Unit-2: Working with CSS3

1. What is CSS? What are the benefits of CSS? List out the different ways to write CSS.

(3 CO-2)

- **Definition:**
  CSS stands for Cascading Style Sheets. It is a styling language used to describe the presentation of a document written in HTML or XML *(CSS ka full form Cascading Style Sheets hai. Yeh ek styling language hai jo HTML ya XML mein likhe document ke presentation ko describe karta hai).*

- **Use/Purpose:**
  CSS is used to control the layout of web pages, set fonts, colors, margins, padding, etc., and make websites visually appealing and user-friendly *(CSS ka use web pages ke layout ko control karne, fonts, colors, margins, padding, etc. ko set karne ke liye hota hai aur websites ko visually appealing aur user-friendly banata hai).*

- **Syntax:**

  ```
  selector {  property: value;}
  ```

  Example:

  ```
  body {  background-color: lightblue;}
  ```

- **Benefits of CSS:**
  - **Separation of Content and Style:** It allows you to separate content (HTML) from presentation (CSS), making the website easier to maintain *(Yeh content (HTML) aur presentation (CSS) ko separate karta hai, jo website ko maintain karna asaan bana deta hai).*
  - **Improved Page Load Speed:** Since styles are defined separately, they can be cached by browsers, reducing the loading time *(Jab styles alag se define kiye jaate hain, browsers inhe cache kar lete hain, jis se page ka loading time kam ho jata hai).*
  - **Consistent Design:** Using CSS ensures that design elements like fonts and colors are consistent throughout the website *(CSS ka use ensure karta hai ki design elements jaise fonts aur colors har page pe consistent rahe)*.
  - **Responsive Design:** CSS helps create responsive designs that adapt to different screen sizes and devices *(CSS responsive designs banane mein madad karta hai jo alag-alag screen sizes aur devices ke liye adapt ho sakte hain).*
- **Different Ways to Write CSS:**
  - **Inline CSS:** The style is applied directly within the HTML tag using the `style` attribute *(Inline CSS style directly HTML tag ke andar `style` attribute ka use karke apply kiya jata hai).*

    Example

```
<p style="color: red;">This is a red paragraph.</p>
```

- **Internal CSS:** The style is written inside the `<style>` tag in the `<head>` section of the HTML document *(Internal CSS style `<style>` tag ke andar HTML document ke `<head>` section mein likha jata hai).*
  Example:`html`

```
<head>
 <style>
    body {
      background-color: lightblue;
    }
  </style>
</head>
```

- **External CSS:** The style is written in an external `.css` file, which is linked to the HTML document *(External CSS ek alag `.css` file mein likha jata hai, jo HTML document se link kiya jata hai).*
  Example:`html`

```
<link rel="stylesheet" href="styles.css">
```

- **Real-life Application:**
  - **Web Design:** CSS is widely used to design and layout web pages. For instance, websites like Google, Facebook, and Amazon use CSS for styling their pages *(CSS ka use web pages ko design aur layout karne ke liye hota hai. Jaise Google, Facebook, aur Amazon websites apne pages ko style karne ke liye CSS use karte hain).*
  - **Mobile Apps:** CSS is used for styling mobile web applications, making them responsive and mobile-friendly *(CSS mobile web applications ko style karne ke liye use hota hai, jo unhe responsive aur mobile-friendly banata hai).*

2. List and Explain types of CSS with Example.

(4 CO-2)

- **Definition:**
  There are three types of CSS that determine where the styles are applied: Inline CSS, Internal CSS, and External CSS *(CSS ke teen types hote hain, jo decide karte hain ki styles kaha apply honge: Inline CSS, Internal CSS, aur External CSS).*

- **Use/Purpose:**
  Each type is used in different scenarios based on the requirements of a project. The use of these types ensures flexible and maintainable code *(Har type alag-alag scenarios mein use hota hai project ki requirements ke hisaab se. In types ka use flexible aur maintainable code ensure karta hai).*

- **Types of CSS:**

  1. **Inline CSS:**
     Inline CSS is used when you want to apply styles directly within an HTML element using the `style` attribute *(Inline CSS tab use hota hai jab aap directly ek HTML element ke andar `style` attribute ka use karke styles apply karna chahte ho)*.
     Example:

```
<p style="color: blue;">This paragraph is blue.</p>
```

2.Internal CSS:
Internal CSS is used when you need to style a single HTML document. The CSS code is written inside the `<style>` tag in the `<head>` section of the HTML document *(Internal CSS tab use hota hai jab aapko ek single HTML document ko style karna ho. CSS code `<style>` tag ke andar `<head>` section mein likha jata hai).*
Example:

```
<head>

  <style>
    p {
      font-size: 18px;
    }
  </style>
</head>
<body>
  <p>This paragraph has a font size of 18px.</p>
</body>
```

3.External CSS:
External CSS is used when you want to apply styles across multiple web pages. The styles are written in a separate `.css` file, which is linked to the HTML document *(External CSS tab use hota hai jab aapko styles multiple web pages par apply karne ho. Styles ek alag `.css` file mein likhe jate*

hain, jo HTML document se link kiye jate hain).
Example:

```
<link rel="stylesheet" href="styles.css">
```

- **Real-life Application:**

  1. **Inline CSS:** Used when applying a quick style to a single element, like changing the text color of one heading on the page *(Inline CSS ka use jab ek single element ko quickly style karna ho, jaise ek heading ka text color change karna).*
  2. **Internal CSS:** Ideal for styling a single web page when the styles are specific to that page *(Internal CSS ka use ek single web page ko style karne ke liye hota hai jab styles uss page tak limited hon)*.
  3. **External CSS:** Most commonly used for large websites where multiple pages share the same styles *(External CSS ka use large websites mein hota hai jahan multiple pages ko same styles share karni hoti hain).*

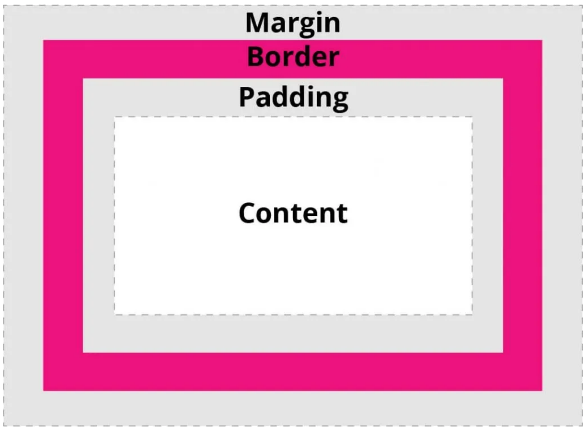
3. Explain CSS box model (border, margin, padding) with neat diagram.

