

**CSS**



```
body {  
  font: x-small  
  background: #  
  color: black;  
  margin: 0;  
  padding: 0;
```

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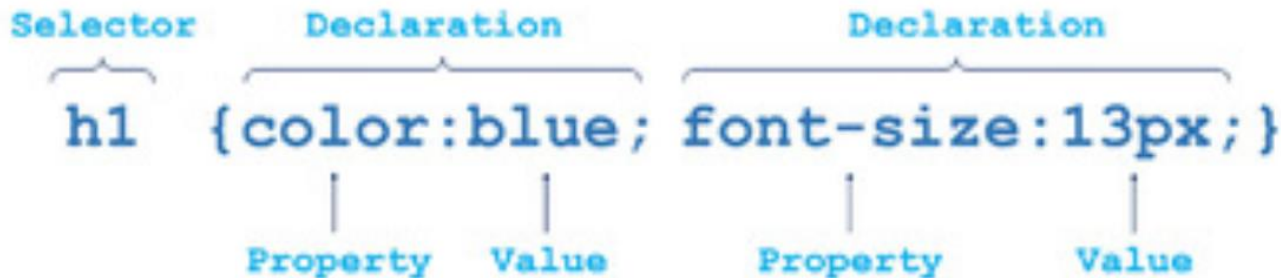
# CSS Syntax

# CSS – Cascading Style Sheets

- CSS is used to control the **presentation** (*look and feel*) and **layout** (*positioning*) of web page elements
- Allows **separating** web page content from its design and **visual appearance**
- Used in conjunction with HTML
  - **HTML** is used for describing the **content** of a web page, **CSS** is used for describing its **presentation**
- CSS a flexible, cross-platform, **standards-based** language developed by the **W3C**

# Style Sheets Syntax

- Stylesheets consist of **rules** that describe the styling to be applied
  - Each rule has **selectors** and **declarations**. A declaration specifies a **property** and its **value**



- Declarations are separated by semicolons
- Properties and values are separated by colons
- Comment in CSS `/* comment */`

# Ways to incorporate CSS in an HTML document

- **Inline** – style included as the attribute of an HTML tag:

```
<p style="color:sienna;margin-left:20px;">This is a paragraph.</p>
```

- **Embedded** – CSS rules are contained in the head section:

```
<head>
<style>
p {color:sienna; margin-left:20px;}
body {text-align:center;}
</style>
</head>
```

- **External** - separate .css file referenced in the HTML:

HTML source code:

```
<head>
<link rel="stylesheet" href="main.css">
</head>
```

'main.css':

