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**Web Technologies**

**Fall 2023**

**Lab 5**

**Familiarization to: Basic HTML and Bootstrap Structure**

**Objective**: Introduce students to basic HTML and Bootstrap structure.

1. Create an HTML document.
2. Set up the document structure with <html>, <head>, and <body> tags.
3. Include the necessary Bootstrap CSS and JavaScript CDN links in the <head> section.
4. Create a navigation bar using Bootstrap's Navbar component.
5. Add a header section with a jumbotron for the page title and description.
6. Create a main content section within a Bootstrap container.

**Lab Task 2: Responsive Layout with Grid System**

**Objective**: Teach students how to create responsive layouts using Bootstrap's grid system.

1. Inside the main content section, create a row with two equal-width columns.
2. Place text and images in each column to simulate content.
3. Use Bootstrap classes to make the layout responsive:
4. On small screens (e.g., mobile), stack the columns vertically.
5. On larger screens (e.g., desktop), arrange the columns side by side.

**Lab Task 3: Typography and Utility Classes**

**Objective: Explore Bootstrap's typography and utility classes. (refer to Appendix A for the list)**

1. Add headings, paragraphs, and lists to the main content section.
2. Apply Bootstrap's typography classes (h1, h2, lead, list-group, etc.) to style the text.
3. Experiment with utility classes to change text alignment, text color, and background color.

**Lab Task 4: Customizing Bootstrap**

**Objective: Customize Bootstrap components to match a specific design.**

1. Create an HTML page with a navigation bar and a content section.
2. Customize the Bootstrap navigation bar by changing its background color, text color, and link styles using custom CSS.
3. Customize a Bootstrap button with unique background and text colors.
4. Use custom CSS to change the font family and size of text within the content section.

**Lab Task 6: Bootstrap Responsive Navbar**

**Objective: Teach students how to create a responsive navigation bar.**

1. Set up an HTML document with a navigation bar.
2. Implement a Bootstrap responsive navigation bar that collapses into a "hamburger" menu icon on smaller screens.
3. Add navigation links (e.g., Home, About, Services) that adjust their layout based on screen size.
4. Use media queries to customize the breakpoint at which the navigation bar collapses.

**Solution to task 6**

**Step 1: Set Up the HTML Document**

Start by creating an HTML document. You can use a text editor or an integrated development environment (IDE) for this task. Save the file with a suitable name, like **index.html**.

<!DOCTYPE html>

<html lang="en">

<head>

<meta charset="UTF-8">

<meta name="viewport" content="width=device-width, initial-scale=1.0">

<title>Responsive Navbar</title>

<!-- Add Bootstrap CSS CDN link here -->

<link rel="stylesheet" href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">

</head>

<body>

<!-- Your page content will go here -->

</body>

</html>

**Step 2: Implement a Bootstrap Responsive Navbar**

Inside the **<body>** section of your HTML document, create a Bootstrap navbar. Here's an example:

<nav class="navbar navbar-expand-lg navbar-light bg-light">

<a class="navbar-brand" href="#">My Website</a>

<button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarNav" aria-controls="navbarNav" aria-expanded="false" aria-label="Toggle navigation">

<span class="navbar-toggler-icon"></span>

</button>

<div class="collapse navbar-collapse" id="navbarNav">

<ul class="navbar-nav">

<li class="nav-item active">

<a class="nav-link" href="#">Home <span class="sr-only">(current)</span></a>

</li>

<li class="nav-item">

<a class="nav-link" href="#">About</a>

</li>

<li class="nav-item">

<a class="nav-link" href="#">Services</a>

</li>

</ul>

</div>

</nav>

**Step 3: Add Navigation Links that Adjust Layout**

The navigation links in the above code will automatically adjust their layout based on screen size. On larger screens, they will appear as regular horizontal links. On smaller screens, they will collapse into a dropdown menu accessible via the "hamburger" icon.

**Step 4: Customize the Breakpoint with Media Queries**

By default, Bootstrap uses a breakpoint of **lg** (large screens) for collapsing the navbar. If you want to customize this breakpoint, you can use media queries in your custom CSS. For example, to collapse the navbar at the **md** (medium screens) breakpoint instead of **lg**, you can add the following CSS:

@media (max-width: 768px) {

.navbar-expand-md .navbar-collapse {

display: none;

}

.navbar-toggler {

display: block;

}

.navbar-collapse {

background-color: #f8f9fa; /\* Background color for the collapsed menu \*/

}

.navbar-nav {

flex-direction: column;

}

.navbar-nav .nav-item {

padding: 5px 0;

}

}

**Appendix A**

Typography Classes:

1. **.h1, .h2, .h3, .h4, .h5, .h6:** Heading classes for various levels of headings.
2. **.display-1, .display-2, .display-3, .display-4:** Display heading classes for large, attention-grabbing text.
3. **.lead:** Adds larger, lighter text for introductory paragraphs.
4. **.blockquote:** Style for block quotes.
5. **.small:** Reduces text size for smaller, less important text.
6. **.text-primary, .text-secondary, .text-success, .text-danger, .text-warning, .text-info, .text-light, .text-dark:** Text color classes for various contextual text colors.
7. .**font-weight-bold:** Makes text bold.
8. **.font-weight-normal:** Resets text to normal font weight.
9. **.text-uppercase:** Transforms text to uppercase.
10. **.text-lowercase:** Transforms text to lowercase.
11. **.text-capitalize:** Capitalizes the first letter of each word.

**Utility Classes:**

1. **.text-left, .text-center, .text-right, .text-justify:** Text alignment classes.
2. **.bg-primary, .bg-secondary, .bg-success, .bg-danger, .bg-warning, .bg-info, .bg-light, .bg-dark:** Background color classes.
3. **.p-1, .p-2, .p-3, .p-4, .p-5:** Padding classes (e.g., .p-3 for padding level 3).
4. **.m-1, .m-2, .m-3, .m-4, .m-5:** Margin classes (e.g., .m-2 for margin level 2).
5. **.border, .border-top, .border-bottom, .border-left, .border-right: Border classes.**
6. **.rounded, .rounded-circle, .rounded-pill, .rounded-0, .rounded-lg, .rounded-xl:** Rounded corner classes.
7. **.shadow, .shadow-lg:** Box shadow classes.
8. **.text-truncate:** Truncates overflowing text with an ellipsis.
9. **.text-nowrap:** Prevents text from wrapping.
10. **.overflow-hidden:** Hides overflowing content.
11. **.d-none, .d-block, .d-inline, .d-inline-block:** Display classes for hiding or showing elements.
12. **.invisible, .visible:** Visibility classes for hiding or showing elements.
13. **.sr-only, .sr-only-focusable:** Screen reader-only classes for accessibility.
14. **.flex, .d-flex, .justify-content-center, .align-items-center:** Flexbox classes for layout control.