

**Welcome to
lecture 7!**



Agenda

Session Objectives

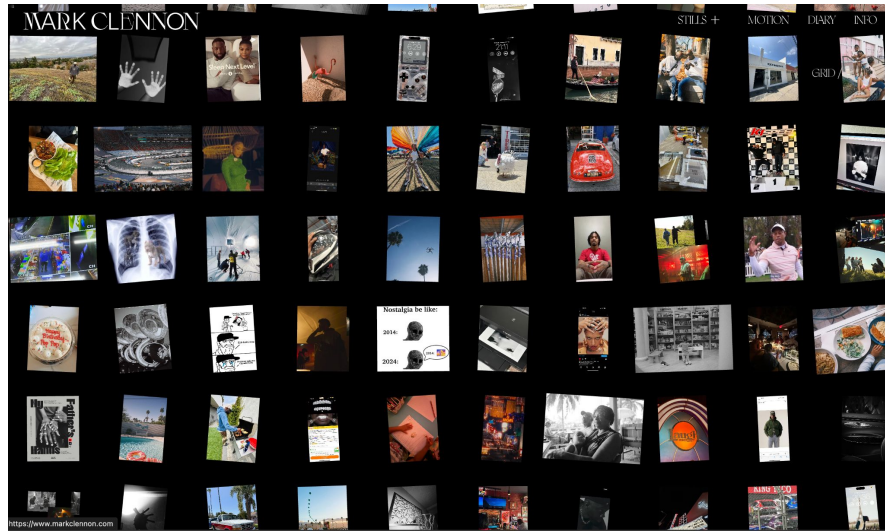
- Review Homework
- Introduction to the Box Model
- Padding and Margin
- Box Model Visualization
- CSS Positioning (static, relative, absolute, fixed)
- Colors (Solid & Gradients)
- Quiz
- Recap & Homework (will be shared by batch coordinator from today!)



Homework review!

What stands out to you in these websites?

[Mark Clennon \(photographer\)](https://www.markclennon.com)



[Locomotive \(digital agency\)](https://locomotive.digital)

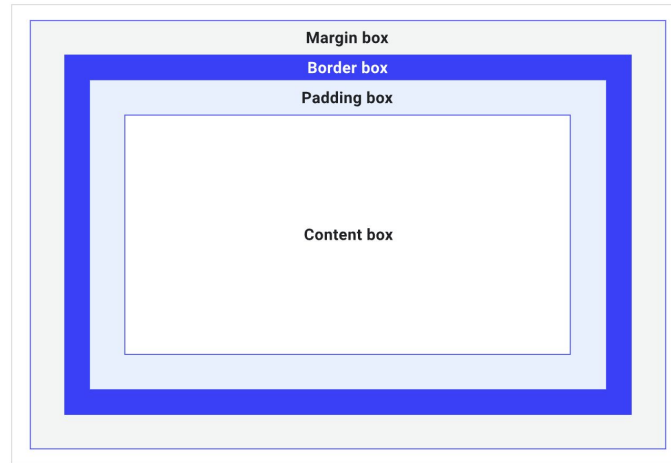




Introduction to Box Model

What is the CSS Box Model?

- Every HTML element on a webpage is treated as a rectangular box
- The CSS Box Model defines how these rectangular boxes are structured and how they interact with each other on the page
- Understanding the Box Model is crucial for controlling the layout and visual appearance of your webpages



The Anatomy of a Box

- **Content**
 - The innermost part of the box, where the actual content (text, images, etc.) resides
- **Padding**
 - The space around the content, inside the element's border. It creates a visual buffer between the content and the border
- **Border**
 - A line that surrounds the padding and the content. It defines the edge of the element
- **Margin**
 - The space outside the border, separating the element from other elements on the page. It creates visual space between neighboring elements



Padding & Margin

What is padding?

- Padding is the space inside an element, between the content and its border
- Creates a visual cushion around the content, making it feel less cramped
- The padding applied to an element on all four sides of an element can be controlled. CSS properties:
 - padding-top
 - padding-right
 - padding-bottom
 - padding-left

Let's practice!

What is Margin?

