CSS Box Model

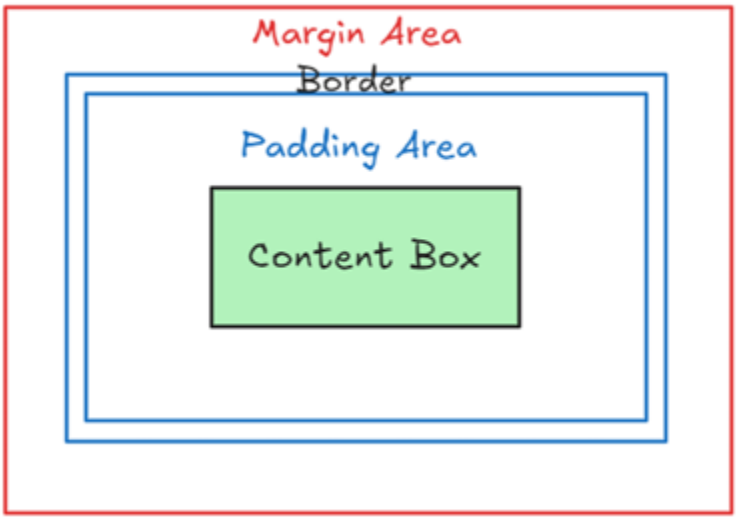
1. What is the Box Model?

a. According to the box model concept, every element on a page is a rectangular box and may have width, height, padding, borders, and margins.

b. Every element on a page is a ***rectangular box***.

c. In CSS, the term "box-model" is used when talking about design and layout.

d. The box model in CSS is a container that contains various properties including borders, margins, padding and content itself.

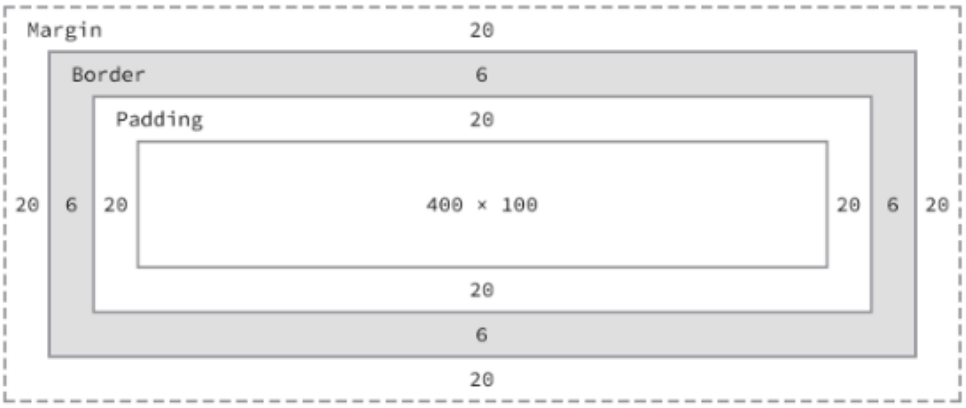


Example ⇒ Let's look these properties inside some code:

```
div {
        width: 400px;
        height: 100px;
        border: 6px solid #949599;
        margin: 20px;
        padding: 20px;
 }
```

e. According to the box model, the total width of an element can be calculated using the following formula:
Total Width = margin-right + border-right + padding-right + width + padding-left + border-left + margin-left

f. In comparison, according to the box model, the total height of an element can be calculated using the following formula:
Total Height = margin-top + border-top + padding-top + height + padding-bottom + border-bottom + margin-bottom



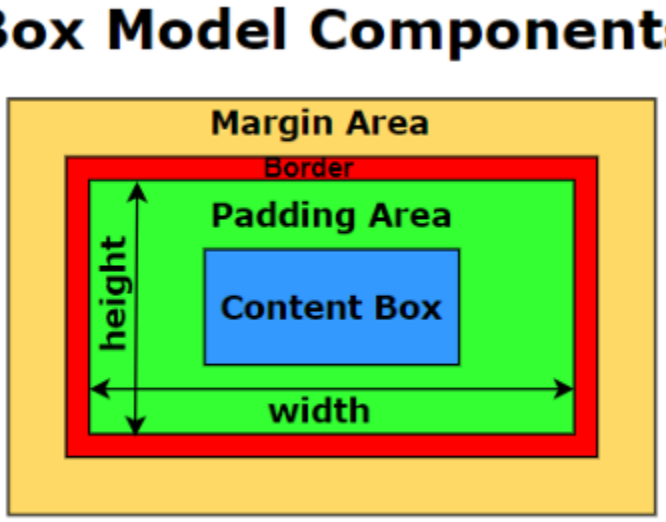
- Using the formulas, we can find the total height and width of our example code.
- **Total Width** = 20px + 6px + 20px + 400px + 20px + 6px + 20px = 492px
- **Total Height** = 20px + 6px + 20px + 100px + 20px + 6px + 20px = 192px
- The box model is without question one of the more confusing parts of HTML and CSS.
- We set a *width* property value of **400px**, but the actual width of our element is **492px**.
- It's because of the box-sizing property and its default value is *content-box*.

- **box-sizzing** Property ⇒
    - The CSS *box-sizing* property allows us to include the padding and border in an element's total width and height.
    - If you set *box-sizing: border-box*; on an element, padding and border are included in the width and height.

2. Components of Box Model:

a. There are mainly 4 components of Box model are as follows:
   i. Content
   ii. Padding
   iii. Border
   iv. Margin

b. Each part of the box model look like as mentioned in below:

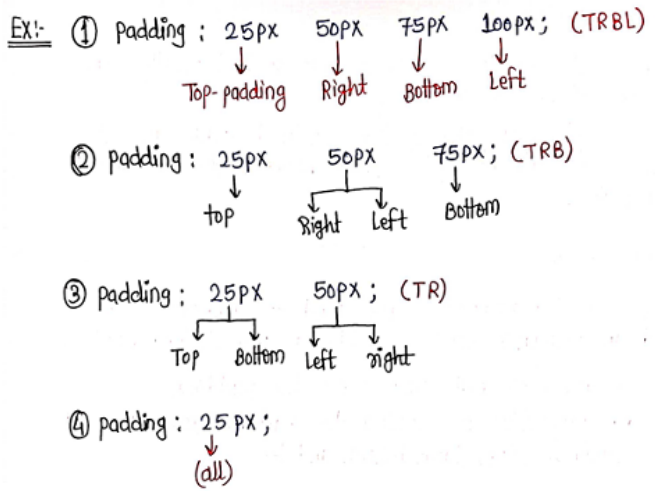


3. Content:

a. The content of the box, where text and images appear.

4. Padding:

a. The CSS *padding* property is used to generate space around an element's content, inside of any defined border's.
b. The surrounding area of the content is called as padding.
c. The padding is by default transparent.
d. There are property values for setting the padding for each side of an element (top, right, bottom, and left).
e. Padding-Individual Sides ⇒
f. CSS has properties for specifying the padding for each side of an element.
    i. padding-top
    ii. padding-right
    iii. padding-bottom
    iv. padding-left
g. Padding-Shorthand Property ⇒
    i. To shorten the code, it is possible to specify all the padding properties in one property.
    ii. The *padding* property is a shorthand property for the following individual padding property.
    iii. **Example** →



5. Border:

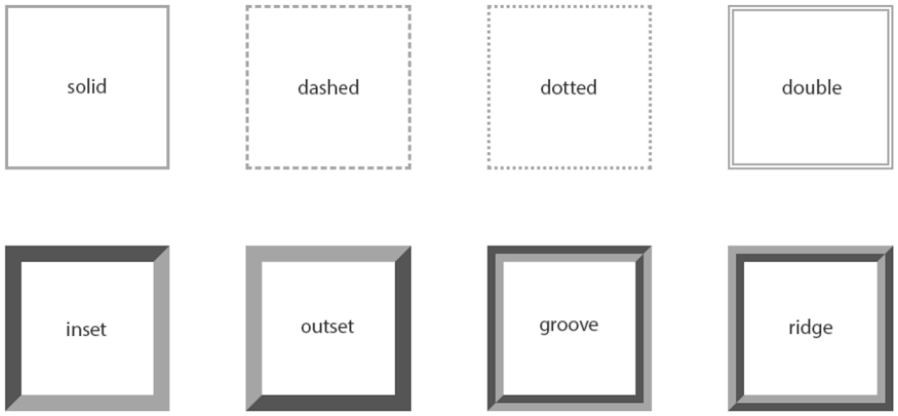
a. A *border* that goes around the padding and content.
b. Borders fall between the padding and margin, providing an outline around an element.
c. The border property requires three values : *width* , *style* , and *color* .
d. Shorthand values for the border property are stated in that order - width, style, color.
e. But if we have to give each property as separate so you can use *border-width*, *border-style*, and *border-color* properties.
f. The CSS border properties are given below:
    i. *border-width* ⇒
        1. The border-width property is used to set the border's width.
        2. It is set in pixels.
        3. **Syntax**:

```
border-width : 1px|2px|5px;
```

