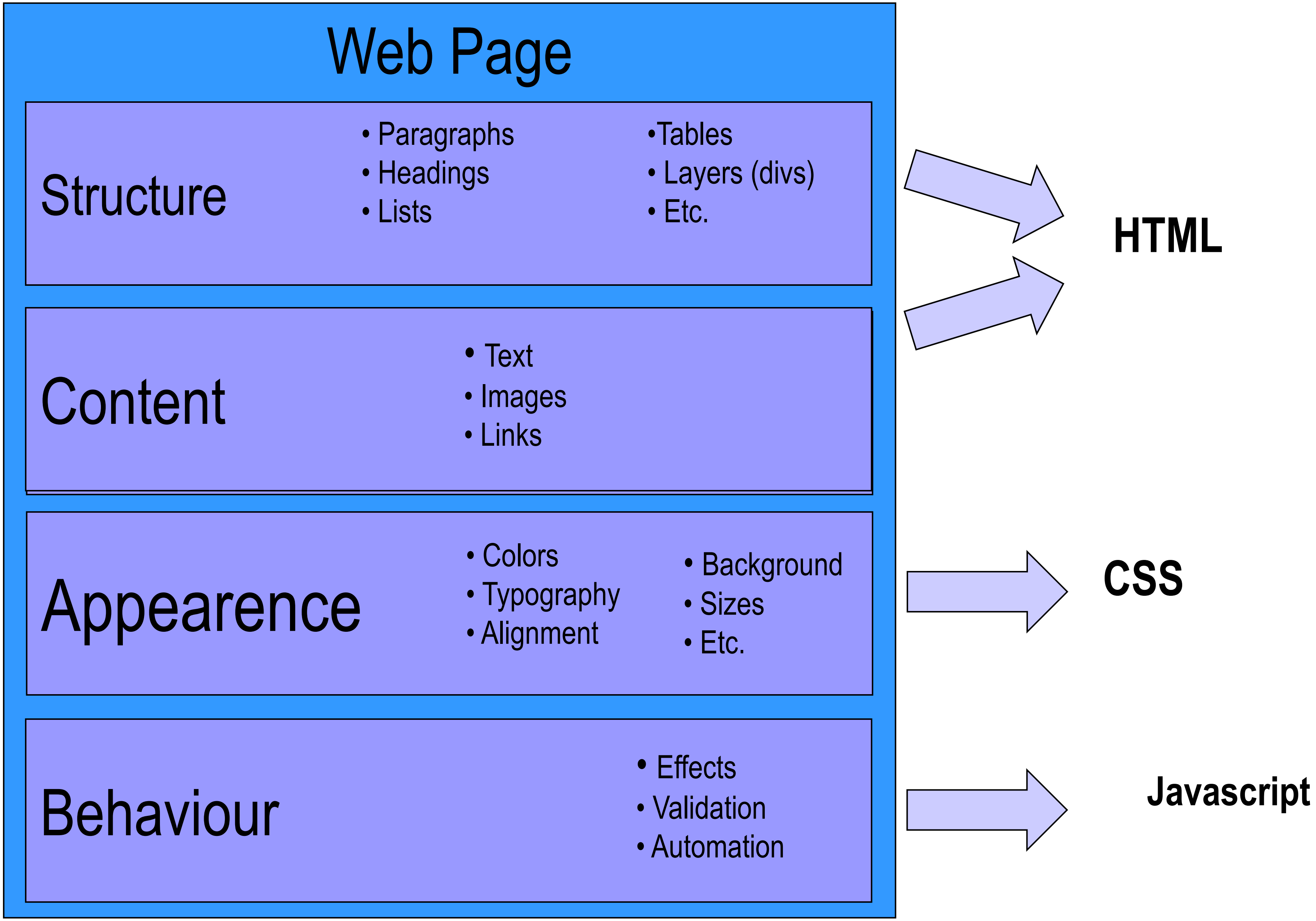
HTML editors

- General purpose editors
  - Emacs, Textpad, Notepad++
- Browser-related editors
  - Kompozer,
- Specific editors
  - HoTMetaL, Quanta, Front Page
- Word processors ☹

Reference guides

- *W3school.com*
- HTML5 Introduction (MOOC): https://www.edx.org/course/html5-introduction-w3cx-html5-0x-0
- google

HTML – CSS – Javascript



Web Page

Structure

- Paragraphs
- Headings
- Lists
- Tables
- Layers (divs)
- Etc.

Content

- Text
- Images
- Links

HTML

Appearence

- Colors
- Typography
- Alignment
- Background
- Sizes
- Etc.