- Margin is the space outside an element's border
- Controls the distance between the current element and other elements on the page
- Like padding, the margin on all four sides of an element can be managed. CSS properties:
 - margin-top
 - margin-right
 - margin-bottom
 - margin-left

Let's practice!

Key Differences: Padding vs. Margin

- **Padding**
 - Space inside the element.
 - Affects the element's background color
 - Increases the overall size of the element
- **Margin**
 - Space outside the element.
 - Does not affect the element's background color.
 - Creates space between the element and its neighbors.

Box Model visualization in the browser

1. Open Browser DevTools
2. Usually by right-clicking on an element and selecting "Inspect" or pressing F12
3. In the "Elements" panel, select any element on the webpage
4. Look for the "Styles" or "Computed" tab
5. You will see a visual representation of the Box Model for the selected element, showing the content, padding, border, and margin values
6. Hover over each part of the Box Model in the Inspect tool to see it highlighted on the webpage
7. Try changing the padding and margin values in the "Styles" tab and observe the changes in real-time!

Your turn!



Introduction to CSS Positioning

Positioning elements on a webpage

- What's positioning?
 - Helps to place elements in a frame - useful in photography & others areas
 - In CSS, positioning is used to describe where to place an element on a webpage
- The position property in CSS determines how an element is positioned within its parent or in the viewport
 - Viewport: area visible to the user
- Why use CSS positioning?
 - Specify where an element is displayed on the page
 - Give the design layout a compelling visual appeal
- Key values for the position property:
 - static (default)
 - relative
 - absolute
 - fixed
 - sticky

Understanding position: static

- static is the default value for the position property
- Elements with position: static are positioned according to the normal flow of the document
 - Normal flow: also called "document flow"—refers to the default way browsers lay out elements on a page. What does that mean?
 - Elements like <div>, <p>, and <h1> automatically stack vertically, one after the other
 - Elements like , <a>, and flow horizontally within a line of text
 - What It Means for CSS Positioning?
 - When an element's position is set to static (which is the default value), it remains in the normal flow
 - Other positioning values like absolute, fixed, or even using floats remove or adjust an element's participation in the normal flow.
- They appear in the order they are defined in the HTML
- Certain CSS properties have no effect on the position of statically positioned elements:
 - top, right, bottom, and left

Understanding position: relative

- Positions an element relative to its normal position in the document flow
 - Normal position is the location of the element as defined by your HTML
- Does not remove the element from the normal flow, meaning it still takes up the same space as if it were statically positioned
- You can use the certain CSS properties to offset the element from its normal position:
 - top, right, bottom, and left
 - These offsets will not affect the position of other elements

Understanding position: absolute

- Removes an element from the normal document flow
- Does not take up space, and other elements will flow as if it weren't there
- An absolutely positioned element is positioned relative to its nearest positioned ancestor (an ancestor with a position value other than static)
 - If no positioned ancestor is found, it's positioned relative to the initial containing block (the `<html>` element or the viewport).
- You use the top, right, bottom, and left properties to specify the position

Understanding position: fixed

- Similar to absolute, as it also removes the element from the normal document flow and doesn't take up space
 - Difference: a fixed element is always positioned relative to the *viewport* (the browser window)
- Stays in the same place even when the user scrolls the page
- Common uses include fixed navigation bars or "back to top" buttons

Understanding position: sticky

- An element with `position: sticky;` is initially positioned relative to its normal position
- When the element scrolls to a certain offset from the viewport edge (specified by `top`, `right`, `bottom`, or `left`), it becomes fixed in that position
- Often used for navigation menus that stick to the top of the screen as you scroll

Exercise: Box Model and Positioning

- Take the basic blog layout we have
- Add a border of 2px solid gray and padding of 10px to the <main> element
- Use position: relative; on the <main> element
- Inside the <main>, create a small <div> with the text "Important!" and give it the ID important-note
- Use CSS to absolutely position the important-note div 20px from the top and 20px from the left of the <main> content area



