Lab Report-03

Web Engineering Lab

Course Code: CSE416

Instructor: Nishat Sadaf Lira

Name	Mehedi Hasan Saim
ID	221-15-4844
Section	61-J1
Date	20-08-2025

Experiment Title: Interactive Web Page Development Using JavaScript (Generic JavaScript, Form Validation)

1. Objective

- To develop an interactive shopping webpage using HTML, CSS, and JavaScript.
- To implement dynamic price calculation with discounts.
- To apply form validation in JavaScript for secure and correct user input.

2. Equipment and Software Used

Sl. No.	Equipment / Software	Description
1	Laptop / PC	Device used for coding, testing, and running the web application.
2	Visual Studio Code	Code editor for writing HTML, CSS, and JavaScript code.
3	Google Chrome	Web browser for viewing and testing the webpage.
4	HTML5 & CSS3	Used for page structure and styling.
5	JavaScript	Used for interactive webpage and form validation.

3. Theory

JavaScript adds interactivity to static HTML and CSS. In this experiment:

- Generic JavaScript is used for DOM manipulation and applying discount calculations dynamically.
- Form validation ensures correctness of user inputs (like name, email, and password) before form submission. This enhances usability and security of the website.

4. Procedure

Step	Description
1	Design webpage structure using HTML5.
2	Apply styling and layout using CSS.
3	Add dynamic product prices and discounts using JavaScript.

4	Create a **registration form** with input fields (Name, Email, Password).
5	Implement **JavaScript form validation** for required fields and correct input formats.
6	Test the webpage and verify results.

5. Code Snippets

HTML with Interactive Web Page: [View Full Code On GitHub]

```html
<!-- Navbar -->
<div class="navbar">…
</div>

<!-- Banner Section -->
<div class="banner">…
</div>

<!-- Food Cart Section -->
<div class="cart-container">…
</div>

<footer>…
</footer>
```

JavaScript

```javascript
<!-- JS Script -->
<script>
  const prices = [100, 50, 200, 150];
  const discounts = [20, 15, 10, 25];

  const items = document.querySelectorAll('.cart-item');

  items.forEach((item, index) => {
    const originalPrice = prices[index];
    const discountPercent = discounts[index];
    const discountAmount = (originalPrice * discountPercent / 100).toFixed(2);
    const newPrice = (originalPrice - discountAmount).toFixed(2);

    item.querySelector('.price-section').innerHTML = `
      <p class="new-price">$${newPrice}</p>
      <p class="old-price">$${originalPrice}</p>
      <p class="discount-percent">${discountPercent}% OFF</p>
    `;
  });
</script>
```
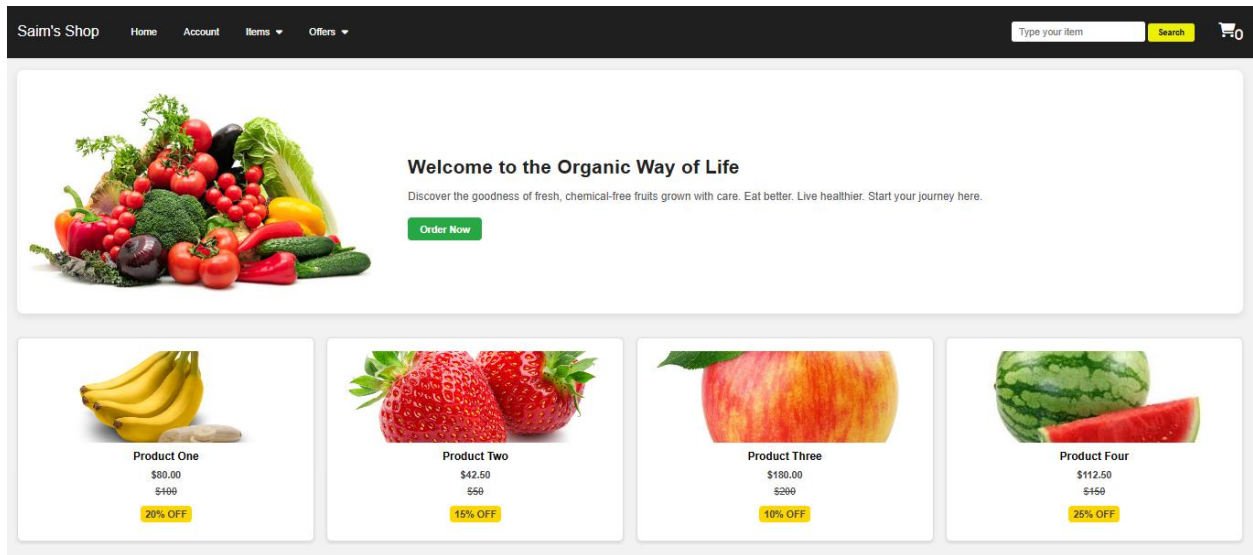
6. Output Snippets

7. Code Snippets

HTML with form: [View Full Code On GitHub]

```html
<!-- Registration Form Section -->
<div class="form-container" id="account">
    <h2>Create Your Account</h2>
    <form id="signupForm">
        <label for="name">Full Name:</label>
        <input type="text" id="name" placeholder="Enter your name" required />

        <label for="email">Email:</label>
        <input type="email" id="email" placeholder="Enter your email" required />

        <label for="password">Password:</label>
        <input type="password" id="password" placeholder="Enter password" required />

        <label for="confirmPassword">Confirm Password:</label>
        <input type="password" id="confirmPassword" placeholder="Confirm password" required />

        <button type="submit">Register</button>
        <p id="formMessage"></p>
    </form>
</div>
```

JavaScript:

```javascript
document.getElementById("signupForm").addEventListener("submit", function(e) {
  e.preventDefault();

  const name = document.getElementById("name").value.trim();
  const email = document.getElementById("email").value.trim();
  const password = document.getElementById("password").value;
  const confirmPassword = document.getElementById("confirmPassword").value;
  const message = document.getElementById("formMessage");

  if (name.length < 3) { ...
  }

  const emailPattern = /^[^ ]+@[^ ]+\.[a-z]{2,3}$/;
  if (!email.match(emailPattern)) { ...
  }

  if (password.length < 6) { ...
  }

  if (password !== confirmPassword) { ...
  }

  message.textContent = "Registration Successful!";
  message.style.color = "green";
  this.reset();
});
```

8. Output Snippets

Create Your Account

Full Name:

Enter your name

Email:

Enter your email

Password:

Enter password

Confirm Password:

Confirm password

Register

7. Result

- The webpage was successfully designed with HTML & CSS.
- JavaScript was used for dynamic price updates and discount calculation.
- Form validation was successfully implemented ensuring secure user registration.

8. Conclusion

This experiment demonstrated how JavaScript enhances web interactivity.
The integration of dynamic content (discounts) and form validation improved user experience and ensured proper data handling.