Ex.no:8

Date:23/4/25

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 JavaScript-based client-side validation system for a Library Management System that
ensures all user inputs in forms (such as registration, book entry, and issue/return transactions) are valid before
submission. The application will integrate with a backend implemented using Servlet/JSP to perform server-side
operations and database access, ensuring data consistency and integrity across the system.

Display_books.jsp:

```jsp
<%@ page import="java.sql.*" %>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
<head>
  <title>Library Books List</title>
  <style>
    table {
      border-collapse: collapse;
      width: 90%;
      margin: 20px auto;
    }
    th, td {
      border: 1px solid #333;
      padding: 10px;
      text-align: center;
    }
    th {
      background-color: #f2f2f2;
    }
    h2 {
      text-align: center;
    }
  </style>
</head>
<body>
  <h2>All Books in Library</h2>
  <%
```

```jsp
    try {
      Class.forName("com.mysql.cj.jdbc.Driver");
      Connection conn = DriverManager.getConnection(
        "jdbc:mysql://localhost:3306/library_management_ramya", "root", "");
      Statement stmt = conn.createStatement();
      ResultSet rs = stmt.executeQuery("SELECT * FROM ramya");
      out.println("<table>");
      out.println("<tr><th>ID</th><th>name</th><th>dept</th></tr>");
      while (rs.next()) {
        out.println("<tr>");
        out.println("<td>" + rs.getString("id") + "</td>");
        out.println("<td>" + rs.getString("name") + "</td>");
        out.println("<td>" + rs.getString("dept") + "</td>");
        out.println("</tr>");
      }
      out.println("</table>");
      rs.close();
      stmt.close();
      conn.close();
    } catch (Exception e) {
      out.println("<p style='color:red;text-align:center;'>Error: " + e.getMessage()
+ "</p>");
    }
  %>
</body>
</html>
```

File   Edit   Source   Refactor   Navigate   Search   Project   Run   Window   Help

Project Ex...   Type Hiera... | display_books.jsp   getCookie.jsp   Cookie1.java   library_management_system.jsp   DisplayUser.java   User.html

```
1   <%@ page import="java.sql.*" %>
2   <%@ page contentType="text/html;charset=UTF-8" language="java" %>
3   <html>
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17      th {
18          background-color: #f2f2f2;
19      }
20      h2 {
21          text-align: center;
22      }
23      </style>
24  </head>
25  <body>
26      <h2>All Books in Library</h2>
27      <%
28      try {
29          Class.forName("com.mysql.cj.jdbc.Driver");
30          Connection conn = DriverManager.getConnection(
31              "jdbc:mysql://localhost:3306/library_management_ramya", "root", "");
32          Statement stmt = conn.createStatement();
33          ResultSet rs = stmt.executeQuery("SELECT * FROM books");
34          out.println("<table>");
35          out.println("<tr><th>Book ID</th><th>Title</th><th>Author</th><th>Year</th><th>Category</th><th>Copies</th></tr>");
36          while (rs.next()) {
37              out.println("<tr>");
38              out.println("<td>" + rs.getString("book_id") + "</td>");
39              out.println("<td>" + rs.getString("title") + "</td>");
40              out.println("<td>" + rs.getString("author") + "</td>");
41              out.println("<td>" + rs.getInt("year") + "</td>");
42              out.println("<td>" + rs.getString("category") + "</td>");
43              out.println("<td>" + rs.getInt("copies") + "</td>");
44              out.println("</tr>");
45
46          }
47          out.println("</table>");
48          rs.close();
49          stmt.close();
50          conn.close();
51      } catch (Exception e) {
52          out.println("<p style='color:red;text-align:center;'>Error: " + e.getMessage() + "</p>");
53      }
54      %>
55  </body>
56  </html>
```

Library_management_system.jsp:

```jsp
<%@ page import="java.sql.*" %>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
<head>
  <title>Library Management - Add Book</title>
  <style>
  body {
    font-family: Arial, sans-serif;
    background-color: #f3f3f3;
    margin: 20px;
    padding: 20px;
  }
  h2 {
    color: #333;
  }
  form {
    background-color: #fff;
    padding: 20px;
    border-radius: 8px;
```

