

St Francis Institute of Technology

(Autonomous Institute)

Department of Artificial Intelligence and Machine Learning

Second Year AIML Engineering (SEM-IV A.Y. 2025-26)

Web Programming Lab. Experiment Report

Experiment 6: Form Validation, Dark Mode Toggle, and Data Persistence Using JavaScript

1. AIM

To implement form validation, dark mode toggle, and data persistence on a personal portfolio webpage using JavaScript, including validation of email, phone number, and password, storing user preferences and form data using Local Storage.

2. LAB OBJECTIVE

- a. To validate user input using JavaScript
- b. To display appropriate error messages for invalid inputs
- c. To implement a dark mode toggle using JavaScript
- d. To store and retrieve user preferences using local storage
- e. To store form input data and display it on page refresh

3. LAB OUTCOME

After completing this experiment, the student will be able to:

- a. Validate form fields using JavaScript logic
- b. Display error messages dynamically
- c. Implement UI theme toggling (light/dark mode)
- d. Use browser local storage to save data
- e. Persist user data across page reloads

4. PREREQUISITE

- a. Knowledge of HTML forms and input elements
- b. Understanding of JavaScript basics and DOM manipulation
- c. Completion of Experiment-3 (Events) and Experiment-4 (DOM Manipulation)

5. THEORY

a. Form Validation

Form validation ensures that user inputs are correct, complete, and secure before processing.

Common validations:

- i. Email format validation
- ii. Phone number length validation
- iii. Password strength validation

b. Error Message Display

JavaScript dynamically displays error messages using:

- i. DOM manipulation
- ii. Conditional logic
- iii. This improves user experience by providing instant feedback.

c. Dark Mode Toggle

Dark mode improves accessibility and reduces eye strain. JavaScript toggles CSS classes to switch themes.

d. Local Storage

Local Storage is a browser feature that allows data to be stored as key–value pairs and persists even after page refresh.

Uses:

- i. Saving theme preference
- ii. Storing form input values

e. Data Persistence

JavaScript retrieves stored data from local storage and displays it when the page reloads, ensuring continuity of user information.

6. PROCEDURE

- a. Open the personal portfolio webpage.
- b. Add a contact form with email, phone number, and password fields.
- c. Create placeholders for displaying error messages.
- d. Write JavaScript code to validate form inputs.
- e. Display error messages when inputs are invalid.

- f. Add a dark mode toggle button.
- g. Store theme preference in local storage.
- h. Save user form data in local storage on submission.
- i. Retrieve and display stored data on page refresh.

7. RESULTS / OUTCOME EXPECTED

- a. Invalid form inputs show error messages
- b. Valid inputs are accepted successfully
- c. Dark mode preference persists after refresh
- d. User form data is stored and displayed on reload
- e. Improved usability and interactivity

8. CONCLUSION

- a. How does JavaScript help in validating form inputs?
- b. Why is it important to display error messages?
- c. How does local storage help in saving user preferences?
- d. How was dark mode implemented in this experiment?
- e. What is the advantage of storing form data on page refresh?

9. POST-EXPERIMENT QUESTIONS

- a. What is client-side form validation?
- b. Difference between local storage and session storage?
- c. How is password strength validated?
- d. What happens if local storage is cleared?
- e. How does dark mode improve user experience?

10. REFERENCES

MDN Web Docs – Form Validation

https://developer.mozilla.org/en-US/docs/Learn/Forms/Form_validation

MDN Web Docs – Local Storage

<https://developer.mozilla.org/en-US/docs/Web/API/Window/localStorage>

W3Schools – JavaScript Forms

https://www.w3schools.com/js/js_validation.asp

CODE
HTML

```
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <title>My Personal
Portfolio</title>
  <link rel="stylesheet"
href="2c.css">
</head>
<body>
  <h1>Personal Portfolio</h1>
  <h2>About Me</h2>
  <p>
    Hello! My name is Angel. I am
a Second Year AIML Engineering
student.
    I am interested in Artificial
Intelligence, Machine Learning,
    and Web Development. I enjoy
learning new technologies and
    building simple web
applications.
  </p>
  <h2>Education</h2>
  <table>
    <tr>
      <th>Qualification</th>
      <th>Institute</th>
      <th>Year</th>
      <th>Score</th>
    </tr>
    <tr>
      <td>B.E. AIML</td>
      <td>St Francis Institute
of Technology</td>
      <td>2024 - Present</td>
      <td>8.1</td>
    </tr>
    <tr>
      <td>HSC</td>
      <td>Thomas Baptista
```

```
Junior College</td>
      <td>2024</td>
      <td>72.83%</td>
    </tr>
    <tr>
      <td>SSC</td>
      <td>Nazareth Convent High
School</td>
      <td>2022</td>
      <td>83.40%</td>
    </tr>
  </table>
  <h2>Skills</h2>
  <ul>
    <li>HTML</li>
    <li>Python and C++
Programming</li>
    <li>DSA and Basic AI</li>
    <li>Problem Solving and
Communication</li>
  </ul>
  <h2>Contact Me</h2>
  <button id="themeToggle">Toggle
Dark Mode</button>
  <br><br>
  <form id="contactForm">
    <label>Name:</label><br>
    <input type="text" id="name">
    <small class="error"
id="nameError"></small><br>
    <label>Email:</label><br>
    <input type="email"
id="email">
    <small class="error"
id="emailError"></small><br>
    <label>Phone
Number:</label><br>
    <input type="text"
id="phone">
    <small class="error"
id="phoneError"></small><br>
```

```

        <label>Password:</label><br>
        <input type="password"
id="password">
        <small class="error"
id="passwordError"></small><br>
        <input type="submit"
value="Submit">
    </form>
    <div id="savedData"></div>
    <script src="2j.js"></script>
</body>
</html>

```

CSS

```

/* Base page */
body {
    margin: 0;
    padding: 0;
    background: linear-gradient(135deg,
#bfe7f5, #f6f1e7);
    font-family: Arial, sans-serif;
    color: #1f2a44;
}
/* Center content */
body > * {
    max-width: 900px;
    margin-left: auto;
    margin-right: auto;
}
/* Main title */
h1 {
    text-align: center;
    margin: 0;
    padding: 30px 20px;
    font-size: 38px;
    background: #1f2a44;
    color: #ffffff;
}
/* Section headings */
h2 {
    margin-top: 40px;
    margin-bottom: 10px;

```

```

    font-size: 24px;
    color: #1f2a44;
    border-bottom: 2px solid #4da3ff;
    padding-bottom: 6px;
    margin-left: 20px;
    margin-right: 20px;
}
/* About text */
p {
    line-height: 1.7;
    font-size: 16px;
    background-color: #ffffff;
    padding: 16px 20px;
    border: 1px solid #e1e6f0;
    margin-left: 20px;
    margin-right: 20px;
}
/* Table */
table {
    border-collapse: collapse;
    margin: 12px 20px;
    background-color: #ffffff;
    border: 1px solid #e1e6f0;
    width: 90%;
}
th {
    background-color: #1f2a44;
    color: #ffffff;
    padding: 12px;
    text-align: left;
}
td {
    padding: 12px;
    background-color: #f9fbff;
}
table, th, td {
    border: 1px solid #e1e6f0;
}
/* Skills list */
ul {
    background-color: #ffffff;
    padding: 16px 22px;

```

```

    border: 1px solid #e1e6f0;
    margin: 20px;
}
li {
    margin-bottom: 8px;
    font-size: 16px;
}
/* Contact form */
form {
    background-color: #ffffff;
    padding: 22px 24px;
    border: 1px solid #e1e6f0;
    margin: 20px;
    max-width: 500px;
}
/* Labels */
label {
    font-weight: bold;
    font-size: 14px;
}
/* Inputs & textarea */
input[type="text"],
input[type="email"],
input[type="password"] {
    width: 100%;
    padding: 10px 12px;
    margin-top: 6px;
    margin-bottom: 14px;
    border: 1px solid #cfd6e6;
    font-size: 14px;
    box-sizing: border-box;
}
/* Focus */
input:focus {
    border-color: #4da3ff;
    outline: none;
}
/* Submit button */
input[type="submit"],
#themeToggle {
    background-color: #1f2a44;
    color: #ffffff;

