



MIT Art, Design and Technology University

MIT School of Computing, Pune

Department of Information Technology

SUBJECT – FULL STACK FRONT END DEVELOPMENT
COURSE CODE – 23IT3001

Class – T.Y. SMAD

Name of Student

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Under the Guidance of
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A.Y. 2025-2026 (SEM – I)

Assignment 1 : Bootstrap Homepage

Aim :

The aim of this assignment is to design and develop a responsive static homepage using the Bootstrap framework. The goal is to understand how Bootstrap simplifies front-end design through pre-defined classes, grid systems, and responsive utilities. The layout should demonstrate the use of major Bootstrap components such as containers, headers, buttons, navigation bars, and the grid system to create a visually balanced and adaptive homepage that adjusts seamlessly across different screen sizes and devices.

Theory :

1. All About Bootstrap

Bootstrap is one of the most powerful and widely used front-end frameworks for building responsive, mobile-first web pages efficiently. It allows developers to design complex layouts with minimal effort using a predefined structure of CSS classes and responsive utilities. In this assignment, Bootstrap is used to construct a static homepage layout that remains elegant and functional across all devices—from large desktop monitors to compact mobile screens.

A static homepage acts as the introductory interface of a web application, representing the brand and providing navigation to other sections. Bootstrap's grid system, which is based on a 12-column flexible layout, serves as the backbone of this design. It enables developers to align text, images, and other content in a well-organized structure without writing custom CSS for positioning. Each section of the homepage—such as the header, navigation, main content, and footer—can be defined within rows and columns, ensuring a perfectly balanced structure that automatically adjusts based on screen size. For instance, a four-column layout on a desktop might become a single column on a mobile device without needing manual adjustments.

The homepage begins with a container, which is the central wrapper that maintains alignment and spacing across the page. Within the container, the header section typically includes the website's name, logo, or slogan, designed using Bootstrap's utility classes for typography and spacing. Following the header, a navigation bar is implemented using Bootstrap's navbar component. The navbar provides links to other pages such as Home, About, Services, and Contact, and it automatically collapses into a toggleable menu on smaller screens using the navbar-toggler class, enhancing usability on mobile devices.

The hero section or jumbotron, which often occupies the top portion of the homepage, is an eye-catching area used to highlight key information or calls to action. Bootstrap's jumbotron or modern equivalent utilities like bg-light, py-5, and text-center help create a prominent introductory section that typically contains a welcoming message and buttons leading to further sections. Buttons in Bootstrap are designed using predefined classes like btn and btn-primary, which provide a consistent style and ensure contrast for user accessibility. These buttons serve as call-to-action elements encouraging visitors to explore more.

Below the jumbotron, the main content section is organized using the Bootstrap grid system. Here, multiple columns can be used to display features, services, or product highlights. Each column can include icons, headings, and short paragraphs styled with Bootstrap's text and spacing utilities. The combination of rows and columns ensures a clean alignment of content while maintaining responsiveness. As the screen size changes,

Bootstrap automatically repositions these columns using breakpoints such as col-md-6 or col-lg-4 to adapt to different devices. This responsive nature eliminates the need for separate designs for desktop and mobile, drastically improving development speed and consistency.

The footer section, which forms the base of the homepage, is another essential part of the layout. It can contain contact details, social media icons, or quick links, styled using Bootstrap's background and text color utilities. The use of bg-dark and text-white ensures a visually distinct footer that separates itself from the main content while maintaining a professional look. Bootstrap's spacing utilities like p-3 and text-center make the footer clean and readable.

An important aspect of Bootstrap's philosophy is its "mobile-first" approach. This means that designs are created with mobile devices as the priority, and then scaled up for larger screens using responsive classes. The use of media queries is handled internally by Bootstrap's framework, which automatically applies styles based on the device width. As a result, developers can focus on layout and content rather than manual adjustments for each screen size.

The styling of the homepage is further enhanced using Bootstrap's predefined color palette, typography settings, and spacing utilities. The consistent use of margins, padding, and alignment classes ensures visual uniformity and readability. Since Bootstrap uses a component-based structure, any modification to one component (like a button or card) automatically aligns with the overall theme, maintaining consistency throughout the site.

Overall, this assignment emphasizes understanding the structure and responsive nature of Bootstrap layouts. By utilizing the container, jumbotron, grid, and utility classes, the homepage becomes both visually appealing and functionally adaptable. The approach reflects how modern websites achieve responsiveness without heavy reliance on manual CSS or JavaScript. The result is a clean, professional, and adaptive static homepage that can serve as the foundation for any web application interface.

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8" />
  <meta name="viewport" content="width=device-width, initial-scale=1.0" />
  <title>Bootstrap Static Homepage</title>
  <!-- Bootstrap CSS -->
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet"/>
/>
```

```
<style>
  body {
    font-family: 'Poppins', sans-serif;
    scroll-behavior: smooth;
  }
  .hero {
    background: linear-gradient(90deg, #007bff, #00b4d8);
    color: white;
    padding: 100px 20px;
  }
  .feature-icon {
    font-size: 40px;
```

```

color: #007bff;
}

footer {
background-color: #212529;
color: white;
padding: 20px 0;
}

</style>

</head>
<body>
<!-- Navbar Section -->
<nav class="navbar navbar-expand-lg navbar-dark bg-dark fixed-top shadow-sm">
<div class="container">
<a class="navbar-brand fw-bold" href="#">Samyak's App</a>
<button
class="navbar-toggler"
type="button"
data-bs-toggle="collapse"
data-bs-target="#navbarNav"
>
<span class="navbar-toggler-icon"></span>
</button>
<div class="collapse navbar-collapse" id="navbarNav">
<ul class="navbar-nav ms-auto">
<li class="nav-item"><a class="nav-link active" href="#">Home</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>
<li class="nav-item"><a class="nav-link" href="#">Contact</a></li>

```

```

</ul>
</div>
</div>
</nav>

<!-- Hero Section (Jumbotron) -->
<section class="hero text-center">
<div class="container">
<h1 class="display-4 fw-bold">Welcome to My Web Application</h1>
<p class="lead mt-3">
This is a simple responsive homepage layout designed using Bootstrap.
It automatically adjusts for mobile, tablet, and desktop screens.
</p>
<a href="#" class="btn btn-light btn-lg mt-3 fw-bold">Get Started</a>
<a href="#" class="btn btn-outline-light btn-lg mt-3 fw-bold">Learn More</a>
</div>
</section>