Bringing Colors to Life

Solid Colors

- CSS offers several ways to specify solid colors for your HTML elements
- Color Names: directly use predefined color names (e.g., red, blue, green, black, white)
 - [Modern browsers](#) support over 140 color names by default
- Hexadecimal Codes: Represent colors using a six-digit hexadecimal code
 - E.g: #ff0000 for red, #0000ff for blue, #000000 for black, #ffffff for white
- RGB Values: define colors using the red, green, and blue components, each ranging from 0 to 255
 - E.g: rgb(255, 0, 0) for red, rgb(0, 0, 255) for blue, rgb(0, 0, 0) for black, rgb(255, 255, 255) for white
- RGBA Values: Similar to RGB, but also include an alpha value to specify the color's opacity
 - E.g: rgba(255, 0, 0, 0.5) for semi-transparent red
- HSL (hue saturation & lightness) and HSLA (hue saturation, lightness & alpha)
 - Similar to RGB & RGBA, but isn't used as widely

Linear Gradients

- What are linear gradients?
 - They create a smooth transition between two or more colors along a straight line
- How do you create a linear gradient?
 - You define a linear gradient using the `linear-gradient()` CSS function
 - Basic syntax: `linear-gradient(direction, color-stop1, color-stop2, ...)`
 - **direction**: Specifies the direction of the gradient line (e.g., to right, to bottom-left, or an angle)
 - **color-stop**: Specifies the color and its position along the gradient line (e.g., red, blue 50%)

Radial Gradients

- What are radial gradients?
 - Radial gradients create a color transition that radiates outward from a central point.
- How do you create a radial gradient?
 - You define a radial gradient using the radial-gradient() CSS function
 - Basic syntax: radial-gradient(shape size at position, color-stop1, color-stop2, ...)
 - shape size: Defines the shape (e.g., circle, ellipse) and size of the gradient.
 - * at position: Specifies the center point of the gradient (e.g., center, top right).
 - * color-stop: Similar to linear gradients, defines the colors and their positions



Quiz!

Question 1

- Which CSS property controls the space inside an element, between the content and its border?
 - a) margin
 - b) border
 - c) padding
 - d) content

Correct Answer: c

Question 2

- Which CSS property controls the space outside an element's border, separating it from other elements?
 - a) padding
 - b) border
 - c) margin
 - d) spacing

Correct Answer: c

Question 3

- What is the default value of the position property in CSS?
 - a) relative
 - b) absolute
 - c) fixed
 - d) static

Correct Answer: d

Question 4

- Which position value allows you to move an element relative to its normal position without affecting the flow of other elements?
 - a) relative
 - b) absolute
 - c) fixed
 - d) static

Correct Answer: c

Question 5

- Which position value removes an element from the normal flow and positions it relative to its nearest positioned ancestor?
 - a) relative
 - b) absolute
 - c) fixed
 - d) static

Correct Answer: b

Question 6

- What CSS function is used to create a smooth transition between two or more colors along a straight line?
 - a) radial-gradient()
 - b) color-transition()
 - c) linear-gradient()
 - d) gradient-line()

Correct Answer: c

Question 7

- What tool in the Chrome browser allows you to visually inspect the Box Model of an element?
 - a) Console
 - b) Sources
 - c) Inspect
 - d) Network

Correct Answer: c

Question 8

- Which position value keeps an element in the same place within the browser window, even when scrolling?
 - a) relative
 - b) absolute
 - c) static
 - d) fixed

Correct Answer: d

Recap

- The CSS Box Model describes the structure of every HTML element as a box with content, padding, border, and margin.
 - Padding creates space inside an element, while margin creates space outside.
- Browser's Inspect option is a powerful visualization tool for understanding how the webpage is loaded. Key to understand box model of a page
- The position property controls how elements are placed on the page:
 - static: Default document flow.
 - relative: Offset from normal position.
 - absolute: Positioned relative to the nearest positioned ancestor.
 - fixed: Positioned relative to the viewport.
 - sticky: Acts like relative until a threshold, then becomes fixed.
- CSS allows you to set solid colors using various formats (names, hex, RGB, HSL) and create smooth color transitions with linear and radial gradients

References

- [MDN Web Docs - CSS Box Model](#)
- [MDN Web Docs - CSS Positioning](#)
- [MDN Web Docs - CSS Colors](#)
- [W3Schools CSS Box Model](#)
- [W3Schools CSS Positioning](#)
- [W3Schools CSS Colors](#)
- [CSS-Tricks - The CSS Box Model](#)
- [CSS-Tricks - Positioning](#)
- [CSS-Tricks - Gradient](#)