| EXP NO: 1 | WRITE A HTML PROGRAM FOR CREATION OF FORMS LINKS AND TABLES |
|---|---|
| DATE: 23/1/25 | |

**AIM:**

To write a html program for creation of forms links and tables

**ALGORITHM:**

**Step 1:** Start the HTML document using <!DOCTYPE html> and open <html> and <head> tags.
**Step 2:** Set the title of the webpage using the <title> tag inside <head>.
**Step 3:** Open the <body> tag to begin adding visible content.
**Step 4:** Create a form using the <form> tag with action and method attributes.
**Step 5:** Add input fields such as <input type="text"> and <input type="email"> inside the form.
**Step 6:** Include a submit button using <input type="submit">.
**Step 7:** Create hyperlinks using <a href="URL">Link Text</a>.
**Step 8:** Design a table using <table>, and add rows with <tr>, headers with <th>, and data with <td>.
**Step 9:** Close all opened tags properly: </form>, </table>, </body>, and </html>.

**SOURCE CODE:**

```
<!DOCTYPE html>
<html>
<head>
  <title>HTML Forms, Links, and Tables Example</title>
  <style>
    body {
      font-family: Arial, sans-serif;
      margin: 20px;
    }
    table {
      border-collapse: collapse;
```

```
            width: 60%;
            margin-top: 20px;
        }
        table, th, td {
            border: 1px solid #444;
        }
        th, td {
            padding: 10px;
            text-align: left;
        }
        form {
            margin-bottom: 20px;
        }
    </style>
</head>
<body>

    <h2>Registration Form</h2>
    <form action="#" method="post">
        <label for="name">Name:</label><br>
        <input type="text" id="name" name="name" required><br><br>

        <label for="email">Email:</label><br>
        <input type="email" id="email" name="email" required><br><br>

        <input type="submit" value="Register">
    </form>

    <h2>Useful Links</h2>
```

```
    <ul>
        <li><a href="https://www.w3schools.com" target="_blank">Visit W3Schools</a></li>
        <li><a href="https://www.mozilla.org" target="_blank">Visit Mozilla</a></li>
    </ul>

    <h2>Participant Table</h2>
    <table>
        <tr>
            <th>S.No</th>
            <th>Name</th>
            <th>Email</th>
        </tr>
        <tr>
            <td>1</td>
            <td>Alice Johnson</td>
            <td>alice@example.com</td>
        </tr>
        <tr>
            <td>2</td>
            <td>Bob Smith</td>
            <td>bob@example.com</td>
        </tr>
    </table>

</body>
</html>
```

**OUTPUT:**


**RESULT:**

Thus, the HTML webpage containing hyperlinks, forms, and tables is successfully created.The functionalities were implemented and verified with proper structure and formatting using basic HTML tags.

| EXP NO: 2 | DESIGN A WEBSITE USING HTML TO CREATE A BASIC TEXT FORMATTING , IMAGES . |
|---|---|
| DATE: 30/1/25 | |

**AIM:**

To create a website using html to create a basic textformatting and images

**ALGORITHM:**

**Step 1:** Start the HTML document using <!DOCTYPE html> and open <html>, <head>, and <body> tags.
**Step 2:** Set the character encoding and viewport settings using <meta> tags inside <head>.
**Step 3:** Add the title of the webpage using the <title> tag.
**Step 4:** Create a main heading using the <h1> tag.
**Step 5:** Add multiple paragraphs using <p>, and apply formatting tags like <b>, <i>, <u>, <mark>, <del>, and <small>.
**Step 6:** Insert a subheading using <h2> and display an image using the <img> tag with src and alt attributes.
**Step 7:** Create another subheading and add a hyperlink using the <a> tag with href and target="_blank".
**Step 8:** Add a bulleted list using the <ul> tag with items inside <li> tags.
**Step 9:** Close all opened tags properly, including </body> and </html>.

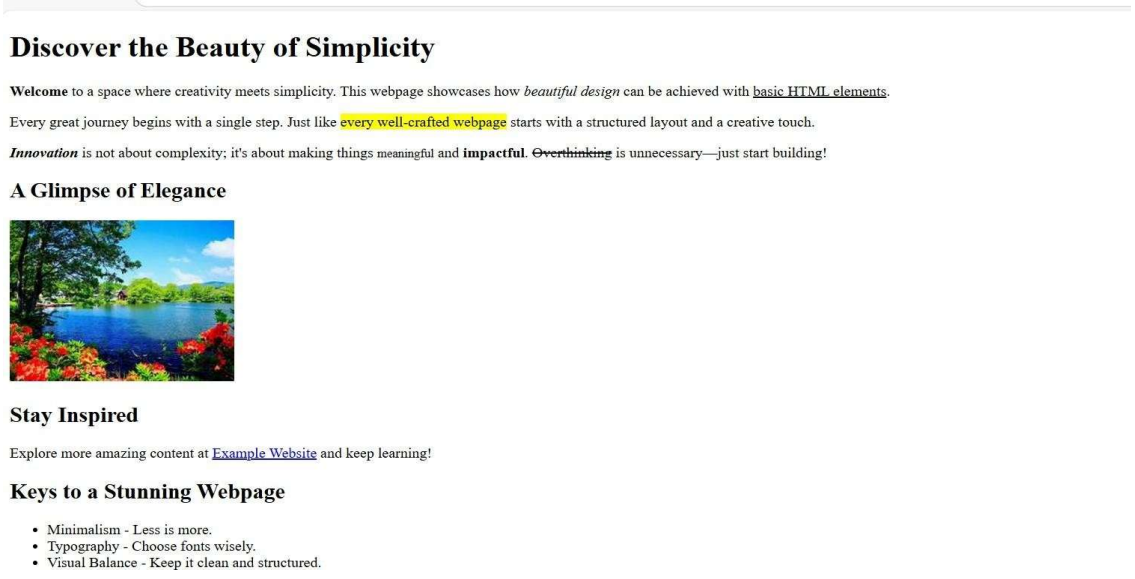
**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

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

   <title>Welcome to My Creative Webpage</title>

</head>
```

```
<body>

    <!-- Heading -->

    <h1>Discover the Beauty of Simplicity</h1>

    <!-- Paragraphs with text formatting -->

    <p><b>Welcome</b> to a space where creativity meets simplicity. This webpage showcases how <i>beautiful design</i> can be achieved with <u>basic HTML elements</u>.</p>

    <p>Every great journey begins with a single step. Just like <mark>every well-crafted webpage</mark> starts with a structured layout and a creative touch.</p>

    <p><b><i>Innovation</i></b> is not about complexity; it's about making things <small>meaningful</small> and <b>impactful</b>. <del>Overthinking</del> is unnecessary—just start building!</p>

    <!-- Image -->

    <h2>A Glimpse of Elegance</h2>

    <img src="https://tse3.mm.bing.net/th?id=OIP.DXTzA53g5h_MlYhHIt7IEwHaFj&pid=Api&P=0&h=180" alt="Beautiful Landscape">

    <!-- Hyperlink -->

    <h2>Stay Inspired</h2>

    <p>Explore more amazing content at <a href="https://www.example.com" target="_blank">Example Website</a> and keep learning!</p>
```

```
<!-- List -->
  <h2>Keys to a Stunning Webpage</h2>
  <ul>
    <li>Minimalism - Less is more.</li>
    <li>Typography - Choose fonts wisely.</li>
    <li>Visual Balance - Keep it clean and structured.</li>
  </ul>

</body>
</html>
```

**OUTPUT:**




**RESULT:**

Thus, the HTML webpage title is successfully created. It demonstrates the use of text formatting tags, image embedding, hyperlinks, and unordered lists to build a clean and creative webpage layout using basic HTML elements.

| EXP NO: 3 | CREATE A WEBPAGE WITH HTML5 |
| --- | --- |
| DATE: 6/2/25 | |

i) **To embed an image in a webpage**

ii) **To fix the hotspot**

iii) **Show all the related information when the hotspot is clicked**

**AIM:**

To create a webpage using HTML5 that embeds an image with interactive hotspots and displays related information upon clicking them.

**ALGORITHM:**

**Step 1:** Start the HTML document with <!DOCTYPE html> and open <html> and <head> tags.
**Step 2:** Set the character encoding and viewport using <meta> tags inside the <head> tag.
**Step 3:** Define the title of the webpage with <title> tag.
**Step 4:** Inside the <body>, use the <img> tag to embed the image and define the usemap attribute linking it to the image map.
**Step 5:** Define an image map using the <map> tag with a unique name and add <area> tags inside it.
**Step 6:** Set the coordinates of each hotspot using the coords attribute of the <area> tag and specify the href attribute to link to the related information.
**Step 7:** Ensure the image map's defined regions are clickable and properly configured to display or redirect information when clicked.
**Step 8:** Close all the tags properly with </body> and </html>.

**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>
```

```
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Image Map</title>
</head>
<body>

    <h1>Interactive World Map</h1>
    <p>Click on different continents to learn more.</p>

    <!-- Image with an image map -->
    <img src="https://thumbs.dreamstime.com/b/high-resolution-world-map-landforms-detailed-satellite-view-earth-its-global-elements-image-furnished-nasa-87502492.jpg" usemap="#worldmap" width="800" alt="World Map">

    <!-- Image Map Definition -->
    <map name="worldmap">
        <!-- Europe -->
        <area shape="rect" coords="350,80,450,180" href="https://en.wikipedia.org/wiki/Europe" target="_blank" alt="Europe">

        <!-- Asia -->
        <area shape="rect" coords="460,80,660,280" href="https://en.wikipedia.org/wiki/Asia" target="_blank" alt="Asia">

        <!-- Africa -->
```

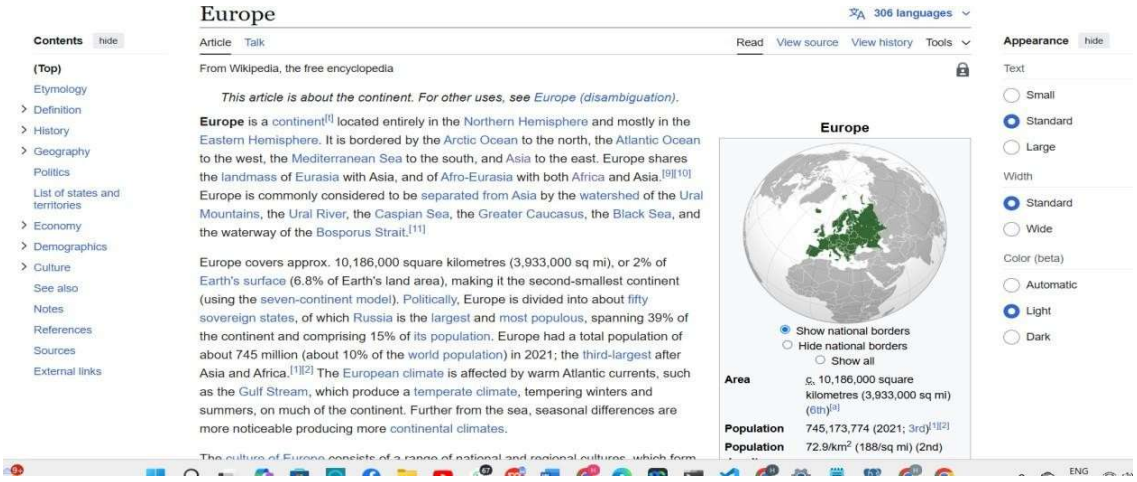
```
        <area shape="rect" coords="370,200,500,380"
href="https://en.wikipedia.org/wiki/Africa" target="_blank" alt="Africa">

        <!-- North America -->
        <area shape="rect" coords="50,50,250,250"
href="https://en.wikipedia.org/wiki/North_America" target="_blank" alt="North America">

        <!-- South America -->
        <area shape="rect" coords="180,280,300,450"
href="https://en.wikipedia.org/wiki/South_America" target="_blank" alt="South America">

        <!-- Australia -->
        <area shape="rect" coords="650,320,780,450"
href="https://en.wikipedia.org/wiki/Australia" target="_blank" alt="Australia">
    </map>

    <p>Clicking on any hotspot will take you to Wikipedia for more details about that
continent.</p>

</body>
</html>
```

**OUTPUT:**

# Interactive World Map

Click on different continents to learn more.