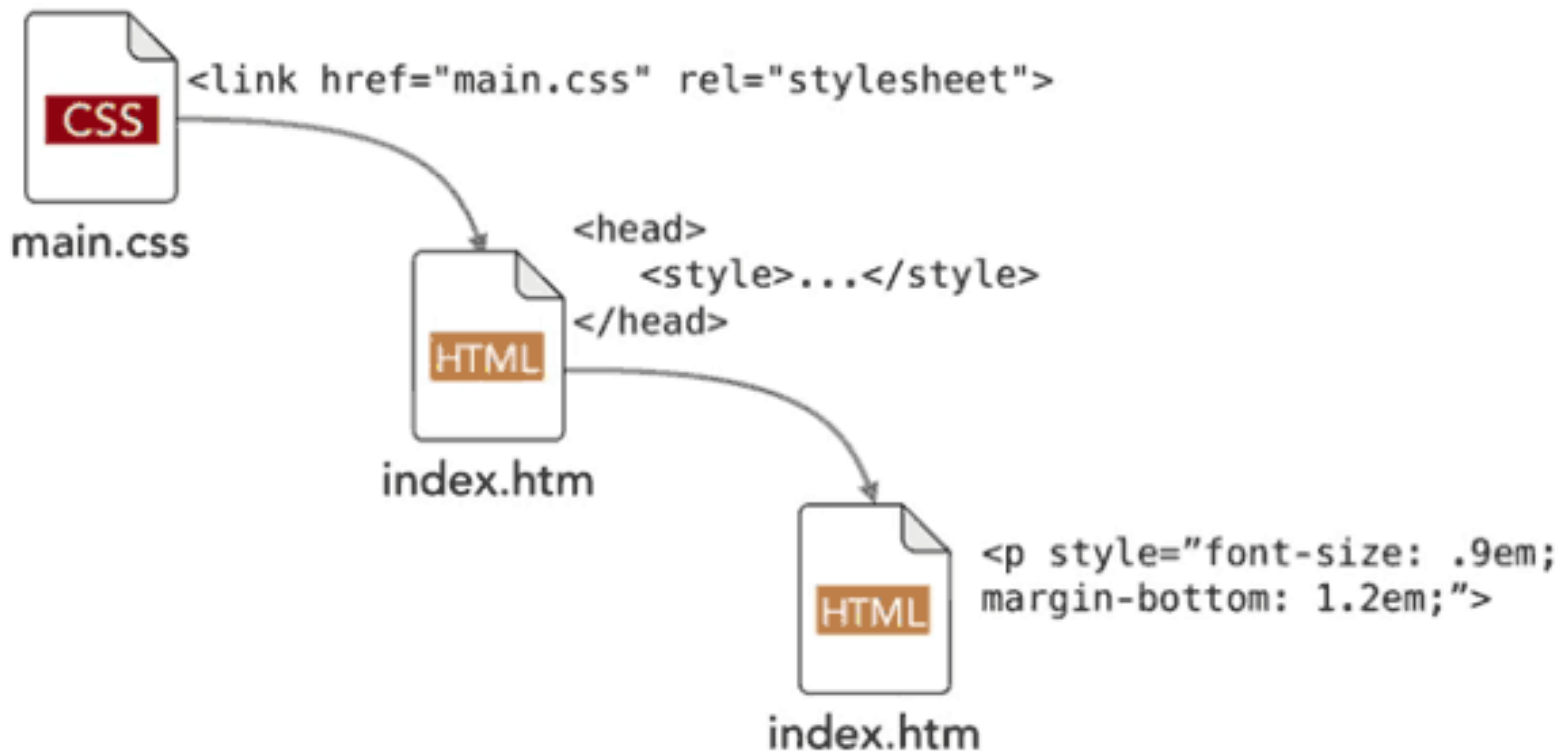
```
p {color:sienna;
margin-left:20px;}
body {text-align:center;}
```



- ✓ Ensure **consistent look and feel**
- ✓ Improve **reusability** and **maintainability**

# The “Cascade”

- The **last rule applied wins**: Styles are applied in the order that they're found, and last styles always overwrite earlier styles in case of a conflict



# Inheritance

- Inheritance means that child elements will **inherit** the properties applied to a parent element



main.css

```
body {font-family: Arial;  
      font-size: 100%;  
      color: gray;}  
  
h1 {color: #900}
```



index.htm

```
<html>  
  <head>...</head>  
  <body>  
    <h1>Main heading</h1>  
    <p>This is body copy.</p>  
    <h2>This is a subheading</h2>  
    <p>More body copy</p>  
  </body>  
</html>
```

## Main heading

This is body copy.

**This is a subheading**

More body copy

- Body selector has a font, font-size, and color applied to it:
  - Every element **inherits** those styles from the body selector
  - The style applied to h1 **overrides** the inherited color => h1 element appears in red berry color



# Selectors: used to select elements to style on an HTML page

- **Element Selectors**

- Apply page-wide

- e.g., `p { font-family: verdana; }` applies the style to all `<p>` tags

- **Class Selectors**



- Defines a **named** style (prefix the name with dot (.) )

- Can apply to any page element using the class attribute

- e.g., `.redBorder {border: 1px solid red}` defines a style named redBorder

- `<p class='redBorder'>Using the class attribute to apply the redBoder style to this paragrph</p>`

- **ID Selectors**



- Apply to one specific tag

- Use hash (#) followed by the tag id to select the element to be styled

- Good for linking to specific part of a page

- e.g., `#errorMsg { color: red; }` apply the style to the element with id `errorMsg`

# Universal

- [\*]: Selects all elements
  - Used to override the browser default styles

```
* {  
    font-family: "Times New Roman";  
    color: blue;  
}
```

# An element can have more than one class

```
<h1 class="red bold">Red and Bold</h1>
<h1 class="blue bold">Blue and Bold</h1>
<h1 class="bold">Bold</h1>
<h1 class="blue">Blue</h1>
```

```
.red {
  color: red;
}

.blue {
  color: blue;
}

.bold {
  font-weight: bold;
}
```

