Ex.no:8

Date:22/4/25

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.

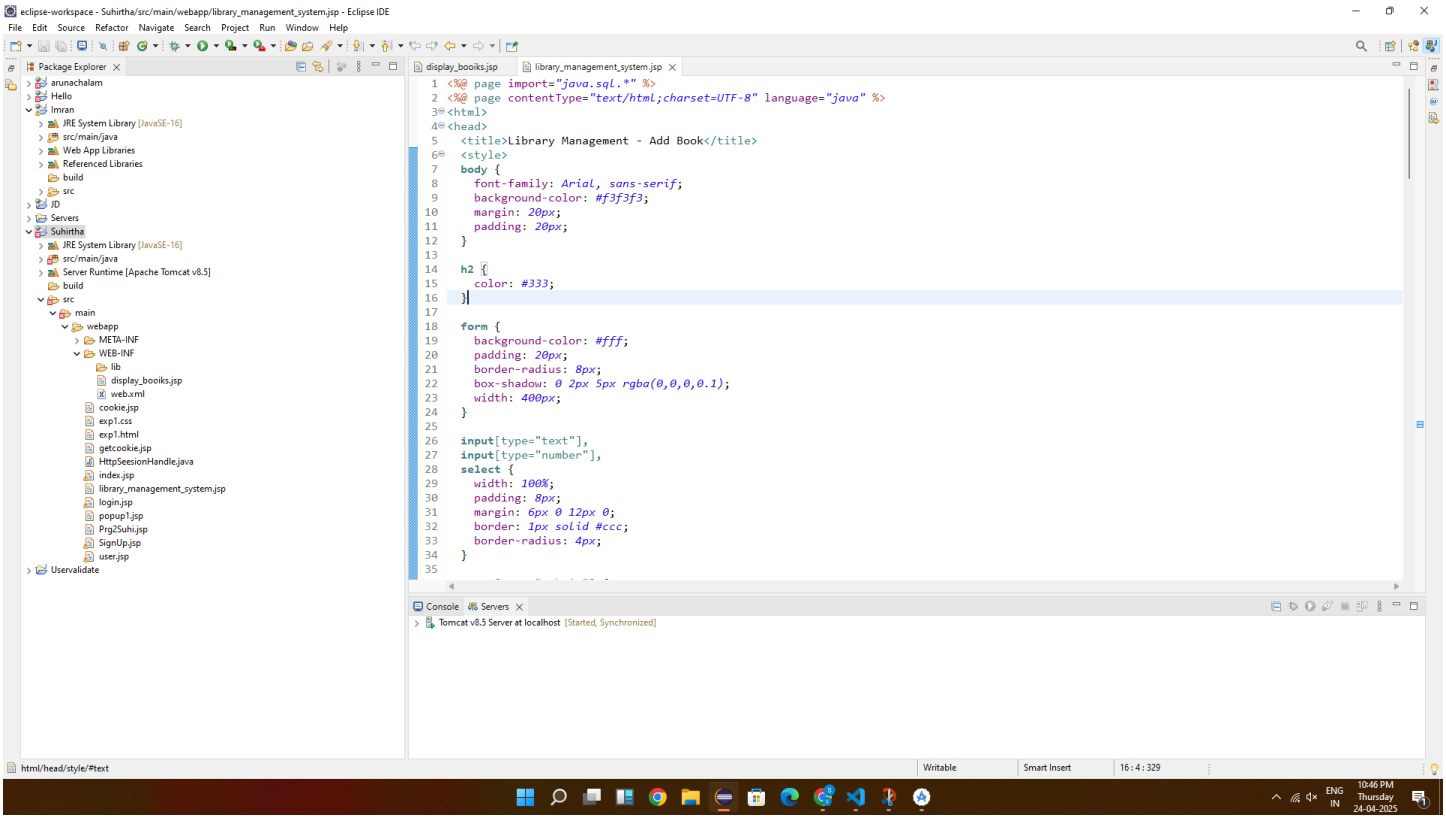
Program:

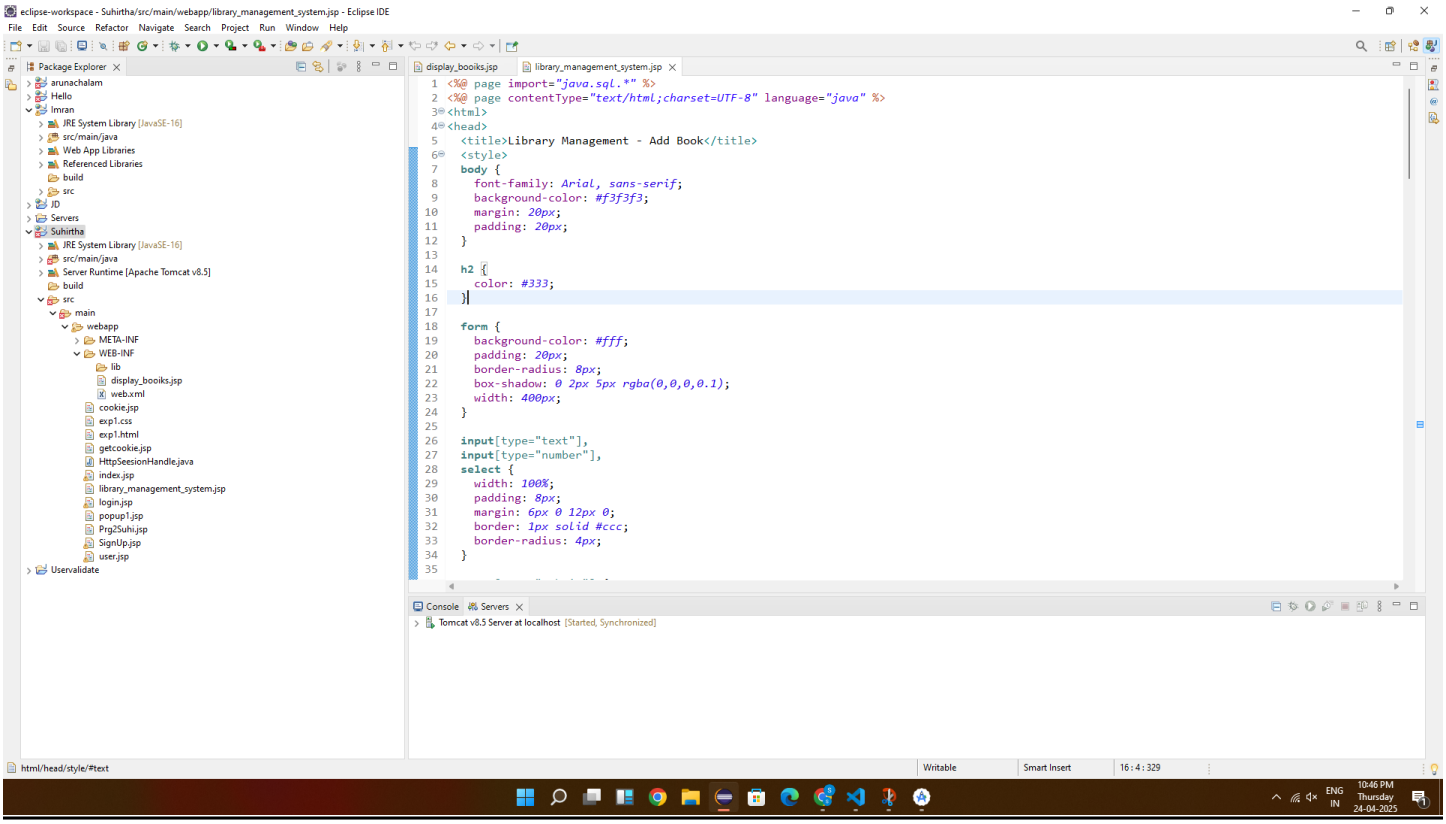
Display_book.jsp:

```
<%@ 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>
     <%
     try {