(8 CO-2)

- **Definition:**
  The CSS box model is a concept that defines the rectangular boxes generated for elements in the document layout. It consists of four parts: content, padding, border, and margin *(CSS box model ek concept hai jo document layout mein elements ke liye rectangular boxes define karta hai. Isme chaar parts hote hain: content, padding, border, aur margin).*

- **Use/Purpose:**
  The box model is essential for controlling the size, spacing, and alignment of elements on a webpage. It helps to design the layout of elements, including their spacing, and ensures that they fit together correctly *(Box model website ke elements ke size, spacing, aur alignment ko control karne ke liye important hai. Yeh elements ke layout ko design karne mein madad karta hai, unke spacing ko adjust karta hai, aur ensure karta hai ki sab elements sahi tarike se fit ho).*

- **Parts of the Box Model:**



1.Content: The actual content of the element, like text or images *(Content woh asli content hota hai element ka, jaise text ya images).*
2.Padding: The space between the content and the border. Padding adds space inside the element *(Padding content aur border ke beech ka space hota hai. Yeh element ke andar space add karta hai).*
3.Border: The border that surrounds the element,

between the padding and margin *(Border woh line hoti hai jo element ke around hoti hai, padding aur margin ke beech)*.

4. **Margin:** The space outside the border, which separates the element from others *(Margin woh space hota hai jo border ke bahar hota hai, jo element ko doosre elements se separate karta hai)*.

Syntax Example:

```
div {

  width: 200px;
  height: 100px;
  padding: 20px;
  border: 5px solid black;
  margin: 30px;
}
```

- **Real-life Application:**

  1. **Web Layouts:** The box model is used in web design for creating layouts, adjusting the space between elements, and ensuring that the content fits properly inside containers *(Box model web design mein layouts banane, elements ke beech space adjust karne, aur content ko containers ke andar fit karne ke liye use hota hai)*.
  2. **Responsive Design:** Understanding the box model is crucial in creating responsive designs that adjust the content properly on different screen sizes *(Box model ko samajhna responsive designs banane ke liye zaroori hota hai jo content ko alag-alag screen sizes par sahi tarike se adjust kare)*.

4. Explain Class and ID Selector in CSS with examples.

(4 CO-2)

- **Definition:**
  The class and ID selectors are used to select elements in HTML and apply styles to them *(Class aur ID selectors ka use HTML mein elements ko select karne aur unpe styles apply karne ke liye hota hai)*.

- **Use/Purpose:**

  - **Class Selector:** The class selector is used when you want to apply the same styles to multiple elements *(Class selector tab use hota hai jab aapko same styles multiple elements par apply karne ho)*.
  - **ID Selector:** The ID selector is used to apply styles to a single unique element *(ID selector tab use hota hai jab aapko ek unique element par styles apply karne ho)*.

- **Syntax Example:**

  - **Class Selector:**
    css

```
    .example {
o     color: red;
o   }
o
```

HTML:

```
html



    <div class="example">This is a red text.</div>
o   <p class="example">This is also red.</p>
o
```

ID Selector:

```
css
#unique {
  color: blue;
}
```

HTML:

```
<div id="unique">This is blue text.</div>
```

- **Real-life Application:**
  - **Class Selector:** Class selectors are commonly used for styling groups of elements like buttons, paragraphs, or sections *(Class selectors ka use commonly groups of elements ko style karne ke liye hota hai, jaise buttons, paragraphs, ya sections).*
  - **ID Selector:** ID selectors are often used to style specific elements like a header, footer, or unique elements that need individual styling *(ID selectors ka use specific elements ko style karne ke liye hota hai, jaise header, footer, ya koi unique element jo individual styling chahiye).*

5. What is CSS Display? Explain it with example.

(4 CO-2)

- **Definition:**
  The `display` property in CSS defines the display behavior of an element. It specifies how an element should be displayed in the layout *(CSS mein `display` property element ke display behavior ko define karti hai. Yeh specify karti hai ki ek element ko layout mein kaise display kiya jana chahiye).*

- **Use/Purpose:**
  The `display` property is used to control the layout of elements on the page. It can make an element behave as a block, inline, or other types based on the value set *(Yeh property page par elements ke layout ko control karne ke liye use hoti hai. Yeh element ko block, inline ya kisi aur type ke roop mein set kar sakti hai).*

Syntax:

```
css
element {

  display: value;
}
```

Example:

```
css



.block-element {

  display: block;
  width: 100%;
  background-color: lightgrey;
}

.inline-element {
  display: inline;
  color: red;
}
```

HTML:

```
html
<div class="block-element">This is a block element.</div>
<span class="inline-element">This is an inline element.</
span>
```

- **Real-life Application:**
  - **Block-level Elements:** Used for elements like paragraphs (`<p>`) and divisions (`<div>`) that need to take up the entire width of the container *(Block-level elements jaise paragraphs (`<p>`) aur divisions (`<div>`) ko use kiya jata hai jo container ka pura width lete hain).*
  - **Inline Elements:** Used for small elements like links (`<a>`) or spans (`<span>`) that should not interrupt the flow of the content *(Inline elements chote elements jaise links (`<a>`) ya spans (`<span>`) ke liye use kiye jate hain jo content ke flow ko interrupt nahi karte).*

6. Explain the use of Media Query in CSS with example.

(4 CO-2)

- **Definition:**
  A media query in CSS is used to apply styles depending on the characteristics of the device (screen size, resolution, orientation, etc.). It allows you to create responsive designs that adapt to different devices *(CSS mein media query ka use styles ko device ki characteristics (screen size, resolution, orientation, etc.) ke hisaab se apply karne ke liye hota hai. Yeh responsive designs banane mein madad karta hai jo alag-alag devices par adjust ho sakte hain).*

- **Use/Purpose:**
  Media queries are used to apply different styles for different screen sizes or devices. For example, you can change the layout for mobile devices compared to desktop *(Media queries ka use different screen sizes ya devices ke liye alag-alag styles apply karne ke liye hota hai. Jaise aap mobile devices ke liye layout ko change kar sakte hain desktop ke comparison mein).*

Syntax:

```
css
@media screen and (max-width: 600px) {

  /* Styles for devices with max-width 600px */
  body {
    background-color: lightblue;
  }
}
```

