Css

CSS is the stylesheet language for web page presentation and design, including colors, fonts and layouts.

Feature of CSS

Separating of content and presentation

HTML is used for structuring content, while CSS is used for layout and style.

Selectors

CSS selectors are used to select HTML elements to apply styles to.

Include selector using tag, class selectors, id selectors, and attribute selectors.

Box model

The css box model is a fundamental concept that defines the structure of HTML element. It includes margins, borders, padding, and the actual content.

Responsive design

CSS supports responsive design through media queries, which allow different styles to be applied based on the devices characteristics.

Positioning

CSS provides several positioning schemes, including static, relative, absolute, fixed , and sticky positioning.

Flexbox and grid layouts

CSS includes powerful layout modules such as flexbox and css grid, which help create complex and flexible layouts.

Transition and animation

CSS allow for smooth transition and animation, enhancing the user experience by making elements move / change state gradually.

Pseudo classes and Pseudo elements

Pseudo classes are :hover,:active and pseudo element ::before, ::after allow styling elements based on their state/ inserting content without altering HTML.

Custom properties

CSS supports custom properties, also known as css variables, which allow developers to store values and reuse them throughout the stylesheet.

CSS Box Model

The CSS box model is a container that contains multiple properties including margin,border,padding and content itself. It is used to create the design and layout of web pages.

It is used to create the design and layout of webpage. It can be used as a toolkit for customizing the layout of different elements.

**The webpage browser renders every element as a rectangular box according to the css box model.**

**+-------------------------+**

**| Margin |**

**| +---------------------+ |**

**| | Border | |**

**| | +-----------------+ | |**

**| | | Padding | | |**

**| | | +-------------+ | | |**

**| | | | Content | | | |**

**| | | +-------------+ | | |**

**| | +-----------------+ | |**

**| +---------------------+ |**

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Content

The actual content of the box like text, images / other media content.it is bounded by the content edge and its dimensions are given by content box width and height.

Padding

It clear the space around the content inside the box. Padding is transparent and inside the border.

Border

Border is area between the box padding and margin. We can say a border that surrounds the padding and content. Border can have different styles, widths, and colors.

Margin

It clears area outside the border. Margin are transparent and used to create space between the box and adjacent elements.

CSS Cascading style sheets

It is a language used to style HTML elements on web pages. It defines how elements should be displayed on screen, in print, on other media, allowing us to control layout, colors, fonts, spacing, and many other visual aspects.

Basic structure of CSS

CSS can be applied directly to HTML in three main ways

1. Inline CSS
2. Internal CSS
3. External CSS

CSS Selectors

Selectors define which HTML elements we want to style. Below are some common selectors

CSS \* selector  
  
The CSS \* selector targets all elements on the page. It is commonly used to set box-sizing: border-box, globally for consistent sizing across all elements.

Type Selector

Class Selector

ID Selector

Universal Selector

Attribute Selector

CSS Box Model

The CSS box model represents the layout structure of element. It consists of margin, borders, padding, and the actual content.

Layout with flexbox and grid

Flexbox

Designed for layout in one dimension (row or column)

Grid

Designed for two-dimensional layouts.

CSS properties

box-sizing

In css box-sizing is a property that controls how the browser calculates the total width and height of element. By default, the box-sizing property is set to content-box, which means that when we set the width and height of element, it applies only to the content box, excluding padding and borders.

box-sizing: content-box;

Width and height only include the content. Padding, borders, and margins are added outside of this.

box-sizing: border-box;

Width and height include content, padding, and borders. This setting makes layout calculation easier and avoid accident overflow by including padding and borders in the elements specified width and height.

Why use box-sizing: border-box

It simplifies layout calculations.

It helps prevent unexpected layouts by ensuring the overall dimensions of element remain consistent regardless of padding / border.

CSS Grid

CSS grid is a incredibly powerful tool for creating layouts, especially when we need to design a page that requires precise control over both rows and columns.

Why use CSS Grid?

1. Two dimensional layout control
2. Efficiency and readability
3. Responsive design
4. Layering elements

When to use CSS Grid?

1. Page Layouts
2. Complex layouts with nested grids
3. Full page / component layouts
4. Alternative to flexbox when two-dimensional control is needed

Main concept of CSS grid

1. Grid Container and Grid Items

Set up a grid by applying display: grid; to the container element. The direct children become grid items, laid out according to the grid structure.

1. Defining Rows and columns
2. Grid gaps
3. Placing grid items
4. Grid template areas
5. Responsive grid layouts