<!-- Features Section using Bootstrap Grid -->
<section class="container my-5 py-4">
<h2 class="text-center mb-4 fw-bold text-primary">Our Features</h2>
<div class="row text-center">
<div class="col-md-4 mb-4">
<div class="p-4 border rounded shadow-sm h-100">
<div class="feature-icon mb-3">💡 </div>
<h5 class="fw-bold">Creative Design</h5>
<p class="text-muted">
```

Our layouts are clean, modern, and fully responsive to ensure the

best user experience across all devices.

</p>

<button class="btn btn-primary">Read More</button>

</div>

</div>

<div class="col-md-4 mb-4">

<div class="p-4 border rounded shadow-sm h-100">

<div class="feature-icon mb-3">  </div>

<h5 class="fw-bold">Easy Integration</h5>

<p class="text-muted">

Built using Bootstrap's flexible grid system, our designs can be

integrated easily into any web project.

</p>

<button class="btn btn-primary">Read More</button>

</div>

</div>

<div class="col-md-4 mb-4">

<div class="p-4 border rounded shadow-sm h-100">

<div class="feature-icon mb-3">  </div>

<h5 class="fw-bold">Fast Performance</h5>

<p class="text-muted">

Optimized layouts ensure fast loading speeds and smooth

interactions, enhancing overall user engagement.

</p>

<button class="btn btn-primary">Read More</button>

</div>

</div>

</div>

</section>

<!-- Call to Action Section -->

<section class="bg-light py-5">

<div class="container text-center">

<h2 class="fw-bold mb-3">Start Building Your Own Website</h2>

<p class="text-muted mb-4">

Use Bootstrap to create beautiful, responsive, and professional

websites effortlessly.

</p>

Create Now

</div>

</section>

<!-- Footer Section -->

<footer class="text-center">

<div class="container">

<p class="mb-0">© 2025 Samyak's App. All Rights Reserved.</p>

</div>

</footer>

<!-- Bootstrap JS -->

<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

Output :

Samyak's App

Home About Services Contact

Welcome to My Web Application

This is a simple responsive homepage layout designed using Bootstrap. It automatically adjusts for mobile, tablet, and desktop screens.

[Get Started](#) [Learn More](#)

Our Features



Creative Design

Our layouts are clean, modern, and fully responsive to ensure the best user experience across all devices.



Easy Integration

Built using Bootstrap's flexible grid system, our designs can be integrated easily into any web project.



Fast Performance

Optimized layouts ensure fast loading speeds and smooth interactions, enhancing overall user engagement.



Creative Design

Our layouts are clean, modern, and fully responsive to ensure the best user experience across all devices.

[Read More](#)



Easy Integration

Built using Bootstrap's flexible grid system, our designs can be integrated easily into any web project.

[Read More](#)



Fast Performance

Optimized layouts ensure fast loading speeds and smooth interactions, enhancing overall user engagement.

[Read More](#)

Start Building Your Own Website

Use Bootstrap to create beautiful, responsive, and professional websites effortlessly.

[Create Now](#)

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Conclusion :

We successfully created a Home page with bootstrap.

Assignment 2 : Bootstrap Grid

Aim :

The aim of this assignment is to design a responsive, multi-column information page using Bootstrap's 12-column grid system that cleanly arranges repeating content blocks such as cards, product previews, or blog entries. The objective is to demonstrate consistent alignment, uniform spacing, and visual balance across breakpoints by leveraging container, row, and column classes alongside utility helpers for gutters, typography, and shadows. The page should adapt from single-column stacks on small screens to multi-column layouts on medium and large screens, showcasing how Bootstrap's mobile-first grid enables scalable, maintainable structures without custom media queries or heavy CSS.

Theory :

Bootstrap's grid system is the foundation of its responsive design capability, allowing developers to organize and align content into structured layouts effortlessly. In this assignment, the grid system is used to design a multi-column information page that displays a series of cards representing articles, blogs, or products. The purpose is to understand how Bootstrap manages spacing, alignment, and resizing automatically across different device widths using flexible rows and columns.

The layout begins with a header section styled using Bootstrap's typography and background utilities. The container class ensures that the header text remains centered and well-padded within the page, maintaining readability and spacing consistency. Following the header, the main content section demonstrates the true power of Bootstrap's row and col classes. Each row in Bootstrap is divided into 12 equal columns, which can be distributed among elements using classes like col-md-6 or col-lg-4. These classes define how many columns each item should occupy at different screen sizes. For instance, a col-lg-4 element will take one-third of the row's width on large screens but will automatically resize to col-md-6 (half-width) on medium screens and stack vertically on small devices.

Each card in this assignment is enclosed within a column, maintaining equal spacing through Bootstrap's g-4 (gutters) property, which adds uniform gaps between columns. The card component itself is a ready-made Bootstrap structure consisting of an image (card-img-top), a body (card-body), a title, descriptive text, and a button. The combination of these components showcases how Bootstrap enables the creation of visually appealing and content-rich layouts without custom CSS. By leveraging responsive columns, the layout adjusts automatically—showing three cards per row on large screens, two cards per row on medium screens, and one per row on small devices.

The styling relies heavily on Bootstrap's built-in classes, such as shadow-sm, rounded, and border-0, which provide a clean and professional appearance without the need for additional CSS rules. Backgrounds, paddings, and text colors are managed through classes like bg-light, text-primary, and text-muted, giving the page a cohesive aesthetic. The footer section at the bottom uses the bg-dark and text-white classes to provide visual contrast and closure to the page.

This approach to grid-based design demonstrates how Bootstrap's mobile-first philosophy eliminates the need for manual media queries. The layout adjusts seamlessly across devices, ensuring that users have a consistent

experience whether they view the page on a mobile phone, tablet, or desktop. The result is an elegant, professional layout that can be easily extended for dynamic content like product listings or blog feeds.

By completing this assignment, one learns how to create balanced, responsive layouts using Bootstrap's predefined grid system. The consistent alignment, spacing, and scalability provided by Bootstrap ensure that every card and content block maintains perfect symmetry, demonstrating how front-end frameworks streamline modern web design.

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8" />
    <meta name="viewport" content="width=device-width, initial-scale=1.0" />
    <title>Bootstrap Grid-Based Information Page</title>

    <!-- Bootstrap CSS -->
    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

    <style>
        body {
            font-family: 'Poppins', sans-serif;
            background-color: #f8f9fa;
        }
        .card img {
            height: 200px;
            object-fit: cover;
        }
        .page-header {
            background: linear-gradient(90deg, #0d6efd, #00b4d8);
            color: white;
            padding: 60px 0;
            text-align: center;
        }
    </style>
</head>

<body>
    <!-- Header Section -->
    <header class="page-header mb-5 shadow-sm">
        <div class="container">
            <h1 class="fw-bold">Our Featured Articles</h1>
            <p class="lead">Explore the latest insights, blogs, and resources curated for you.</p>
        </div>
    </header>

    <!-- Grid Section -->
    <div class="container mb-5">
        <div class="row g-4">
            <!-- Card 1 -->
            <div class="col-lg-4 col-md-6">
                <div class="card shadow-sm border-0">
```

```

<div class="card-body">
    <h5 class="card-title fw-bold text-primary">Healthy Living Tips</h5>
    <p class="card-text text-muted">
        Discover effective ways to maintain a healthy lifestyle through balanced diet, regular exercise, and mindfulness.
    </p>
    <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
</div>
</div>
</div>

<!-- Card 2 -->
<div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
        
        <div class="card-body">
            <h5 class="card-title fw-bold text-primary">Mental Health Awareness</h5>
            <p class="card-text text-muted">
                Learn how to manage stress, anxiety, and improve emotional wellbeing through daily mindfulness practices.
            </p>
            <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
        </div>
        </div>
    </div>

    <!-- Card 3 -->
```

```
<div class="col-lg-4 col-md-6">
    <div class="card shadow-sm border-0">
        
        <div class="card-body">
            <h5 class="card-title fw-bold text-primary">Technology in Healthcare</h5>
            <p class="card-text text-muted">
                Explore how innovations like AI and IoT are revolutionizing healthcare systems and improving patient care.
            </p>
            <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
        </div>
        </div>
    </div>

    <!-- Card 4 -->
    <div class="col-lg-4 col-md-6">
        <div class="card shadow-sm border-0">
            
            <div class="card-body">
                <h5 class="card-title fw-bold text-primary">Nutrition and Immunity</h5>
                <p class="card-text text-muted">
                    Find out how proper nutrition strengthens immunity and helps fight common illnesses effectively.
                </p>
                <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
            </div>
            </div>
        </div>
```

```

<!-- Card 5 -->

<div class="col-lg-4 col-md-6">
  <div class="card shadow-sm border-0">
    
    <div class="card-body">
      <h5 class="card-title fw-bold text-primary">Fitness and Motivation</h5>
      <p class="card-text text-muted">
        Stay motivated with our curated list of fitness challenges, expert advice, and goal-tracking tips.
      </p>
      <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
    </div>
  </div>
</div>

<!-- Card 6 -->

<div class="col-lg-4 col-md-6">
  <div class="card shadow-sm border-0">
    
    <div class="card-body">