Example:`css`

```
@media screen and (max-width: 768px) {

  /* Change the background color for screens smaller than
768px */
  body {
    background-color: lightyellow;
  }
}
```

-

HTML:

```
html
```

```
<p>This background color will change based on screen
size.</p>
```

- **Real-life Application:**
    - **Mobile-First Design:** Media queries are used in mobile-first web design to ensure the website looks good on mobile devices first and then adapts for larger screens *(Mobile-first design mein media queries ka use hota hai jisse website sabse pehle mobile devices pe achha dikhe aur phir larger screens ke liye adjust ho jaye).*
    - **Responsive Layouts:** Media queries are essential for creating flexible layouts that adjust to the size of the screen, such as grids that rearrange themselves on smaller devices *(Responsive layouts banane mein media queries zaroori hote hain jo screen size ke hisaab se adjust hote hain, jaise grids jo chhote devices par apne aap ko rearrange karte hain).*

7. Demonstrate the use of CSS for Colors and Background.

(4 CO-2)

- **Definition:**
  In CSS, colors and backgrounds are used to enhance the appearance of elements by applying color properties to text, borders, and backgrounds *(CSS mein colors aur backgrounds ka use elements ki appearance ko enhance karne ke liye hota hai, jisme text, borders, aur backgrounds pe color properties apply ki jati hain).*

- **Use/Purpose:**
  Color properties are used to change the color of text, borders, and background areas to improve the design and make the content more visually appealing *(Color properties ka use text, borders, aur background areas ka color badalne ke liye hota hai jisse design improve hota hai aur content visually appealing hota hai).*

Syntax:

```
css



element {

  color: value;   /* For text color */
  background-color: value;   /* For background color */
}
```

Example:

```
css
h1 {

  color: darkblue;   /* Set the text color */
  background-color: lightyellow;  /* Set the background color
*/
}
```

HTML:

```
html
<h1>This is a heading with color and background.</h1>
```

- **Real-life Application:**
  - **Website Design:** Colors are used in web design to create a mood or theme, such as blue for trustworthiness or green for calmness *(Website design mein colors ka use mood ya theme create karne ke liye hota hai, jaise blue trustworthiness ke liye aur green calmness ke liye).*
  - **Background Images:** CSS allows you to set images as backgrounds, enhancing the visual appeal of sections or entire pages *(CSS background images ko set karne ki suvidha deta hai, jo sections ya poori pages ke visual appeal ko enhance karte hain).*

8. Define viewport, CSS, CSS selector.

(3 CO-2)

- **Definition:**
  - **Viewport:** The viewport is the visible area of the web page that can be seen on the user's screen *(Viewport woh visible area hota hai jo web page ka user ke screen par dikhta hai).*
  - **CSS:** Cascading Style Sheets (CSS) is a styling language used to define the presentation of a web page *(Cascading Style Sheets (CSS) ek styling language hai jo web page ke presentation ko define karta hai).*
  - **CSS Selector:** A CSS selector is used to select HTML elements and apply styles to them *(CSS selector HTML elements ko select karne aur unpe styles apply karne ke liye use hota hai).*
- **Use/Purpose:**
  - **Viewport:** The viewport is crucial for responsive design as it helps to adjust the layout of the page to different screen sizes *(Viewport responsive design ke liye zaroori hai kyunki yeh page ke layout ko alag-alag screen sizes ke hisaab se adjust karne mein madad karta hai).*
  - **CSS:** CSS is used to style the appearance of elements like text, colors, backgrounds, and more *(CSS ka use elements ke appearance ko style karne ke liye hota hai jaise text, colors, backgrounds, aur zyada).*
  - **CSS Selector:** CSS selectors help target specific HTML elements to apply desired styles *(CSS selectors specific HTML elements ko target karne mein madad karte hain jisse desired styles apply kiye ja sake).*
- **Real-life Application:**
  - **Viewport:** In mobile design, the viewport meta tag is used to control the scaling and zooming of the webpage *(Mobile design mein viewport meta tag ka use webpage ke scaling aur zooming ko control karne ke liye hota hai).*

- **CSS:** Every website uses CSS to design layouts, change fonts, set colors, and create visually appealing interfaces *(Har website CSS ka use apne layout ko design karne, fonts ko change karne, colors set karne, aur visually appealing interfaces banane ke liye karti hai).*
- **CSS Selector:** Web designers use selectors to style specific sections or elements on the page *(Web designers selectors ka use specific sections ya elements ko style karne ke liye karte hain).*

9. Enlist the various attributes of font?

(3 CO-2)

- **Definition:**
  Font attributes in CSS define how the text should be displayed. These include font size, family, style, weight, etc. *(CSS mein font attributes define karte hain ki text kaise display hoga. Ismein font size, family, style, weight, aur aur bhi cheezein hoti hain).*

- **Use/Purpose:**
  Font attributes are used to make text readable and visually appealing. These attributes allow you to customize the appearance of text *(Font attributes ka use text ko readable aur visually appealing banane ke liye hota hai. Yeh attributes text ke appearance ko customize karne mein madad karte hain).*

- **Font Attributes:**

  1. **font-family:** Specifies the font of the text *(Yeh attribute text ke font ko specify karta hai).*
  2. **font-size:** Defines the size of the text *(Yeh attribute text ke size ko define karta hai).*
  3. **font-weight:** Controls the thickness of the text *(Yeh attribute text ke thickness ko control karta hai).*
  4. **font-style:** Specifies whether the text should be normal, italic, or oblique *(Yeh attribute specify karta hai ki text normal, italic, ya oblique hona chahiye).*
  5. **line-height:** Sets the amount of space between lines of text *(Yeh attribute text ki lines ke beech ka space set karta hai).*

Example:

```css
p {

  font-family: Arial, sans-serif;
  font-size: 16px;
  font-weight: bold;
  font-style: italic;
  line-height: 1.5;
}
```

- **Real-life Application:**

  1. **Typography in Websites:** Designers use font attributes to ensure that the text is legible and matches the style of the website *(Designers font attributes ka use karte hain taaki text readable ho aur website ke style ke saath match kare).*
  2. **Branding:** Companies use specific fonts to maintain a brand's identity *(Companies specific fonts ka use karti hain apne brand ki identity ko maintain karne ke liye).*

10. Explain Flex Layout in detail with example.

(8 CO-2)