CSS

Behaviour

- Effects
- Validation
- Automation

Javascript

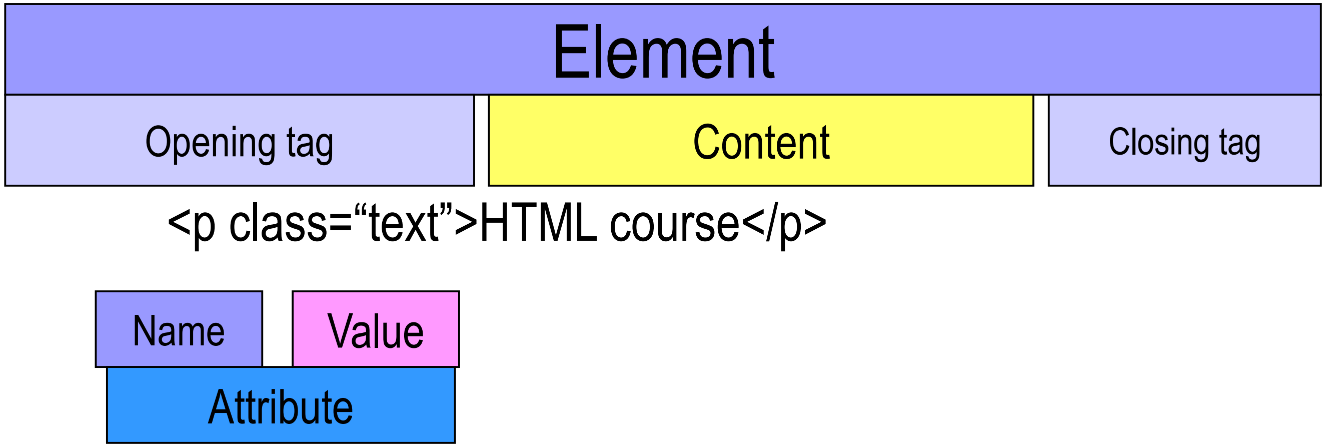
HTML files

- An HTML file is basically plain text that can be opened and edited with any text editor.
- HTML’s power lies in its *marked up structure*.
- HTML markup allows defining
  - the parts of a document that need to be displayed as headlines,
  - the parts that contain links,
  - the parts that should be organized as tables,
  - etc

HTML structure

- HTML documents are made of HTML “elements”
- Elements: Text (content) enclosed between two «tags»
- Tags: Pairs of words enclosing content. Words are identical.
  closing tag starts by «/»

Tags, Elements and Attributes



Minimal Document Structure

- Some labels are compulsory: Any HTML document must have them
  - <HTML></HTML>
  - <HEAD></HEAD>
  - <BODY></BODY>

Example 1. Simplest HTML doc.

```
<!DOCTYPE html>
 <html>
   <head>
     <title>First HTML</title>
   </head>
   <body>
     I am your first HTML-file!
   </body>
 </html>
```

http://www.r-datacollection.com/materials/html/OurFirstHTML.html

Example 1-HTML5 improvements

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="utf-8">
<title>You Can Edit This</title>
</head>
<body>
<h1>I Mean, You Can Really Edit This</h1>
<p contenteditable=true>
Now is the time for all good cats to come
But in our brave new world of HTML5, all we need is:
to the aid of their catnip.
</p>
</body>
</html>
```

Basic text formatting

- Headings
  - <H1></H1>...........<H6></H6>
- Paragraph breaks
  - <P></P>
- Centering
  - <CENTER></CENTER>
- Bold and Italic
  - <B></B>   <I></I>

Tag attributes

- Paragraph alignment
  - Left: ALIGN=left (default)
  - Right: ALIGN=right
  - Centered: ALIGN=center
- Use
  - <p ALIGN=option>

Lists

- Unordered Lists
  - <UL>
  - <LI>
  - </UL>
- Ordered Lists
  - <OL>
  - <LI>
  - </OL>

Example 2: lists

```
<!DOCTYPE html>
<html lang="en">
<head> <title>Ordered and unordered lists </title></head>
<body>
<h1> Ordered list</h1>
<OL> <LI> First
    <LI>Second
    <LI>Third
</OL>

<h1> Unordered list</h1>
<UL>
    <LI>Natural Sciences
    <UL> <LI>Biology
         <LI>Zoology
    </UL>
    <LI>Social Sciences
    <UL>      <LI>Geography
         <LI>History
    </UL>
</UL>
</body>
</html>
```

HTML grouping tags: DIV & SPAN

- Used to define sections in documents
  - <div> Defines a block-level section
    - Used as a container for other HTML elements
  - <span> Defines an inline section
    - Used as container for some text
- No required attributes
  - often use style, class or id
- Often used in conjunction with CSS

DIV and SPAN example

```
<!DOCTYPE html >
<html lang="en">
<head> <title>Span and Div</title></head>
<body>
<h1> The &lt;DIV&gt; tag </h1>
The &lt;DIV&gt; tag defines a division or a section in an HTML
   document.<br>
In the example below &lt;DIV&gt; is used to create a section in a document
that will have a light blue background color:

<div style="background-color:lightblue">
  <h3>This is a heading</h3>
  <p>This is a paragraph.</p>
</div>

<h1> The &lt;SPAN&gt; tag </h1>

In the example below &lt;SPAN&gt; is used to change the color of a single
   word in a paragraph:

<p>My mother has <span style="color:blue">blue</span> eyes.</p>
</body> </html>
```

Tables

- Tables are used for
  - Storing tabular information
  - Create/organize the page layout.
- Tags used for managing tables are:
  - **<TABLE> </TABLE>** Begin and End of the table
    <TR> </TR> Define table rows
    <TD> </TD> Define table columns
- Table structure is very flexible.
- Table tags are **hierarechichal**: a table has **one or more** rows **each of which** is divided in one or more columns

Example HTML Table

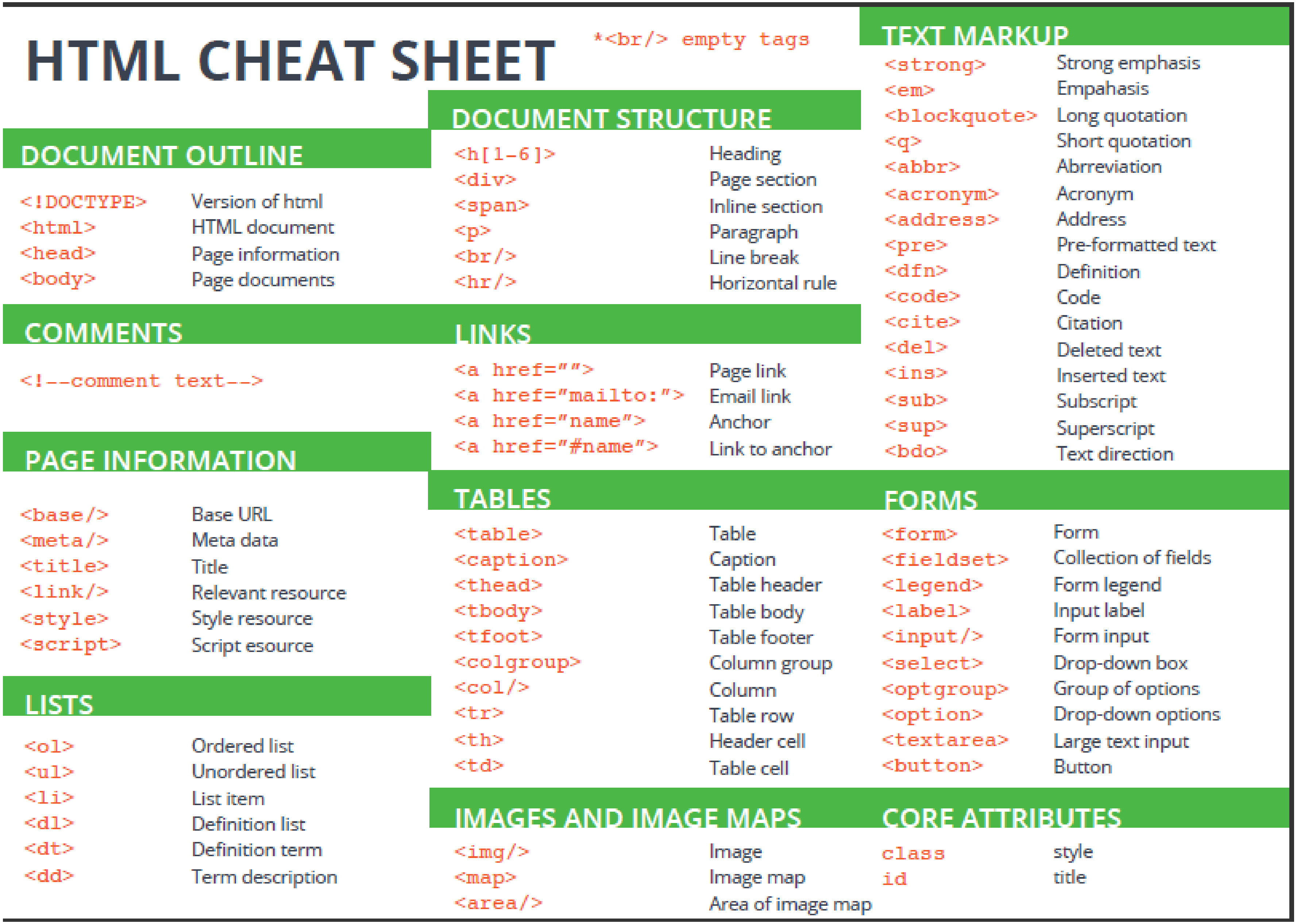
```
<!DOCTYPE html>
<html>
<head>
    <title>HTML Tables</title>
 </head>
 <body>
   <h1>An HTML Table</h1>
   <table>
      <tr> <th>Rank</th> <th>Nominal GDP</th> <th>Name</th> </tr>
         <tr> <th></th> <th>(per capita, USD)</th> <th></th> </tr>
      <tr> <td>1</td> <td>170,373</td> <td>Lichtenstein</td> </tr>
      <tr> <td>2</td> <td>167,021</td> <td>Monaco</td> </tr>
         <tr> <td>3</td> <td>115,377</td> <td>Luxembourg</td> </tr>
      <tr> <td>4</td> <td>98,565</td> <td>Norway</td> </tr>
          <tr> <td>5</td> <td>92,682</td> <td>Qatar</td> </tr>
     </table>
 </body>
</html>
```

Images

- Inserted using a graphical file (GIF, JPEG, PNG, BMP, ...)
- Sintax:
  - <IMG SRC= “image.gif” >
- Attributes
  - <IMG SRC= “image.gif” HEIGHT= value WIDTH= value>
- Alignment
  - <IMG SRC= “image.gif” ALIGN= top>

Hyperlinks

- Hyperlinks allow linking any two pages independently of their physical location
- Examples:
  - <A HREF= “http://www.elpais.es” > Diario El País </A>
  - <A HREF= “Example1.html” > Página1 </A>
  - <A HREF= “http://www.uam.es” ><IMG SRC= “imagen.gif” ></A>