```

```

    border: none;
    padding: 10px 16px;
    cursor: pointer;
    font-weight: bold;
    font-size: 14px;
}
input[type="submit"]:hover,
#themeToggle:hover {
    background-color: #2f3e66;
}
/* Error messages */
.error {
    color: red;
    font-size: 13px;
}
/* Saved data box */
#savedData {
    background: #ffffff;
    margin: 20px;
    padding: 15px;
    border: 1px solid #e1e6f0;
}
/* Dark mode */
.dark-mode {
    background: #121212;
    color: white;
}
.dark-mode h1 {
    background: black;
}
.dark-mode table,
.dark-mode p,
.dark-mode ul,
.dark-mode form,
.dark-mode #savedData {
    background-color: #1e1e1e;
    color: white;
}

```

JS

```

const form =
document.getElementById("contactForm"

```

```

);
const themeToggle =
document.getElementById("themeToggle"
);
// Load theme on refresh
if (localStorage.getItem("theme") ===
"dark") {
document.body.classList.add("dark-mod
e");
}
// Dark mode toggle
themeToggle.addEventListener("click",
() => {
document.body.classList.toggle("dark-
mode");
    if
(document.body.classList.contains("da
rk-mode")) {
        localStorage.setItem("theme",
"dark");
    } else {
        localStorage.setItem("theme",
"light");
    }
});
// Form validation
form.addEventListener("submit",
function (e) {
    e.preventDefault();
    let isValid = true;
    const name =
document.getElementById("name").value
.trim();
    const email =
document.getElementById("email").valu
e.trim();
    const phone =
document.getElementById("phone").valu
e.trim();
    const password =
document.getElementById("password").v
alue.trim();

```

```

document.getElementById("nameError").
innerText = "";
document.getElementById("emailError")
.innerText = "";
document.getElementById("phoneError")
.innerText = "";
document.getElementById("passwordErro
r").innerText = "";
    if (name === "") {
document.getElementById("nameError").
innerText = "Name is required";
        isValid = false;
    }
    if (!email.includes("@")) {
document.getElementById("emailError")
.innerText = "Enter valid email";
        isValid = false;
    }
    if (phone.length !== 10 ||
isNaN(phone)) {
document.getElementById("phoneError")
.innerText = "Enter valid 10-digit
phone";
        isValid = false;
    }
    if (password.length < 6) {
document.getElementById("passwordErro
r").innerText = "Password must be at
least 6 characters";
        isValid = false;
    }
    if (isValid) {
        const userData = { name, email,
phone };
        localStorage.setItem("userData",
JSON.stringify(userData));
        displayData();
        form.reset();
    }
});
// Display stored data on refresh
function displayData() {

```

```

const data =
JSON.parse(localStorage.getItem("user
Data"));
if (data) {
document.getElementById("savedData").
innerHTML =
`<h3>Saved Data:</h3>
<p>Name: ${data.name}</p>
<p>Email: ${data.email}</p>
<p>Phone: ${data.phone}</p>`;
displayData();
}

```

OUTPUT

Personal Portfolio

About Me

Hello! My name is Angel. I am a Second Year AIML Engineering student. I am interested in Artificial Intelligence, Machine Learning, and Web Development. I enjoy learning new technologies and building simple web applications.

Education

Qualification	Institute	Year	Score
B.E. AIML	St Francis Institute of Technology	2024 – Present	8.1
HSC	Thomas Baptista Junior College	2024	72.83%
SSC	Nazareth Convent High School	2022	83.40%

Skills

- HTML
- Python and C++ Programming
- DSA and Basic AI
- Problem Solving and Communication

Contact Me

Toggle Dark Mode

Name:

Angel

Email:

ekthaexpress

Phone

7900



Please include an '@' in the email address. 'ekthaexpress' is missing an '@'.

Enter valid 10-digit phone

Password:

Password must be at least 6 characters

Submit

Saved Data:

Name: kenn

Email: kenn@gmail.com

Phone: 7769914007