- **Definition:**
  The Flexbox layout is a one-dimensional layout model in CSS that allows elements to be arranged either horizontally or vertically, making it easier to design flexible and responsive web layouts *(Flexbox layout ek one-dimensional layout model hai CSS mein, jisme elements ko horizontally ya vertically arrange kiya ja sakta hai, aur yeh flexible aur responsive web layouts design karna asaan banata hai).*
- **Use/Purpose:**
  Flexbox is used to create responsive layouts where elements can grow, shrink, or be spaced out evenly in relation to each other *(Flexbox ka use responsive layouts banane ke liye hota hai jahan elements ek dusre ke relation mein grow, shrink ya evenly spaced ho sakte hain).*

Syntax:
css

```
.container {

  display: flex;
  justify-content: space-between; /* Spacing between items */
  align-items: center; /* Align items vertically in the
center */
}

.item {
  flex: 1; /* Allow each item to grow equally */
}
```

Example:
css

```
.container {

  display: flex;
  justify-content: center; /* Center align items horizontally
*/
  align-items: center; /* Center align items vertically */
}

.item {
  flex: 1; /* All items will take equal space */
  padding: 10px;
  background-color: lightcoral;
}
```

HTML:
html

```
<div class="container">
  <div class="item">Item 1</div>
  <div class="item">Item 2</div>
  <div class="item">Item 3</div>
</div>
```

- **Real-life Application:**
  - **Responsive Navigation Bars:** Flexbox is widely used for creating responsive navigation bars, where menu items align horizontally on larger screens and vertically on smaller screens *(Flexbox ka use responsive navigation bars banane ke liye hota hai, jahan menu items large screens par horizontally aur chhote screens par vertically align hote hain).*
  - **Grid Layouts:** Flexbox is helpful for creating flexible grid layouts, where items adjust based on screen size *(Flexbox grid layouts banane mein madad karta hai, jahan items screen size ke hisaab se adjust hote hain).*

11. What is Grid Layout? Explain Grid Layout in detail with example.

(8 CO-2)

- **Definition:**
  The CSS Grid Layout is a two-dimensional layout system in CSS that allows for the creation of complex layouts with rows and columns *(CSS Grid Layout ek two-dimensional layout system hai CSS mein jo rows aur columns ke saath complex layouts banane mein madad karta hai).*

- **Use/Purpose:**
  Grid Layout is used to create grid-based designs with rows and columns, providing better control over the placement of elements *(Grid Layout ka use rows aur columns ke saath grid-based designs banane ke liye hota hai, jisse elements ke placement ko achhe se control kiya ja sakta hai).*

Syntax:
css

```
.container {

  display: grid;
  grid-template-columns: repeat(3, 1fr); /* Create 3 equal
columns */
  grid-gap: 10px; /* Space between grid items */
}

.item {
  background-color: lightgreen;
  padding: 20px;
}
```

Example:

css

```
.container {

  display: grid;
  grid-template-columns: 1fr 2fr 1fr; /* 3 columns, with the
middle one being twice as wide */
  grid-gap: 20px; /* Add space between items */
}

.item {
  background-color: lightblue;
  padding: 10px;
  text-align: center;
}
```

HTML:

html

```
<div class="container">
  <div class="item">Item 1</div>
  <div class="item">Item 2</div>
  <div class="item">Item 3</div>
</div>
```

- **Real-life Application:**

- **Website Layouts:** Grid Layout is ideal for creating complex page layouts, such as magazine or newspaper-style designs with multiple columns *(Grid Layout complex page layouts banane ke liye ideal hai, jaise magazine ya newspaper-style designs jisme multiple columns ho)*.
- **Dashboard Interfaces:** It is also used in creating dashboard interfaces where different content blocks align in rows and columns *(Yeh dashboard interfaces banane mein bhi use hota hai jahan content blocks rows aur columns mein align hote hain)*.

12. What is the difference between CSS and CSS3?

(4 CO-2)

- **Definition:**
  - **CSS:** CSS (Cascading Style Sheets) is a styling language that defines how HTML elements are displayed on a web page *(CSS (Cascading Style Sheets) ek styling language hai jo define karti hai ki HTML elements web page par kaise display honge)*.
  - **CSS3:** CSS3 is the latest version of CSS that introduced new features like animations, transitions, and more advanced selectors *(CSS3 CSS ka latest version hai jo naye features introduce karta hai jaise animations, transitions, aur advanced selectors)*.
- **Use/Purpose:**
  - **CSS:** CSS is used to style the appearance of a website *(CSS ka use website ke appearance ko style karne ke liye hota hai)*.
  - **CSS3:** CSS3 is used to enhance the styling capabilities of websites with advanced features like rounded corners, shadows, gradients, and animations *(CSS3 ka use websites ke styling capabilities ko enhance karne ke liye hota hai, jaise rounded corners, shadows, gradients, aur animations)*.
- **Key Differences:**
  - **CSS:** Lacks features like animations, transitions, and advanced media queries *(CSS mein animations, transitions, aur advanced media queries jaise features nahi hote)*.
  - **CSS3:** Introduces advanced features like animations, transitions, shadows, and gradients *(CSS3 mein advanced features jaise animations, transitions, shadows, aur gradients hote hain)*.
- **Real-life Application:**
  - **CSS:** Used for basic styling, such as setting colors, fonts, and layouts *(CSS ka use basic styling ke liye hota hai, jaise colors, fonts, aur layouts set karna)*.
  - **CSS3:** CSS3 is used to create modern and dynamic web pages with enhanced effects *(CSS3 ka use modern aur dynamic web pages banane ke liye hota hai jisme enhanced effects hote hain)*.

13. Compare Hexadecimal color codes with RGB values? What does ‘a’ in the RGBA mean?

(4 CO-2)

- **Definition:**
  - **Hexadecimal Color Code:** A hexadecimal color code represents a color using a 6-digit combination of letters and numbers *(Hexadecimal color code ek color ko represent karta hai 6-digit combination se jo letters aur numbers ka use karta hai)*.

