

WEB PAGES DESIGN

CSS Box Model

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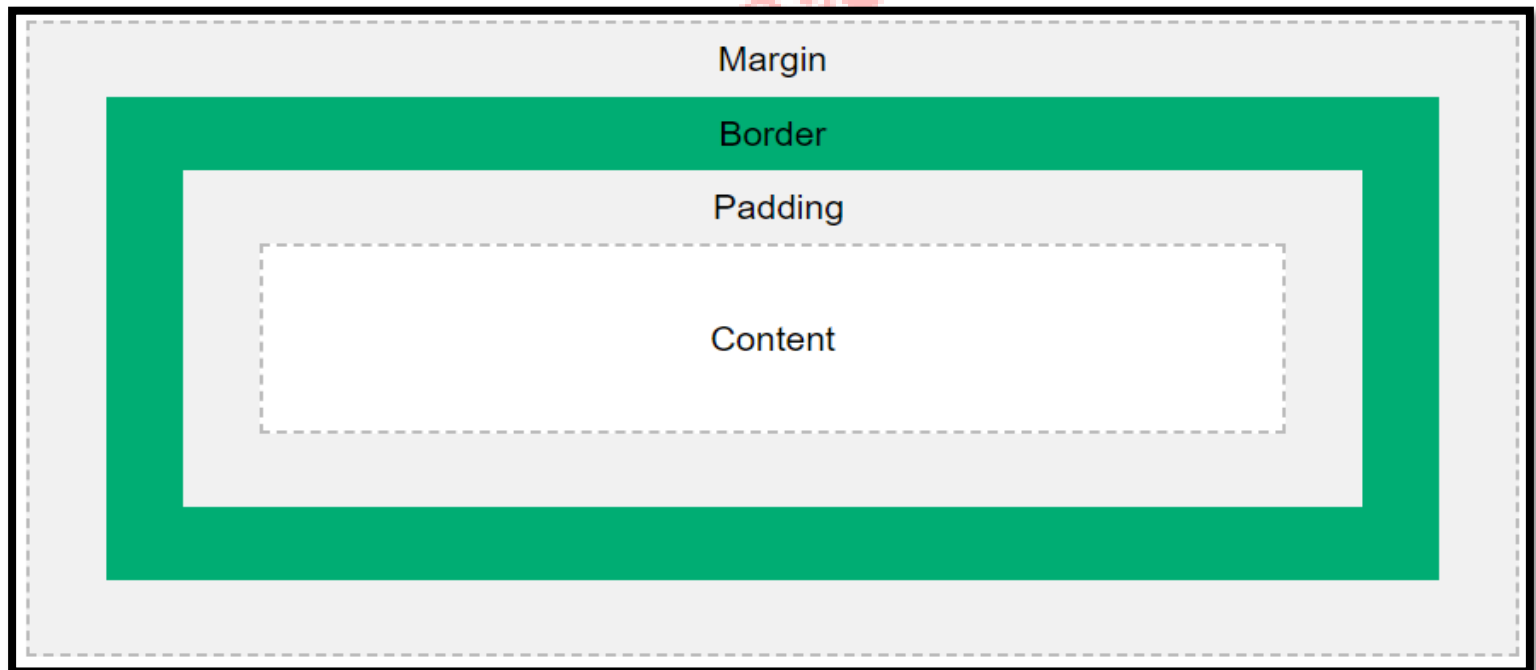
Lecture 9.

Class 2.

Department: Informatics Systems Management (ISM)

CSS Box Model

- In CSS, the term "box model" is used when talking about design and layout.
- All HTML elements can be considered as boxes.
- The CSS box model is essentially a box that wraps around every HTML element. It consists of: margins, borders, padding, and the actual content. The image below illustrates the box model:



Part of box model

Explanation of the different parts:

- **Content** - The content of the box, where text and images appear
- **Padding** - Clears an area around the content. The padding is transparent
- **Border** - A border that goes around the padding and content
- **Margin** - Clears an area outside the border. The margin is transparent
- The box model allows us to add a border around elements, and to define space between elements.

1. Content:

- The innermost part of the box is the content, such as “<h1>”, “”, “<p>”...etc.
- The **width** and **height** property defines the width and height of the element.

