

CSS syllabus

1. Basics of CSS

- What is CSS?
- Adding CSS to HTML (Inline, Internal, External)
- **CSS Selectors**
 - Universal Selector (*)
 - Class Selector (.classname)
 - ID Selector (#idname)
 - Element Selectors
- **CSS Specificity:** Rules for determining which CSS rule takes precedence when multiple selectors apply
 - Inline > id > class > element

2. Colors

- Color Models in CSS is RGB, HEX
- Color, outline-color, caret-color in input tag

3. Background:

- Background Color : background-color: lightblue;
- Background Images: background-image: url('image.jpg');
- Background size: background-size: width px height px;
- Background position: background-position: center;
- Background repeat: background-repeat: no-repeat;
- Background Attachment: background-attachment: fixed;

4. Pseudo-classes and Pseudo-elements

- Pseudo-classes: :hover, :active, :visited etc.
- Pseudo-elements: ::before, ::after

5. Gradients in css

- Linear: background: linear-gradient(to right, red, orange, yellow);
- Radial: background: radial-gradient(circle, red, orange, yellow);
- conic: background: conic-gradient(from 0deg, red, orange, yellow, green, blue);

6. Font and Text Styling

- **Font Properties:**
 - font-family: 'Arial', sans-serif; Sets the font family
 - font-size: 16px; Sets the font size
 - font-weight: bold; Sets the font weight
 - font-style: italic; Sets the font style
- **Text Properties:**
 - color: red; Sets the text color
 - text-align: center; Aligns the text
 - line-height: 1.5; Sets the line height
 - letter-spacing: 2px; Adds space between letters
 - text-decoration: underline; Underlines the text
 - text-transform: uppercase; Converts text to uppercase
 - word-spacing: 5px; Adds space between words

7. Shadow in CSS

- Box Shadow and Text Shadow
 - box-shadow: box-shadow: 5px 5px 5px red, -5px -5px 10px blue;
 - box-shadow: inset 5px 5px 10px red (Creates a shadow inside the element).
 - text-shadow: 2px 2px 5px red;

8. CSS Box Model

- **margin**: Space outside the element's border.
- **border**: The border surrounding the element's padding.
- **padding**: Space inside the element, between the content and the border.
- **Width and height**: Dimensions of the element's content area.

9. Border properties

- border-style, border-style: solid;
- border-width, border-width: 3px;
- border-radius, border-radius: 10px;
- border-color, border-color: red;

10. Layout Techniques

- Display Property: block, inline, inline-block, none
- Opacity
 - 0: Fully transparent.
 - 1: Fully opaque.

11. Positioning

- Static,
- Relative
- Absolute
 - Z-Index
- Fixed,
- Sticky

12. Overflow Property

- visible,
- hidden,
- scroll,
- auto

13. CSS Units and Measurements

- Relative Units (em, rem, %)
- Absolute Units (px, cm, mm, etc.)
- Viewport Units (vw, vh)

14. 2D Transformations

a. translate()

- Moves an element from its current position.
- Syntax:
 - transform: translate(x, y)
 - transform : translateX(x)
 - transform: translateY(y)

b. rotate()

- Rotates an element around its origin.
- Syntax: transform: rotate(angle)

c. scale()

- Scales an element (resizes it).
- Syntax:
 - transform: scale(x, y)
 - transform:scaleX(x)
 - transform:scaleY(y)

d. skew()

- Skews an element along the X or Y axis.
- Syntax:
 - skew(x-angle, y-angle)
 - skewX(x-angle)
 - skewY(y-angle)

Note: We can combine multiple transformations by separating them with spaces

Eg. transform: rotate(45deg) translateX(50px) scale(1.5);

15. Flex box

1. flex-direction

- flex-direction: row; /* Default: Items arranged left-to-right */
- flex-direction: column; /* Items arranged top-to-bottom */
- flex-direction: row-reverse; /* Right-to-left */
- flex-direction: column-reverse; /* Bottom-to-top */

2. justify-content

- justify-content: flex-start; /* Default: Items start from the left */
- justify-content: flex-end; /* Items align to the right */
- justify-content: center; /* Items align in the center */
- justify-content: space-between; /* Equal space between items */
- justify-content: space-around; /* Equal space around items */
- justify-content: space-evenly; /* Equal space between and around items */

3. align-items

- align-items: flex-start; /* Items align to the top */
- align-items: flex-end; /* Items align to the bottom */
- align-items: center; /* Items align in the middle */
- align-items: stretch; /* Default: Items stretch to fill container */
- align-items: baseline; /* Align items along their text baselines */

4. flex-wrap

- flex-wrap: nowrap; /* Default: No wrapping */
- flex-wrap: wrap; /* Items wrap to the next line */
- flex-wrap: wrap-reverse; /* Wrapping occurs in reverse */

5. align-content

- align-content: flex-start;
- align-content: flex-end;
- align-content: center;
- align-content: space-between;
- align-content: space-around;
- align-content: stretch;

6. Order : Specifies the order of the flex items:

- order:4

7. Flex Grow : Specifies how much a flex item will grow relative to others, it occupy extra spaces:

- flex-grow: 1;

8. flex-basis ; property defines the initial size of a flex item before space is distributed

- `flex-basis: 100px; /* Takes 100px initially */` `flex-basis: 200px; /* Takes 200px initially */`
9. `flex-shrink` : It determines how much a flex item **shrinks** when there isn't enough space in the flex container.
- `flex-shrink: 2; /* Shrinks faster */` `flex-shrink: 1; /* Shrinks normally */`
10. `Align-self`

16. Transition for Animation effects:

- `Transition-property`: The CSS property to transition (e.g., color, background-color, transform).
- `Transition-duration`: The time the transition takes (e.g., 2s, 500ms).
- `Transition-timing-function`: Controls the acceleration curve of the transition (e.g, ease, ease-in, ease-out, linear).
- `Transition-delay`: Time before the transition starts (e.g., 0s, 1s).
- Scroll-based animations (e.g., scroll-behavior)

17. Keyframes animations:

- `@keyframes`,
- `animation-name`,
- `animation-duration`,
- `animation-timing-function`,
- `animation-delay`,
- `animation-iteration-count`,
- `animation-direction`.

18. CSS Variables and Custom Properties

- Defining and Using Variables
 - `--variable-name: value;`

```

:root {
    --primary-color: red
    --font-size: 16px;
}

```
- The `var()` Function


```

body {
    font-size: var(--font-size);
    background-color: var(--primary-color);
}

```

19. Responsive Design

- Viewport Meta Tag
- min-width, max-width.
- Media Queries

```

@media (max-width: 600px) {
    body {
        background-color: lightblue;
    }
}

```

```

@media (min-width: 768px) {
    body {
        background-color: lightgreen;
    }
}

```

```
}  
}
```

20. Grid Layout

- Introduction to CSS Grid.
- Grid container properties:
 - `display: grid`, `grid-template-rows`, `grid-template-columns`, `grid-gap`.
- Grid item properties:
 - `grid-column`, `grid-row`, `grid-area`.
- Creating responsive grid layouts.