- Class Selector selects all elements whose **class attribute** matches the selector
  - The selector starts with a period (.) followed by the class name
  - An element can have more than one class

# Combined Selectors

element, element	div, p	Selects all <div> elements and all <p> elements
element element	div p	Selects all <p> elements inside <div> elements
element > element	div > p	Selects all <p> elements where the <b>parent</b> is a <div> element

e.g.,

**li a {text-decoration: underline}**

- This will match all <a> tags that are inside of <li>

[https://www.w3schools.com/cssref/css\\_selectors.asp](https://www.w3schools.com/cssref/css_selectors.asp)

# Attribute Selectors

- Selects the elements whose attribute-value pair matches the selector

[attribute <b>^</b> = value]	a[href <b>^</b> = "https"]	Selects every <a> element whose href attribute value begins with "https"
[attribute <b>\$</b> = value]	a[href <b>\$</b> = ".pdf"]	Selects every <a> element whose href attribute value ends with ".pdf"
[attribute <b>*</b> = value]	a[href <b>*</b> = "qu"]	Selects every <a> element whose href attribute value contains "qu"

[https://www.w3schools.com/cssref/css\\_selectors.asp](https://www.w3schools.com/cssref/css_selectors.asp)

# Pseudo-classes

- Pseudo-classes to define **element state**

- `:link, :hover, :visited, :active`

**a:hover** { **color: red;** } -> Style link on mouse over

`:link` pseudo-class selects anchors tags that were not visited

- Pseudo-elements to **insert content** around the selected element

**p::before** { **content: "«";** }

Insert « before the content of each <p> element

**p::after** { **content: "»";** }

Insert » after the content of each <p> element

# Structural Pseudo-classes






:first-child	<b>tr:first-child</b>	First row of an HTML table
:last-child	<b>tr:last-child</b>	Last row of an HTML table
:nth-child( <i>n</i> )	<b>tr:nth-child(2)</b>	Second row of an HTML table
:nth-last-child( <i>n</i> )	<b>tr:nth-last-child(2)</b>	Second row of an HTML table, counting from the last row
nth-child(odd)	<b>tr:nth-child(odd)</b>	Every odd row of an HTML table
nth-child(even)	<b>tr:nth-child(even)</b>	Every even row of an HTML table

<https://www.w3schools.com/cssref/trysel.asp>

# Selectors Summary

- A style consists of a selector, followed by property/value pairs
- Selectors:
  - Element Selectors
  - Class Selectors
  - ID Selectors
  - Combined Selectors
  - Attribute selectors
  - Pseudo-elements
  - Structural pseudo-classes

## Examples

- ▼ 2.selectors
  -  1.Attribute Selectors.html
  -  2.Structural Selectors (empty).html
  -  3.Structural Selectors (first-of-type).html
  -  4.Structural Selectors (nth-child).html
  -  5.Pseudo-classes.html

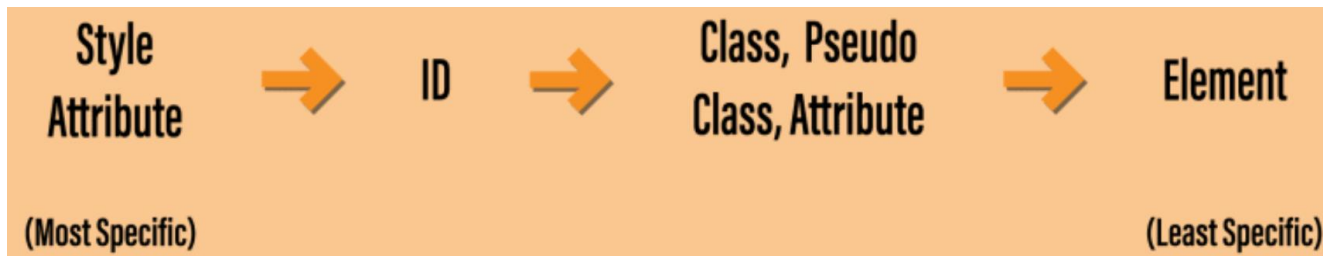


# Specificity

```
<h1 id="my-heading" class="red">What colour am I?</h1>
```

```
.red {  
  color: red;  
}  
  
#my-heading {  
  color: blue;  
}  
  
h1 {  
  color: green;  
}
```

- We have 3 selectors for the h1 with different colors
  - What will the color be?  
=> h1 would be **green** because the ID selector is more specific than the others
- The style for a **more specific selector** will be **applied** to the element



# Basic styles

# Text-related CSS Properties

- **color** – specifies the color of the text
- **font-size** – size of font: `xx-small`, `x-small`, `small`, `medium`, `large`, `x-large`, `xx-large`... or numeric value
- **font-family** – comma separated font names
  - Example: `verdana`, `sans-serif`, ...
  - The browser loads the first one that is available
- **font-weight** can be `normal`, `bold`....