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```css
      box-shadow: 0 2px 5px rgba(0,0,0,0.1);
      width: 400px;
    }
    input[type="text"],
    input[type="number"],
    select {
      width: 100%;
      padding: 8px;
      margin: 6px 0 12px 0;
      border: 1px solid #ccc;
      border-radius: 4px;
    }
    input[type="submit"] {
      background-color: #4CAF50;
      color: white;
      border: none;
      padding: 10px 16px;
      cursor: pointer;
      border-radius: 4px;
    }
    input[type="submit"]:hover {
      background-color: #45a049;
    }
    p {
      font-size: 16px;
    }
    a {
      color: #007BFF;
      text-decoration: none;
    }
    a:hover {
      text-decoration: underline;
    }
  </style>
  <script>
    function validateForm() {
      const bookId = document.getElementById("id").value.trim();
      const title = document.getElementById("name").value.trim();
      const author = document.getElementById("dept").value.trim();
      if (!/^[a-zA-Z0-9]+$/.test(bookId)) {
        alert("Book ID must be alphanumeric.");
        return false;
      }
      if (!/^[A-Za-z ]+$/.test(title)) {
        alert("Name must contain only letters.");
        return false;
      }
      if (!/^[A-Za-z ]+$/.test(author)) {
        alert("Dept name must contain only letters.");
        return false;
      }
      return true;
    }
  </script>
</head>
```

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```jsp
<body>
  <h2>Add Book </h2>
  <form method="post" onsubmit="return validateForm()">
    ID: <input type="text" name="id" id="id"/><br/>
    Name: <input type="text" name="name" id="name"/><br/>
    Dept: <input type="text" name="dept" id="dept"/><br/>
    <p>
    <input type="submit" value="Add Book"/>
    <label>Book Details:-</label>
    <a href="./display_books.jsp">Click Here</a>
    </p>
  </form>

  <%

    // JSP Database logic

// TODO:Change password before run the code
// TODO: CREATE THE TABLE IN MYSQL
/**
CREATE TABLE books (
  book_id VARCHAR(20) PRIMARY KEY,
  title VARCHAR(100),
  author VARCHAR(100),
  year INT,