Clicking on any hotspot will take you to Wikipedia for more details about that continent.




**RESULT:**

Thus, the HTML5 webpage with an embedded image map is successfully created.The interactive hotspots were defined and linked to show related information when clickeproviding a seamless user experience with clickable areas on the image.

| EXP NO: 4 | CREATE A WEBPAGE WITH ALL TYPES OF CSS |
| --- | --- |
| DATE: 13/2/25 | |

**AIM:**

To design a professional webpage using **HTML5** and **CSS** (internal, external, and inline) that showcases various CSS features including styling, layout, and responsiveness.

**ALGORITHM:**

**Step 1:** Start the HTML document with <!DOCTYPE html> and open <html>, <head>, and <body> tags.

**Step 2:** Set metadata such as character encoding and viewport using <meta> tags inside the <head>.

**Step 3:** Define the title of the webpage using the <title> tag.

**Step 4:** Link an external CSS file using the <link rel="stylesheet"> tag for global styles.

**Step 5:** Add internal CSS inside <style> tags to customize specific elements like headings and spans.

**Step 6:** Create a header section using <header> with a <h1> and <p> for the main title and subtitle.

**Step 7:** Embed an image in the hero section using <img> and apply inline CSS for responsive sizing.

**Step 8:** Overlay text on the hero image using a  with styled <h2> and <p> elements.

**Step 9:** Add a content section with <h2> and <p> tags, using  to emphasize text.

**Step 10:** Build a features section with multiple  blocks describing key CSS topics.

**Step 11:** Create a footer using <footer> and include a copyright notice.

**Step 12:** Close all open tags (</body>, </html>) to complete the webpage structure.

**SOURCE CODE:**

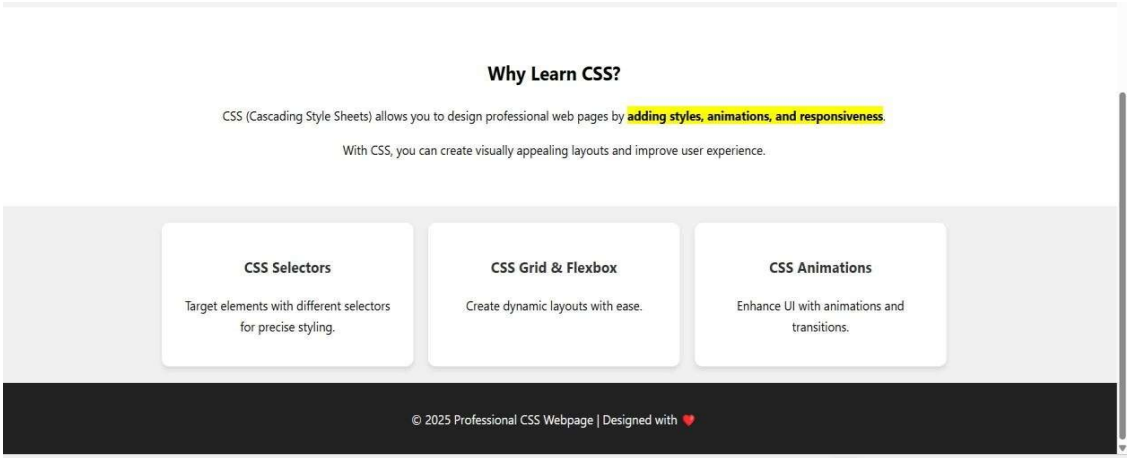
```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Professional CSS Webpage</title>

    <!-- External CSS -->
    <link rel="stylesheet" href="stylesex4.css">
    <!-- Internal CSS -->
    <style>
        h2 {
            color: #2a2a2b;
            text-align: center;
            margin-top: 30px;
            font-size: 28px;
        }
        .highlight {
            background-color: yellow;
            padding: 5px;
            font-weight: bold;
        }
    </style>
```

```
</head>
<body>

    <!-- Header Section -->
    <header>
        <h1>Welcome to the World of CSS</h1>
        <p>Mastering CSS for Modern Web Development</p>
    </header>

    <!-- Hero Section with Inline CSS -->
    <section class="hero">
        <img src="https://img.freepik.com/premium-photo/suspension-bridge-travel-nature-scenery-building_1417-264.jpg" alt="Web Design" style="width: 100%; height: auto;">
        <div class="hero-text">
            <h2 style="color: white; font-size: 35px;">CSS: The Heart of Web Styling</h2>
            <p style="color: white;">Discover how CSS enhances design, responsiveness, and animations.</p>
            <a href="#" class="btn">Explore More</a>
        </div>
    </section>

    <!-- Content Section -->
    <section class="content">
        <h2>Why Learn CSS?</h2>
```

```
        <p>CSS (Cascading Style Sheets) allows you to design professional web pages by <span class="highlight">adding styles, animations, and responsiveness</span>.</p>

        <p>With CSS, you can create visually appealing layouts and improve user experience.</p>

    </section>


    <!-- Features Section -->

    <section class="features">

        <div class="feature-box">

            <h3>CSS Selectors</h3>

            <p>Target elements with different selectors for precise styling.</p>

        </div>

        <div class="feature-box">

            <h3>CSS Grid & Flexbox</h3>

            <p>Create dynamic layouts with ease.</p>

        </div>

        <div class="feature-box">

            <h3>CSS Animations</h3>

            <p>Enhance UI with animations and transitions.</p>

        </div>

    </section>


    <!-- Footer -->

    <footer>

        <p>&copy; 2025 Professional CSS Webpage </p>
```

```
    </footer>


</body>

</html>
```

**OUTPUT:**


**RESULT:**

Thus, the professional HTML5 webpage integrated with internal, external, and inline CSS is successfully created.The webpage demonstrates structured layout, custom styling, and responsiveness, showcasing core concepts of CSS effectively.

| EXP NO: 5 | A SCIENTIFIC CALCULATOR USING HTML, CSS, AND JAVASCRIPT |
|---|---|
| DATE: 22/03/25 | |

**AIM:**

To design a Scientific Calculator using HTML, CSS, and JavaScript.

**ALGORITHM:**

**Step 1:** Create the HTML structure with a display and calculator buttons.

**Step 2:** Style the calculator layout and buttons using CSS for better user interface.

**Step 3:** Implement appendToDisplay(value) to add clicked button values to the input field.

**Step 4:** Implement clearDisplay() to reset the input display when needed.

**Step 5:** Implement calculateResult() to evaluate the mathematical expression.

**Step 6:** Use try-catch block in calculateResult() to handle invalid expressions.

**Step 7:** Add scientific functions like sqrt, pow, sin, cos, tan, log, exp, and pi.

**Step 8:** Assign onclick events to all calculator buttons to trigger JavaScript functions.

**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>

   <meta charset="UTF-8">

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

   <title>Document</title>

   <style>

      body {

         display: flex;

         justify-content: center;
```

```
    align-items: center;
    height: 100vh;
    background-color: #f4f4f4;
}
.calculator {
    width: 300px;
    background: #fff;
    padding: 20px;
    border-radius: 10px;
    box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
    text-align: center;
}
input {
    width: 100%;
    height: 50px;
    text-align: right;
    font-size: 1.5em;
    margin-bottom: 10px;
}
.buttons {
    display: grid;
    grid-template-columns: repeat(4, 1fr);
    gap: 5px;
```

```
        }
        button {
            height: 50px;
            font-size: 1.2em;
            border: none;
            cursor: pointer;
            background: #eee;
            border-radius: 5px;
        }
        button:active {
            background: #ddd;
        }
        .equal {
            background: #28a745;
            color: white;
        }
        .clear {
            background: #dc3545;
            color: white;
        }
    </style>
</head>
<body>
```

```
<div class="calculator">
    <input type="text" id="display" disabled>
    <div class="buttons">
        <button onclick="clearDisplay()" class="clear">C</button>
        <button onclick="appendToDisplay('(')">(</button>
        <button onclick="appendToDisplay(')')">)</button>
        <button onclick="appendToDisplay('/')">/</button>
        <button onclick="appendToDisplay('7')">7</button>
        <button onclick="appendToDisplay('8')">8</button>
        <button onclick="appendToDisplay('9')">9</button>
        <button onclick="appendToDisplay('*')">*</button>
        <button onclick="appendToDisplay('4')">4</button>
        <button onclick="appendToDisplay('5')">5</button>
        <button onclick="appendToDisplay('6')">6</button>
        <button  onclick="appendToDisplay('-')">-</button>
        <button onclick="appendToDisplay('1')">1</button>
        <button onclick="appendToDisplay('2')">2</button>
        <button onclick="appendToDisplay('3')">3</button>
        <button onclick="appendToDisplay('+')">+</button>
        <button onclick="appendToDisplay('0')">0</button>
        <button onclick="appendToDisplay('.')">.</button>
        <button onclick="calculateResult()" class="equal">=</button>
        <button onclick="appendToDisplay('Math.sqrt(')">√</button>
```

```
            <button onclick="appendToDisplay('Math.pow(')">x^y</button>
            <button onclick="appendToDisplay('Math.sin(')">sin</button>
            <button onclick="appendToDisplay('Math.cos(')">cos</button>
            <button onclick="appendToDisplay('Math.tan(')">tan</button>
            <button onclick="appendToDisplay('Math.log(')">log</button>
            <button onclick="appendToDisplay('Math.exp(')">e^x</button>
            <button onclick="appendToDisplay('Math.PI')">π</button>
        </div>
    </div>
</body>
<script>
    function appendToDisplay(value){
        document.getElementById("display").value+=value;
    }
    function clearDisplay(){
        document.getElementById("display").value="";
    }
    function calculateResult(){
        try{
            document.getElementById("display").value=
eval(document.getElementById("display").value);
        }
        catch(e){
            alert("Invalid Expression");
```