    ii. border-style ⇒
        1. The border-style property is used to specify the border type which you want to display on the webpage.
        2. There are some border style values which are used with border-style property to define a border.
        3. **Syntax**:

```
border-style : solid|dotted|dashed|double|groove|ridge|inset|outset|none|hidden;
```

Example ⇒



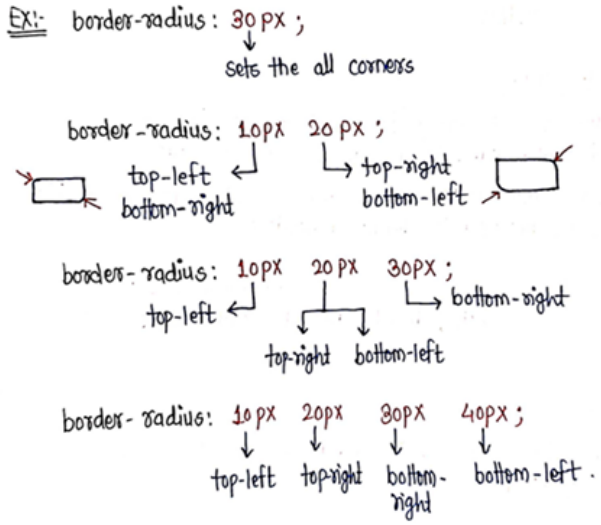
iii. border-color ⇒

1. The border-color property is used to set the color of the four borders.
2. Note ⇒ If border-color is not set, it inherits the color of the element.

iv. border-radius ⇒

1. This CSS property sets the rounded borders and provides the rounded corners around an element, tags or div.
2. It defines the radius of the corners of an element.

3. It is a shorthand property for ⇒
    a. border-top-left-radius
    b. border-top-right-radius
    c. border-bottom-left-radius
    d. border-bottom-right-radius
4. Example →



6. Margin:

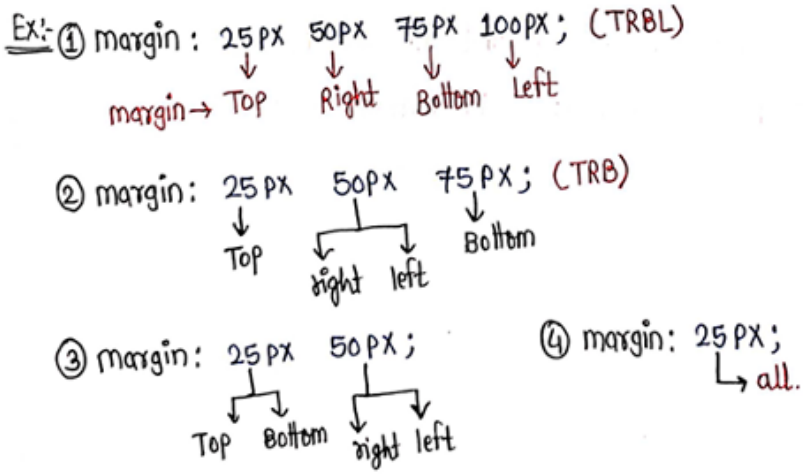
a. The CSS margin property is used to create a space around elements, outside of any defined borders.
b. There are properties for setting the margin for each of an element (top, right, bottom, left).
c. *Margin-Individual Sides* ⇒
    i. margin-top
    ii. margin-right
    iii. margin-bottom
    iv. margin-left

d. *Margin Shorthand Property* ⇒

i. To shorten the code, it is possible to specify all the margin properties in one property.

ii. The margin property is a shorthand property for the following individual margin properties.

iii. Example ⇒



iv. The **auto** value ⇒

1. We can set the margin property to element within its container.
2. *auto* to horizontally center the The element will then take up the specified width, and the remaining space will be split equally between the left and right margins.