# Text-related CSS Properties (2)

- **font-style** – styles the font
  - Values: **normal, italic, oblique**
- **text-decoration** – decorates the text
  - Values: **none, underline, line-through...**
- **text-align** – defines the alignment
  - Values: **left, right, center, justify**

## Recommended Font Families

- Arial, Helvetica, Roboto, Sans-serif
- Verdana, Arial, Helvetica, Roboto, Sans-serif
- Times New Roman, Times, Droid Serif, Serif
- Courier New, Courier, Droid Sans Mono, Monospace

# Font Sizing

# Font Sizing

There are two ways to define font sizes in CSS

- Fixed Font Sizing: defines the size of fonts using absolute units such as points (pt), picas (pc), inches (in), centimeters (cm), etc
- Relative Font Sizing: defines the size of fonts using relative units such as percentages (%), the em unit (em), numerical values (1-7), and descriptive values (xx-small - xx-large), etc.
  - Relative sizes refer to the font size of the parent element. This allows fonts to scale appropriately to different resolutions, browsers or platforms

# Font Size: em vs. rem

- While **em** is relative to the font-size of its direct or nearest parent, rem is only relative to the html (root) font-size.

## Relative Font Size Guidelines

- Define the size for the body style as 100% to provide consistent looking, legible text on any platform
- Define heading styles as a percentage of the body text  
e.g. h1 : 1.2em, h2: 1.15em, etc.



# Fixed Font Sizing

```
body {font-size: 8pt;
      font-family: Verdana, Arial, Helvetica, Sans-Serif;}
h1   {font-size: 16pt;}
div  {font-size: 10pt;}
li    {font-size: 10pt;}
p     {font-size: 10pt;}
```

## Heading 1 Text

A normal paragraph

- List item 1
- List item 2

Supporting paragraph

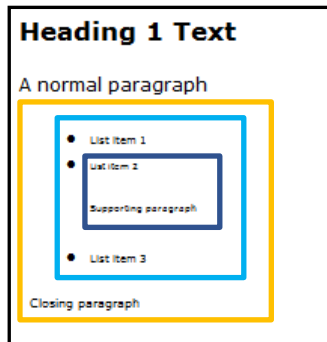
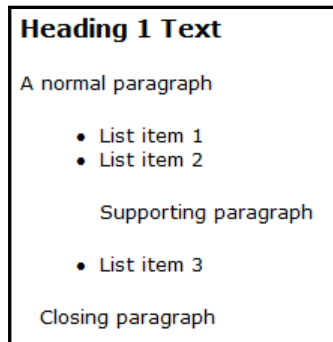
- List item 3

Closing paragraph

```
<html >
  <head>
    <link href="test.css" rel="stylesheet" />
  </head>
  <body>
    <h1>Heading 1 Text</h1>
    <p>A normal paragraph</p>
    <div>
      <ul>
        <li>List item 1</li>
        <li>
          <p>List item 2</p>
          <p>Supporting paragraph</p>
        </li>
        <li>List item 3</li>
      </ul>
      <p>Closing paragraph</p>
    </div>
  </body></html>
```

# Relative Font Sizing

```
body {font-size: .8em;
      font-family: Verdana, Arial, Helvetica, Sans-Serif;}
h1 {font-size: 1.2em;}
div {font-size: .8em;}
li {font-size: .8em;}
p {font-size: .8em;}
```