```
            clearDisplay();
        }
    }
</script>


</html>
```

**OUTPUT:**


**RESULT:**

Thus, a scientific calculator is designed using JavaScript successfully and verified.

| EXP NO: 6 | REGISTRATION FORM USING HTML, CSS, AND JAVASCRIPT VALIDATION |
|---|---|
| DATE: 04/04/25 | |

**AIM:**

To design a Registration Form using HTML, CSS (Bootstrap), and JavaScript validation.

**ALGORITHM:**

**Step 1:** Create the HTML structure with input fields for name, email, mobile, password, and confirm password.
**Step 2:** Use Bootstrap and custom CSS to style the form and improve user interface.
**Step 3:** Extract Head Size as X (independent variable) and Brain Weight as y (dependent variable).
**Step 4:** Use regular expressions to validate name, email, mobile number, and password formats.
**Step 5:** Check if password and confirm password fields match.
**Step 6:** Display corresponding error messages for invalid inputs dynamically.
**Step 7:** Prevent form submission if any validation fails and allow it if all inputs are valid.

**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>

    <meta charset="UTF-8">

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

    <title>Registration Form</title>

    <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"
rel="stylesheet">
```

```
    <style>
        body {
            background-color: #f4f4f4;
            font-family: Arial, sans-serif;
        }
        .container {
            max-width: 450px;
            background: #fff;
            padding: 20px;
            border-radius: 8px;
            box-shadow: 0 0 10px rgba(0, 0, 0, 0.1);
            margin-top: 50px;
        }
        .error {
            color: red;
            font-size: 14px;
        }
    </style>
</head>
<body>

    <div class="container">
```

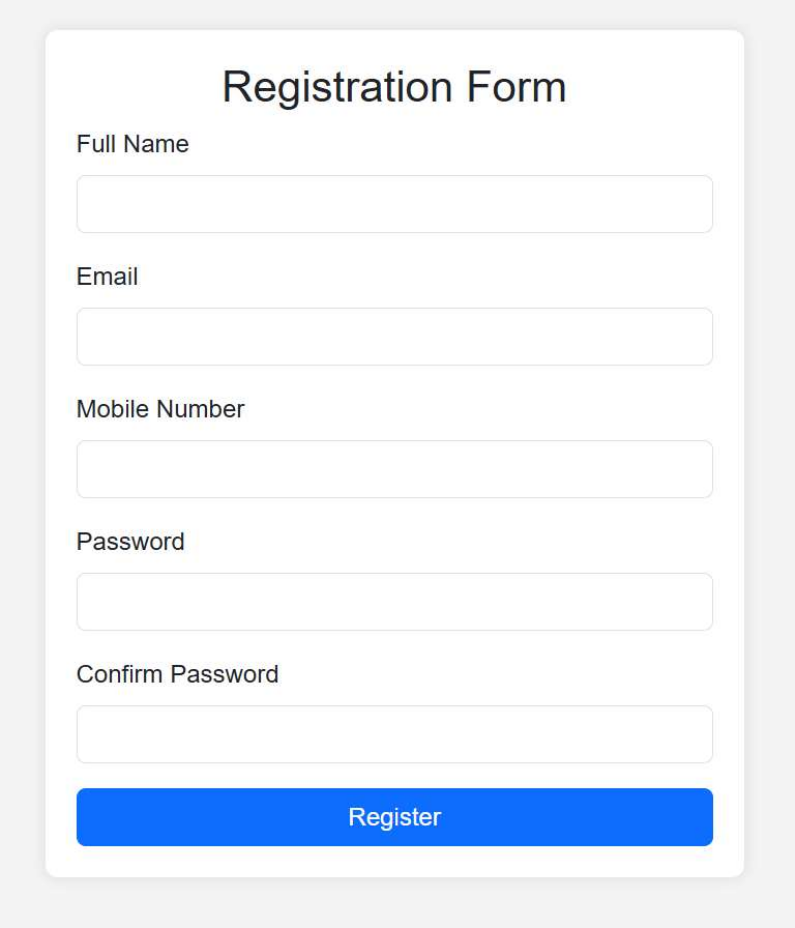
```
<h3 class="text-center">Registration Form</h3>

<form id="regForm" onsubmit="return validateForm()">


  <div class="mb-3">

    <label class="form-label">Full Name</label>

    <input type="text" class="form-control" id="name">

    <span class="error" id="nameError"></span>

  </div>


  <div class="mb-3">

    <label class="form-label">Email</label>

    <input type="email" class="form-control" id="email">

    <span class="error" id="emailError"></span>

  </div>


  <div class="mb-3">

    <label class="form-label">Mobile Number</label>

    <input type="text" class="form-control" id="mobile">

    <span class="error" id="mobileError"></span>

  </div>


  <div class="mb-3">
```

```
            <label class="form-label">Password</label>
            <input type="password" class="form-control" id="password">
            <span class="error" id="passwordError"></span>
        </div>

        <div class="mb-3">
            <label class="form-label">Confirm Password</label>
            <input type="password" class="form-control" id="confirmPassword">
            <span class="error" id="confirmPasswordError"></span>
        </div>

        <button type="submit" class="btn btn-primary w-100">Register</button>
    </form>
</div>

<script>
    function validateForm() {
        let valid = true;

        let name = document.getElementById("name").value.trim();
        let email = document.getElementById("email").value.trim();
        let mobile = document.getElementById("mobile").value.trim();
```

```
        let password = document.getElementById("password").value;
        let confirmPassword = document.getElementById("confirmPassword").value;

        let nameRegex = /^[A-Za-z\s]{3,}$/;
        let emailRegex = /^[a-zA-Z0-9._%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;
        let mobileRegex = /^[6-9]\d{9}$/;
        let passwordRegex = /^(?=.*[A-Za-z])(?=.*\d).{6,}$/;

        document.getElementById("nameError").innerText = nameRegex.test(name) ? "" : "Name must be at least 3 letters";
        document.getElementById("emailError").innerText = emailRegex.test(email) ? "" : "Invalid email format";
        document.getElementById("mobileError").innerText = mobileRegex.test(mobile) ? "" : "Enter a valid 10-digit mobile number";
        document.getElementById("passwordError").innerText = passwordRegex.test(password) ? "" : "Min 6 chars with at least one letter & number";
        document.getElementById("confirmPasswordError").innerText = password === confirmPassword ? "" : "Passwords do not match";

        return nameRegex.test(name) && emailRegex.test(email) && mobileRegex.test(mobile) && passwordRegex.test(password) && password === confirmPassword;
    }
</script>
```

```
    <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></scri
pt>

</body>

</html>
```

**OUTPUT:**




**RESULT:**

Thus, a registration form is designed using HTML,CSS and JavaScript successfully and verified.

| EXP NO: 7 | A SIMPLE WEB PAGE USING BOOTSTRAP |
| --- | --- |
| DATE: 04/04/25 | |

**AIM:**

To design a fully responsive and modern web page using Bootstrap 5 and Font Awesome with smooth animations and an elegant layout.

**ALGORITHM:**

**Step 1:** Start with the HTML5 boilerplate structure

**Step 2:** Link Bootstrap CSS and Font Awesome icons from CDN

**Step 3:** Design a navigation bar using Bootstrap's navbar component.

**Step 4:** Create a hero section with a background image and animated welcome text.

**Step 5:** Build a features section using Bootstrap cards to showcase highlights.

**Step 6:** Create an image gallery using a Bootstrap grid layout with hover effects.

**Step 7:** Add a contact section with a call-to-action button linked to an email.

**Step 8:** Design a footer with social media icons and copyright information.

**Step 9:** Use Bootstrap's utility classes and custom CSS for styling, hover effects, and responsiveness.

**Step 10:** Link Bootstrap JavaScript at the bottom to enable collapsible navbar and other components.

**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8" />

  <meta name="viewport" content="width=device-width, initial-scale=1" />

  <title>Enhanced Responsive Web Page</title>
```

```
  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"
rel="stylesheet">

  <link href="https://cdnjs.cloudflare.com/ajax/libs/font-awesome/6.4.0/css/all.min.css"
rel="stylesheet">


  <style>

    body {

      font-family: 'Segoe UI', sans-serif;

      scroll-behavior: smooth;

      background-color: #f8f9fa;

    }


    .navbar {

      box-shadow: 0 2px 5px rgba(0, 0, 0, 0.1);

    }


    .hero {

      background: url('https://images.unsplash.com/photo-1519389950473-47ba0277781c') no-
repeat center center/cover;

      color: white;

      padding: 120px 20px;

      text-align: center;

      animation: fadeIn 2s ease-in-out;

    }
```

```
@keyframes fadeIn {
  from { opacity: 0; transform: translateY(20px); }
  to { opacity: 1; transform: translateY(0); }
}

.card:hover {
  transform: translateY(-5px);
  transition: transform 0.3s ease;
}

.feature-icon {
  font-size: 2.5rem;
  color: #0d6efd;
}

.gallery img {
  width: 100%;
  height: 250px;
  object-fit: cover;
  border-radius: 8px;
  transition: transform 0.3s ease;
}
```

```
    .gallery img:hover {
      transform: scale(1.05);
    }

    .footer {
      background-color: #343a40;
      color: #fff;
      padding: 30px 0;
    }

    .social-icons i {
      font-size: 1.5rem;
      margin: 0 10px;
      color: white;
      transition: color 0.3s;
    }

    .social-icons i:hover {
      color: #0d6efd;
    }
  </style>
</head>
```

```
<body>


  <!-- Navbar -->
  <nav class="navbar navbar-expand-lg navbar-dark bg-primary sticky-top">
    <div class="container">
      <a class="navbar-brand" href="#">MySite</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 justify-content-end" id="navbarNav">
        <ul class="navbar-nav">
          <li class="nav-item"><a class="nav-link active" href="#home">Home</a></li>
          <li class="nav-item"><a class="nav-link" href="#features">Features</a></li>
          <li class="nav-item"><a class="nav-link" href="#gallery">Gallery</a></li>
          <li class="nav-item"><a class="nav-link" href="#contact">Contact</a></li>
        </ul>
      </div>
    </div>
  </nav>


  <!-- Hero Section -->
  <section id="home" class="hero text-white">
    <div class="container">
```

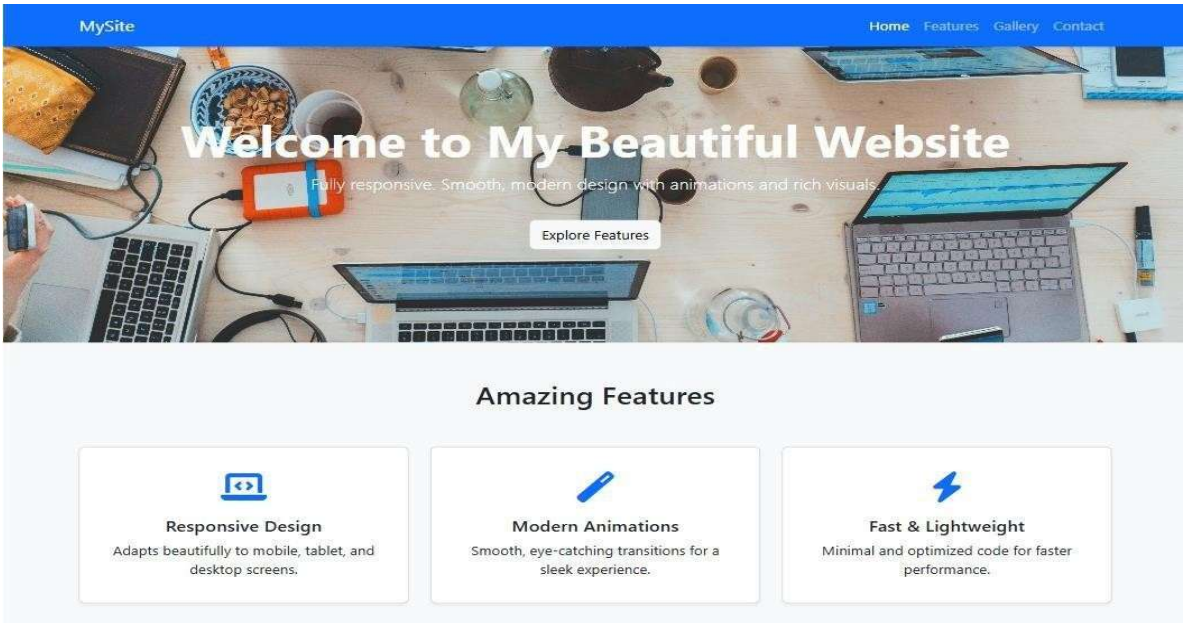
```
    <h1 class="display-4 fw-bold">Welcome to My Beautiful Website</h1>
    <p class="lead">Fully responsive. Smooth, modern design with animations and rich visuals.</p>
    <a href="#features" class="btn btn-light mt-3">Explore Features</a>
   </div>
  </section>