HTML CHEAT SHEET

*<br/> empty tags

DOCUMENT OUTLINE

<!DOCTYPE>	Version of html
<html>	HTML document
<head>	Page information
<body>	Page documents

COMMENTS

<!--comment text-->

PAGE INFORMATION

<base/>	Base URL
<meta/>	Meta data
<title>	Title
<link/>	Relevant resource
<style>	Style resource
<script>	Script esource

LISTS

<ol>	Ordered list
<ul>	Unordered list
<li>	List item
<dl>	Definition list
<dt>	Definition term
<dd>	Term description

DOCUMENT STRUCTURE

<h[1-6]>	Heading
<div>	Page section
<span>	Inline section
<p>	Paragraph
<br/>	Line break
<hr/>	Horizontal rule

LINKS

<a href="">	Page link
<a href="mailto:">	Email link
<a href="name">	Anchor
<a href="#name">	Link to anchor

TABLES

<table>	Table
<caption>	Caption
<thead>	Table header
<tbody>	Table body
<tfoot>	Table footer
<colgroup>	Column group
<col/>	Column
<tr>	Table row
<th>	Header cell
<td>	Table cell

IMAGES AND IMAGE MAPS

<img/>	Image
<map>	Image map
<area/>	Area of image map

TEXT MARKUP

<strong>	Strong emphasis
<em>	Empahasis
<blockquote>	Long quotation
<q>	Short quotation
<abbr>	Abrreviation
<acronym>	Acronym
<address>	Address
<pre>	Pre-formatted text
<dfn>	Definition
<code>	Code
<cite>	Citation
<del>	Deleted text
<ins>	Inserted text
<sub>	Subscript
<sup>	Superscript
<bdo>	Text direction

FORMS

<form>	Form
<fieldset>	Collection of fields
<legend>	Form legend
<label>	Input label
<input/>	Form input
<select>	Drop-down box
<optgroup>	Group of options
<option>	Drop-down options
<textarea>	Large text input
<button>	Button

CORE ATTRIBUTES

class	style
id	title

Synthesis exercise

- Select a topic you feel comfortable with.
- Write or get a text that is organized in, at least two or three sections.
- Allow the code to have all the elements we have learnt about: text, tables, images, hyperlinks...
- Organize it in sections
  - Start with a table of contents
  - Formatted by an ordered list
  - Each element must link to each section's title.
  - Continue with sections
  - Títle: Headings of same type
  - End each section with a link to the table of contents followed by a horizontal bar.

Cascading Style Sheets (CSS)

What are CSS

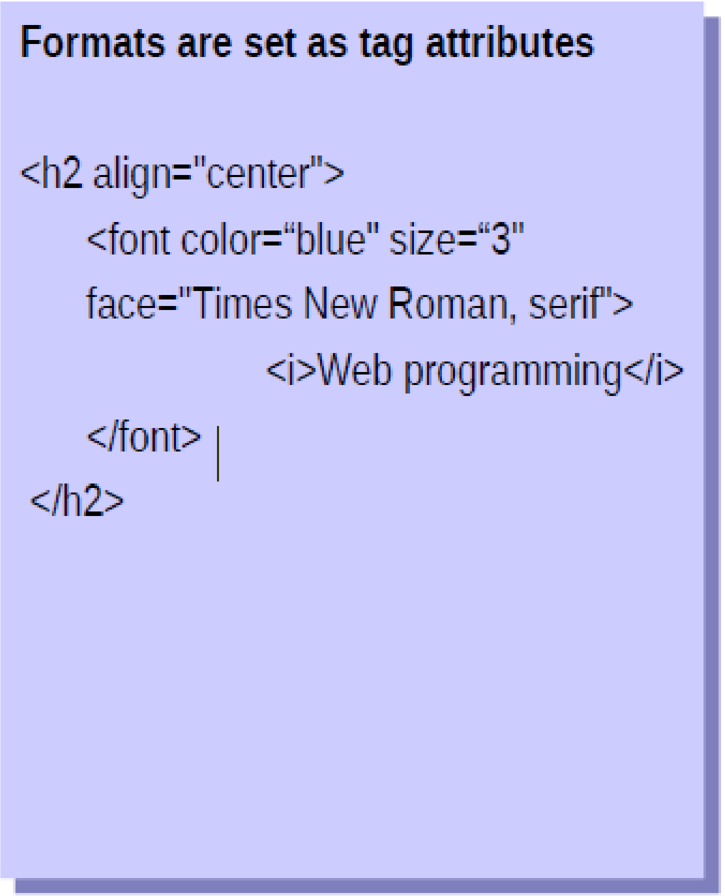
- CSS complements HTML by providing a look and feel to web pages.
- “raw” HTML pages can look fairly plain, with a default font and font size.
- Using CSS, you can spice up that look,
  - adding color and background images,
  - changing fonts and font sizes,
  - drawing borders around areas, and
  - even changing the layout of the page itself.

Why use CSS

- Before CSS, an HTML developer changed fonts and colors by changing attributes on each element.
  - If the developer wanted all the headings to look a certain way, she had to change each of those headings.
  - Imagine doing this on a page with ten headings, and then imagine doing it on 50 pages.
- CSS alleviates this burden of individually updating elements and makes it so that *you can apply one single style across one or more elements*.
  - You can apply multiple styles to the same element, and you can target a certain style down to the individual element.
  - For example, if you want all headings to be bold font but a certain heading should have italic, you can do that with CSS.

Separating content from presentation

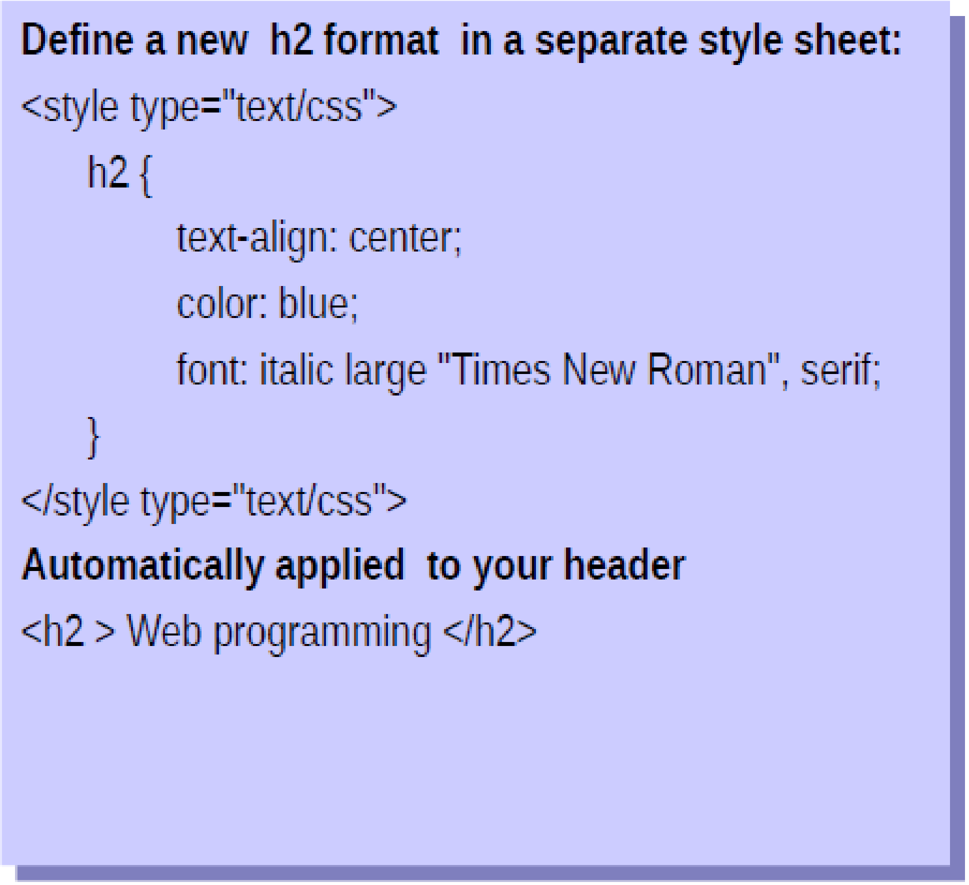
Without CSS



Formats are set as tag attributes

