

Assignment- Mernstack- Bootstrap Basic & Advanced

Responsive Web Design with Media Queries:

Theory Assignment:

Question 1: What are media queries in CSS, and why are they important for responsive design?

Media queries in CSS allow you to apply styles based on the characteristics of the user's device, such as screen width, height, orientation, or resolution. They are crucial for creating **responsive designs**, ensuring that a website looks and functions well on different devices (desktops, tablets, smartphones).

Importance:

1. **Adaptability:** Media queries enable a website to adapt its layout and styling to various screen sizes and devices.
2. **Improved User Experience:** Ensures content is accessible and easy to navigate on any device.
3. **Mobile-First Design:** Allows developers to design for mobile devices first and progressively enhance for larger screens.

Example:

```
@media (min-width: 768px) {  
  .container {  
    display: flex;  
  }  
}
```

This applies specific styles when the screen width is 768px or more.

Question 2: Write a basic media query that adjusts the font size of a webpage for screens smaller than 600px.

Basic Media Query for Adjusting Font Size:

```
@media (max-width: 600px) {  
  body {  
    font-size: 14px;  
  }  
}
```

This media query reduces the font size to 14px for screens with a width of 600px or less, enhancing readability on smaller devices.

Lab Assignment :

- Task: Build a responsive webpage that includes:
- A navigation bar.
- A content section with two columns.
- A footer.

Additional Requirements:

- Use media queries to make the webpage responsive for mobile devices.
- On smaller screens (below 768px), stack the columns vertically.
- Adjust the font sizes and padding to improve readability on mobile.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Responsive Webpage</title>
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <nav class="navbar">
    <ul>
      <li><a href="#">Home</a></li>
      <li><a href="#">About</a></li>
      <li><a href="#">Services</a></li>
      <li><a href="#">Contact</a></li>
    </ul>
  </nav>
  <div class="content">
    <div class="column">
      <h2>Column 1</h2>
      <p>Content for the first column goes here.</p>
    </div>
    <div class="column">
      <h2>Column 2</h2>
      <p>Content for the second column goes here.</p>
    </div>
  </div>
  <footer class="footer">
    <p>Footer content goes here.</p>
  </footer>
</body>
</html>
```

```

* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}

.navbar {
  background-color: #333;
  overflow: hidden;
}

.navbar ul {
  list-style-type: none;
  padding: 10px;
  display: flex;
  justify-content: space-around;
}

.navbar li {
  display: inline;
}

.navbar a {
  color: white;
  text-decoration: none;
  padding: 14px 20px;
  display: block;
}

.navbar a:hover {
  background-color: #ddd;
  color: black;
}

.content {
  display: flex;
  justify-content: space-between;
  padding: 20px;
}

.column {
  width: 48%;
  background-color: #f4f4f4;
  padding: 15px;
  border: 1px solid #ddd;
}

.footer {
  background-color: #333;
  color: white;
  text-align: center;
  padding: 10px 0;
}

@media (max-width: 768px) {
  .content {
    flex-direction: column;
  }

  .column {
    width: 100%;
    margin-bottom: 15px;
  }

  .navbar ul {
    flex-direction: column;
  }

  .navbar li {
    text-align: center;
  }

  body {
    font-size: 16px;
    padding: 10px;
  }
}

```



Typography and Web Fonts:

Theory Assignment:

Question 1: Explain the difference between web-safe fonts and custom web fonts. Why might you use a web-safe font over a custom font?

Web-safe fonts are standard fonts pre-installed on most devices, ensuring consistent appearance across different platforms. Examples include Arial, Times New Roman, and Courier New.

Custom web fonts are fonts not pre-installed on devices. They are loaded from external sources (like Google Fonts) and offer greater design flexibility and uniqueness.

Differences:

1. **Compatibility:** Web-safe fonts are universally supported, ensuring consistent display. Custom fonts might not render properly if not loaded correctly.
2. **Performance:** Web-safe fonts load faster since they're already on the user's device. Custom fonts can slow down page load times as they require additional resources.

Why Use Web-Safe Fonts:

- **Reliability:** Guaranteed to work across all browsers and devices.
- **Performance:** Faster loading times, improving user experience, especially on slower connections.
- **Fallback:** As a fallback option when custom fonts fail to load, ensuring readability.

Web-safe fonts are a safer choice for performance and compatibility, while custom fonts offer more unique design options.

Question 2: What is the font-family property in CSS? How do you apply a custom Google Font to a webpage?

font-family is a CSS property used to specify the font of text. It defines a prioritized list of font names and fallback options to ensure text displays properly if the preferred font is unavailable.

Applying a Custom Google Font:

1.Import the Font:

- Use the `<link>` tag in the `<head>` section of your HTML to import the font