  <!-- Features Section -->
  <section id="features" class="py-5">
   <div class="container">
    <h2 class="text-center mb-5">Amazing Features</h2>
    <div class="row g-4">
     <div class="col-md-4">
      <div class="card text-center p-3 shadow-sm h-100">
       <div class="card-body">
        <i class="fas fa-laptop-code feature-icon mb-3"></i>
        <h5 class="card-title">Responsive Design</h5>
        <p class="card-text">Adapts beautifully to mobile, tablet, and desktop screens.</p>
       </div>
      </div>
     </div>
     <div class="col-md-4">
      <div class="card text-center p-3 shadow-sm h-100">
       <div class="card-body">
```

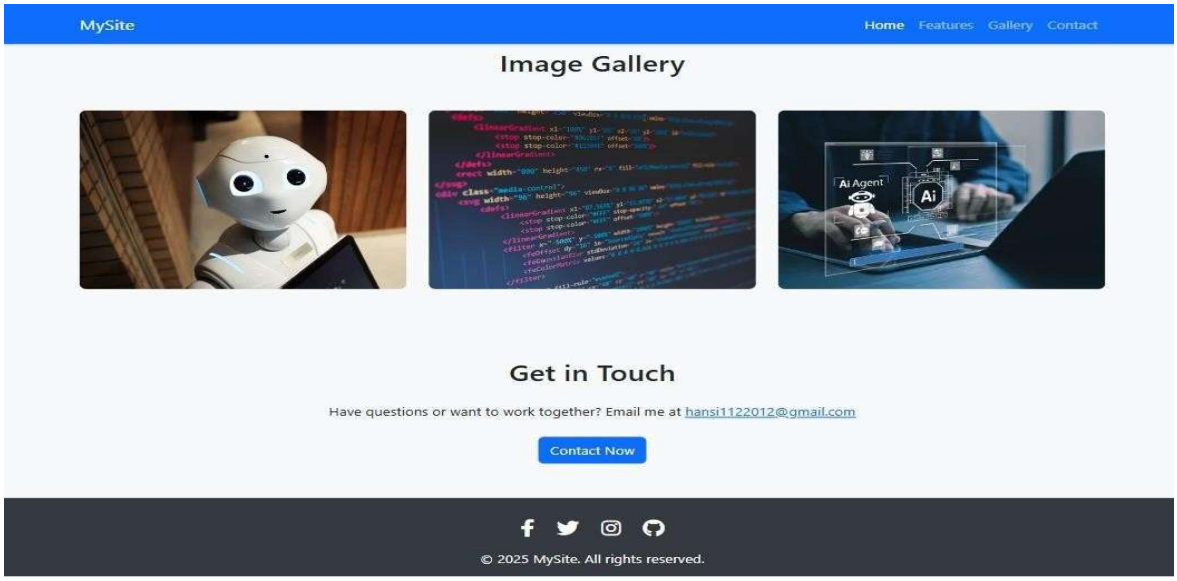
```
            <i class="fas fa-magic feature-icon mb-3"></i>
            <h5 class="card-title">Modern Animations</h5>
            <p class="card-text">Smooth, eye-catching transitions for a sleek experience.</p>
          </div>
        </div>
      </div>
      <div class="col-md-4">
        <div class="card text-center p-3 shadow-sm h-100">
          <div class="card-body">
            <i class="fas fa-bolt feature-icon mb-3"></i>
            <h5 class="card-title">Fast & Lightweight</h5>
            <p class="card-text">Minimal and optimized code for faster performance.</p>
          </div>
        </div>
      </div>
    </div>
  </div>
</section>

<!-- Gallery Section -->
<section id="gallery" class="py-5 bg-light">
  <div class="container">
    <h2 class="text-center mb-5">Image Gallery</h2>
```

```
    <div class="row g-4 gallery">
      <div class="col-md-4"><img src="./alexa.avif" width="600" height="400" alt="Gallery Image"></div>
      <div class="col-md-4"><img src="./coding.avif" width="600" height="400" alt="Gallery Image"></div>
      <div class="col-md-4"><img src="./ai.webp" width="600" height="400" alt="Gallery Image"></div>
    </div>
   </div>
  </section>

  <!-- Contact Section -->
  <section id="contact" class="py-5">
   <div class="container text-center">
    <h2 class="mb-4">Get in Touch</h2>
    <p>Have questions or want to work together? Email me at <a href="mailto:hansi1122012@gmail.com">hansi1122012@gmail.com</a></p>
    <a href="mailto:hansi1122012@gmail.com" class="btn btn-primary mt-2">Contact Now</a>
   </div>
  </section>

  <!-- Footer -->
  <footer class="footer text-center">
   <div class="container">
```

```
      <div class="social-icons mb-3">
        <a href="#"><i class="fab fa-facebook-f"></i></a>
        <a href="#"><i class="fab fa-twitter"></i></a>
        <a href="#"><i class="fab fa-instagram"></i></a>
        <a href="#"><i class="fab fa-github"></i></a>
      </div>
      <p class="mb-0">&copy; 2025 MySite. All rights reserved.</p>
    </div>
  </footer>

  <!-- Bootstrap + Font Awesome -->
  <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

**OUTPUT:**




**RESULT:**

Thus, a fully responsive and visually appealing web page was successfully designed using Bootstrap 5 and verified.

| EXP NO: 8 | A RESPONSIVE WEB PAGE USING BOOTSTRAP'S GRID SYSTEM |
|---|---|
| DATE: 07/04/25 | |

**AIM:**

To design a responsive web page using Bootstrap's grid system for adaptive layout.

**ALGORITHM:**

**Step 1:** Set up basic HTML structure with meta tags for responsiveness.
**Step 2:** Include Bootstrap CSS and JS libraries.
**Step 3:** Create a header with title and description.
**Step 4:** Define a container for grid-based content.
**Step 5:** Add a row with two columns for an image-text section.
**Step 6:** Add a row with three equal-width columns for cards.
**Step 7:** Add a row with four equal-width columns for smaller blocks.
**Step 8:** Include footer with copyright information.
**Step 9:** Test responsiveness across different screen sizes.

**SOURCE CODE:**

```
<!DOCTYPE html>

<html lang="en">

<head>

  <meta charset="UTF-8" />

  <meta name="viewport" content="width=device-width, initial-scale=1" />

  <title>Bootstrap Grid Page</title>

  <link href="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/css/bootstrap.min.css"
rel="stylesheet">
```

```
  <style>
    body {
      font-family: 'Segoe UI', sans-serif;
    }
    .header {
      background-color: #007bff;
      color: white;
      padding: 40px 0;
      text-align: center;
    }
    .img-fluid {
      border-radius: 8px;
    }
    .card:hover {
      transform: translateY(-5px);
      transition: 0.3s ease;
    }
  </style>
</head>
<body>
```

```
<!-- Header -->
<div class="header">
  <h1>Bootstrap Grid System</h1>
  <p>Responsive layout using rows and columns</p>
</div>

<!-- Grid Section -->
<div class="container py-5">
  <!-- Row 1 -->
  <div class="row mb-4">
    <div class="col-md-6">
      <img src="./ai.webp" width="600" height="400" alt="Tech Image" class="img-fluid">
    </div>
    <div class="col-md-6 d-flex align-items-center">
      <div>
        <h3>Responsive Columns</h3>
        <p>This is a 2-column layout using Bootstrap’s grid. On smaller screens, it stacks
vertically.</p>
      </div>
    </div>
  </div>
```

```
<!-- Row 2 (3-column cards) -->
<div class="row text-center">
  <div class="col-md-4 mb-4">
    <div class="card shadow-sm h-100">
      <div class="card-body">
        <h5 class="card-title">Column One</h5>
        <p class="card-text">This column spans 4/12 of the row on medium+ screens.</p>
      </div>
    </div>
  </div>
  <div class="col-md-4 mb-4">
    <div class="card shadow-sm h-100">
      <div class="card-body">
        <h5 class="card-title">Column Two</h5>
        <p class="card-text">Bootstrap handles spacing and responsiveness beautifully.</p>
      </div>
    </div>
  </div>
  <div class="col-md-4 mb-4">
    <div class="card shadow-sm h-100">
      <div class="card-body">
```

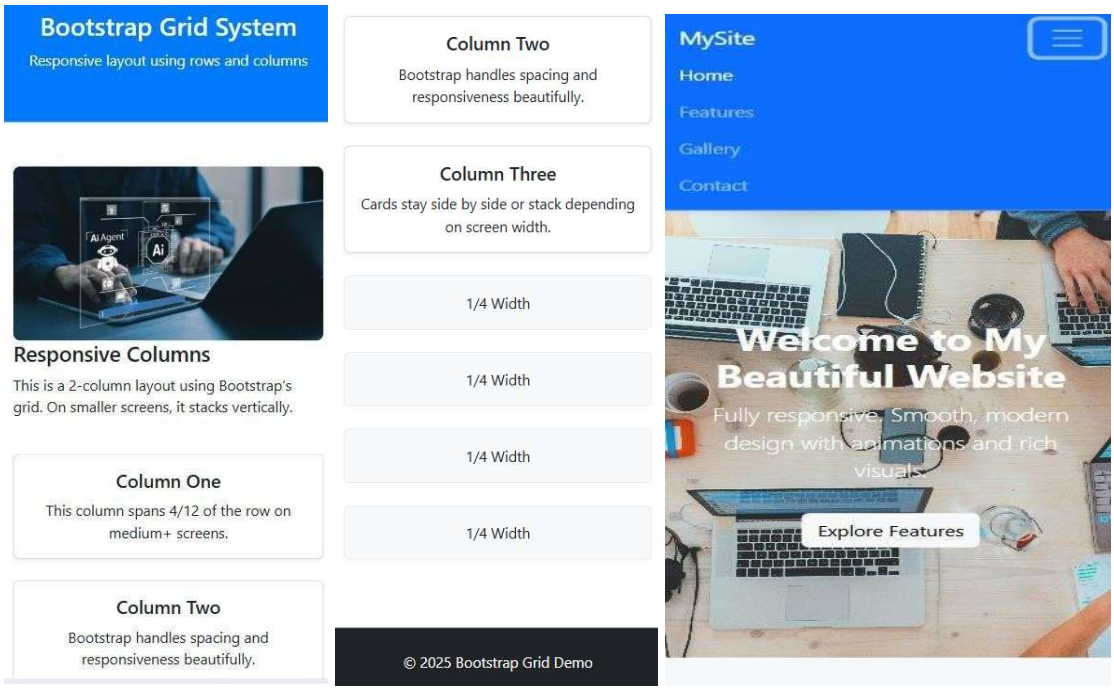
```
        <h5 class="card-title">Column Three</h5>
        <p class="card-text">Cards stay side by side or stack depending on screen width.</p>
      </div>
    </div>
  </div>
</div>

<!-- Row 3 (4 columns) -->
<div class="row text-center">
  <div class="col-sm-6 col-lg-3 mb-4">
    <div class="p-3 bg-light border rounded">1/4 Width</div>
  </div>
  <div class="col-sm-6 col-lg-3 mb-4">
    <div class="p-3 bg-light border rounded">1/4 Width</div>
  </div>
  <div class="col-sm-6 col-lg-3 mb-4">
    <div class="p-3 bg-light border rounded">1/4 Width</div>
  </div>
  <div class="col-sm-6 col-lg-3 mb-4">
    <div class="p-3 bg-light border rounded">1/4 Width</div>
  </div>
```