Ex: width and height property

```
P {  
  width: 100px; height: 50px ;  
}
```

Part of box model

2. Padding:

- The **padding** defines the space between the content and the border.
- The top, right, bottom, and left padding can be changed independently using separate properties.

Ex: padding property

```
p{  
padding-top:25px;  
padding-bottom:25px;  
padding-right:50px;  
padding-left:50px;  
}
```

- A shorthand **padding** property can also be used, to change all paddings at once.

Ex: padding property

```
P {padding: 10px 5px 15px 20px ;}
```

Part of box model

Ex: padding property

Output:

```
<html>
<head>
<style>
div {
  border: 1px solid black;
  background-color: lightblue;
  padding-top: 50px;
  padding-right: 30px;
  padding-bottom: 50px;
  padding-left: 80px;
}
</style>
</head>
<body>

<h2>Using individual padding properties</h2>

<div>This div element has a top padding of 50px, a right padding of 30px, a
bottom padding of 50px, and a left padding of 80px.</div>

</body>
</html>
```

Using individual padding properties

This div element has a top padding of 50px, a right padding of 30px, a bottom padding of 50px, and a left padding of 80px.

Part of box model

3. Border:

- The middle layer in the box model is the element's border.
- The space used by the border in the box model is the thickness of the border.

CSS border has following 4 properties:

- border-style
- border-Width
- border-Color
- border-Individual sides

- The **border-style** property sets the style of an element's four borders.

Part of box model

Ex: border property

```
P{  
border-top-style: dotted;  
border-right-style: solid;  
border-bottom-style: dotted;  
border-left-style: solid;  
}
```

Ex: border property

```
P {  
border-style: solid;  
border-color: red;  
border-width: 5px;  
}
```

Part of box model

Ex: border property

```
<html>
<head>
<style>
p.one {
  border-style: solid;
  border-width: 5px;}
p.two {
  border-style: solid;
  border-width: medium;}
p.three {
  border-style: dotted;
  border-width: 2px;}
p.four {
  border-style: dotted;
  border-width: thick;}
p.five {
  border-style: double;
  border-width: 15px;}
p.six {
  border-style: double;
  border-width: thick;
}
</style>
</head>
```

```
<body>

<h2>The border-width Property</h2>
<p>This property specifies the width of the four borders:</p>

<p class="one">Some text.</p>
<p class="two">Some text.</p>
<p class="three">Some text.</p>
<p class="four">Some text.</p>
<p class="five">Some text.</p>
<p class="six">Some text.</p>

<p><b>Note:</b> The "border-width" property does not work if it is used
alone.
Always specify the "border-style" property to set the borders first.</p>

</body>
</html>
```


Part of box model

Output:

The border-width Property

This property specifies the width of the four borders:

Some text.

Some text.

Some text.

Some text.

Some text.

Some text.

Note: The "border-width" property does not work if it is used alone. Always specify the "border-style" property to set the borders first.

Part of box model

Ex: border property

Output:

```
<html>
<head>
<style>
p.one {
  border-style: solid;
  border-color: red;}
p.two {
  border-style: solid;
  border-color: green;}
p.three {
  border-style: dotted;
  border-color: blue;}
</style>
</head>
<body>
<h2>The border-color Property</h2>
<p>This property specifies the color of the four borders:</p>
<p class="one">A solid red border</p>
<p class="two">A solid green border</p>
<p class="three">A dotted blue border</p>
<p><b>Note:</b> The "border-color" property does not work if it is used
alone. Use the "border-style" property to set the borders first.</p>
</body>
</html>
```

The border-color Property

This property specifies the color of the four borders:

A solid red border

A solid green border

A dotted blue border

Note: The "border-color" property does not work if it is used alone. Use the "border-style" property to set the borders first.