  category VARCHAR(50),
  copies INT
);
**/

    String bookId = request.getParameter("id");
    if (bookId != null) {
      String title = request.getParameter("name");
      String author = request.getParameter("dept");
      try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection conn = DriverManager.getConnection(
          "jdbc:mysql://localhost:3306/library_management_ramya", "root", "");
        PreparedStatement ps = conn.prepareStatement(
          "INSERT INTO book (id, name, dept) VALUES (?, ?, ?)");
        ps.setString(1, bookId);
        ps.setString(2, title);
        ps.setString(3, author);
        int result = ps.executeUpdate();
        if (result > 0) {
        %>
        <script>alert("Book Added Successfully!!")</script>
        <%
        } else {
            %>
            <script>alert("Failed to add book!!")</script>
            <%
          out.println("<p style='color:red;'>Failed to add book.</p>");
        }
```
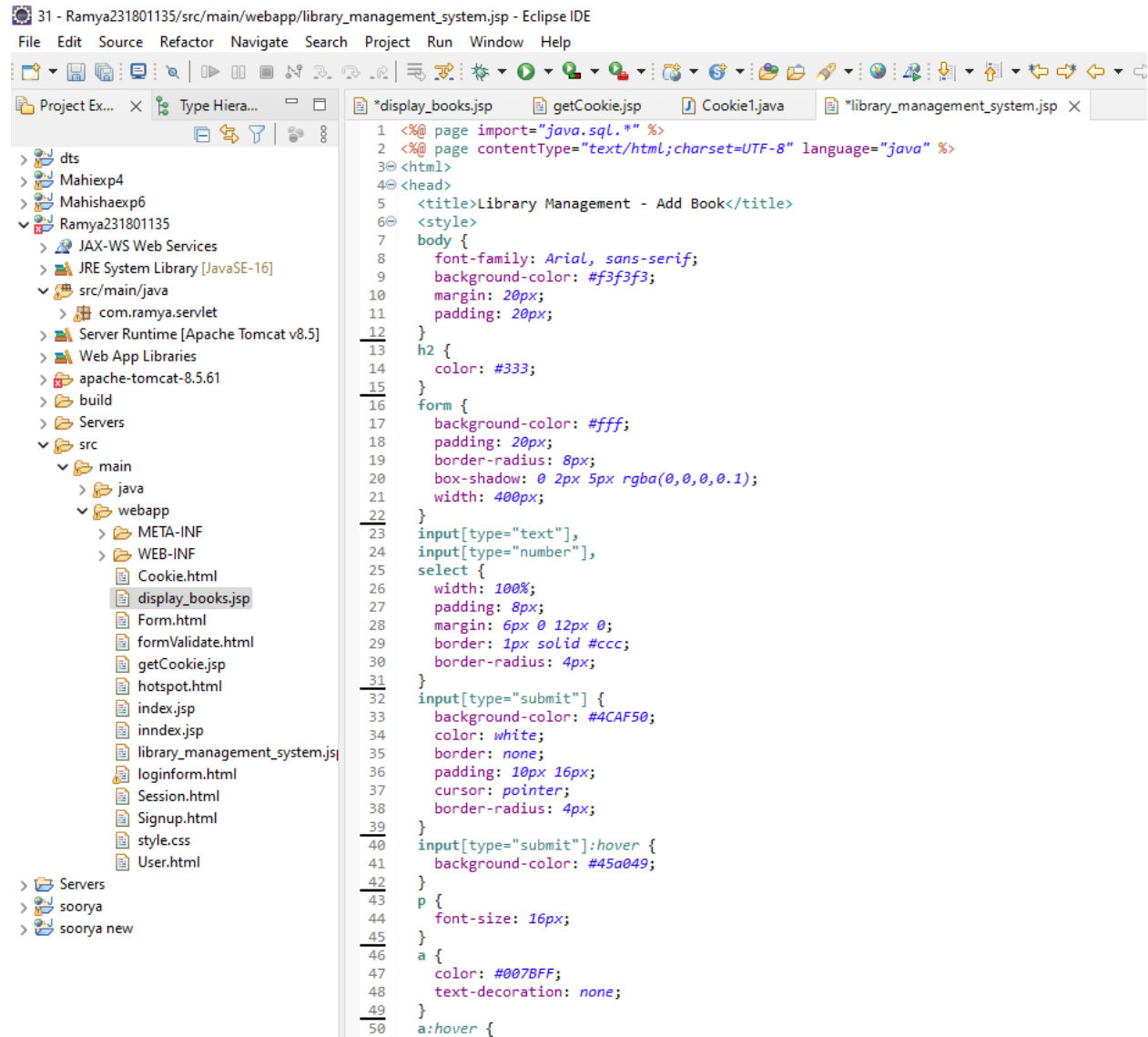
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```
            ps.close();
            conn.close();
        } catch (Exception e) {
            out.println("<p style='color:red;'>Error: " + e.getMessage() + "</p>");
        }
    }
  %>
</body>
</html>
```

Add Book to Library

Book ID:

Title:

Author:

Year:

Category:

--Select-- ▾

Copies:

Add Book

Book Details:- Click Here

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All Books in Library

Book ID	Title	Author	Year	Category	Copies
1	Anime	William Shakespeare	2011	Fiction	1
2	Environment	Sherlock	2023	Science	1
3	Life Journey	William Wordsworth	2024	Fiction	1

Result:

A JavaScript program was developed to validate the Library Management System forms before submission. The validations prevent incorrect or incomplete data from being sent to the server. The application uses Servlet/JSP to interact with the database for storing and retrieving valid data. The system ensures improved user input accuracy and better data integrity in the library's operations.

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