```
<h2 align="center">
      <font color=“blue" size=“3"
      face="Times New Roman, serif">
                  <i>Web programming</i>
      </font>
 </h2>
```

With CSS



Define a new h2 format in a separate style sheet:

```
<style type="text/css">
      h2 {
              text-align: center;
              color: blue;
              font: italic large "Times New Roman", serif;
      }
</style type="text/css">
```

Automatically applied to your header

```
<h2 > Web programming </h2>
```

CSS styles

A CSS is s *set of rules*.

Each rule is formed by:

- ✓ The Selector (style name)
- ✓ Declaration (defines the style)
    - ✓ Property
    - Value

With CSS we can …

- ✓ Redefine HTML tag styles
- ✓ Create personalized styles for generic use (Classes)
- ✓ Create styles for a specific HTML tag

```
h2  {
    text-align: center;
   color: blue;
   font: italic large "Times New Roman", serif;
}
.highlightedText{
     font-family: Arial, Helvetica, sans-serif;
     font-size: 12px;
     font-style: normal;
     font-weight: bold
     color: #000000;
}
#logo {
     background-image: url("/img/logo.gif");
     background-position:center;
     background-repeat:no-repeat;
     height: 50px; width: 150px;
     position: absolute; left: 0px; top: 0px;
```

CSS Syntax

CSS syntax is made up of 5 parts

1. Selector
2. Property/Value
3. Declaration
4. Declaration block
5. Curly braces

Selectors

- Selectors are used to ***declare which part of the markup a style applies to,*** a kind of match expression.

- **3 types of selectors**

  1) Tag (or Type) selectors (body, p, div, a)

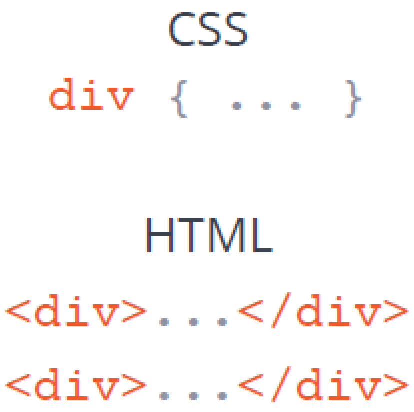
  2) Class selectors (.content, .menu)

  3) ID selectors (#wrapper, #sidebar)

- The selector is normally the HTML element you want to style
- Selectors should never start with a number, nor should they have spaces in them

Type selectors

Target elements by their element type



CSS

```
div { ... }
```

HTML

```
<div>...</div>
<div>...</div>
```

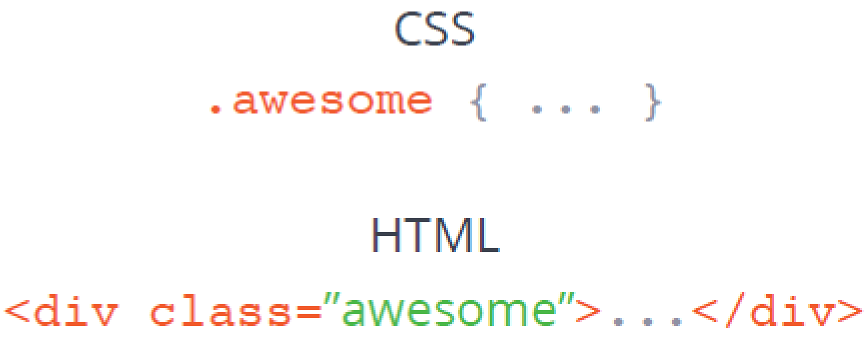
Example

```
span{
  background-color:
  skyblue;
}

<span>Here’s a span with
  some text </span>
<p>Here’s a p with some
  text </p>
```

Class selectors

Allow selecting an element based on the element's class attribute value.



CSS

```
.awesome { ... }
```

HTML

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

Example

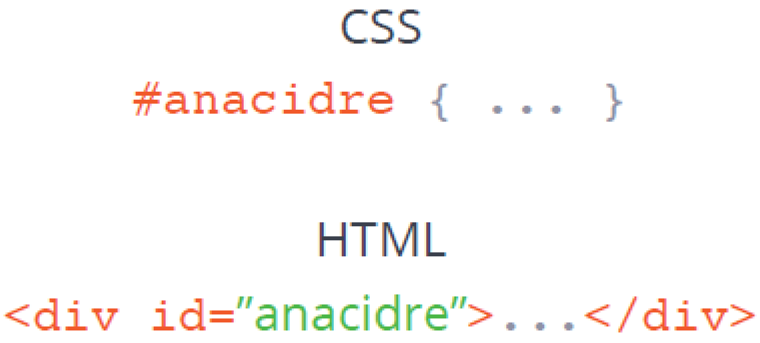
```
.center {text-align:center;}
p.center {text-align:left;}

<h1 class="center">Center-
   aligned heading</h1>
<p class="center">Center-
   aligned paragraph.</p>

<p class="left">Center-
   aligned paragraph.</p>
```

ID selectors

More precise than class selectors, as they target only one unique element at a time



CSS