  - **RGB:** RGB (Red, Green, Blue) is a color model that uses the combination of red, green, and blue light to create colors *(RGB (Red, Green, Blue) ek color model hai jo red, green, aur blue light ke combination ka use karke colors create karta hai)*.
  - **RGBA:** RGBA is an extension of RGB, where 'A' stands for Alpha, representing opacity *(RGBA ek extension hai RGB ka, jisme 'A' ka matlab Alpha hota hai, jo opacity ko represent karta hai)*.
- **Use/Purpose:**
  - **Hexadecimal Color Code:** Used in web design for specifying colors *(Hexadecimal color codes ka use web design mein colors specify karne ke liye hota hai)*.
  - **RGB:** RGB is widely used for defining colors in web design *(RGB ka use web design mein colors define karne ke liye hota hai)*.
  - **RGBA:** RGBA is used when you need to set transparency or opacity along with color *(RGBA ka use tab hota hai jab aapko color ke saath transparency ya opacity set karni ho)*.
- **Example:**
  - **Hexadecimal Color Code:** `#FF5733` (A bright orange color).
  - **RGB:** `rgb(255, 87, 51)` (A bright orange color using RGB values).
  - **RGBA:** `rgba(255, 87, 51, 0.5)` (A semi-transparent orange color with 50% opacity).
- **Real-life Application:**
  - **Hexadecimal:** Often used in HTML and CSS for defining colors *(Hexadecimal ka use HTML aur CSS mein colors define karne ke liye hota hai)*.
  - **RGB and RGBA:** Used in creating colors for backgrounds, borders, and text in web design *(RGB aur RGBA ka use web design mein backgrounds, borders, aur text ke liye colors create karne mein hota hai)*.

14. List some of the CSS frameworks.

(3 CO-2)

- **Definition:**
  CSS frameworks are pre-written CSS code that provides ready-to-use styles and layout components for faster web development *(CSS frameworks pre-written CSS code hote hain jo ready-to-use styles aur layout components provide karte hain, taaki web development jaldi ho sake)*.
- **Use/Purpose:**
  CSS frameworks help developers create professional, consistent, and responsive websites more efficiently by offering reusable code and components *(CSS frameworks developers ko professional, consistent, aur responsive websites banane mein madad karte hain, jo reusable code aur components offer karte hain)*.
- **Popular CSS Frameworks:**
  - **Bootstrap:** A highly popular framework that offers ready-to-use components, grid system, and responsive design tools *(Bootstrap ek popular framework hai jo ready-to-use components, grid system aur responsive design tools provide karta hai)*.
  - **Foundation:** A responsive front-end framework providing flexible and customizable grid systems *(Foundation ek responsive front-end framework hai jo flexible aur customizable grid systems provide karta hai)*.
  - **Bulma:** A modern CSS framework based on Flexbox, easy to use for building responsive web designs *(Bulma ek modern CSS framework hai jo Flexbox par based hai, aur responsive web designs banane mein aasaan hai)*.

    - **Tailwind CSS:** A utility-first framework that provides low-level CSS utilities for fast design creation *(Tailwind CSS ek utility-first framework hai jo fast design creation ke liye low-level CSS utilities provide karta hai).*
- **Real-life Application:**
    - **Website Development:** These frameworks are used by developers to quickly build responsive websites with predefined layouts and components *(Yeh frameworks developers dwara websites banane ke liye use hote hain jahan predefined layouts aur components hote hain).*

15. What is Z-index?

(3 CO-2)

- **Definition:**
  The `z-index` property in CSS determines the stacking order of elements on the webpage, allowing some elements to be placed in front of or behind others *(CSS mein `z-index` property elements ke stacking order ko determine karti hai, jisse kuch elements dusre elements ke aage ya peeche rakhe ja sakte hain).*
- **Use/Purpose:**
  `z-index` is used to control the overlapping of elements, such as when one element is positioned over another *(Z-index ka use elements ke overlapping ko control karne ke liye hota hai, jaise jab ek element dusre ke upar positioned ho).*

Syntax:css

```css
.element {
  position: absolute;
  z-index: 10;
}
```

Example:css

```css
.box1 {
  position: absolute;
  z-index: 1;
  background-color: red;
}

.box2 {
  position: absolute;
  z-index: 2;
  background-color: blue;
}
```

-

In this example, `.box2` will be stacked on top of `.box1` because of the higher `z-index` value.

- **Real-life Application:**
  - **Layered UI Elements:** `z-index` is used to control the visibility of elements like modals, dropdowns, or tooltips that need to appear above other content *(Z-index ka use UI elements jaise modals, dropdowns, ya tooltips ko control karne mein hota hai jo dusre content ke upar dikhne chahiye).*

16. What does margin: 40px 100px 120px 80px signify?

(4 CO-2)

- **Definition:**
  The `margin` property in CSS defines the space around an element. It can be set for all four sides in a specific order: top, right, bottom, and left *(CSS mein `margin` property element ke around space define karti hai. Yeh chaar sides ke liye ek specific order mein set hoti hai: top, right, bottom, aur left).*

- **Use/Purpose:**
  The `margin` property is used to control the space between elements, preventing them from being too close or overlapping *(Margin ka use elements ke beech mein space control karne ke liye hota hai, taaki woh ek dusre ke bahut kareeb ya overlap na karein).*

- **Syntax:**
  css
  ```
  margin: top right bottom left;
  ```

Example:
css

```
.container {

  margin: 40px 100px 120px 80px;
}
```

This means:

  - `40px` is the margin for the top.
  - `100px` is the margin for the right.
  - `120px` is the margin for the bottom.
  - `80px` is the margin for the left.
- **Real-life Application:**
  - **Spacing Between Sections:** Used to create space between elements or sections in web layouts, making the content more visually appealing *(Yeh elements ya sections ke beech mein space create karne ke liye use hota hai, taaki content visually appealing ho).*

17. What is responsive web design?

(3 CO-2)

- **Definition:**
  Responsive web design refers to creating web pages that automatically adjust their layout and content based on the screen size of the device being used *(Responsive web design ka matlab hai aise web pages banana jo apne layout aur content ko device ke screen size ke hisaab se automatically adjust karte hain).*
- **Use/Purpose:**
  It ensures that websites provide an optimal viewing experience across different devices, such as smartphones, tablets, and desktops *(Yeh ensure karta hai ki websites alag-alag devices jaise smartphones, tablets, aur desktops par optimal viewing experience de).*

Syntax (Using Media Queries):

css

```css
@media (max-width: 768px) {

  .container {
    width: 100%;
  }
}
```

Example:

css

```css
@media (max-width: 600px) {

  .navbar {
    flex-direction: column; /* Stack the navigation items
vertically */
  }
}
```

- **Real-life Application:**
  - **Mobile-Friendly Websites:** Ensures that websites are mobile-friendly and work seamlessly across various devices *(Yeh ensure karta hai ki websites mobile-friendly ho aur alag-alag devices par seamlessly kaam karein).*

18. What are the limitations of CSS?

(4 CO-2)

- **Definition:**
  CSS is a powerful styling language, but it has its limitations, such as lack of support for complex animations, limited browser compatibility, and limited control over layout behavior

(CSS ek powerful styling language hai, lekin iski kuch limitations hain, jaise complex animations ka lack, limited browser compatibility, aur layout behavior par limited control).