Part of box model

Ex: border property

```
<html>
<head>
<style>
p.one {
  border-style: solid;
  border-color: red green blue yellow; /* red top, green right, blue bottom and
yellow left */
}
</style>
</head>
<body>

<h2>The border-color Property</h2>
<p>The border-color property can have from one to four values (for the top
border, right border, bottom border, and the left border):</p>

<p class="one">A solid multicolor border</p>

</body>
</html>
```


Part of box model

Output:

The border-color Property

The border-color property can have from one to four values (for the top border, right border, bottom border, and the left border):

A solid multicolor border



Part of box model

Ex: border property

```
<html>
<head>
<style>
p.normal {
  border: 2px solid red;
  padding: 5px;}
p.round1 {
  border: 2px solid red;
  border-radius: 5px;
  padding: 5px;}
p.round2 {
  border: 2px solid red;
  border-radius: 8px;
  padding: 5px;}
p.round3 {
  border: 2px solid red;
  border-radius: 12px;
  padding: 5px;
}
</style>
</head>
```

```
<body>

<h2>The border-radius Property</h2>
<p>This property is used to add rounded borders to an element:</p>

<p class="normal">Normal border</p>
<p class="round1">Round border</p>
<p class="round2">Rounder border</p>
<p class="round3">Roundest border</p>

</body>
</html>
```

Part of box model

Output:

The border-radius Property

This property is used to add rounded borders to an element:

Normal border

Round border

Rounder border

Roudest border

Part of box model

4. Margin:

- The space just outside the border is margin.
- The margin is completely invisible.
- The top, right, bottom, and left margin can be changed independently using separate properties.

Ex: margin property

```
P {  
margin-top:100px;  
margin-bottom:100px;  
margin-right:50px;  
margin-left:50px;  
}
```

- A shorthand **margin** property can also be used, to change all margins at once.

Ex: margin property

```
P {margin: 25px 50px 75px 100px ;}
```

Part of box model

Ex: margin property

Output:

```
<html>
<head>
<style>
div {
  border: 1px solid black;
  margin-top: 100px;
  margin-bottom: 100px;
  margin-right: 150px;
  margin-left: 80px;
  background-color: lightblue;
}
</style>
</head>
<body>

<h2>Using individual margin properties</h2>

<div>This div element has a top margin of 100px, a right margin of 150px, a
bottom margin of 100px, and a left margin of 80px.</div>

</body>
</html>
```

Using individual margin properties

This div element has a top margin of 100px, a right margin of 150px, a bottom margin of 100px, and a left margin of 80px.

Part of box model

Ex: margin property

Output:

```
<html>
<head>
<style>
div {
  border: 1px solid black;
  margin-top: 10px;
  margin-bottom: 10px;
  margin-right: 15px;
  margin-left: 8px;
  background-color: lightblue;
}
</style>
</head>
<body>

<h2>Using individual margin properties</h2>

<div>This div element has a top margin of 100px, a right margin of 150px, a
bottom margin of 100px, and a left margin of 80px.</div>

</body>
</html>
```

Using individual margin properties

This div element has a top margin of 100px, a right margin of 150px, a bottom margin of 100px, and a left margin of 80px.

Background-images, Background-repeat

❑ Background-images:

- The **background-image** property is used to add a background image to an element.

Ex: background images

```
body {background-image: url ('siley.gif'); }
```

❑ Background-repeat:

- By default, the image is **repeated** both in x- and y- directions so it covers the entire element.
- The **background-repeat** property specifies whether a background image repeats itself.
- We can specify **no-repeat**, **repeat-x**, and **repeat-y**.

Ex: background repeat

```
body {background-repeat: repeat-y; }
```

Background-images, Background-repeat

Ex: background image

```
<html>
<head>
<style>
body {
  background-image: url("paper.gif");
}
</style>
</head>
<body>

<h1>Hello World!</h1>

<p>This page has an image as the background!</p>

</body>
</html>
```

Output:

Hello World!

This page has an image as the background!