```

```

      <h5 class="card-title fw-bold text-primary">Sleep and Recovery</h5>
      <p class="card-text text-muted">
        Understand the importance of quality sleep in maintaining mental clarity, recovery, and overall wellness.
      </p>
      <a href="#" class="btn btn-outline-primary btn-sm">Read More</a>
    </div>
  </div>
</div>
</div>
</div>
</div>
</div>

<!-- Footer -->
<footer class="bg-dark text-white text-center py-3">
  <p class="mb-0">&copy; 2025 Grid Info Page | Designed by Samyak Kedari</p>
</footer>

<!-- Bootstrap JS -->
<script src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

Output :

Our Featured Articles

Explore the latest insights, blogs, and resources curated for you.



Healthy Living Tips

Discover effective ways to maintain a healthy lifestyle through balanced diet, regular exercise, and mindfulness.

[Read More](#)



Mental Health Awareness

Learn how to manage stress, anxiety, and improve emotional wellbeing through daily mindfulness practices.

[Read More](#)



Technology in Healthcare

Explore how innovations like AI and IoT are revolutionizing healthcare systems and improving patient care.

[Read More](#)

Conclusion :

We successfully implemented Bootstrap grid.

Assignment 3 : Bootstrap form and table

Aim :

The aim of this assignment is to integrate Bootstrap's form and table components into web layouts to create professional, user-friendly interfaces for checkout and profile sections. The objective is to apply classes such as form-group, form-control, and validation utilities to ensure proper form structure and data validation. Additionally, Bootstrap tables are used to display cart details and order history with features like striped rows, borders, and responsive layouts, demonstrating how Bootstrap's responsive utilities can unify form-based inputs and data presentation seamlessly.

Theory :

Bootstrap simplifies form and table design by providing pre-styled, responsive components that maintain alignment, spacing, and structure across devices. In this assignment, the Checkout and Profile forms were redesigned using Bootstrap's form classes to ensure a consistent and user-friendly interface. Likewise, Cart and Order History data were displayed using Bootstrap's table system for better readability and professional presentation.

The Checkout Form utilizes components such as form-group, form-control, and form-row to arrange inputs in an organized structure. Bootstrap's grid system divides form fields into responsive columns, ensuring they appear side by side on large screens and stack vertically on smaller screens. The form-control class standardizes the appearance of all input elements like text boxes, dropdowns, and date selectors. To enhance user experience, validation feedback was implemented using invalid-feedback, which prompts the user when a required field is missing or incorrectly filled. The needs-validation and was-validated classes are part of Bootstrap's built-in validation framework, providing a visual indication of correct or incorrect entries without writing custom JavaScript for field checking.

The Profile Form demonstrates Bootstrap's utility for creating visually consistent data entry interfaces. Labels and input fields are uniformly aligned using the same grid and spacing principles. This structure helps maintain a cohesive user experience across all forms in a web application, ensuring that different sections like personal details or contact information follow the same design language.

The Cart Table and Order History Table showcase Bootstrap's capability to display data in a clear and responsive format. The table class defines the basic table structure, while additional classes like table-striped, table-bordered, and table-hover enhance readability and visual hierarchy. The table-responsive wrapper ensures that the tables remain scrollable on smaller devices, preventing content overflow. Using contextual classes like table-dark, table-primary, and badge adds color coding to highlight important information such as order status—making the layout both informative and visually engaging.

By combining forms and tables, this assignment demonstrates how Bootstrap achieves balance between input design and data presentation. Developers can maintain uniform margins, paddings, and alignments without writing custom CSS. The responsive design adapts automatically, guaranteeing that both forms and tables remain functional and elegant across all device sizes.

Overall, Bootstrap's component-based system not only reduces design complexity but also accelerates development by providing pre-tested patterns for form handling, validation, and tabular layouts. The forms

guide users smoothly through input processes, while tables provide structured access to dynamic data such as cart items and order summaries.

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>Bootstrap Form and Table Integration</title>

<!-- Bootstrap CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<style>
body {
    font-family: 'Poppins', sans-serif;
    background-color: #f8f9fa;
}
.section-title {
    text-align: center;
    margin-top: 40px;
    margin-bottom: 25px;
    font-weight: 600;
    color: #0d6efd;
}
</style>
```

```
</head>
<body>
<div class="container my-5">
    <!-- Checkout Form Section -->
    <h2 class="section-title">Checkout Form</h2>
    <form class="shadow p-4 rounded bg-white needs-validation" novalidate>
        <div class="row mb-3">
            <div class="col-md-6">
                <label class="form-label">Full Name</label>
                <input type="text" class="form-control" required />
                <div class="invalid-feedback">Please enter your full name.</div>
            </div>
            <div class="col-md-6">
                <label class="form-label">Email</label>
                <input type="email" class="form-control" required />
                <div class="invalid-feedback">Please enter a valid email address.</div>
            </div>
        </div>
        <div class="row mb-3">
            <div class="col-md-6">
                <label class="form-label">Address</label>
                <input type="text" class="form-control" required />
            </div>
        </div>
    </form>
</div>
```

```

<div class="invalid-feedback">Please enter
your shipping address.</div>

</div>

<div class="col-md-6">
    <label class="form-label">City</label>
    <input type="text" class="form-control"
required />

    <div class="invalid-feedback">Please enter
your city.</div>

</div>

</div>

<div class="row mb-3">
    <div class="col-md-4">
        <label class="form-label">Pincode</label>
        <input type="text" class="form-control"
required />
    </div>

    <div class="col-md-4">
        <label class="form-label">Phone
Number</label>
        <input type="text" class="form-control"
required />
    </div>

    <div class="col-md-4">
        <label class="form-label">Payment
Mode</label>
        <select class="form-select" required>
            <option selected
disabled>Choose...</option>
            <option>Credit Card</option>
            <option>Debit Card</option>
            <option>UPI</option>
            <option>Cash on Delivery</option>
        </select>
    </div>