- **Use/Purpose:**
  Understanding CSS limitations helps developers decide when to use it alongside other technologies like JavaScript or CSS preprocessors *(CSS ki limitations ko samajhna developers ko madad karta hai yeh decide karne mein ki kab use CSS ke saath dusri technologies jaise JavaScript ya CSS preprocessors ki zarurat hai).*
- **Limitations:**
  - **Limited Layout Control:** CSS alone cannot provide complex layouts without using frameworks like Flexbox or Grid *(CSS khud complex layouts provide nahi kar sakta bina Flexbox ya Grid frameworks ke).*
  - **Cross-Browser Compatibility:** CSS may not always render consistently across all browsers *(CSS har browser mein consistently render nahi hota).*
  - **Animation Limitations:** CSS animations are limited compared to JavaScript *(CSS animations JavaScript ke comparison mein limited hote hain).*
- **Real-life Application:**
  - **Combining CSS with JavaScript:** Developers often combine CSS with JavaScript for more dynamic interactions and behaviors *(Developers zyada dynamic interactions aur behaviors ke liye CSS ko JavaScript ke saath combine karte hain).*

19. How is padding and margin different from one another in CSS with example?

(4 CO-2)

- **Definition:**
  - **Padding:** Padding is the space between the content of an element and its border *(Padding wo space hota hai jo element ke content aur border ke beech hota hai).*
  - **Margin:** Margin is the space outside the border, between the element and other surrounding elements *(Margin wo space hota hai jo border ke baahar hota hai, element aur surrounding elements ke beech).*
- **Use/Purpose:**
  - Padding is used to create space inside an element, ensuring the content doesn't touch the edges of the box *(Padding ka use element ke andar space create karne ke liye hota hai, taaki content box ke edges se na lage).*
  - Margin is used to create space between elements, ensuring they don't overlap *(Margin ka use elements ke beech mein space create karne ke liye hota hai, taaki woh overlap na karein).*

Syntax:

```
css
.box {

  padding: 20px;
  margin: 10px;
}
```

Example:
css

```
.container {
  padding: 20px;
  margin: 10px;
}
```

In this example:

- Padding adds space inside the box, between the content and the border *(Padding box ke andar space add karta hai, content aur border ke beech).*
- Margin adds space outside the box, pushing other elements away *(Margin box ke baahar space add karta hai, doosre elements ko door push karta hai).*

- **Real-life Application:**
  - **Form Layouts:** Padding is used to give space between text and input fields, while margin is used to create space between different form elements *(Form layouts mein padding text aur input fields ke beech mein space dene ke liye hota hai, aur margin alag form elements ke beech mein space create karne ke liye hota hai).*

20. How are block-level and inline elements different from one another in CSS?

(4 CO-2)

- **Definition:**
  - **Block-level Elements:** Block-level elements take up the full width of their container, starting on a new line *(Block-level elements apne container ki poori width occupy karte hain aur naye line se shuru hote hain).*
  - **Inline Elements:** Inline elements take up only the space required by their content and do not start on a new line *(Inline elements sirf apne content ki zarurat ke mutabik space lete hain aur naye line pe start nahi hote).*
- **Use/Purpose:**
  - Block-level elements are used for creating large structural components like headers, paragraphs, and divs *(Block-level elements ka use bade structural components jaise headers, paragraphs, aur divs banane ke liye hota hai).*
  - Inline elements are used for smaller content like links or text that should appear within other content without breaking the layout *(Inline elements ka use chhote content jaise links ya text ke liye hota hai, jo doosre content ke andar bina layout break kiye appear hote hain).*

Syntax:
css

```
.block {

  display: block;
}

.inline {
  display: inline;
}
```

Example:

```
html



<div class="block">This is a block-level element.</div>

<span class="inline">This is an inline element.</span>
```

- **Real-life Application:**
  - **Text and Paragraph Layout:** Block-level elements like paragraphs create sections in text content, whereas inline elements like links fit naturally within text without breaking the flow *(Text aur paragraph layouts mein block-level elements jaise paragraphs text content mein sections create karte hain, jabki inline elements jaise links text ke andar naturally fit ho jaate hain bina flow break kiye)*.

21. Using HTML, CSS create a hover and focus effect for navigation items, using CSS transformations.

(8 CO-2)

- **Definition:**
  The hover and focus effects in CSS allow developers to add interactive styles when a user hovers over or focuses on an element *(CSS mein hover aur focus effects developers ko interactive styles add karne ki suvidha dete hain jab user kisi element par hover ya focus karta hai)*.
  - **Hover:** Applied when a user moves the cursor over an element *(Hover tab apply hota hai jab user kisi element par cursor move karta hai)*.
  - **Focus:** Applied when a user focuses on an element *(Focus tab apply hota hai jab user kisi element par focus karta hai)*.
- **Use/Purpose:**
  Hover and focus effects are used to provide visual feedback to users, improving user

interaction with navigation items *(Hover aur focus effects ka use visual feedback dene ke liye hota hai, taaki users ka interaction navigation items ke saath behtar ho sake).*

Syntax (Hover and Focus):

css

```
nav a {

  text-decoration: none;
  transition: transform 0.3s ease;
}

nav a:hover {
  transform: scale(1.1); /* Scales up the item on hover */
}

nav a:focus {
  outline: none;
  transform: scale(1.1); /* Same effect when focused */
}
```

Example:

html

```
<nav>

  <a href="#">Home</a>
  <a href="#">About</a>
  <a href="#">Services</a>
  <a href="#">Contact</a>
</nav>
```

-

In this example:

  - On hover, the navigation items will scale up *(items hover par scale ho jaayenge).*
  - On focus (when tabbed to), the items will also scale up *(focus par bhi items scale ho jaayenge).*

- **Real-life Application:**

- **Navigation Menus:** Used to enhance the interactivity of navigation menus, making them more engaging and user-friendly *(Navigation menus mein yeh effects use kiye jaate hain, taaki unki interactivity enhance ho aur user-friendly ho sake).*

22. How would you select all paragraphs within a div with the class "container" using CSS selectors?

(4 CO-2)

- **Definition:**
  CSS selectors are patterns used to select elements on the web page so that styles can be applied to them *(CSS selectors patterns hote hain jo web page ke elements ko select karne ke liye use kiye jaate hain, taaki unhe styles apply kiya ja sake).*
- **Use/Purpose:**
  The purpose of using CSS selectors is to target specific elements and apply styles to them *(CSS selectors ka use specific elements ko target karne aur unhe styles apply karne ke liye hota hai).*

Syntax:
css

```css
.container p {
  /* styles for all paragraphs inside .container */
}
```

Example:
css

```css
.container p {
  color: blue;
  font-size: 16px;
}
```

In this example, all `<p>` elements inside a div with the class "container" will have blue text and a font size of 16px.

