CSS Box Model

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CSS Box Model and Layouts

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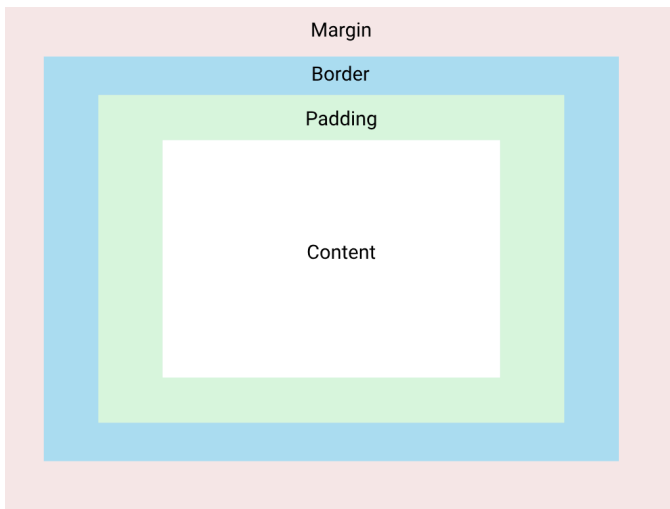# Introduction

Welcome to the book "CSS Box Model and Layouts".
In this book, I explain the properties of CSS box model
such as width, height, margin, padding and so on.
By the end of this book, you will be able to position your
box correctly on the page, control its size and spacing,
and handle all kinds of scenarios.
Let us go!

Chapter 1: Understanding the box model

The CSS3 box model is a fundamental concept that describes how elements are rendered and how their size and spacing are calculated in CSS. It consists of four layers or components: content, padding, border, and margin. Understanding the box model is crucial for controlling the layout and spacing of elements on a web page. Let's explore each component in detail:

Open browser inspect - dev tools

Margin

Border

Padding

Content

Content

The content area represents the actual content or text inside an element. It has a width and height that can be explicitly set using CSS properties like width and height.

By default, the content area does not include padding, border, or margin.

Padding

Padding is the space between the content area and the element's border. It helps create space around the content without affecting the element's overall size. Padding can be set using properties like padding-top, padding-right, padding-bottom, and padding-left. The padding value can be specified in pixels, percentages, or other length units.

Border

The border surrounds the padding and content areas and provides a visible boundary for the element. It can be styled using properties like border-width, border-style, and border-color. Borders can have different styles such as solid, dotted, dashed, or none. The border width can be set independently for each side using properties like border-top-width, border-right-width, border-bottom-width, and border-left-width.

Margin

The margin is the space outside the element, creating separation between neighboring elements. It helps control the spacing between elements on a webpage. Margins can be set using properties like margin-top, margin-right, margin-bottom, and margin-left. Like padding, margin values can be specified in pixels, percentages, or other length units.

Chapter 2: Understanding Box Sizing

By default, the width and height properties of an element control only the content area. However, the CSS property box-sizing allows you to change this behavior. By setting box-sizing: border-box;, the width and height properties include both the content and padding areas, making it easier to calculate the overall size of an element.

Calculating Total Width and Height

To determine the total width and height of an element, you need to consider the content width/height, padding, border, and margin. The total width is calculated as follows:

> Total Width = content width + left padding + right padding + left border + right border + left margin + right margin

The total height is calculated similarly, taking into account the top and bottom padding, border, and margin.

box-sizing

The box-sizing CSS property sets how the total width and height of an element is calculated.
It allows us to include the padding and border in an element's total width and height.

By default, the width and height of an element are calculated as follows:

> width + padding + border = actual width of an element height + padding + border = actual height of an element

This means: If you specify the width/height of an element, the element often appears larger than you have specified (because the border and padding of the element are added to the specified width/height of the element).

Values

- content-box (default)
- border-box

Here are two div elements that are identical and differ only in the value of the box-sizing property
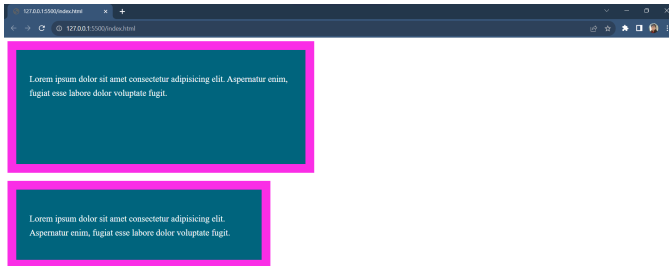
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```
<style>
  .box {
    width: 600px;
    height: 200px;
    padding: 30px;
    color: white;
    font-size: 20px;
    line-height: 1.6em;
    background-color: rgb(0, 100, 128);
    border: 20px solid rgb(252, 49, 232);
  }
  .box-1 {
    box-sizing: content-box;
  }
  .box-2 {
    box-sizing: border-box;
  }
```

```
</style>
<div class="box box-1">
  <p>
    Lorem ipsum dolor sit amet consectetur
adipisicing elit. Aspernatur enim,
    fugiat esse labore dolor voluptate fugit.
  </p>
</div>
<br />
<div class="box box-2">
  <p>
    Lorem ipsum dolor sit amet consectetur
adipisicing elit. Aspernatur enim,
    fugiat esse labore dolor voluptate fugit.
  </p>
</div>
```

```
1   <style>
2     .box {
3       width: 600px;
4       height: 200px;
5       padding: 30px;
6       color: white;
7       font-size: 20px;
8       line-height: 1.6em;
9       background-color: rgb(0, 100, 128);
10      border: 20px solid rgb(252, 49, 232);
11    }
12    .box-1 {
13      box-sizing: content-box;
14    }
15    .box-2 {
16      box-sizing: border-box;
17    }
18  </style>
19  <div class="box box-1">
20    <p>
21      Lorem ipsum dolor sit amet consectetur adipisicing elit. Aspernatur enim,
22      fugiat esse labore dolor voluptate fugit.
23    </p>
24  </div>
25  <br />
26  <div class="box box-2">
27    <p>
28      Lorem ipsum dolor sit amet consectetur adipisicing elit. Aspernatur enim,
29      fugiat esse labore dolor voluptate fugit.
30    </p>
31  </div>
```

content-box (default)

The content-box value represents the traditional box model. With content-box, the width and height of an element are calculated by considering only the content area and excluding padding and border. In other words: If you add padding or a border to the element, its overall width and height will increase.

For example:


```
<style>
  .box {
    width: 600px;
    height: 200px;
    padding: 30px;
    color: white;
    font-size: 20px;
    line-height: 1.6em;
```

```
    background-color: rgb(0, 100, 128);
    border: 20px solid rgb(252, 49, 232);
    box-sizing: content-box;
  }
</style>
<div class="box">
  <p>
    Lorem ipsum dolor sit amet consectetur
adipisicing elit. Aspernatur enim,
    fugiat esse labore dolor voluptate fugit.
  </p>
</div>
```

```
1   <style>
2     .box {
3       width: 600px;
4       height: 200px;
5       padding: 30px;
6       color: white;
7       font-size: 20px;
8       line-height: 1.6em;
9       background-color: rgb(0, 100, 128);
10      border: 20px solid rgb(252, 49, 232);
11      box-sizing: content-box;
12    }
13  </style>
14  <div class="box">
15    <p>
16      Lorem ipsum dolor sit amet consectetur adipisicing elit. Aspernatur enim,
17      fugiat esse labore dolor voluptate fugit.
18    </p>
19  </div>
```

border-box

The box-sizing property allows us to include padding
and margins in the overall width and height of an
element.
If you set box-sizing: border-box; on an element,
padding and border are included in the width and height: