

Responsive Web Design with CSS Media Queries:

- **Responsive Web Design** (RWD) is a technique used in web development to make web pages look good and function well on all screen sizes and devices (**desktops, tablets, smartphones**, etc.). One of the main tools for achieving responsive design is CSS Media Queries.
- What Are Media Queries?
 - **CSS Media Queries** allow you to apply different styles to different screen sizes or devices. This way, you can change how your website looks based on the user's device characteristics, such as screen width, height, resolution, or orientation.
- How Do Media Queries Work?
 - A media query checks the conditions (like screen width) of the device or viewport.
 - Based on these conditions, the browser applies specific CSS rules to tailor the design to the user's screen size.
- Syntax of a Media Query

The basic syntax of a media query looks like this:

```
@media (condition) {  
    /* CSS rules to apply if condition is true */  
}
```

For example, you might want to change the layout of a webpage when the screen width is less than 600px (which is typical for mobile devices):

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

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In this case, the background color will turn light blue if the screen width is **600px or smaller**.

– **Common Media Query Conditions:**

1. **max-width:** The style applies if the device's width is less than or equal to the specified width.
2. **min-width:** The style applies if the device's width is greater than or equal to the specified width.
3. **max-height and min-height:** Similar to width, but based on the height of the viewport.
4. **orientation:** You can target devices in landscape or portrait mode.

Example of Responsive Design Using Media Queries

- Let's look at a simple example of how to use media queries to make a page responsive. The layout will change depending on the screen width.

HTML + CSS Example:

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Responsive Design with Media Queries</title>
  <style>
    /* Base styles (applies to all screen sizes) */
    body{
      font-family: Arial, sans-serif;
      margin: 0;
      padding: 0;
      background-color: #f4f4f4;
    }
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```
.container {  
  width: 80%;  
  margin: 0 auto;  
  background-color: white;  
  padding: 20px;  
  box-shadow: 0 4px 8px rgba(0, 0, 0, 0.1);  
}
```

```
h1 {  
  color: #333;  
}
```

```
.menu {  
  display: flex;  
  justify-content: space-between;  
  background-color: #333;  
  padding: 10px;  
}
```

```
.menu a {  
  color: white;  
  text-decoration: none;  
  padding: 10px 15px;  
}
```

```
.content {
```

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

.content .box {
  background-color: #ff5733;
  color: white;
  padding: 20px;
  text-align: center;
}

/* Media Query for small screens (max-width 600px) */
@media (max-width: 600px) {
  .container {
    width: 95%;
  }

  .menu {
    flex-direction: column;
    align-items: center;
  }

  .content {
    grid-template-columns: 1fr; /* Stack items in one column */
  }
```

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```
.menu a {  
    padding: 10px;  
    text-align: center;  
    width: 100%;  
}  
}  
  
/* Media Query for larger screens (min-width 601px) */  
@media (min-width: 601px) {  
    .menu {  
        background-color: #444;  
    }  
  
    .content .box {  
        background-color: #4CAF50;  
    }  
}  
  
</style>  
</head>  
<body>  
  
<div class="container">  
    <header>  
        <h1>Responsive Web Design Example</h1>  
    </header>  
  
    <nav class="menu">
```

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

<section class="content">
  <div class="box">Box 1</div>
  <div class="box">Box 2</div>
  <div class="box">Box 3</div>
  <div class="box">Box 4</div>
</section>
</div>

</body>
</html>
```