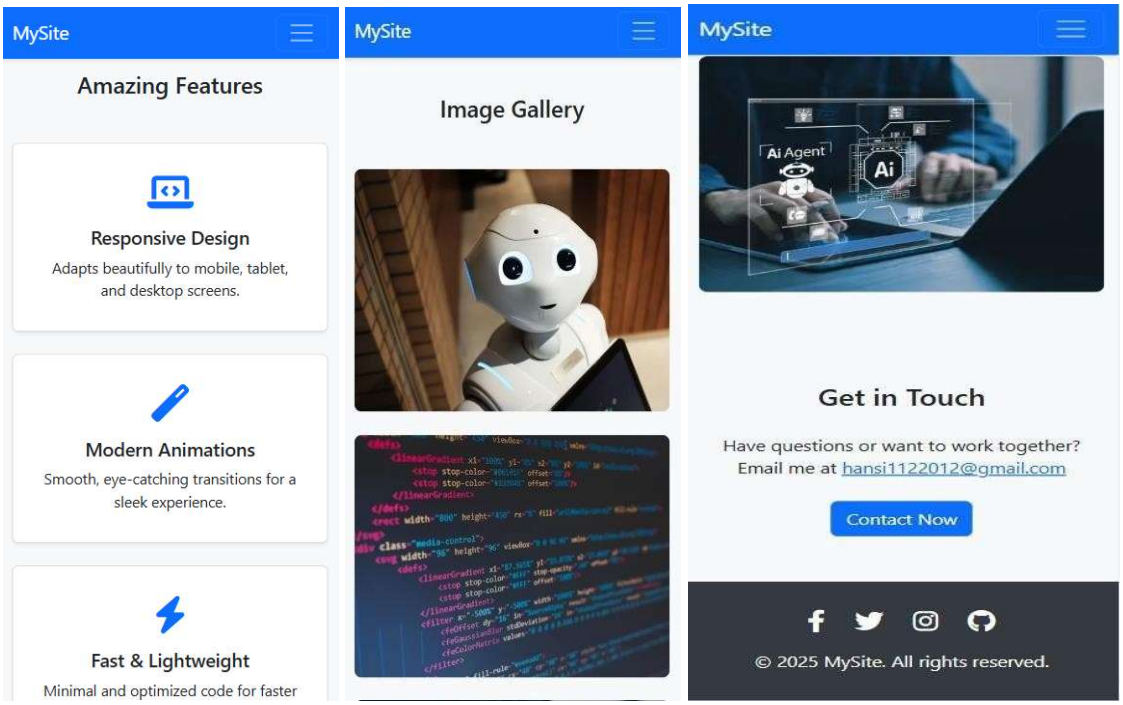
```
  </div>
 </div>


 <!-- Footer -->
 <footer class="text-center py-4 bg-dark text-white">
  &copy; 2025 Bootstrap Grid Demo
 </footer>


 <!-- Bootstrap Script -->
 <script
src="https://cdn.jsdelivr.net/npm/bootstrap@5.3.0/dist/js/bootstrap.bundle.min.js"></script>
</body>
</html>
```

**OUTPUT:**


Bootstrap Grid System
Responsive layout using rows and columns
Responsive Columns
This is a 2-column layout using Bootstrap's grid. On smaller screens, it stacks vertically.
Column One
This column spans 4/12 of the row on medium+ screens.
Column Two
Bootstrap handles spacing and responsiveness beautifully.
Column Three
Cards stay side by side or stack depending on screen width.
1/4 Width
1/4 Width
1/4 Width
1/4 Width
© 2025 Bootstrap Grid Demo


Bootstrap Grid System
Responsive layout using rows and columns
Responsive Columns
This is a 2-column layout using Bootstrap's grid. On smaller screens, it stacks vertically.
Column One
This column spans 4/12 of the row on medium+ screens.
Column Two
Bootstrap handles spacing and responsiveness beautifully.
Column Three
Cards stay side by side or stack depending on screen width.
1/4 Width
1/4 Width
1/4 Width
1/4 Width
© 2025 Bootstrap Grid Demo




**RESULT:** Thus, the python program to implement Single Layer Perceptron has been executed successfully.

| EXP NO: 9 | DESIGN A WEBPAGE WITH DROPDOWN, NAVIGATION BAR AND PAGINATION |
|---|---|
| DATE: 06/03/25 | |

**AIM:**

To design a webpage with Dropdown, Navigation bar and Pagination.

**ALGORITHM:**

**Step 1:** Create a responsive HTML structure using Bootstrap 4 layout.

**Step 2:** Add a dark-themed Bootstrap navbar with brand name and toggler.

**Step 3:** Insert navbar links including Home, About, and a dropdown for Services.

**Step 4:** Define dropdown items under Services using Bootstrap dropdown classes.

**Step 5:** Add a container with welcome heading and paragraph content.

**Step 6:** Insert Bootstrap pagination component with Previous, numbered pages, and Next.

**Step 7:** Include Bootstrap and jQuery CDN links for styling and interactivity.

**Step 8:** Add JavaScript to dynamically switch active pagination and update content.

**Step 9:** Test navbar toggle, dropdown, and pagination functionality on various screen sizes.

**Step 10**: Style and organize the layout using Bootstrap utility classes for clean design.

**SOURCE CODE:**

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>Perfect Webpage</title>
  <meta name="viewport" content="width=device-width, initial-scale=1">
  <link rel="stylesheet"
href="https://maxcdn.bootstrapcdn.com/bootstrap/4.5.2/css/bootstrap.min.css">
  <style>
    body {
      background-color: #f4f6f8;
      font-family: 'Segoe UI', sans-serif;
```

```
    }
    .navbar {
      box-shadow: 0 2px 6px rgba(0,0,0,0.1);
    }
    .item-card {
      border: 1px solid #dee2e6;
      border-radius: 10px;
      padding: 20px;
      background: white;
      margin-bottom: 20px;
      transition: 0.3s;
    }
    .item-card:hover {
      box-shadow: 0 4px 12px rgba(0,0,0,0.1);
    }
    .pagination {
      justify-content: center;
    }
    footer {
      background: #343a40;
      color: white;
      padding: 20px 0;
      text-align: center;
      margin-top: 50px;
    }
  </style>
</head>
<body>

<!-- Navigation Bar -->
<nav class="navbar navbar-expand-lg navbar-dark bg-dark">
```

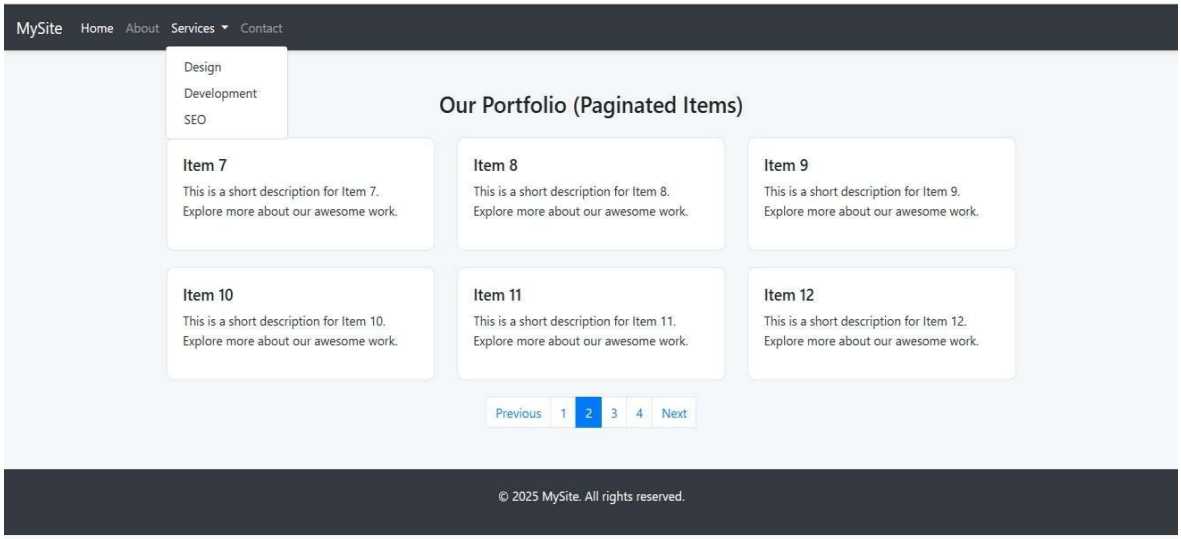
```
  <a class="navbar-brand" href="#">MySite</a>
  <button class="navbar-toggler" type="button" data-toggle="collapse" data-target="#navbarNav">
    <span class="navbar-toggler-icon"></span>
  </button>
  <div class="collapse navbar-collapse" id="navbarNav">
    <ul class="navbar-nav mr-auto">
      <li class="nav-item active"><a class="nav-link" href="#">Home</a></li>
      <li class="nav-item"><a class="nav-link" href="#">About</a></li>
      <li class="nav-item dropdown">
        <a class="nav-link dropdown-toggle" href="#" id="servicesDropdown" role="button" data-toggle="dropdown">
          Services
        </a>
        <div class="dropdown-menu">
          <a class="dropdown-item" href="#">Design</a>
          <a class="dropdown-item" href="#">Development</a>
          <a class="dropdown-item" href="#">SEO</a>
        </div>
      </li>
      <li class="nav-item"><a class="nav-link" href="#">Contact</a></li>
    </ul>
  </div>
</nav>

<div class="container mt-5">
  <h3 class="mb-4 text-center">Our Portfolio (Paginated Items)</h3>
  <div id="item-list" class="row">
  </div>
  <nav>
    <ul class="pagination" id="pagination">
    </ul>
```

```
  </nav>
</div>
<footer>
  <div class="container">
    <p>© 2025 MySite. All rights reserved.</p>
  </div>
</footer>
<script  src="https://code.jquery.com/jquery-3.5.1.slim.min.js"></script>
<script
src="https://cdn.jsdelivr.net/npm/bootstrap@4.5.2/dist/js/bootstrap.bundle.min.js"></script>
<script>
  const items = Array.from({ length: 24 }, (_, i) => `Item ${i + 1}`);
  const itemsPerPage = 6;
  let currentPage = 1
  function renderItems() {
    const start = (currentPage - 1) * itemsPerPage;
    const end = start + itemsPerPage;
    const currentItems = items.slice(start, end);
    const itemList = document.getElementById('item-list');
    itemList.innerHTML = '';
    currentItems.forEach(item => {
      const col = document.createElement('div');
      col.className = 'col-md-4';
      col.innerHTML = `
        <div class="item-card">
          <h5>${item}</h5>
          <p>This is a short description for ${item}. Explore more about our awesome
work.</p>
        </div>`;
      itemList.appendChild(col);
    });
  }
```