```

```

    </div>

    <button type="submit" class="btn btn-success
w-100 mt-3 fw-bold">
        Place Order
    </button>
</form>

<!-- Profile Form Section -->

<h2 class="section-title mt-5">👤 User Profile
Form</h2>

<form class="shadow p-4 rounded bg-white">
    <div class="row mb-3">
        <div class="col-md-6">
            <label class="form-label">First
Name</label>
            <input type="text" class="form-control" />
        </div>
        <div class="col-md-6">
            <label class="form-label">Last
Name</label>
            <input type="text" class="form-control" />
        </div>
    </div>

    <div class="row mb-3">
        <div class="col-md-6">
            <label class="form-label">Email</label>
            <input type="email" class="form-control" />
        </div>
        <div class="col-md-6">
            <label class="form-label">Phone</label>
            <input type="text" class="form-control" />
        </div>
    </div>

```

```

</div>

<div class="row mb-3">
  <div class="col-md-6">
    <label class="form-label">Date of Birth</label>
    <input type="date" class="form-control" />
  </div>
  <div class="col-md-6">
    <label class="form-label">Occupation</label>
    <input type="text" class="form-control" />
  </div>
</div>

<button class="btn btn-primary w-100 fw-bold mt-2">Update Profile</button>
</form>

<!-- Cart Table -->

<h2 class="section-title mt-5">🛒 Cart Summary</h2>
<div class="table-responsive shadow rounded">
  <table class="table table-striped table-bordered align-middle">
    <thead class="table-dark">
      <tr>
        <th>Product</th>
        <th>Price (₹)</th>
        <th>Quantity</th>
        <th>Total (₹)</th>
      </tr>
    </thead>
    <tbody>

```

```

      <tr>
        <td>Paracetamol</td>
        <td>40</td>
        <td>2</td>
        <td>80</td>
      </tr>
      <tr>
        <td>Vitamin C Tablets</td>
        <td>120</td>
        <td>1</td>
        <td>120</td>
      </tr>
      <tr>
        <td>Hand Sanitizer</td>
        <td>60</td>
        <td>3</td>
        <td>180</td>
      </tr>
    </tbody>
  </table>
</div>

<!-- Order History Table -->

<h2 class="section-title mt-5">📦 Order History</h2>
<div class="table-responsive shadow rounded">
  <table class="table table-hover table-bordered align-middle">
    <thead class="table-primary">
      <tr>
        <th>Order ID</th>
        <th>Date</th>
        <th>Total Amount (₹)</th>
      </tr>
    </thead>

```

```

<th>Status</th>
</tr>
</thead>
<tbody>
<tr>
<td>#1021</td>
<td>2025-10-02</td>
<td>420</td>
<td><span class="badge bg-success">Delivered</span></td>
</tr>
<tr>
<td>#1022</td>
<td>2025-10-15</td>
<td>250</td>
<td><span class="badge bg-warning text-dark">In Progress</span></td>
</tr>
<tr>
<td>#1023</td>
<td>2025-10-28</td>
<td>180</td>
<td><span class="badge bg-danger">Cancelled</span></td>
</tr>
</tbody>
</table>
</div>
</div>

```

```

<!-- Bootstrap JS -->
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/js/bootstrap.bundle.min.js"></script>

<!-- Bootstrap Validation Script -->
<script>
() => {
  "use strict";
  const forms =
document.querySelectorAll(".needs-validation");
  Array.from(forms).forEach((form) => {
    form.addEventListener(
      "submit",
      (event) => {
        if (!form.checkValidity()) {
          event.preventDefault();
          event.stopPropagation();
        }
        form.classList.add("was-validated");
      },
      false
    );
  });
}();
</script>
</body>
</html>

```

Output :

Checkout Form

Full Name

Email

Address

City

Pincode

Phone Number

Payment Mode

User Profile Form

First Name

Last Name

Cart Summary

Product	Price (₹)	Quantity	Total (₹)
Paracetamol	40	2	80
Vitamin C Tablets	120	1	120
Hand Sanitizer	60	3	180

Order History

Order ID	Date	Total Amount (₹)	Status
#1021	2025-10-02	420	Delivered
#1022	2025-10-15	250	In Progress
#1023	2025-10-28	180	Cancelled

Conclusion :

We successfully implemented Bootstrap form and table.

Assignment 4 : Responsive Design Using Bootstrap

Aim :

Theory :

1. Introduction to Responsive Web Design

Responsive Web Design (RWD) is an approach to web development where a website's layout, images, and interactive elements automatically adjust to fit various screen sizes and devices. The core idea is to provide an optimal viewing and interaction experience easy reading, minimal resizing, and smooth navigation across a wide range of devices, from mobile phones to desktop monitors.

The term was popularized by Ethan Marcotte in 2010 and has since become a web development standard due to the increasing diversity of devices and screen resolutions.

2. Key Principles of Responsive Design

- **Fluid Grids**

Instead of fixed pixel-based layouts, fluid grids use relative units (percentages, ems, rem) so that elements adapt proportionally to the screen size.

- **Flexible Images**

Images scale or crop according to the viewport to avoid overflow or distortion.

- **Media Queries**

CSS rules that apply different styles depending on the device's characteristics, such as screen width, height, orientation, or resolution.

- **Mobile-First Approach**

Designing for smaller screens first, then progressively enhancing the layout for larger screens.

- **Viewport Meta Tag**

Ensures that the browser renders the page according to the device's width.