```

```
            Class.forName("com.mysql.cj.jdbc.Driver");
            Connection conn = DriverManager.getConnection(
            "jdbc:mysql://localhost:3306/library_management_muthulakshmi",
"root", "");
            Statement stmt = conn.createStatement();
            ResultSet rs = stmt.executeQuery("SELECT * FROM books");
            out.println("<table>");
            out.println("<tr><th>Book ID</th><th>Title</th><th>Author</
th><th>Year</th><th>Category</th><th>Copies</th></tr>");
            while (rs.next()) {
                  out.println("<tr>");
                  out.println("<td>" + rs.getString("book_id") + "</td>");
                  out.println("<td>" + rs.getString("title") + "</td>");
                  out.println("<td>" + rs.getString("author") + "</td>");
                  out.println("<td>" + rs.getInt("year") + "</td>");
                  out.println("<td>" + rs.getString("category") + "</td>");
                  out.println("<td>" + rs.getInt("copies") + "</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>
```





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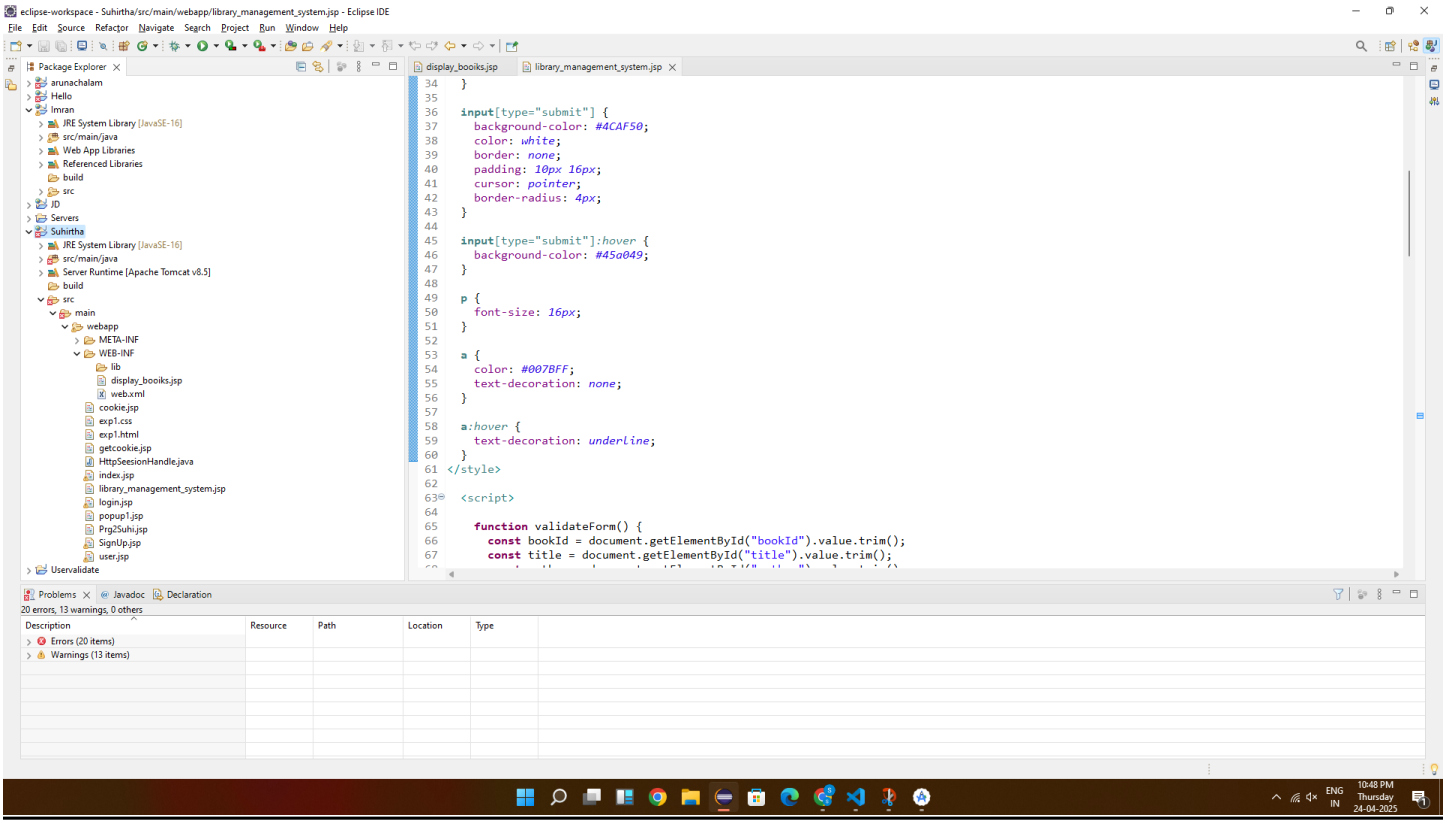

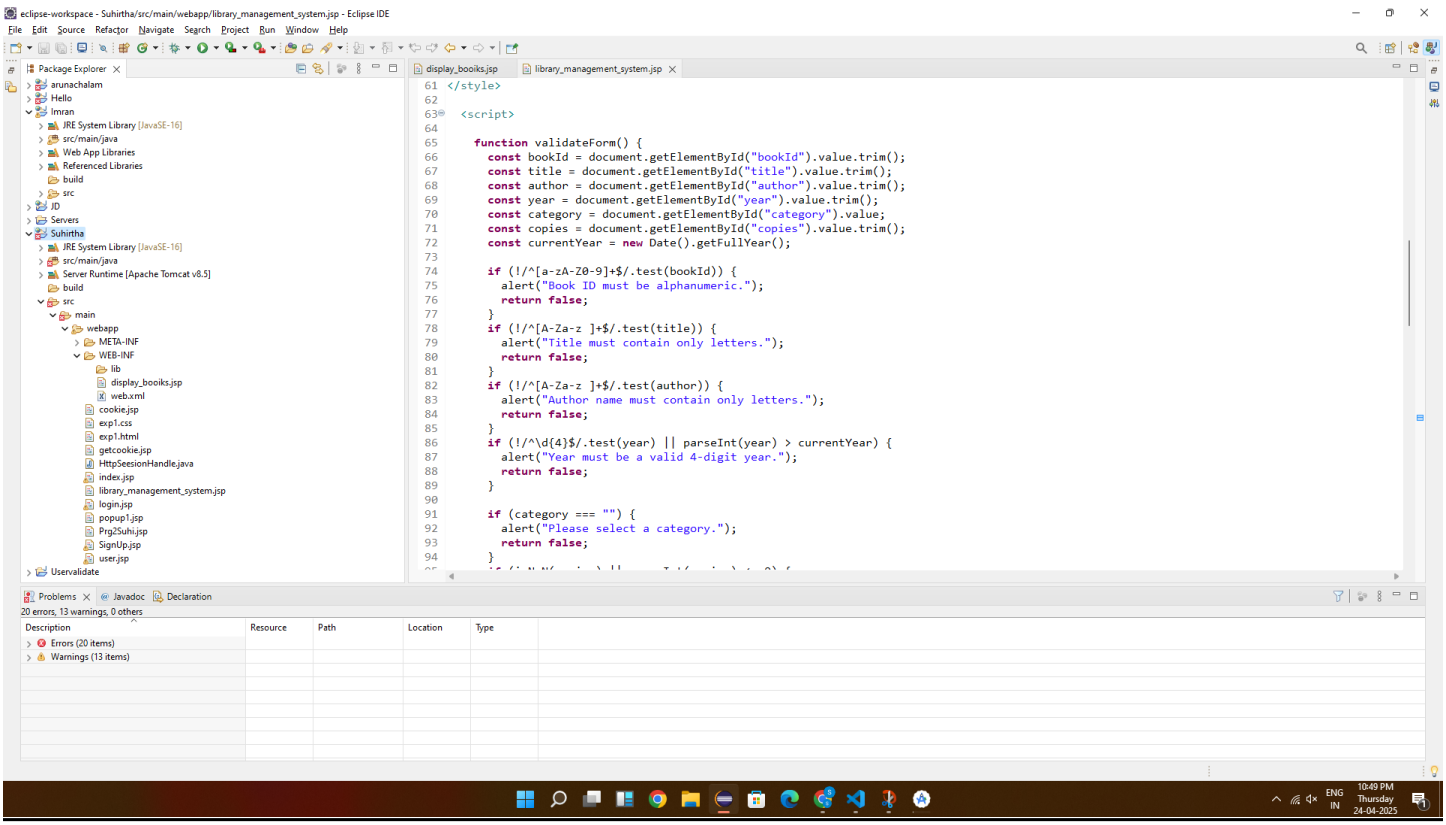

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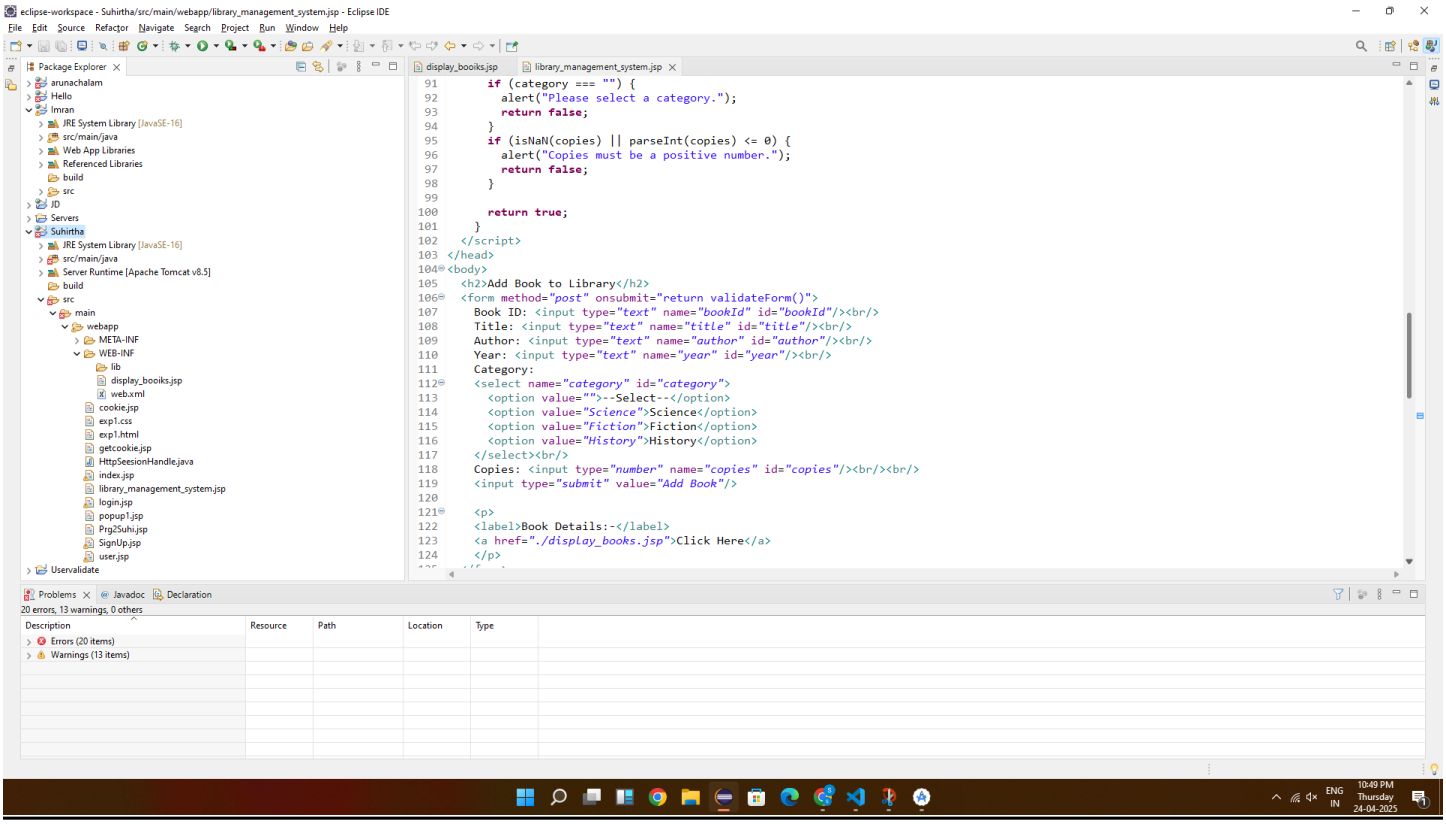

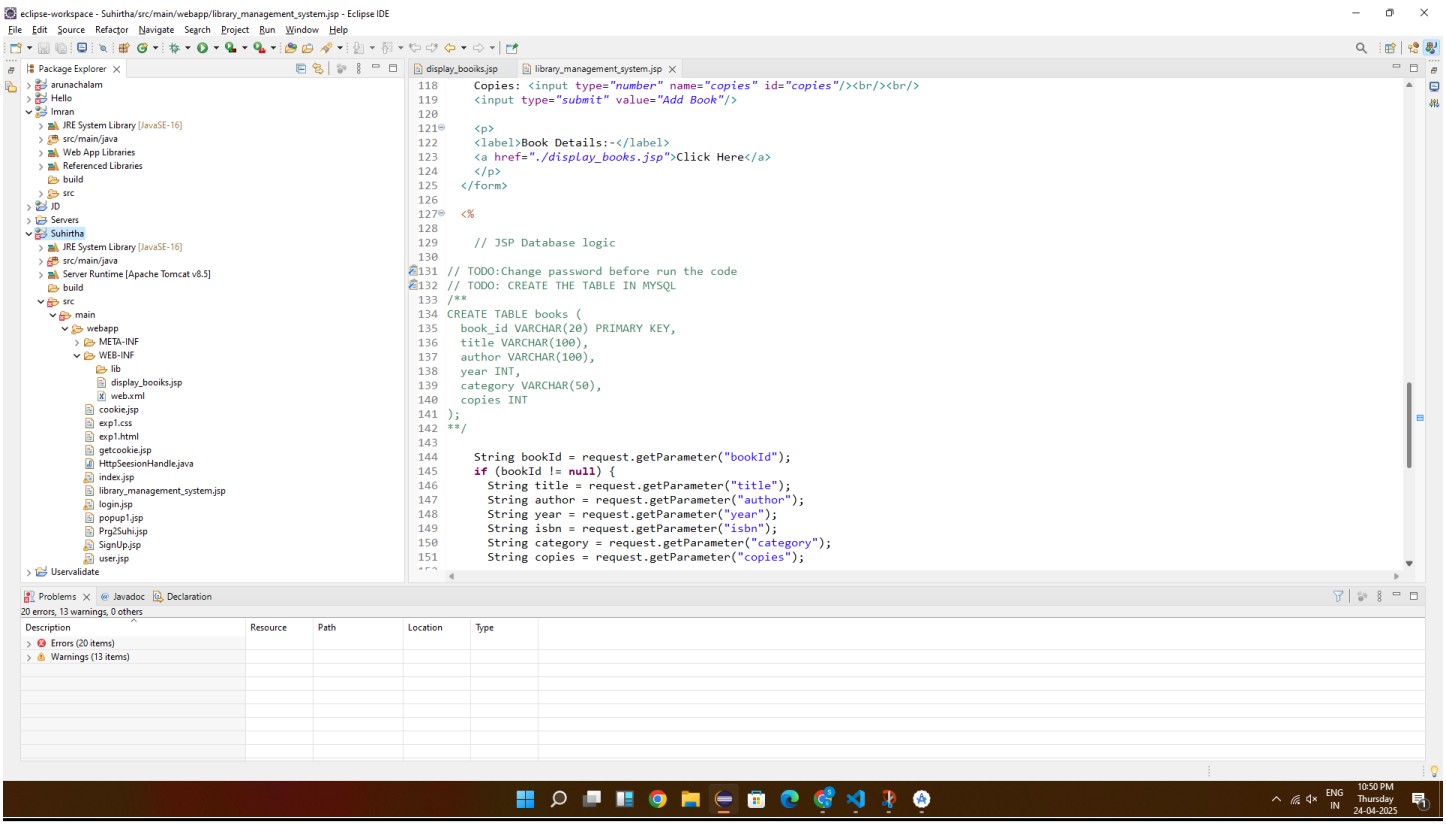