```
  function renderPagination() {
    const totalPages = Math.ceil(items.length / itemsPerPage);
    const pagination = document.getElementById('pagination');
    pagination.innerHTML = '';

    // Previous Button
    pagination.innerHTML += `
      <li class="page-item ${currentPage === 1 ? 'disabled' : ''}">
        <a class="page-link" href="#" onclick="changePage(${currentPage -
1})">Previous</a>
      </li>`;

    // Page Numbers
    for (let i = 1; i <= totalPages; i++) {
      pagination.innerHTML += `
        <li class="page-item ${i === currentPage ? 'active' : ''}">
          <a class="page-link" href="#" onclick="changePage(${i})">${i}</a>
        </li>`;
    }

    // Next Button
    pagination.innerHTML += `
      <li class="page-item ${currentPage === totalPages ? 'disabled' : ''}">
        <a class="page-link" href="#" onclick="changePage(${currentPage + 1})">Next</a>
      </li>`;
  }

  function changePage(page) {
    const totalPages = Math.ceil(items.length / itemsPerPage);
    if (page >= 1 && page <= totalPages) {
```

```
      currentPage = page;
      renderItems();
      renderPagination();
    }
  }

  // Initial Load
  renderItems();
  renderPagination();
</script>

</body>
</html>
```

**OUTPUT:**




**RESULT:**

Thus, a webpage with Dropdown, Navigation bar and Pagination is designed successfully and verified.

| EXP NO: 10 | DESIGN WEBPAGE USING JQUERY SELECTOR |
| --- | --- |
| DATE: 27/03/25 | |

**AIM:**

To design a web page using jQuery selector.

**ALGORITHM:**

**Step 1:** Create a structured HTML layout with headings, paragraphs, and div elements having various classes and attributes.

**Step 2:** Include jQuery library and Google Fonts via CDN in the <head>.

**Step 3:** Define CSS styles for layout, typography, buttons, and highlight effects.

**Step 4:** Add multiple buttons with unique IDs to trigger different selector actions.

**Step 5:** Wrap all content inside a styled container for better presentation.

**Step 6:** Use $(document).ready() to ensure jQuery runs after the DOM loads.

**Step 7:** Use jQuery element selector to toggle highlights on all paragraphs.

**Step 8:** Use class, attribute, child, and pseudo selectors (e.g., .note, [data-custom], :nth-child, :not) to target specific elements.

**Step 9:** Assign click event handlers to each button to apply corresponding visual effects.

**SOURCE CODE:**

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <title>Advanced jQuery Selectors Demo</title>
    <script  src="https://code.jquery.com/jquery-3.6.0.min.js"></script>
    <link href="https://fonts.googleapis.com/css2?family=Roboto&display=swap"
rel="stylesheet">
    <style>
        body {
```

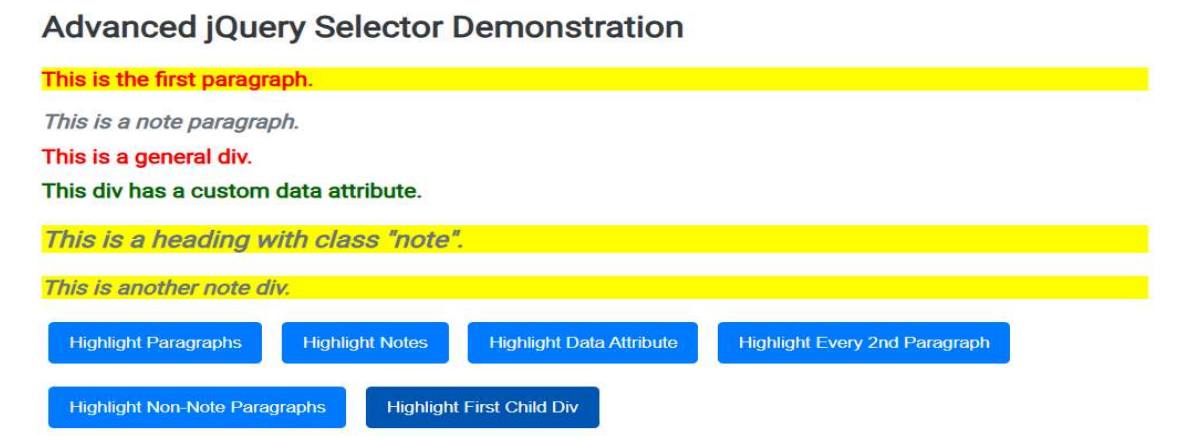
```
    font-family: 'Roboto', sans-serif;
    background-color: #f8f9fa;
    padding: 40px;
}
.container {
    max-width: 800px;
    margin: auto;
    background-color: #ffffff;
    padding: 30px;
    border-radius: 10px;
    box-shadow: 0 0 15px rgba(0,0,0,0.1);
}
h2, h3 {
    color: #343a40;
    margin-bottom: 20px;
}
p, div {
    font-size: 17px;
    margin-bottom: 10px;
}
.note {
    color: #6c757d;
    font-style: italic;
}
.highlight {
    background-color: yellow;
    font-weight: bold;
}
```

```
        .custom {
            color: darkgreen;
            font-weight: bold;
        }
        .special {
            color: red;
            font-weight: bold;
        }
        button {
            padding: 10px 15px;
            margin: 10px 5px;
            background-color: #007bff;
            color: white;
            border: none;
            border-radius: 4px;
            cursor: pointer;
        }
        button:hover {
            background-color: #0056b3;
        }
    </style>
</head>
<body>

<div class="container">
    <h2>Advanced jQuery Selector Demonstration</h2>

    <p>This is the first paragraph.</p>
```

```
    <p class="note">This is a note paragraph.</p>
    <div>This is a general div.</div>
    <div data-custom="true">This div has a custom data attribute.</div>
    <h3 class="note">This is a heading with class "note".</h3>
    <div class="note">This is another note div.</div>

    <button id="highlightParagraphs">Highlight Paragraphs</button>
    <button id="highlightNotes">Highlight Notes</button>
    <button id="highlightCustom">Highlight Data Attribute</button>
    <button id="highlightNth">Highlight Every 2nd Paragraph</button>
    <button id="highlightNotNote">Highlight Non-Note Paragraphs</button>
    <button id="highlightChild">Highlight First Child Div</button>
</div>

<script>
    $(document).ready(function(){
        // Element selector
        $("#highlightParagraphs").click(function(){
            $("p").toggleClass("highlight");
        });
        // Class selector
        $("#highlightNotes").click(function(){
            $(".note").toggleClass("highlight");
        });
        // Attribute selector
        $("#highlightCustom").click(function(){
            $("[data-custom]").toggleClass("custom");
        });
```

```
        // nth-child selector
        $("#highlightNth").click(function(){
            $("p:nth-child(2)").toggleClass("special");
        });
        // not selector
        $("#highlightNotNote").click(function(){
            $("p:not(.note)").toggleClass("highlight");
        });
        // child selector
        $("#highlightChild").click(function(){
            $("div:first-child").toggleClass("special");
        });
    });
</script>
</body>
</html>
```

**OUTPUT:**




**RESULT:**

Thus, a web page using jQuery selector is designed successfully and verified.

| EXP NO: 11 | CREATE A SIMPLE WEB PAGE USING JQUERY EFFECTS |
|---|---|
| DATE: 03/04/25 | |

**AIM:**

To create a simple web page using jQuery Effects.

**ALGORITHM:**

**Step 1:** Start with a basic HTML structure including <head> and <body>.

**Step 2:** Link jQuery and Google Fonts in the <head> section.

**Step 3:** Style the layout using CSS for body, container, buttons, and effect box.

**Step 4:** Create a centered container with a heading and multiple buttons for effects.

**Step 5:** Add a  element (#effectBox) to show visual changes from jQuery.

**Step 6:** Use $(document).ready() to initialize jQuery when the page is loaded.

**Step 7:** Attach click() events to each button to trigger a specific jQuery effect like fadeToggle, slideUp, hide, show, etc.

**Step 8:** Use animate() to apply combined width, height, and opacity transitions.

**Step 9:** Use toggleClass() to switch styles dynamically for highlighting.

**SOURCE CODE:**

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <title>Advanced jQuery Effects</title>
   <script  src="https://code.jquery.com/jquery-3.6.0.min.js"></script>
   <link href="https://fonts.googleapis.com/css2?family=Roboto&display=swap"
rel="stylesheet">
   <style>
      body { font-family: 'Roboto', sans-serif;
         background: #f4f7fa;
         padding: 40px;
```

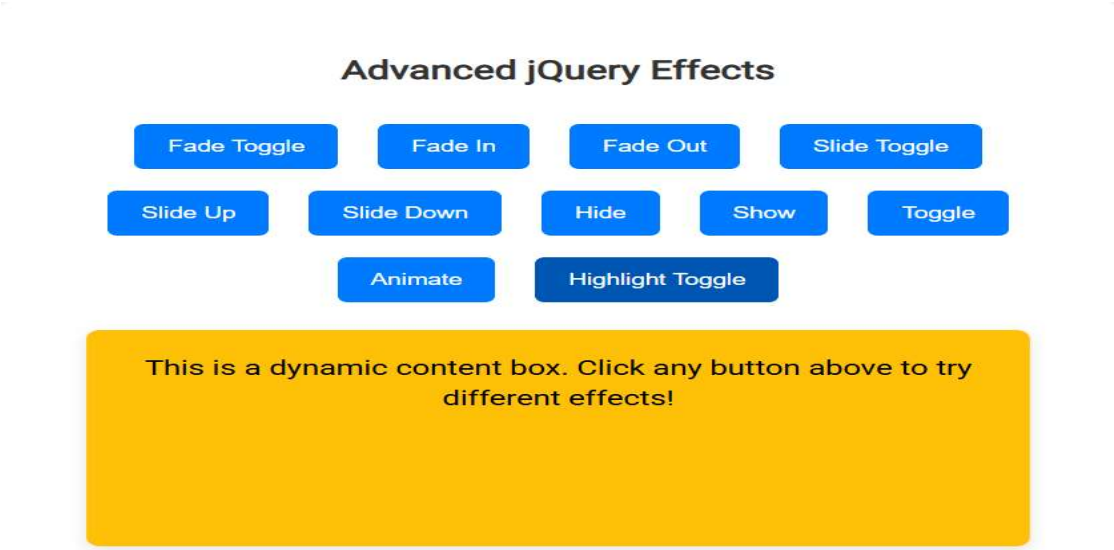
```
}
.container {
    max-width: 750px;
    margin: auto;
    background: #fff;
    padding: 30px;
    border-radius: 10px;
    box-shadow: 0 4px 15px rgba(0,0,0,0.1);
    text-align: center;
}
h2 { color: #333;
    margin-bottom: 25px;
}
button {
    margin: 10px;
    padding: 12px 20px;
    border: none;
    background-color: #007bff;
    color: #fff;
    border-radius: 6px;
    cursor: pointer;
    font-size: 15px;
    transition: 0.3s;
}
button:hover {
    background-color: #0056b3;
}
#effectBox {
    width: 100%;
    max-width: 500px;
```