3. Importance of Responsive Design

- **User Experience (UX):** Ensures consistency and ease of navigation.
- **Accessibility:** Improves usability for users on different devices.

- **SEO Benefits:** Google prioritizes mobile-friendly websites in search rankings.
- **Cost Efficiency:** A single website adapts to all devices, eliminating the need for multiple versions.
- **Future-Proofing:** Adaptable design can handle new device dimensions without a complete redesign.

4. Case Study: Dribbble.com

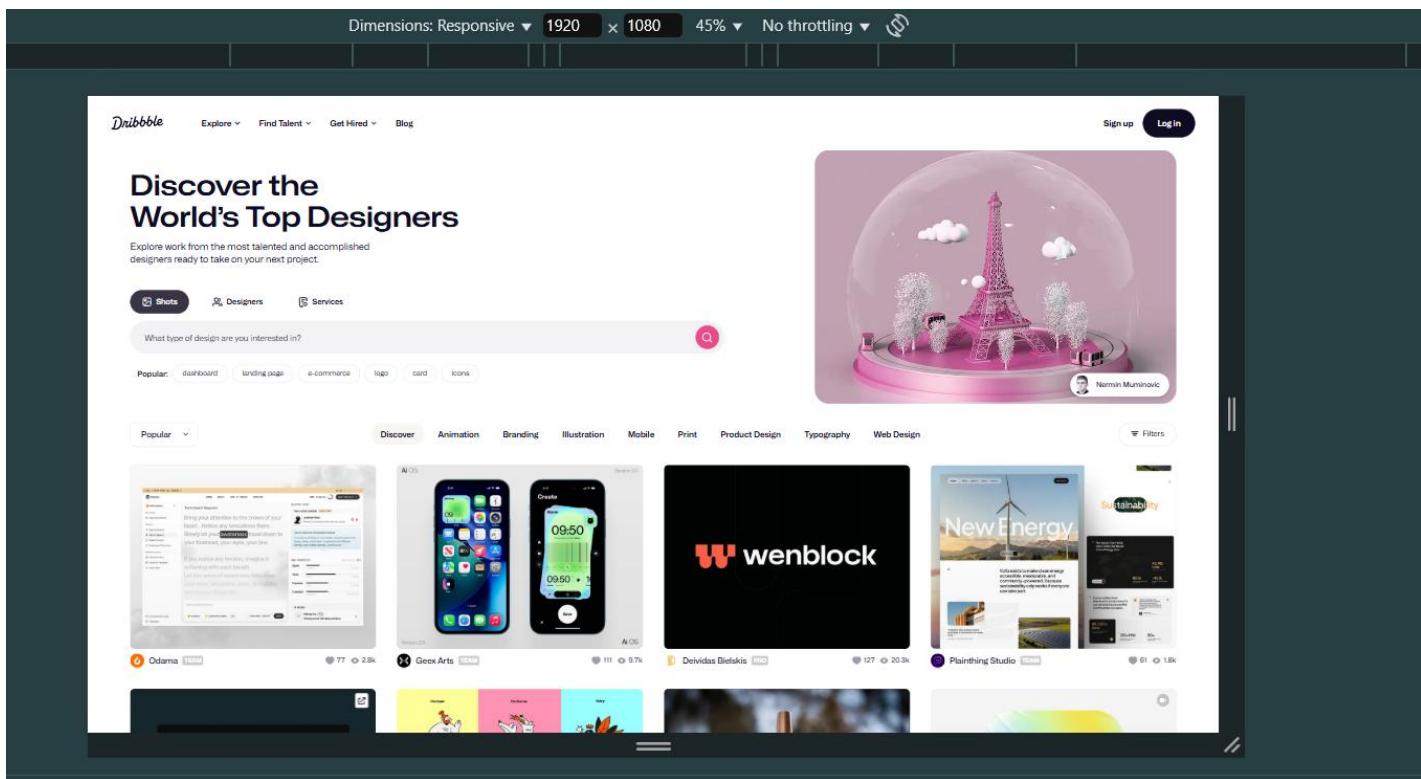
- **Website Chosen:** <https://dribbble.com>
- **Purpose:** A platform for designers to showcase creative work, find inspiration, and connect with others.

4.1 Testing Methodology

I tested Dribbble.com on various screen sizes and devices using Chrome DevTools (responsive mode).

4.2 Observations

Desktop (1920×1080)



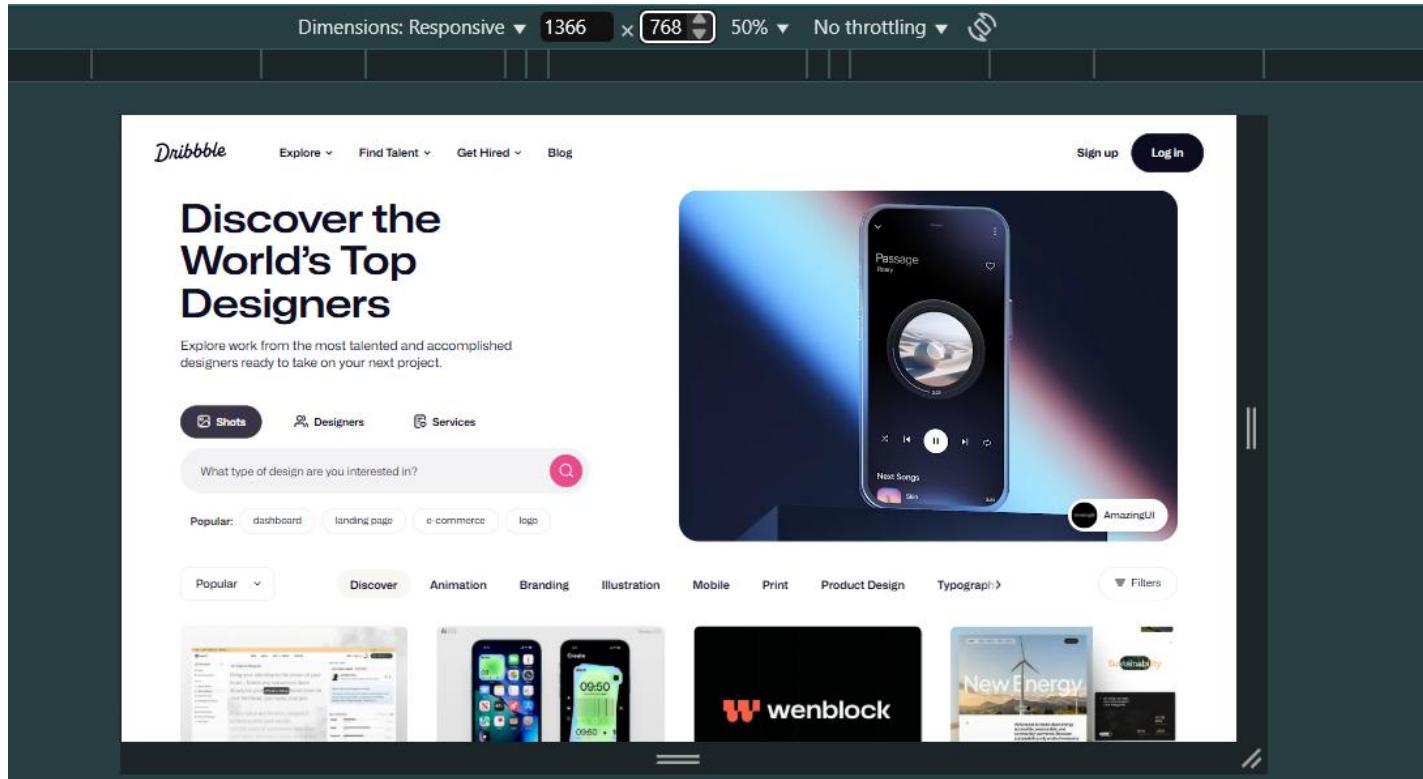
Layout: Full-width grid with multiple design cards per row, providing a spacious and visually rich display.