- **Real-life Application:**

    - **Styling Content Sections:** This is useful for styling specific sections of a website, such as paragraphs within a certain container *(Yeh specific sections, jaise kisi container ke andar paragraphs ko style karne ke liye useful hota hai).*

23. Compare and contrast Flexbox and Grid Layouts in CSS, highlighting their main differences and use cases.

(8 CO-2)

- **Definition:**
    - **Flexbox:** Flexbox is a layout model that allows items to be arranged in one-dimensional rows or columns, where the items can adjust their size to fill the space *(Flexbox ek layout model hai jisme items ko ek-dimensional rows ya columns mein arrange kiya jaata hai, aur items apne size ko space ko bharne ke liye adjust kar sakte hain).*
    - **Grid Layout:** Grid Layout is a two-dimensional layout system that allows items to be placed into rows and columns simultaneously *(Grid Layout ek two-dimensional layout system hai jo items ko rows aur columns dono mein ek saath place karne ki suvidha deta hai).*
- **Use/Purpose:**
    - **Flexbox** is ideal for simpler layouts where items need to adjust based on the space available *(Flexbox simple layouts ke liye ideal hai, jahan items ko available space ke hisaab se adjust karna hota hai).*
    - **Grid Layout** is best suited for complex layouts where items need to be positioned both vertically and horizontally *(Grid Layout complex layouts ke liye best hai, jahan items ko vertical aur horizontal dono directions mein position karna hota hai).*
- **Main Differences:**
    - **Flexbox:**
        - One-dimensional (rows or columns) *(Ek-dimensional: rows ya columns).*
        - Items are distributed along the main axis *(Items main axis ke along distribute hote hain).*
    - **Grid Layout:**
        - Two-dimensional (both rows and columns) *(Do-dimensional: rows aur columns dono).*
        - Allows precise placement of items within both rows and columns *(Dono rows aur columns mein items ki precise placement allow karta hai).*

Example (Flexbox):

```css
.container {

  display: flex;
  justify-content: space-between;
}

.item {
  width: 30%;
}
```

Example (Grid):
css

```
.container {

  display: grid;
  grid-template-columns: repeat(3, 1fr);
  gap: 10px;
}

.item {
  background-color: lightblue;
}
```

- **Real-life Application:**
  - **Flexbox:** Used for navigation bars, card layouts, and simple forms *(Flexbox ka use navigation bars, card layouts, aur simple forms mein hota hai).*
  - **Grid Layout:** Used for complex web pages like magazine layouts, photo galleries, or dashboards *(Grid Layout complex web pages jaise magazine layouts, photo galleries, ya dashboards ke liye use hota hai).*

24. Provide an example of how you would create a simple two-column layout using Flexbox.

(8 CO-2)

- **Definition:**
  Flexbox can be used to create layouts that adjust dynamically. A simple two-column layout can be achieved by using Flexbox to distribute space between two elements *(Flexbox ka use layouts create karne ke liye hota hai jo dynamically adjust hote hain. Ek simple two-column layout Flexbox ka use karke do elements ke beech space distribute karke achieve kiya ja sakta hai).*

- **Use/Purpose:**
  The two-column layout is common for websites and blogs, where content is divided into two sections *(Two-column layout websites aur blogs mein common hai, jahan content ko do sections mein divide kiya jaata hai).*

Syntax:
css

```
.container {

  display: flex;
  justify-content: space-between;
}

.left-column, .right-column {
  flex: 1; /* Both columns take up equal space */
}
```

Example:
html

```
<div class="container">

  <div class="left-column">
    <p>Left Column Content</p>
  </div>
  <div class="right-column">
    <p>Right Column Content</p>
  </div>
</div>
```

- **Real-life Application:**
  - **Blog or News Website:** This layout is widely used on blogs and news websites to display main content and related articles side by side *(Yeh layout blog ya news websites mein widely use hota hai taaki main content aur related articles ko side by side dikhaya ja sake).*

25. Explain how CSS Grid Layout differs from traditional layout methods like floats and positioning.

(8 CO-2)

- **Definition:**
  - **CSS Grid Layout:** Grid Layout is a two-dimensional system, allowing both rows and columns to be used simultaneously *(CSS Grid Layout ek two-dimensional system hai, jo rows aur columns dono ko simultaneously use karne ki suvidha deta hai).*
  - **Traditional Layouts (Floats/Positioning):** Floats and positioning methods are one-dimensional, requiring more manual control for positioning elements and managing

their space *(Floats aur positioning methods ek-dimensional hote hain, aur elements ko position karne aur unke space ko manage karne ke liye zyada manual control ki zarurat hoti hai).*

- **Use/Purpose:**
  - CSS Grid is best used for complex layouts, whereas floats and positioning are better suited for simpler layouts *(CSS Grid complex layouts ke liye best hai, jabki floats aur positioning simpler layouts ke liye better suited hote hain).*
  - Grid Layout automatically adjusts the size of items based on their placement, whereas float-based layouts require clearing the floats and are prone to issues with overlapping *(Grid Layout apne items ke size ko automatically adjust kar leta hai unki placement ke hisaab se, jabki float-based layouts ko floats ko clear karna padta hai aur overlapping issues bhi ho sakte hain).*

Example (CSS Grid):

css

```css
.container {

  display: grid;
  grid-template-columns: 1fr 1fr;
  gap: 20px;
}

.item {
  background-color: lightgreen;
}
```

Example (Traditional Floats):

css

```css
.container {

  width: 100%;
}

.item {
  float: left;
  width: 48%;
  margin-right: 4%;
}
```

- **Real-life Application:**
  - **Grid Layout:** Used for complex page layouts, like dashboards or websites with multiple sections *(Grid Layout complex page layouts jaise dashboards ya websites ke liye use hota hai jahan multiple sections hote hain)*.
  - **Float and Positioning:** Used for simpler layouts or when working with legacy projects that require specific placements *(Float aur positioning simpler layouts ke liye ya legacy projects mein use hoti hai jahan specific placements ki zarurat hoti hai)*.