```
#anacidre { ... }
```

HTML

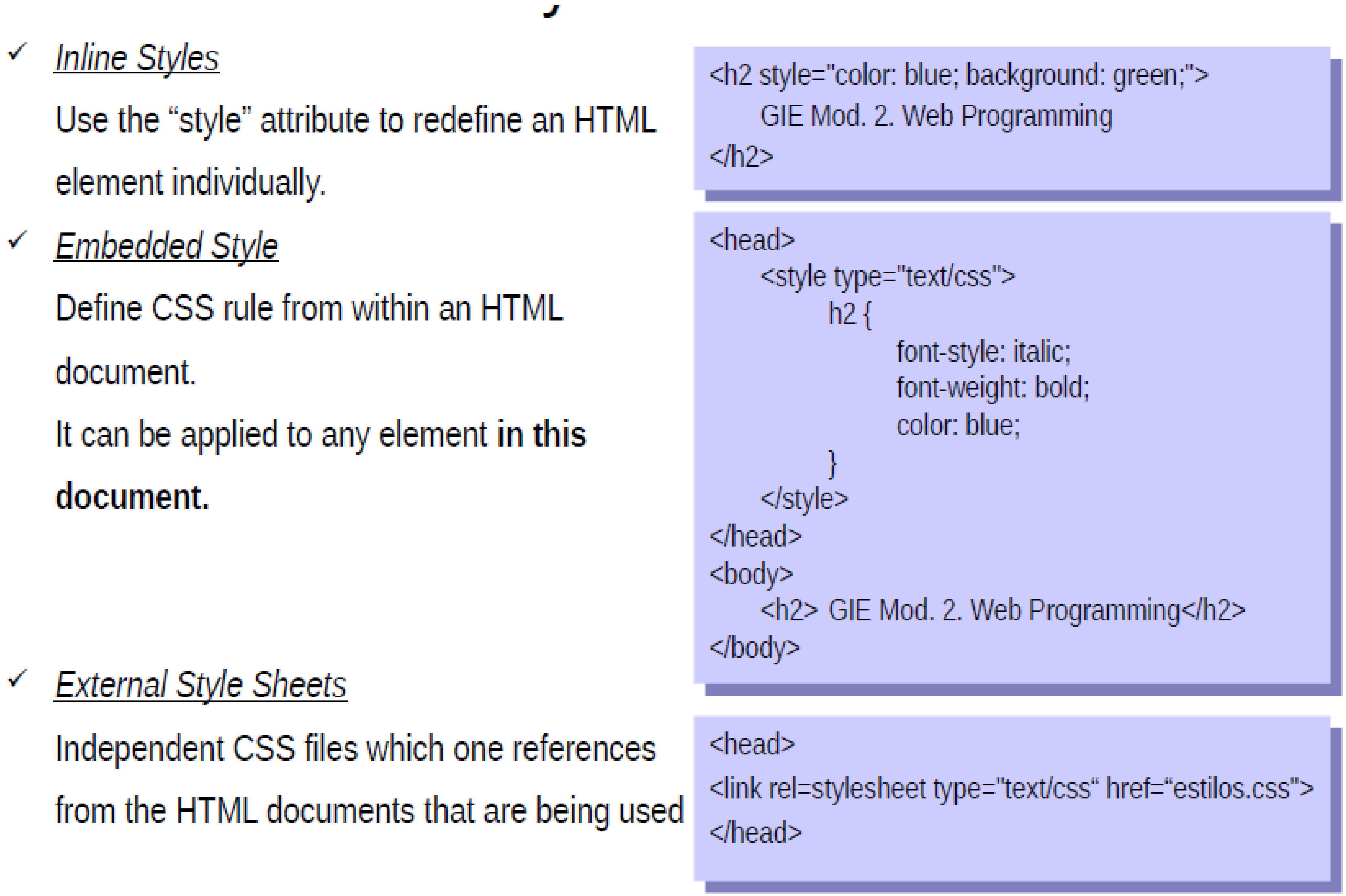
```
<div id="anacidre">...</div>
```

Example

```
#wrapper
{text-align:center;
border:1px solid red;
Width: 200px;
Height: 100px
}

<div id=“wrapper”>… </div>
```

How CSS styles are used



- ✓ *Inline Styles*

  Use the “style” attribute to redefine an HTML element individually.

```
<h2 style="color: blue; background: green;">
      GIE Mod. 2. Web Programming
</h2>
```

- ✓ *Embedded Style*

  Define CSS rule from within an HTML document.

  It can be applied to any element **in this document.**

```
<head>
      <style type="text/css">
            h2 {
                  font-style: italic;
                  font-weight: bold;
                  color: blue;
            }
      </style>
</head>
<body>
      <h2> GIE Mod. 2. Web Programming</h2>
</body>
```

- ✓ *External Style Sheets*

  Independent CSS files which one references from the HTML documents that are being used