```
<link href="https://fonts.googleapis.com/css2?family=Roboto&display=swap" rel="stylesheet">
```

2.Apply the Font in CSS:

- Use the `font-family` property to apply the imported font.

```
body {  
  font-family: 'Roboto', sans-serif;  
}
```

Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Google Font Example</title>
  <link href="https://fonts.googleapis.com/css2?family=Roboto&display=swap" rel="stylesheet">
  <style>
    body {
      font-family: 'Roboto', sans-serif;
    }
  </style>
</head>
<body>
  <p>This text uses the Roboto font from Google Fonts.</p>
</body>
</html>
```

font-family ensures the correct font is used, and importing Google Fonts adds a custom style to the webpage.

Lab Assignment:

Task: Create a blog post layout with the following:

- A title, subtitle, and body content.
- Use at least two different fonts (one for headings, one for body content).
- Style the text to be responsive and easy to read.

Additional Requirements:

- Use a custom font from Google Fonts.
- Adjust line-height, font-size, and spacing for improved readability.

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Blog Post Layout</title>
  <link href="https://fonts.googleapis.com/css2?family=Lora:wght@700&family=Open+Sans&display=swap" rel="stylesheet">
  <link rel="stylesheet" href="styles.css">
</head>
<body>
  <article class="blog-post">
    <h1 class="blog-title">Blog Post Title</h1>
    <h2 class="blog-subtitle">A Catchy Subtitle</h2>
    <p class="blog-content">
      Lorem ipsum dolor sit amet, consectetur adipiscing elit. Curabitur nec leo at libero sollicitudin aliquet.
      Sed nec nibh vitae ipsum suscipit accumsan. Fusce vehicula justo at ipsum facilisis, nec auctor ex cursus.
      Quisque vel nulla eget nunc volutpat vestibulum.
    </p>
    <p class="blog-content">
      Suspendisse potenti. Mauris vestibulum neque at leo pharetra, id scelerisque velit blandit.
      Nunc eget risus sed libero bibendum posuere vel et augue. Praesent non quam a felis vulputate fringilla.
    </p>
  </article>
</body>
</html>
```

Blog Post Title

A Catchy Subtitle

Lorem ipsum dolor sit amet, consectetur adipiscing elit. Curabitur nec leo at libero sollicitudin aliquet. Sed nec nibh vitae ipsum suscipit accumsan. Fusce vehicula justo at ipsum facilisis, nec auctor ex cursus. Quisque vel nulla eget nunc volutpat vestibulum.

Suspendisse potenti. Mauris vestibulum neque at leo pharetra, id scelerisque velit blandit. Nunc eget risus sed libero bibendum posuere vel et augue. Praesent non quam a felis vulputate fringilla.


```
* {
  margin: 0;
  padding: 0;
  box-sizing: border-box;
}

.blog-post {
  max-width: 800px;
  margin: 20px auto;
  padding: 20px;
  font-family: 'Open Sans', sans-serif;
  line-height: 1.6;
  background-color: #f9f9f9;
  border: 1px solid #ddd;
  border-radius: 8px;
}

.blog-title {
  font-family: 'Lora', serif;
  font-size: 2.5em;
  margin-bottom: 10px;
  color: #333;
}

.blog-subtitle {
  font-family: 'Lora', serif;
  font-size: 1.8em;
  margin-bottom: 20px;
  color: #555;
}

.blog-content {
  font-size: 1.1em;
  margin-bottom: 20px;
  color: #444;
}

@media (max-width: 768px) {
  .blog-title {
    font-size: 2em;
  }

  .blog-subtitle {
    font-size: 1.5em;
  }

  .blog-content {
    font-size: 1em;
  }
}
```