WEB TECHNOLOGY MOBILE APPLICATION

### 8 Consider a Library Management System. Develop a JavaScript program that will validate the controls in the forms you have created for the application. State the assumptions you make (business logic you are taking into consideration). Note: Your application must access a database using Servlet/JSP.

**Aim:**

To develop a **Library Management System** where a **JavaScript program** validates user inputs in forms. The application will interact with a **database using Servlet/JSP**.

### ****Assumptions (Business Logic Considerations)****

1. **User Registration Validation:**
   * Name must contain **only alphabets**.
   * Email must follow **valid email format**.
   * Password should be **at least 8 characters long**.
2. **Book Checkout Form Validation:**
   * Membership ID must be **valid** (exist in the database).
   * Book ID must be **available for checkout**.
3. **Book Return Form Validation:**
   * Book ID must match an **issued book**.
   * Return Date **cannot be before the issue date**.

### ****Algorithm:****

1. **Create HTML Forms** for registration, book checkout, and book return.
2. **Validate input fields using JavaScript** (for client-side validation).
3. **Use Servlets & JSP to store/retrieve data in the database**.
4. **Send data to the database via JDBC**.
5. **Retrieve stored data and display results accordingly**.

### Program Code :

### ****avaScript Form Validation (Validation.js)****

html

<script>

function validateForm() {

let name = document.getElementById("name").value;

let email = document.getElementById("email").value;

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

// Name Validation: Alphabets only

let namePattern = /^[A-Za-z ]+$/;

if (!name.match(namePattern)) {

alert("Invalid Name: Only alphabets allowed!");

return false;

}

// Email Validation

let emailPattern = /^[a-zA-Z0-9.\_%+-]+@[a-zA-Z0-9.-]+\.[a-zA-Z]{2,}$/;

if (!email.match(emailPattern)) {

alert("Invalid Email Format!");

return false;

}

// Password Validation: Min 8 characters

if (password.length < 8) {

alert("Password must be at least 8 characters long!");

return false;

}

return true;

}

</script>

### ****Servlet Code (LibraryServlet.java)****

java

import java.io.\*;

import javax.servlet.\*;

import javax.servlet.http.\*;

import java.sql.\*;

public class LibraryServlet extends HttpServlet {

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

String name = request.getParameter("name");

String email = request.getParameter("email");

String password = request.getParameter("password");

try {

// Establish database connection

Class.forName("com.mysql.cj.jdbc.Driver");

Connection con = DriverManager.getConnection("jdbc:mysql://localhost:3306/library", "root", "password");

PreparedStatement stmt = con.prepareStatement("INSERT INTO users (name, email, password) VALUES (?, ?, ?)");

stmt.setString(1, name);

stmt.setString(2, email);

stmt.setString(3, password);

stmt.executeUpdate();

response.getWriter().println("Registration Successful!");

con.close();

} catch (Exception e) {

response.getWriter().println("Database Error: " + e.getMessage());

}

}

}

### ****JSP File (LibraryForm.jsp)****

jsp

<%@ page language="java" import="java.sql.\*" %>

<html>

<head>

<title>Library Registration</title>

<script src="Validation.js"></script>

</head>

<body>

<form action="LibraryServlet" method="POST" onsubmit="return validateForm()">

Name: <input type="text" id="name" name="name"><br>

Email: <input type="text" id="email" name="email"><br>

Password: <input type="password" id="password" name="password"><br>

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

</form>

</body>

</html>

### ****Output:****

**1st Visit:**

* User enters **valid data**, and registration succeeds.
* Data is **stored in the database**.

**Invalid Inputs:**

* Incorrect name, email, or password triggers an **alert message**
* **Database View:**
* +----+--------+------------------+------------+
* | ID | Name | Email | Password |
* +----+--------+------------------+------------+
* | 1 | Alice | alice@example.com | secret123 |
* +----+--------+------------------+------------+

### ****Result:****

The **Library Management System** successfully **validates user inputs using JavaScript**, processes data using **Servlets & JSP**, and stores/retrieves information using **JDBC**.

### Output :

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