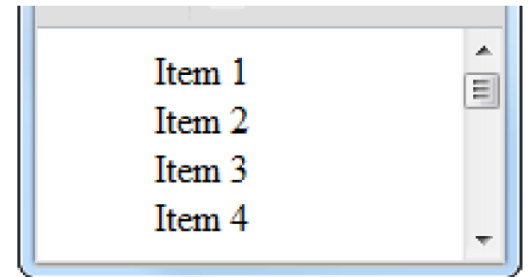


```
<html >
  <head>
    <link href="test.css" rel="stylesheet" />
  </head>
  <body>
    <h1>Heading 1 Text</h1>
    <p>A normal paragraph</p>
    <div>
      <ul>
        <li>List item 1</li>
        <li>
          <p>List item 2</p>
          <p>Supporting paragraph</p>
        </li>
        <li>List item 3</li>
      </ul>
    <p>Closing paragraph</p>
  </div>
</body></html>
```

# Styles for Lists

- List properties are used to define the look and feel of the list items
  - Values for `<ul>`: `circle`, `square`,...
  - Values for `<ol>`: `upper-roman`, `lower-alpha`
  - Values for both: `none`

```
ul  
{  
    list-style-type:none;  
}
```

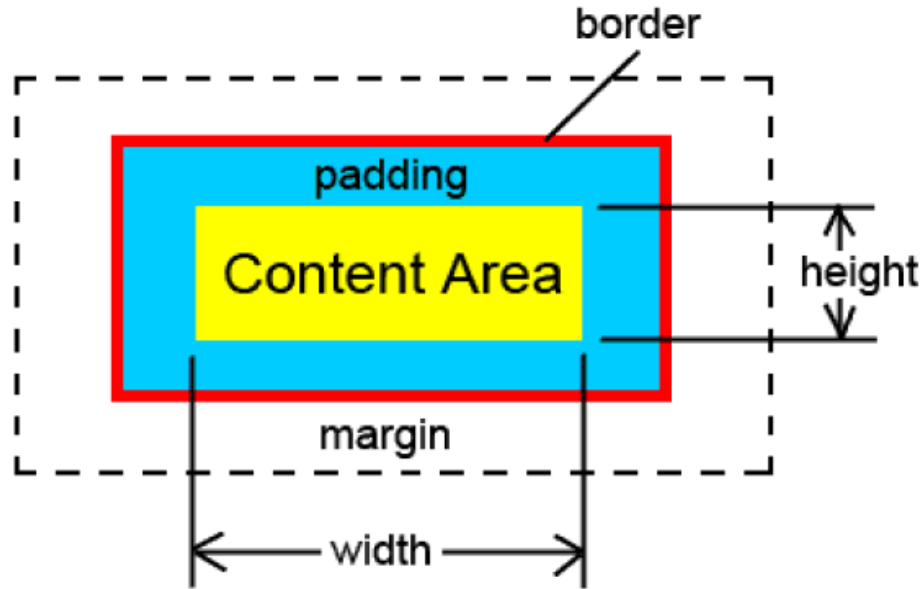


# Practice ...

- Use the W3Schools try-it-yourself editor to try styling each of these properties
- Background  
[http://www.w3schools.com/css/css\\_background.asp](http://www.w3schools.com/css/css_background.asp)
- Text  
[http://www.w3schools.com/css/css\\_text.asp](http://www.w3schools.com/css/css_text.asp)
- Fonts  
[http://www.w3schools.com/css/css\\_font.asp](http://www.w3schools.com/css/css_font.asp)
- Lists  
[https://www.w3schools.com/css/css\\_list.asp](https://www.w3schools.com/css/css_list.asp)

# Margin, Border and Padding

# Box Model



- Each tag is a box and its properties can be styled:
  - **Margin** –the space that separates the boxes
  - **Border** –the line around each edge of the box
  - **Padding** –the space between the border and the contents

# Margin and Padding

- Margin and padding define the spacing around the element
  - Numerical value, e.g. 10px
  - Can be defined for each of the four sides separately: **margin-top**, **padding-left**, ... or using short rules:
- **margin: 5px;**
  - Sets all four sides to have margin of 5 px;
- **margin: 10px 20px;**
  - top and bottom to 10px, left and right to 20px;
- **margin: 1px 3px 5px 7px;**
  - top, right, bottom, left (clockwise from top)
- Same for padding

# Borders

- Border style:

**border-width:** 1px;

**border-color:** red;

**border-style:** solid;

- **border-width:** thin, medium, thick or numerical value
- **border-color:** color alias or RGB value
- **border-style:** none, dotted, dashed, solid, double, ...