26. Explain the display property in CSS and its various values.

(8 CO-2)

- **Definition:**
  The `display` property in CSS defines how an element is displayed on the page *(Display property CSS mein ek element ko page par kaise display kiya jaayega, yeh define karta hai)*.
  It determines the layout behavior of an element and can change how elements interact with other elements around them *(Yeh element ke layout behavior ko determine karta hai aur yeh decide karta hai ki wo element doosre elements ke saath kaise interact karega)*.

- **Use/Purpose:**
  The `display` property is used to define how an element behaves in the document flow, whether it should take up space or not, and whether it should be inline or block *(Display property ka use yeh decide karne ke liye hota hai ki element document flow mein kaise behave karega, kya wo space lega ya nahi, aur kya wo inline ya block hoga)*.

- **Values of `display` Property:**
  - `block`: The element takes up the full width of its container, starting on a new line *(Block element container ki full width occupy karta hai, aur naye line se start hota hai)*.
  - `inline`: The element only takes up as much width as it needs and doesn't start on a new line *(Inline element sirf utni width leta hai jitni zarurat hoti hai, aur naye line par start nahi hota)*.
  - `inline-block`: The element is treated like an inline element but allows setting width and height *(Inline-block element inline element ki tarah treat hota hai, lekin width aur height set karne ki suvidha deta hai)*.
  - `none`: The element is completely removed from the document flow *(Element ko document flow se completely remove kar diya jaata hai)*.

Syntax:
css

```css
.element {
  display: block;  /* Can be inline, block, inline-block, or
none */
}
```

Example:
css

```
div {

  display: block;   /* Takes full width of container */
}

span {
  display: inline;   /* Takes only required width */
}
```

- **Real-life Application:**
  - **Navigation Menus:** Block display is often used for menu items and headers, whereas inline display is used for links and buttons *(Block display navigation menus aur headers ke liye use hota hai, jabki inline display links aur buttons ke liye use hota hai).*
  - **Form Elements:** Form labels and buttons may use inline-block for flexible layout and control over dimensions *(Form elements jaise labels aur buttons flexible layout aur dimensions ko control karne ke liye inline-block use karte hain).*

27. Describe how you would create rounded corners for a box element using CSS.

(3 CO-2)

- **Definition:**
  To create rounded corners for a box element in CSS, the `border-radius` property is used *(CSS mein box element ke rounded corners banane ke liye `border-radius` property use hoti hai).*

- **Use/Purpose:**
  The `border-radius` property is used to create rounded corners for elements, making the design smoother and more visually appealing *(Border-radius property elements ke liye rounded corners create karti hai, jo design ko smoother aur visually appealing banata hai).*

Syntax:
css

```
.box {
  border-radius: 10px;  /* Creates rounded corners */
}
```

Example:
css

```
.container {

  border-radius: 15px;  /* Rounded corners for the box */
  background-color: lightblue;
  padding: 20px;
}
```

- **Real-life Application:**
  - **Buttons:** Rounded corners are commonly used in buttons to make them look more modern and appealing *(Buttons mein rounded corners ka use unhe modern aur appealing banane ke liye hota hai)*.
  - **Cards:** Cards, which are often used in design systems, can have rounded corners to create a softer, more user-friendly interface *(Design systems mein jo cards hote hain, unmein rounded corners ka use interface ko softer aur user-friendly banane ke liye hota hai)*.

28. Discuss the use of border images in CSS and provide an example.

(4 CO-2)

- **Definition:**
  Border images in CSS allow an image to be used as the border of an element *(CSS mein border images allow karti hain ek image ko element ke border ke roop mein use karna)*.
- **Use/Purpose:**
  The `border-image` property allows you to apply an image as a border, giving you more design flexibility *(Border-image property aapko image ko border ke roop mein apply karne ki suvidha deti hai, jo design mein zyada flexibility deti hai)*.

Syntax:
css

```
.element {

  border-image: url('border-image.png') 30 round;
}
```

Example:

```css
.box {

  border: 10px solid transparent;
  border-image: url('border-pattern.png') 30 round;
}
```

- **Real-life Application:**
  - **Decorative Borders:** Border images are often used for adding decorative elements around boxes, such as image frames or custom borders *(Border images ka use boxes ke around decorative elements, jaise image frames ya custom borders, add karne ke liye hota hai).*

29. Discuss the role of CSS frameworks like Bootstrap in facilitating responsive web design.

(4 CO-2)

- **Definition:**
  CSS frameworks like Bootstrap provide pre-built CSS components and grid systems to help developers create responsive websites quickly *(CSS frameworks jaise Bootstrap pre-built CSS components aur grid systems provide karte hain jo developers ko responsive websites jaldi banane mein madad karte hain).*

- **Use/Purpose:**
  These frameworks help speed up the development process and ensure consistency across different screen sizes *(Yeh frameworks development process ko fast karte hain aur different screen sizes par consistency ensure karte hain).*

- **Key Features of Bootstrap:**
  - **Grid System:** A 12-column grid system that allows responsive layout design *(Grid system: Ek 12-column grid system jo responsive layout design ki suvidha deta hai).*
  - **Pre-designed Components:** Provides pre-designed components like buttons, modals, navbars, etc. *(Pre-designed components: Pre-designed components jaise buttons, modals, navbars, etc. provide karta hai).*
  - **Mobile-first Approach:** Bootstrap is built with a mobile-first approach, meaning the design is optimized for smaller screens first and then scaled up for larger screens *(Mobile-first approach: Bootstrap mobile-first approach ke saath built hota hai, iska matlab hai ki design pehle chhote screens ke liye optimize hota hai aur phir larger screens ke liye scale up hota hai).*
- **Syntax:**
  Bootstrap's syntax involves using pre-built classes *(Bootstrap ka syntax pre-built classes ka use karta hai).*

Example:

html

```
<div class="container">

  <div class="row">
    <div class="col-md-6">
      <p>This is a responsive column!</p>
    </div>
    <div class="col-md-6">
      <p>This is another responsive column!</p>
    </div>
  </div>
</div>
```

- **Real-life Application:**
    - **Responsive Websites:** Bootstrap is widely used for creating responsive websites that work on multiple devices like desktops, tablets, and smartphones *(Bootstrap ka use responsive websites banane ke liye hota hai jo multiple devices par kaam karte hain, jaise desktops, tablets, aur smartphones).*