```
            height: 150px;
            background: #d1ecf1;
            margin: 20px auto;
            padding: 20px;
            font-size: 18px;
            line-height: 1.5;
            border-radius: 8px;
            box-shadow: 0 4px 10px rgba(0,0,0,0.1);
            transition: all 0.4s ease-in-out;
        }
        .highlighted {
            background-color: #ffc107 !important;
            color: #000;
            transform: scale(1.05);
        }
    </style>
</head>
<body>
<div class="container">
    <h2>Advanced jQuery Effects</h2>
    <button id="fadeToggle">Fade Toggle</button>
    <button id="fadeIn">Fade In</button>
    <button id="fadeOut">Fade Out</button>
    <button id="slideToggle">Slide Toggle</button>
    <button id="slideUp">Slide Up</button>
    <button id="slideDown">Slide Down</button>
    <button id="hide">Hide</button>
    <button id="show">Show</button>
    <button id="toggle">Toggle</button>
    <button id="animateBtn">Animate</button>
```

```
    <button id="highlightBtn">Highlight Toggle</button>
    <div id="effectBox">
        This is a dynamic content box. Click any button above to try different effects!
    </div>
</div>
<script>
    $(document).ready(function(){
        $("#fadeToggle").click(function(){
            $("#effectBox").fadeToggle("slow");
        });
        $("#fadeIn").click(function(){
        $("#effectBox").fadeIn("slow");
        });
        $("#fadeOut").click(function(){
            $("#effectBox").fadeOut("slow");
        });
        $("#slideToggle").click(function(){
            $("#effectBox").slideToggle("slow");
        });
        $("#slideUp").click(function(){
            $("#effectBox").slideUp("slow");
        });
        $("#slideDown").click(function(){
            $("#effectBox").slideDown("slow");
        });
        $("#hide").click(function(){
            $("#effectBox").hide("slow");
        });
        $("#show").click(function(){
            $("#effectBox").show("slow");
```

```
        });
        $("#toggle").click(function(){
            $("#effectBox").toggle("slow");
    });
        $("#animateBtn").click(function(){
            $("#effectBox").animate({
                width: "toggle",
                height: "toggle",
                opacity: "toggle"
            }, 1000);
        });
        $("#highlightBtn").click(function(){
            $("#effectBox").toggleClass("highlighted");
        });
      });
</script>
</body>
</html>
```

**OUTPUT:**





**RESULT:**

Thus, a simple web page was successfully designed using jQuery effects and verified.

| EXP NO: 12 | DESIGN A WEB PAGE TO CALCULATE FACTORIAL OF A NUMBER USING PHP |
|---|---|
| DATE: 10/04/25 | |

**AIM:**

To design a web page to calculate factorial of a number using PHP.

**ALGORITHM:**

**Step 1:** Create an HTML form to accept a number as input from the user.

**Step 2:** Set the form's method to POST and action to the same PHP file.

**Step 3:** Check if the form is submitted using $_SERVER["REQUEST_METHOD"] == "POST".

**Step 4:** Retrieve the input number using $_POST["num"].

**Step 5:** Initialize a variable factorial to 1.

**Step 6:** If the input number is negative, display an error message.

**Step 7:** Otherwise, use a for loop to multiply numbers from 1 to the input number.

**Step 8:** After the loop ends, display the calculated factorial result.

**Step 9:** Embed the PHP code below the HTML form to process and display the result on the same page.

**SOURCE CODE:**

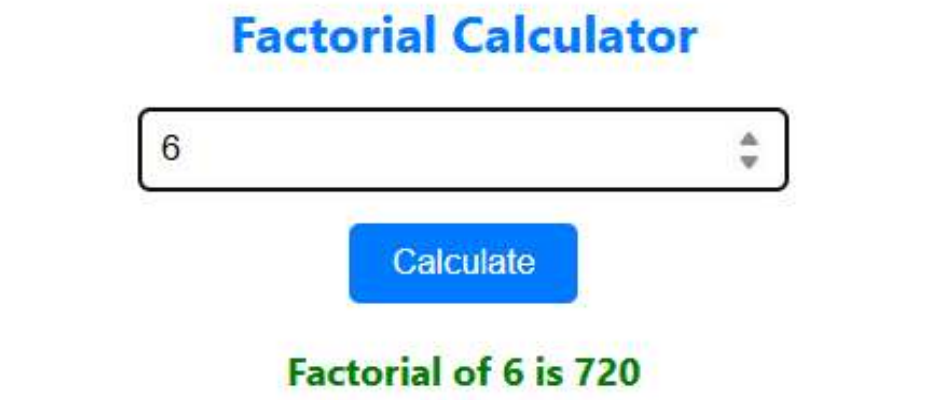
```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <title>Factorial Calculator</title>
   <style>
      body {
         font-family: 'Segoe UI', sans-serif;
         background-color: #f0f8ff;
         display: flex;
         justify-content: center;
```

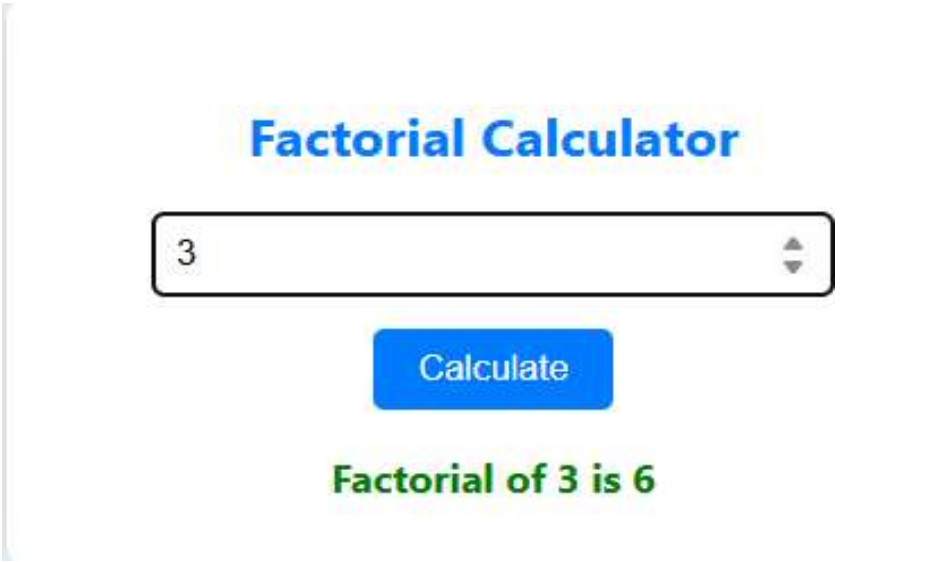
```
        align-items: center;
        height: 100vh;
    }
    .container {
        background-color: white;
        padding: 30px 40px;
        border-radius: 10px;
        box-shadow: 0 0 15px rgba(0,0,0,0.2);
        text-align: center;
        width: 350px;
    }
    h2 {
        color: #007bff;
        margin-bottom: 20px;
    }
    input[type="number"] {
        width: 80%;
        padding: 10px;
        margin-bottom: 15px;
        border-radius: 5px;
        border: 1px solid #ccc;
        font-size: 16px;
    }
    input[type="submit"] {
        background-color: #007bff;
        color: white;
        border: none;
        padding: 10px 20px;
        font-size: 16px;
        border-radius: 5px;
```

```
            cursor: pointer;
        }
        input[type="submit"]:hover {
            background-color: #0056b3;
        }
        .result {
            margin-top: 20px;
            font-size: 18px;
            font-weight: bold;
            color: green;
        }
        .error {
            color: red;
        }
    </style>
</head>
<body>
    <div class="container">
        <h2>Factorial Calculator</h2>
        <form method="post" action="">
            <input type="number" name="num" placeholder="Enter a number" required>
            <br>
            <input type="submit" value="Calculate">
        </form>

        <?php
        if ($_SERVER["REQUEST_METHOD"] == "POST") {
            $num = $_POST["num"];
            if (!is_numeric($num)) {
                echo "<div class='error'>Please enter a valid number.</div>";
```

```
        } elseif ($num < 0) {
            echo "<div class='error'>Factorial is not defined for negative numbers.</div>";
        } else {
            $factorial = 1;
            for ($i = 1; $i <= $num; $i++) {
                $factorial *= $i;
            }
            echo "<div class='result'>Factorial of $num is $factorial</div>";
        }
    }
    ?>
  </div>
</body>
</html>
```

**OUTPUT:**




**RESULT:**

Thus, designing a web page to calculate factorial of a number using PHP has been executed successfully.

| EXP NO: 13 | CREATE A WEB PAGE TO PERFORM ARITHMETIC OPERATIONS USING PHP |
|---|---|
| DATE: 10/04/25 | |

**AIM:**

To create a webpage to perform arithmetic operations using PHP.

**ALGORITHM:**

**Step 1:** Start

**Step 2:** Display a form to input two numbers and select an operation (Add, Subtract, Multiply, Divide).

**Step 3:** Wait for user to submit the form using the submit button.

**Step 4:** Retrieve input values num1, num2, and operation from the form

**Step 5:** Validate inputs to ensure both numbers are numeric

**Step 6:** Use switch-case to perform the selected arithmetic operation

**Step 7:** Handle division by zero if the operation is division

**Step 8: Display the result** on the same page

**Step 9:** End

**SOURCE CODE:**

```
<!DOCTYPE html>
<html lang="en">
<head>
   <meta charset="UTF-8">
   <title>Arithmetic Calculator</title>
   <style>
      body {
         font-family: Arial, sans-serif;
         background-color: #f4f6f9;
         padding: 50px;
      }
```

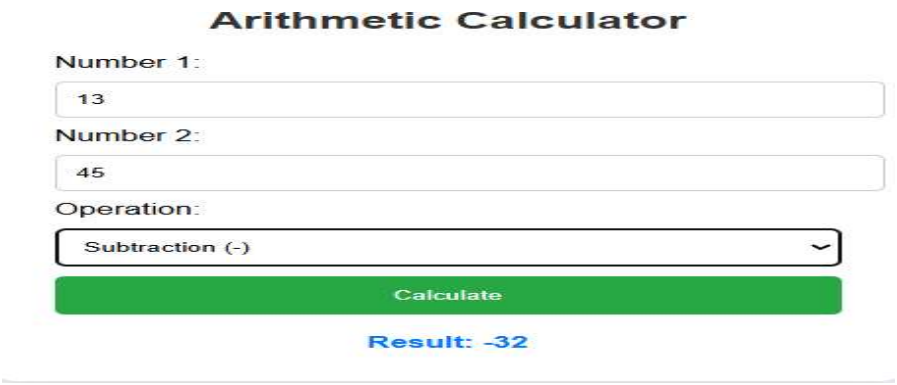
```
.calculator {
    background: #fff;
    padding: 30px;
    max-width: 400px;
    margin: auto;
    border-radius: 10px;
    box-shadow: 0 0 15px rgba(0,0,0,0.2);
}
h2 {
    text-align: center;
    margin-bottom: 20px;
    color: #333;
}
input[type="number"], select {
    width: 100%;
    padding: 10px;
    margin: 10px 0;
    border: 1px solid #ccc;
    border-radius: 5px;
}
input[type="submit"] {
    background-color: #28a745;
    color: white;
    padding: 12px;
    border: none;
    width: 100%;
    border-radius: 5px;
    cursor: pointer;
}
input[type="submit"]:hover {
```

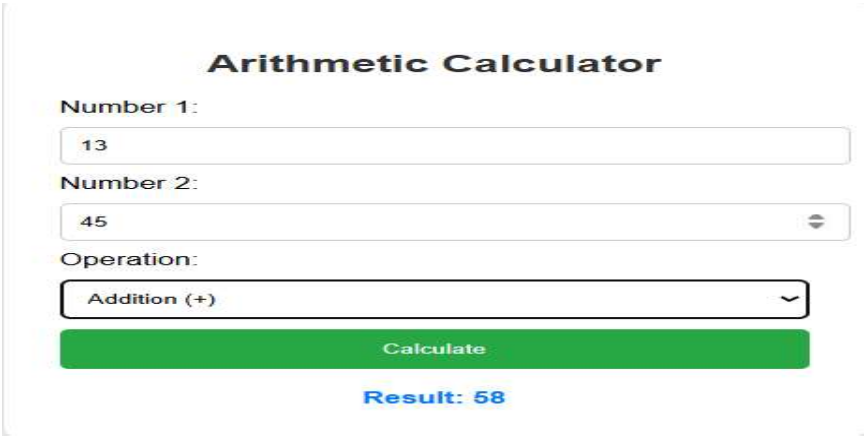
```
            background-color: #218838;
        }
        .result {
            margin-top: 20px;
            text-align:  center;
            font-weight: bold;
            color: #007bff;
        }
        .error {
            color: red;
            font-weight: bold;
            text-align: center;
        }
    </style>
</head>
<body>