Navigation: Top navigation bar displays all menu items without collapsing, ensuring instant access to all sections.

Images & Media: High-resolution images load quickly and maintain clarity even on large displays.

Overall Experience: Excellent & the layout feels professional, easy to navigate, and visually appealing.

Laptop (1366x768)



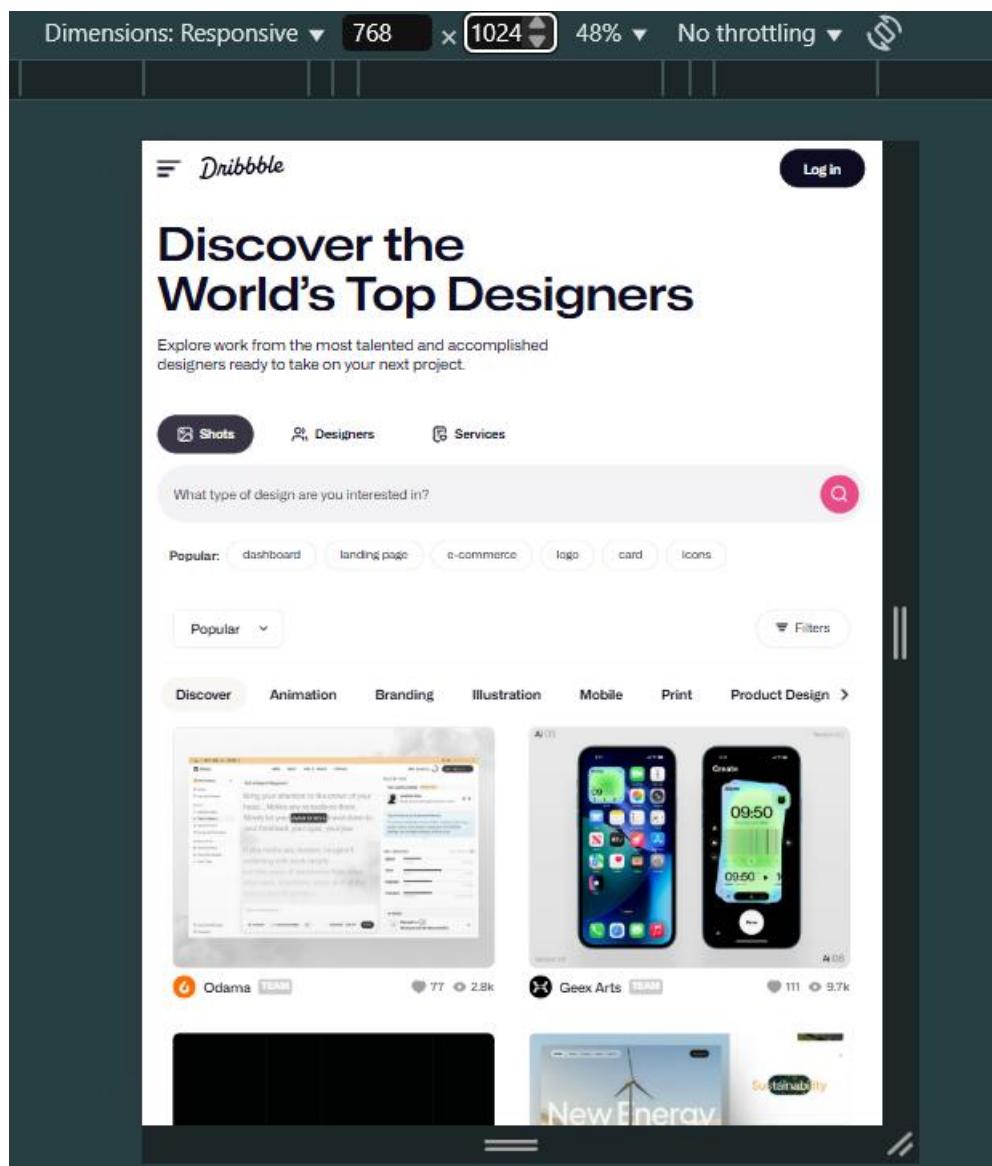
Layout: Slightly reduced card sizes compared to desktop, but still displays multiple items per row for a balanced look.

Navigation: Navigation bar remains fully visible with no need for a hamburger menu.

Images & Media: Images adjust proportionally to the smaller screen without losing quality.

Overall Experience: Very good & compact yet retains desktop-like usability.

Tablet (768×1024)