```
<head>
<link rel=stylesheet type="text/css“ href=“estilos.css">
</head>
```

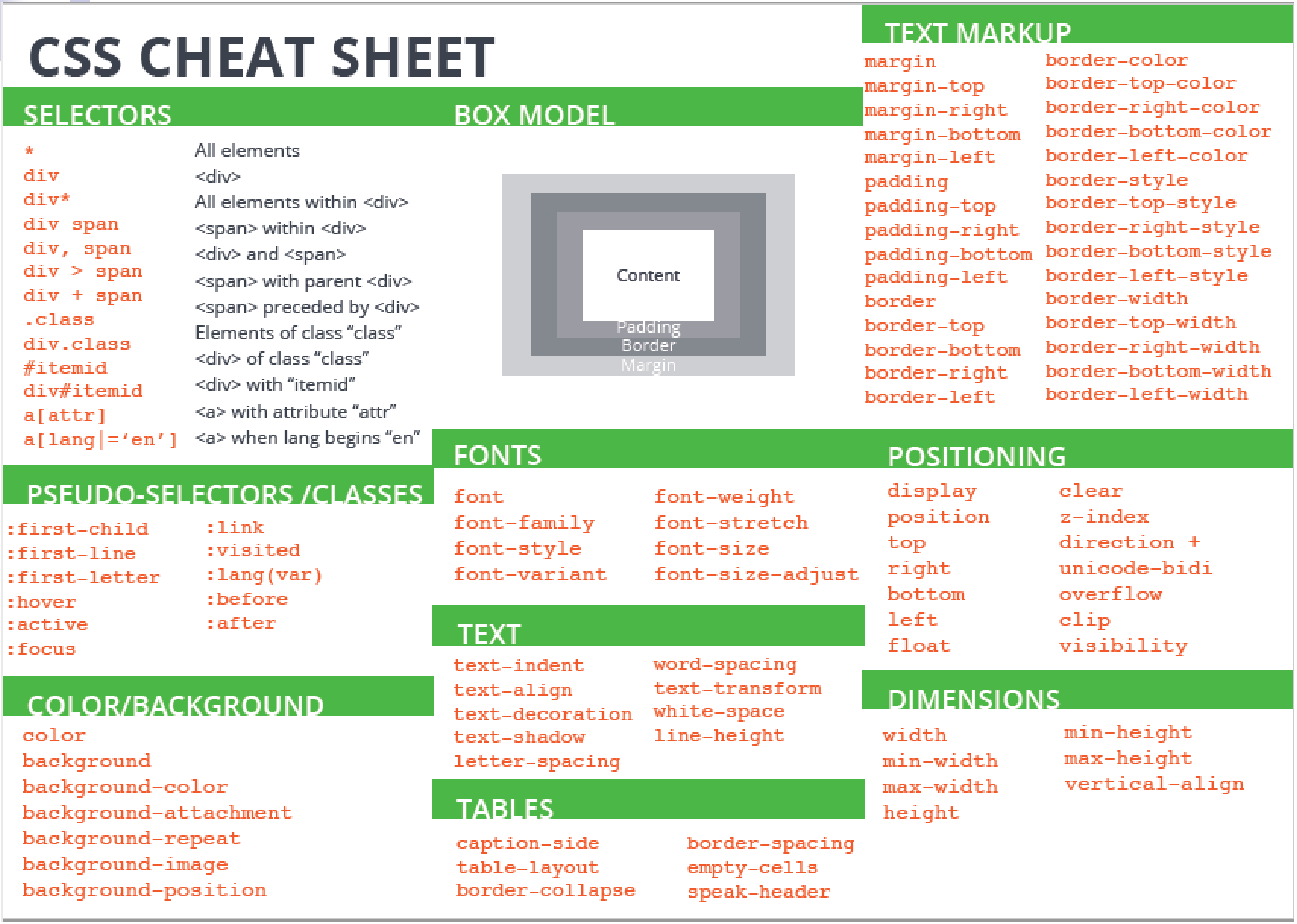
An exemple CSS file

```
/* Applies to the entire body of the HTML document (except where overridden
   by more specific
selectors). */
body {
  margin: 25px;
  background-color: rgb(240,240,240);
  font-family: arial, sans-serif;
  font-size: 14px;
}

/* Applies to all <h1>...</h1> elements. */
h1 {
  font-size: 35px;
  font-weight: normal;
  margin-top: 5px;
}

/* Applies to all elements with <... class="someclass"> specified. */
.someclass { color: red; }

/* Applies to the element with <... id="someid"> specified. */
#someid { color: green; }
```



CSS CHEAT SHEET

SELECTORS

*	All elements
div	<div>
div*	All elements within <div>
div span	<span> within <div>
div, span	<div> and <span>
div > span	<span> with parent <div>
div + span	<span> preceded by <div>
.class	Elements of class "class"
div.class	<div> of class "class"
#itemid	
div#itemid	<div> with "itemid"
a[attr]	<a> with attribute "attr"
a[lang|='en']	<a> when lang begins "en"

BOX MODEL

Content
Padding
Border
Margin

TEXT MARKUP

margin
margin-top
margin-right
margin-bottom
margin-left
padding
padding-top
padding-right
padding-bottom
padding-left
border
border-top
border-bottom
border-right
border-left
border-color
border-top-color
border-right-color
border-bottom-color
border-left-color
border-style
border-top-style
border-right-style
border-bottom-style
border-left-style
border-width
border-top-width
border-right-width
border-bottom-width
border-left-width

PSEUDO-SELECTORS /CLASSES

:first-child
:first-line
:first-letter
:hover
:active
:focus
:link
:visited
:lang(var)
:before
:after

FONTS

font
font-family
font-style
font-variant
font-weight
font-stretch
font-size
font-size-adjust

POSITIONING

display
position
top
right
bottom
left
float
clear
z-index
direction +
unicode-bidi
overflow
clip
visibility

TEXT

text-indent
text-align
text-decoration
text-shadow
letter-spacing
word-spacing
text-transform
white-space
line-height

COLOR/BACKGROUND

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

TABLES

caption-side
table-layout
border-collapse
border-spacing
empty-cells
speak-header

DIMENSIONS

width
min-width
max-width
height
min-height
max-height
vertical-align

Exercise

- Assuming you have created a basic web site with, at least two pages, create a CSS file that modifies, at least:
  - Color, font and text properties
  - Affecting to general elements such as the body and particular ones such as headings
  - Link that CSS to all pages in the site
- Create a new CSS file by making some changes to the first one.
  - Link each file to a different page
  - Link both CSS to one of the pages. See the effects of cascading