<div class="calculator">
    <h2>Arithmetic Calculator</h2>
    <form method="post" action="">
        Number 1:
        <input type="number" name="num1" step="any" required>

        Number 2:
        <input type="number" name="num2" step="any" required>

        Operation:
        <select name="operation" required>
            <option value="">--Select Operation--</option>
            <option value="add">Addition (+)</option>
```

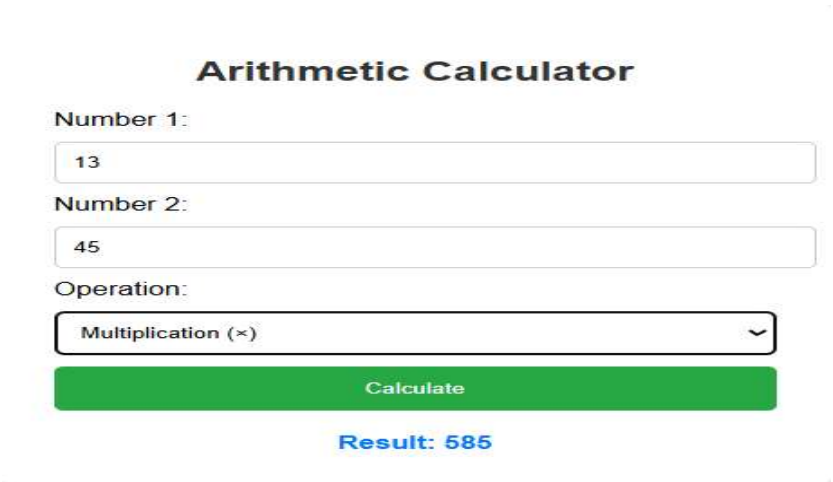
```
        <option value="sub">Subtraction (-)</option>
        <option value="mul">Multiplication (×)</option>
        <option value="div">Division (÷)</option>
    </select>

    <input type="submit" value="Calculate">
</form>

<?php
if ($_SERVER["REQUEST_METHOD"] == "POST") {
    $num1 = $_POST["num1"];
    $num2 = $_POST["num2"];
    $op = $_POST["operation"];

    if (!is_numeric($num1) || !is_numeric($num2)) {
        echo "<div class='error'>Please enter valid numbers.</div>";
    } else {
        switch($op) {
            case "add": $res = $num1 + $num2; break;
            case "sub": $res = $num1 - $num2; break;
            case "mul": $res = $num1 * $num2; break;
            case "div":
                if ($num2 != 0) {
                    $res = $num1 / $num2;
                } else {
                    $res = "Cannot divide by zero";
                }
                break;
            default: $res = "Invalid operation";
        }
```

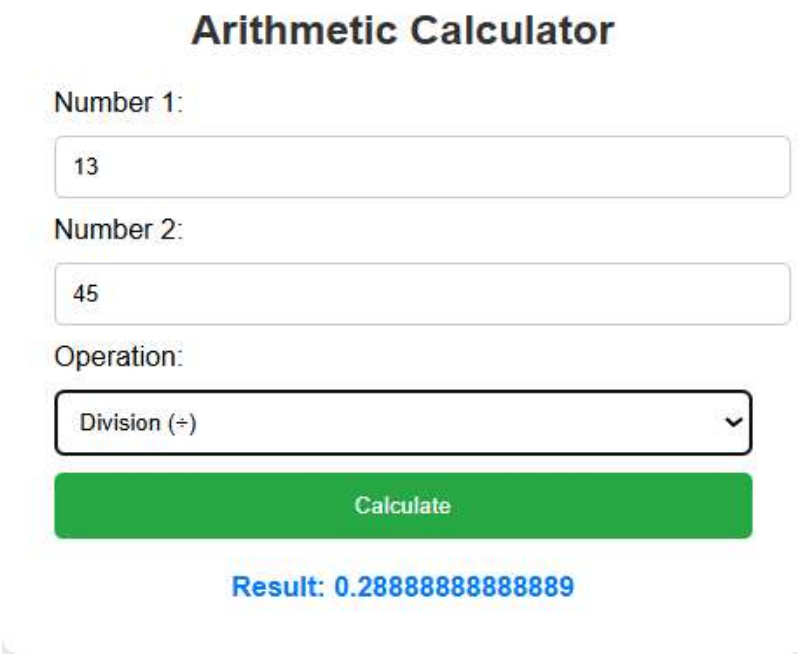
```
            echo "<div class='result'>Result: $res</div>";
        }
    }
    ?>
</div>

</body>
</html>
```

**OUTPUT:**






**RESULT:**

Thus, a webpage to perform arithmetic operations using PHP has been executed successfully.

| EXP NO: 15 | PHP PROGRAM USING REGULAR EXPRESSIONS |
| --- | --- |
| DATE: 26/04/25 | |

**AIM:**

To design and implement a PHP-based web form that validates user inputs using regular expressions and logic checks.

**ALGORITHM:**

**Step 1:** Start the HTML form and accept input fields for username, DOB, mobile, Aadhar, password, PIN code, and PAN number.

**Step 2:** On form submission, collect form data using the $_POST method in PHP.

**Step 3:** Initialize an empty array to store validation error messages.

**Step 4:** Validate the username using a regular expression to allow 4–15 characters (letters, digits, underscores).

**Step 5:** Calculate the user's age from DOB and check if it is 18 or above.

**Step 6:** Validate the mobile number to ensure it starts with 6–9 and is 10 digits long.

**Step 7:** Validate the Aadhar number to ensure it has exactly 12 digits.

**Step 8:** If no validation errors, display a success message; otherwise, display all error messages.

**SOURCE CODE:**

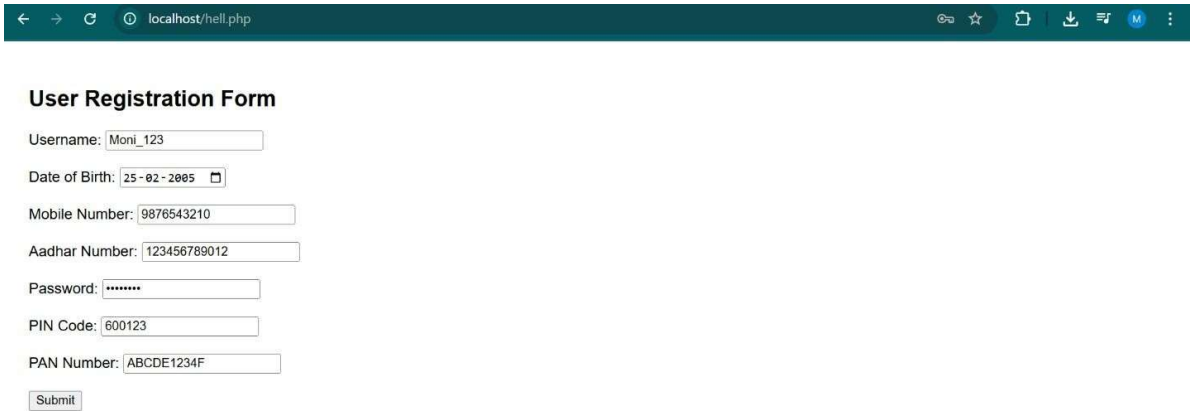
```
<!DOCTYPE html>
<html>
<head>
  <title>Enhanced Form Validation</title>
  <style>
    body {
      font-family: Arial;
      padding: 20px;
    }
```

```
        .error {
            color: red;
        }
        .success {
            color: green;
        }
    </style>
</head>
<body>

<h2>User Registration Form</h2>

<form method="post">
    Username: <input type="text" name="username"><br><br>
    Date of Birth: <input type="date" name="dob"><br><br>
    Mobile Number: <input type="text" name="mobile"><br><br>
    Aadhar Number: <input type="text" name="aadhar"><br><br>
    Password: <input type="password" name="password"><br><br>
    PIN Code: <input type="text" name="pincode"><br><br>
    PAN Number: <input type="text" name="pan"><br><br>

    <input type="submit" name="submit" value="Submit">
</form>

<?php
if (isset($_POST['submit'])) {
    $username = $_POST['username'];
    $dob = $_POST['dob'];
    $mobile = $_POST['mobile'];
    $aadhar = $_POST['aadhar'];
    $password = $_POST['password'];
```

```
$pincode = $_POST['pincode'];
$pan = $_POST['pan'];

$errors = [];

// Username (4-15 characters, letters, digits, _)
if (!preg_match('/^[a-zA-Z0-9_]{4,15}$/', $username)) {
    $errors[] = "Invalid Username";
}

// DOB (age must be 18+)
$today = new DateTime();
$birthDate = new DateTime($dob);
$age = $today->diff($birthDate)->y;
if ($age < 18) {
    $errors[] = "You must be at least 18 years old.";
}

// Mobile
if (!preg_match('/^[6-9]\d{9}$/', $mobile)) {
    $errors[] = "Invalid Mobile Number";
}

// Aadhar
if (!preg_match('/^\d{12}$/', $aadhar)) {
    $errors[] = "Invalid Aadhar Number";
}

// Password (min 6 chars, at least 1 letter and 1 number)
if (!preg_match('/^(?=.*[A-Za-z])(?=.*\d)[A-Za-z\d]{6,}$/', $password)) {
    $errors[] = "Password must be at least 6 characters with letters and numbers";
```

```
    }

    // PIN Code
    if (!preg_match('/^[1-9][0-9]{5}$/', $pincode)) {
        $errors[] = "Invalid PIN Code";
    }

    // PAN Number
    if (!preg_match('/^[A-Z]{5}[0-9]{4}[A-Z]{1}$/', $pan)) {
        $errors[] = "Invalid PAN Number";
    }

    // Output
    if (empty($errors)) {
        echo "<p class='success'>All inputs are valid!</p>";
    } else {
        foreach ($errors as $error) {
            echo "<p class='error'>$error</p>";
        }
    }
}
?>

</body>
</html>
```

**OUTPUT:**





**RESULT:**

The PHP script successfully validates all user inputs and provides appropriate error or success messages based on the entered data.