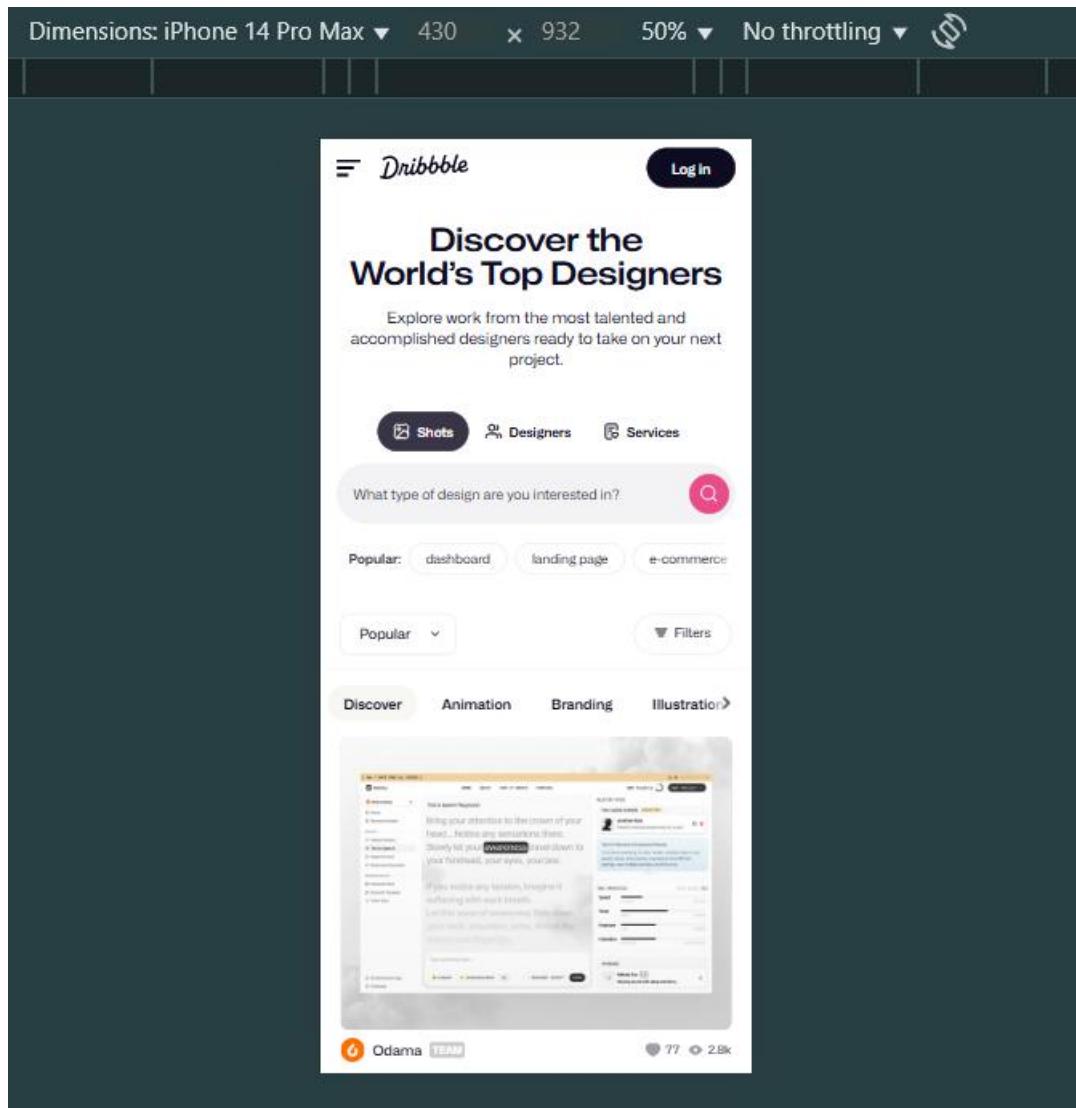
Layout: Switches to a two-column grid layout, improving readability on medium-sized screens.

Navigation: Top navigation bar partially collapses, reducing clutter while maintaining functionality.

Images & Media: Images resize smoothly and fit well without overflow or distortion.

Overall Experience: Good & comfortable viewing and easy navigation with touch controls.

Mobile – iPhone 14 Pro Max (430x932)



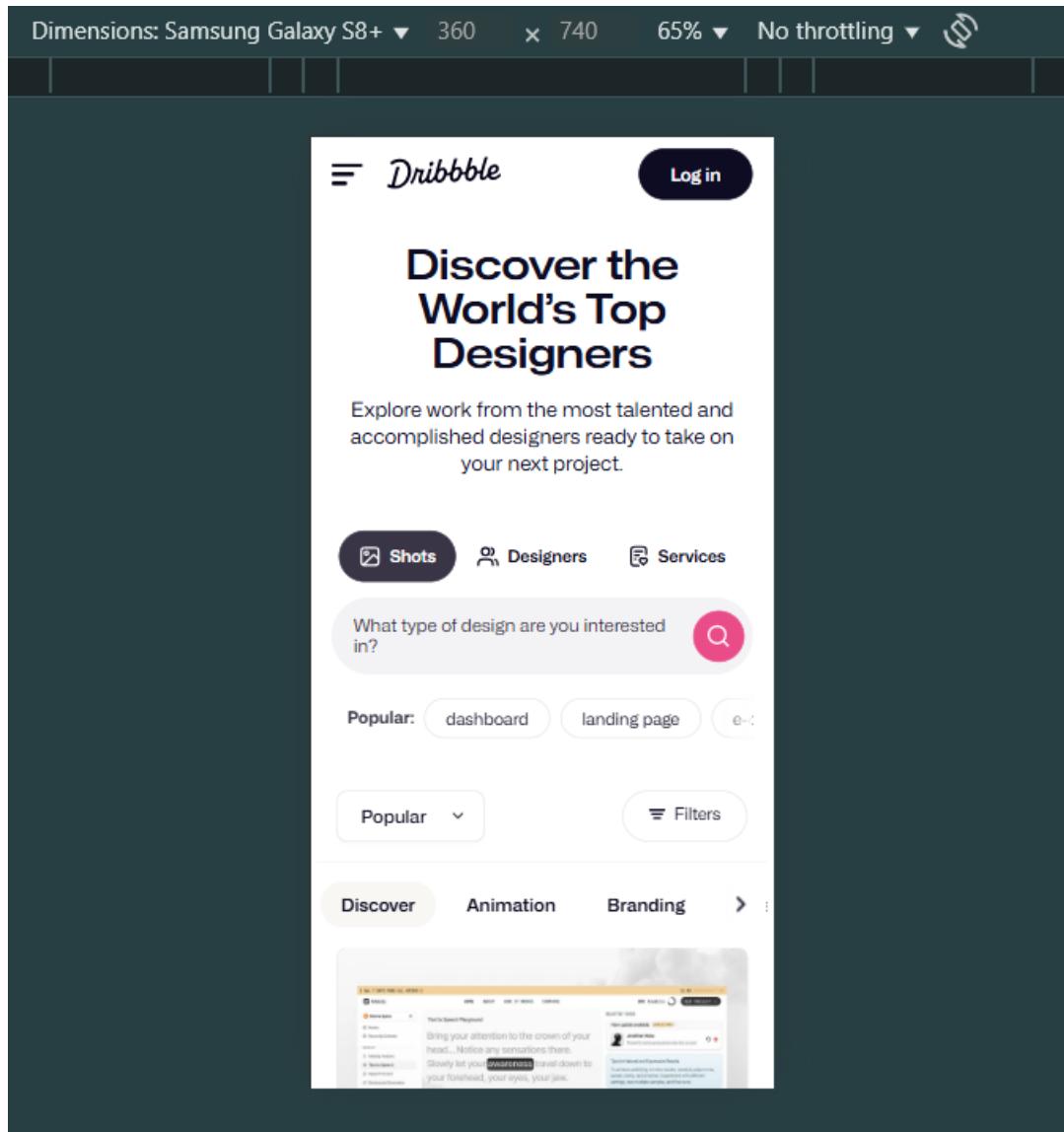
Layout: Adapts to a single-column feed for better vertical scrolling on mobile.