- Shorthand rule for setting border properties:

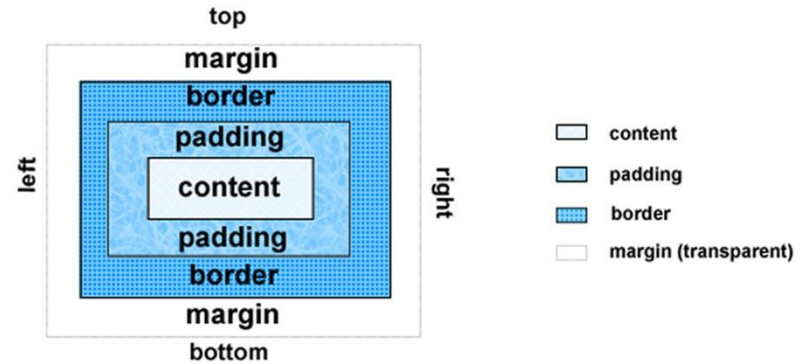
**border:** 1px solid red;

- Can specify different borders for the sides using:  
**border-top, border-left, border-right, border-bottom**



# The C S S border Property

- ❑ Configures a border on the top, right, bottom, and left sides of an element
- ❑ Consists of
  - border-width
  - border-style
  - border-color



# Valid border-style Values

default

none

inset

outset

double

groove

ridge

solid

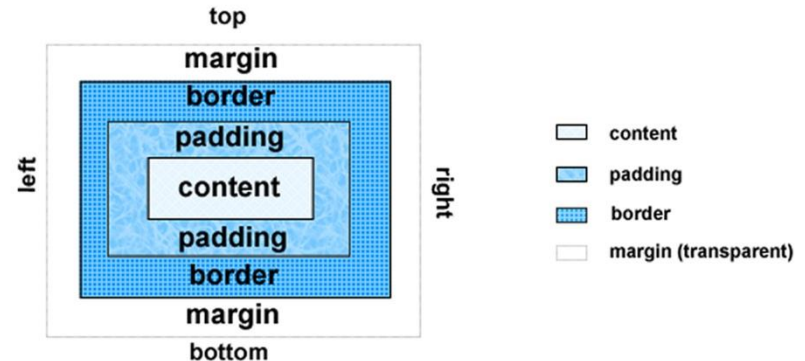
dashed

dotted

# Configuring Specific Sides of a Border

- ❑ Use CSS to configure a line on one or more sides of an element

- border-bottom
- border-left
- border-right
- border-top



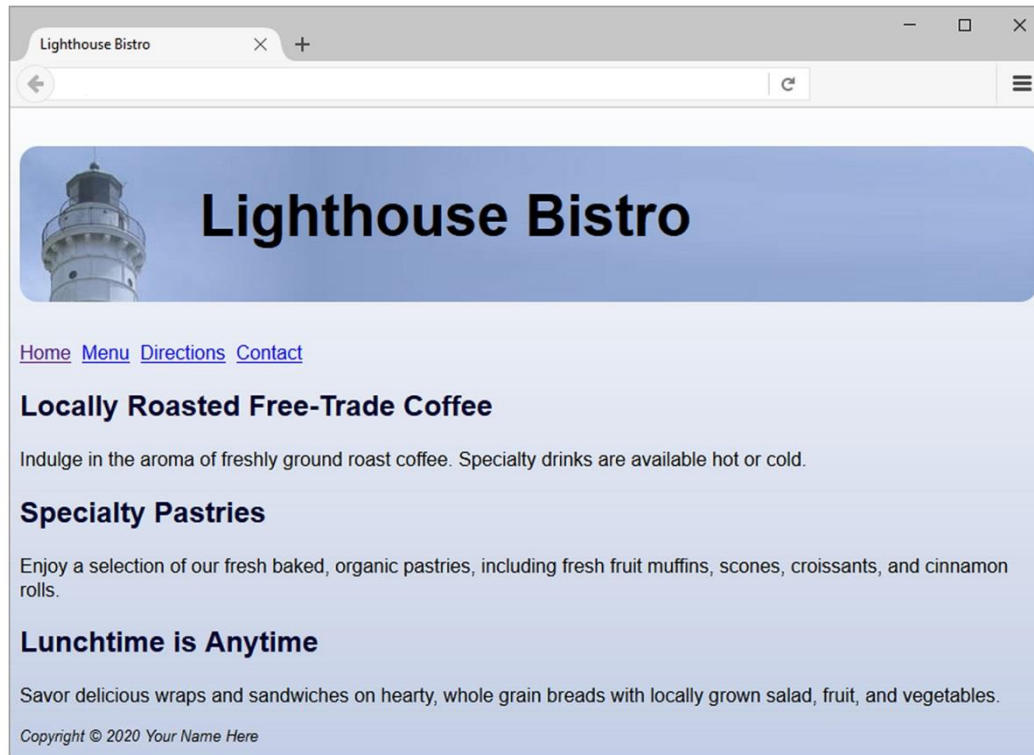
**Heading with Border**

```
h2 { border: 2px solid #ff0000 }
```