Background-images, Background-repeat

Ex: background image

```
<html>
<head>
<style>
body {
  background-image: url("gradient_bg.png");
}
</style>
</head>
<body>

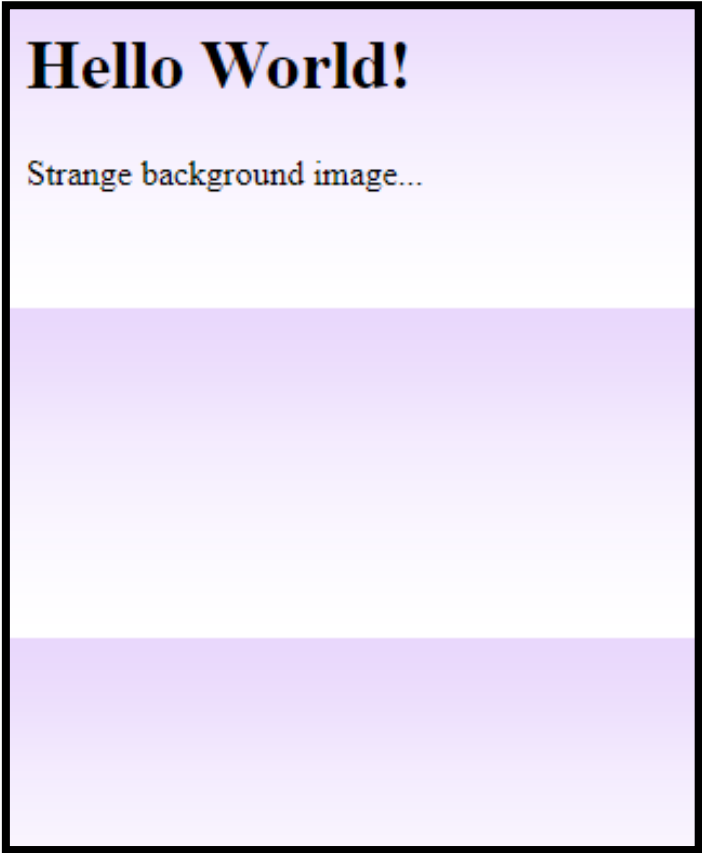
<h1>Hello World!</h1>
<p>Strange background image...</p>

</body>
</html>
```

Output:

Hello World!

Strange background image...



Background-images, Background-repeat

Ex: background image

Output:

```
<html>
<head>
<style>
body {
  background-image: url("gradient_bg.png");
  background-repeat: repeat-x;
}
</style>
</head>
<body>

<h1>Hello World!</h1>
<p>Here, a background image is repeated only horizontally!</p>

</body>
</html>
```

Hello World!

Here, a background image is repeated only horizontally!

Background-images, Background-repeat

Ex: background image & repeat

Output:

```
<html>
<head>
<style>
body {
  background-image: url("img_tree.png");
  background-repeat: no-repeat;
}
</style>
</head>
<body>

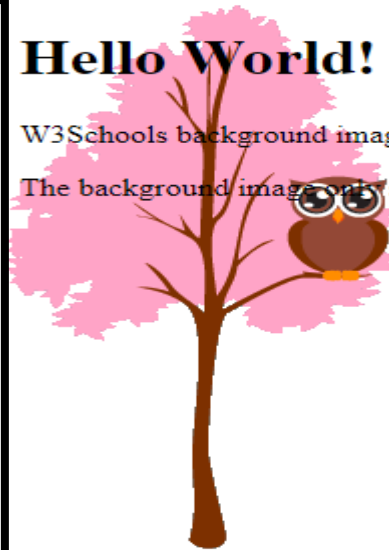
<h1>Hello World!</h1>
<p>W3Schools background image example.</p>
<p>The background image only shows once, but it is disturbing the reader!</p>

</body>
</html>
```

Hello World!

W3Schools background image example.

The background image only shows once, but it is disturbing the reader!



Background-position

❑ Background-position:

- The position of the image is specified by the **background-position** property.
- **The values can be:** A **combination** of [top, center, bottom] and [left, center, right].

Ex: background position

```
body {  
background-position: center ;  
}
```

Background-images, Background-repeat

Ex: background image & repeat & position

```
<html>
<head>
<style>
body {
  background-image: url("img_tree.png");
  background-repeat: no-repeat;
  background-position: right top;
  margin-right: 200px;
}
</style>
</head>
<body>

<h1>Hello World!</h1>
<p>Here, the background image is only shown once. In addition it is positioned
away from the text.</p>
<p>In this example we have also added a margin on the right side, so that the
background image will not disturb the text.</p>

</body>
</html>
```

Output:

Hello World!

Here, the background image is only shown once. In addition it is positioned away from the text.

In this example we have also added a margin on the right side, so that the background image will not disturb the text.





The end