Navigation: Top navigation replaced by a hamburger menu to save space and improve usability.

Images & Media: Images span full width and scale perfectly for mobile viewing.

Overall Experience: Excellent & optimized for mobile with intuitive navigation.

Mobile – Samsung Galaxy S8+ (360x740)



Layout: Maintains single-column format but with larger touch targets to enhance tap accuracy.

Navigation: Fully collapsed into a hamburger menu for a cleaner interface.

Images & Media: Optimized for small displays, loading without horizontal scroll issues.

Overall Experience: Smooth & performs well, though page loading may feel slightly heavy on slower networks.

5. Breakpoint Description

Breakpoint	Description
1920 px – 1080 px	Desktop Screen
1366 px – 768 px	Laptop Screen
768 px – 1024 px	Tablet Screen
430 px – 932 px	iPhone Screen (Large)
360 px – 740 px	Samsung S8 + Screen (Normal)

Code :

```
<!DOCTYPE html>
<html lang="en">
<head>
<meta charset="UTF-8" />
<meta name="viewport" content="width=device-width, initial-scale=1.0" />
<title>Responsive Design Using Bootstrap Grid & Utilities</title>

<!-- Bootstrap CSS -->
<link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/dist/css/bootstrap.min.css" rel="stylesheet" />

<style>
body {
    font-family: 'Poppins', sans-serif;
    background-color: #f8f9fa;
}
.demo-section {
    background: #ffffff;
    border-radius: 10px;
    box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
    padding: 20px;
    margin-bottom: 30px;
}
.demo-box {
    background: #0d6efd;
    color: white;
    text-align: center;
    padding: 40px 10px;
}
```

border-radius: 8px;
}

</style>

</head>

<body>
<div class="container my-5">
<!-- Title -->
<h1 class="text-center text-primary fw-bold mb-4">
 Responsive Design with Bootstrap Grid & Utilities
</h1>

<!-- Grid Demonstration -->
<section class="demo-section">
<h4 class="text-secondary fw-bold mb-3">1 Bootstrap Grid System Example</h4>
<p class="text-muted">
 This section demonstrates Bootstrap's 12-column responsive grid layout.
</p>

<div class="row g-3">
 <div class="col-lg-3 col-md-4 col-sm-6">
 <div class="demo-box">Column 1</div>
 </div>
 <div class="col-lg-3 col-md-4 col-sm-6">
 <div class="demo-box">Column 2</div>
 </div>
 <div class="col-lg-3 col-md-4 col-sm-6">
 <div class="demo-box">Column 3</div>
 </div>

```

<div class="col-lg-3 col-md-4 col-sm-6">
  <div class="demo-box">Column 4</div>
</div>
</div>
</section>

```

<!-- Flexbox Alignment Demonstration -->

```

<section class="demo-section">
  <h4 class="text-secondary fw-bold mb-3">
    2 Flexbox Utilities for Alignment (d-flex,
    justify-content-*, align-items-*)
  </h4>
  <p class="text-muted">
    Bootstrap's flex utilities allow easy alignment
    and spacing of content horizontally and vertically.
  </p>

```

```

<div class="d-flex justify-content-around
align-items-center flex-wrap bg-light p-4
rounded">
  <div class="demo-box m-2">Start</div>
  <div class="demo-box m-2">Center</div>
  <div class="demo-box m-2">End</div>
</div>
</section>

```

<!-- Spacing and Text Utilities -->

```

<section class="demo-section">
  <h4 class="text-secondary fw-bold mb-3"> 3
  Spacing and Text Utilities</h4>
  <p class="text-muted">
    Use Bootstrap's m- (margin), p- (padding),
    and text-* classes for structured spacing and text
    formatting.
  </p>

```

```

<div class="p-4 bg-light rounded">
  <h5 class="text-center text-primary mb-3">Text Utilities Example</h5>
  <p class="text-start m-2">
    <strong>Left Aligned:</strong> This
    paragraph uses <code>text-start</code> and
    margin utilities.
  </p>
  <p class="text-center p-2 bg-white rounded
  shadow-sm">
    <strong>Centered Text:</strong> This
    paragraph uses <code>text-center</code> and
    padding utilities.
  </p>
  <p class="text-end mt-3 pe-3 text-muted">
    <strong>Right Aligned:</strong>
    Demonstrating <code>text-end</code> with
    padding-end.
  </p>
  </div>
</section>

<!-- Responsive Testing Section -->
<section class="demo-section text-center">
  <h4 class="text-secondary fw-bold mb-3">
    4 Responsive Behavior Testing
  </h4>
  <p class="text-muted">
    Resize the browser window to observe how
    the grid and flex utilities adapt for mobile, tablet,
    and desktop.
  </p>
  <div class="row gy-3">
    <div class="col-lg-6 col-md-12">

```

```

<div class="demo-box">Large Screen
(50%)</div>
</div>
<div class="col-lg-6 col-md-12">
    <div class="demo-box bg-success">Adapts
to Full Width on Mobile</div>
</div>
</div>
</section>

<!-- Footer -->
<footer class="bg-dark text-white text-center py-
3 rounded mt-5">

```

<p class="mb-0">© 2025 Responsive
Demo | Designed by Samyak Kedari</p>

</footer>

</div>

<!-- Bootstrap JS -->

<script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.3/
dist/js/bootstrap.bundle.min.js"></script>

</body>

</html>

Output :

Responsive Design with Bootstrap Grid & Utilities

1 Bootstrap Grid System Example

This section demonstrates Bootstrap's 12-column responsive grid layout.

Column 1
Column 2
Column 3
Column 4

2 Flexbox Utilities for Alignment (d-flex, justify-content-*, align-items-*)

Bootstrap's flex utilities allow easy alignment and spacing of content horizontally and vertically.

Start
Center
End

3 Spacing and Text Utilities

Use Bootstrap's m- (margin), p- (padding), and text-* classes for structured spacing and text formatting.

Text Utilities Example

Left Aligned: This paragraph uses `text-start` and margin utilities.

Centered Text: This paragraph uses `text-center` and padding utilities.

Right Aligned: Demonstrating `text-end` with padding-end.

⚡ Responsive Behavior Testing

Resize the browser window to observe how the grid and flex utilities adapt for mobile, tablet, and desktop.

Large Screen (50%)

Adapts to Full Width on Mobile

Conclusion:

We successfully implemented and tested Responsive Design Using Bootstrap.