**Heading with Border**

```
h2 { border-bottom: 2px solid #ff0000 }
```

# CSS Rounded Corners

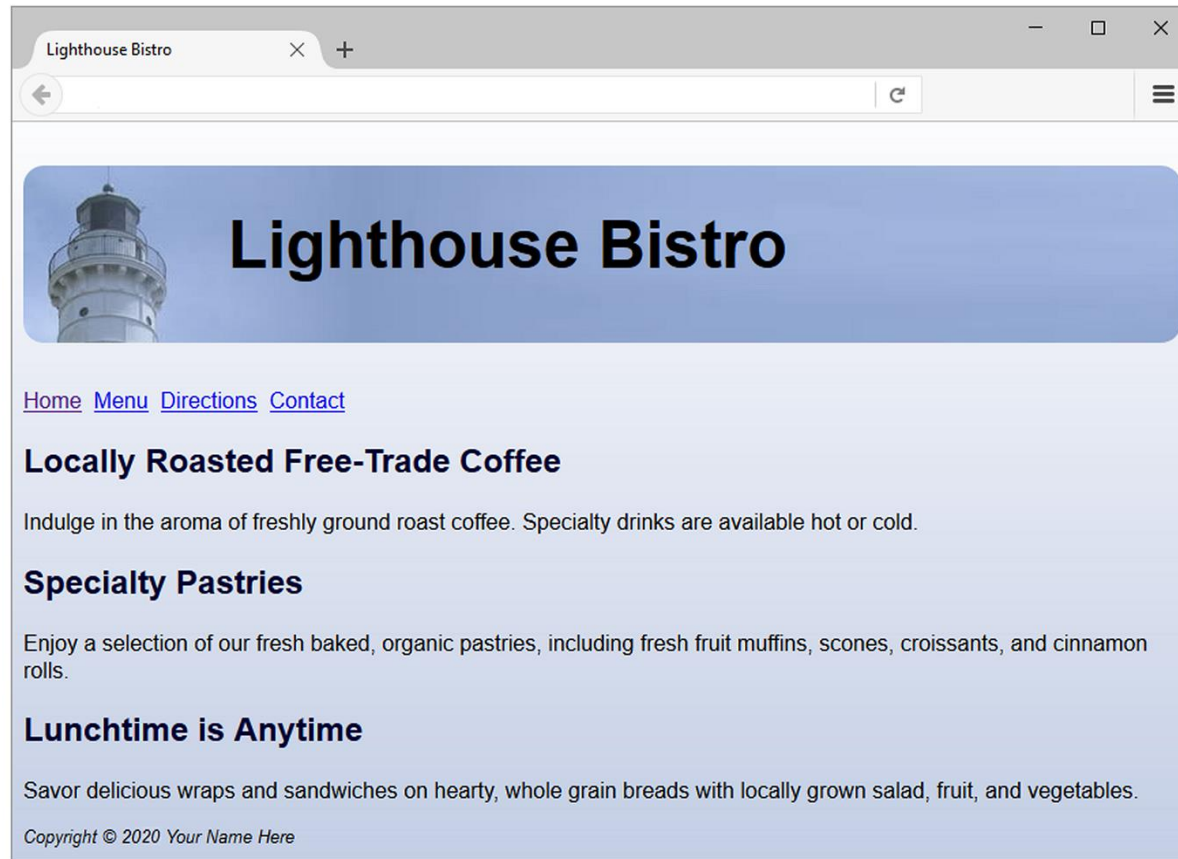


- ❑ border-radius property

- ❑ Example:

```
h1 { border: 1px solid #000033;  
      border-radius: 15px; }
```

# Centering Page Content with CSS



```
#container { margin-left: auto;  
             margin-right: auto;  
             width:80%; }
```