

**Lab # 05**

**Web Engineering  
Fall 2020**

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| Semester | 8th |

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| **Lesson Set 5** | **Introduction 12-Column Grid and**  **Media Query** | | | |
| **Purpose** | 1. To get basic awareness Media Query 2. To understand 12 Column Grid. 3. To learn why we are using 12 Column Grid. 4. To create sample responsive web page. | | | |
| **Procedure** | 1. Students should read the Pre-lab Reading assignment before coming to lab. 2. Students should complete the Pre-lab Writing assignment before coming to lab. 3. In the lab, students should complete Labs 5.1 through 5.4 in sequence. Your instructor will give further instructions as to grading and completion of the lab. 4. Students should complete the set of lab tasks before the next lab and get them checked by their lab instructor. | | | |
|  | **Contents** | **Pre-requisites** | **Completion Time** | **Page Number** |
|  | Pre-lab Reading Assignment | - | 20 min | 3 |
|  | Pre-lab Writing Assignment | Pre-lab Reading | 10 min | 4 |
|  | **Lab 5** | | | |
|  | **Lab 5.1**  Grid | Pre-lab reading | 30 min | 5 |
|  | **Lab 5.2**  Lab Tasks | Media Query | - | 9 |

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| **PRE-LAB READING ASSIGNMENT** | |
| **What Is Media Query** | Media queries are a CSS technique used to apply different styles to a webpage based on the characteristics of the device that is being used to view it, such as screen size, orientation, and resolution.  Media queries are typically used to create responsive designs that adjust and adapt to different device sizes.  Here is an example of a media query that targets screens with a maximum width of 600px:  @media (max-width: 600px) {  body {  font-size: 16px;  }  header {  padding: 10px;  }  nav {  display: none;  }  }  In this example, the media query targets screens with a maximum width of 600px. When the screen width is 600px or less, the font size of the body element is set to 16px, the padding of the header element is reduced to 10px, and the navigation menu is hidden by setting its display property to "none".  By using media queries, we can create different styles for different devices and make our webpage look good on any screen size. |
| **12 Column Grid** | A 12-column grid is a popular layout system used in web design to create a responsive and flexible design. Here's an example of how you can create a 12-column grid using CSS:  HTML:  <div class="container">  <div class="row">  <div class="col-1">1</div>  <div class="col-1">2</div>  <div class="col-1">3</div>  <div class="col-1">4</div>  <div class="col-1">5</div>  <div class="col-1">6</div>  <div class="col-1">7</div>  <div class="col-1">8</div>  <div class="col-1">9</div>  <div class="col-1">10</div>  <div class="col-1">11</div>  <div class="col-1">12</div>  </div>  </div>  CSS: CSS:  .container {  max-width: 1200px;  margin: 0 auto;  padding: 0 15px;  }  .row {  display: flex;  flex-wrap: wrap;  margin: 0 -15px;  }  .col-1 {  width: 8.33%;  padding: 0 15px;  box-sizing: border-box;  }  In this example, we have a container element with a maximum width of 1200px and a margin of 0 auto to center it on the page. The row element is a flex container with flex-wrap set to wrap to create a new row for each set of 12 columns. The columns are defined using the class col-1, which sets the width to 8.33% (100/12) and applies a 15px padding on the left and right to create gutters between the columns. The box-sizing property is set to border-box to ensure that the padding is included in the width of the column.  You can create variations of this grid by changing the width of the columns or adding new classes for different column sizes. |
| **Flex vs. Grid** | Flexbox and Grid are both layout modules in CSS that allow designers to create more responsive and dynamic layouts on web pages.  Flexbox is primarily designed for one-dimensional layouts, such as arranging elements horizontally or vertically along a single axis. It is useful for aligning and distributing items within a container. With Flexbox, you can easily control the alignment, direction, order, and spacing of elements within a container.  Here's an example of a Flexbox layout that arranges items horizontally:  .container {  display: flex;  justify-content: space-between;  }  .item {  width: 100px;  height: 100px;  }  Grid, on the other hand, is designed for two-dimensional layouts, allowing designers to create complex, multi-column and multi-row layouts. With Grid, you can easily control the size and placement of elements within a grid container, making it ideal for building entire page layouts.  Here's an example of a Grid layout that creates a three-column grid with header and footer areas:  .container {  display: grid;  grid-template-columns: repeat(3, 1fr);  grid-template-rows: auto 1fr auto;  grid-gap: 10px;  }  .header, .footer {  grid-column: 1 / 4;  }  .item {  background-color: #ccc;  padding: 10px;  text-align: center;  }  In summary, Flexbox is ideal for one-dimensional layouts, while Grid is ideal for two-dimensional layouts. Both modules are useful for creating responsive and dynamic layouts, but which one you use depends on the specific layout requirements of your design. |

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| **PRELAB WRITING ASSIGNMENT** | |
| **Fill in the blanks** | 1. Media queries are used in CSS to create styles for specific device types or screen sizes. 2. A 12-column grid system is often used in web development to create Responsive and Flexible layouts. 3. Media queries use media queries to apply different styles based on the width of the device or screen. 4. In a 12-column grid system, each column takes up a Fraction of the total available space, usually 1/12 or 2/12. 5. The Grid-column-start classes in a 12-column grid system allow you to shift columns to the right, creating space between them. |

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| **Lab 5.2** | **Lab Tasks** |

1. Update your Resume web page with 12-Column grid concept.

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| Screenshot (Desktop, Mobile and Tablet) should be paste here of your resume. |
| Paste link of your resume (github page).  https://github.com/M-Usama-13/Musama13.github.io |