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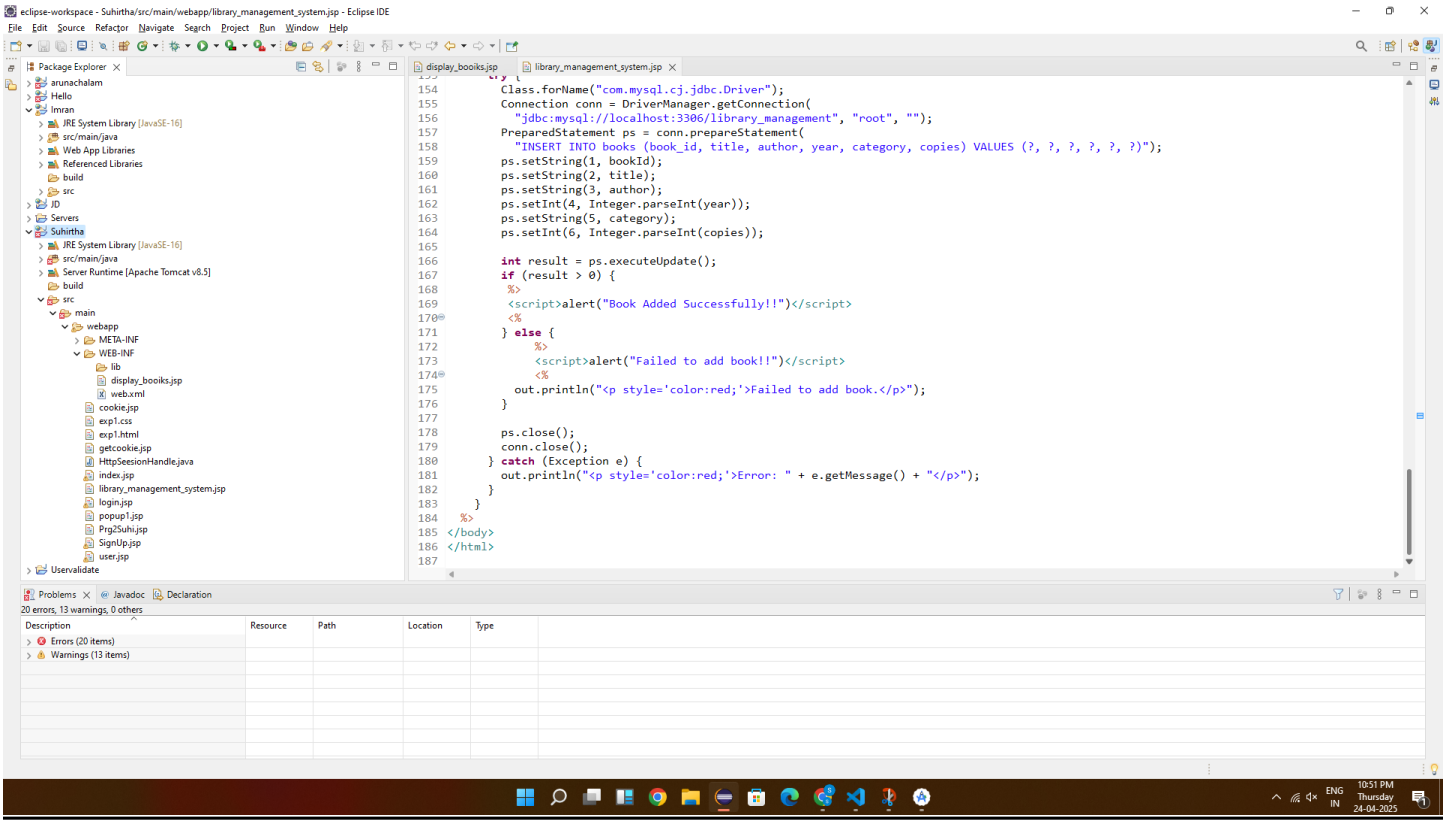

library_management_system .jsp

```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;
    box-shadow: 0 2px 5px rgba(0,0,0,0.1);
    width: 400px;
  }
```

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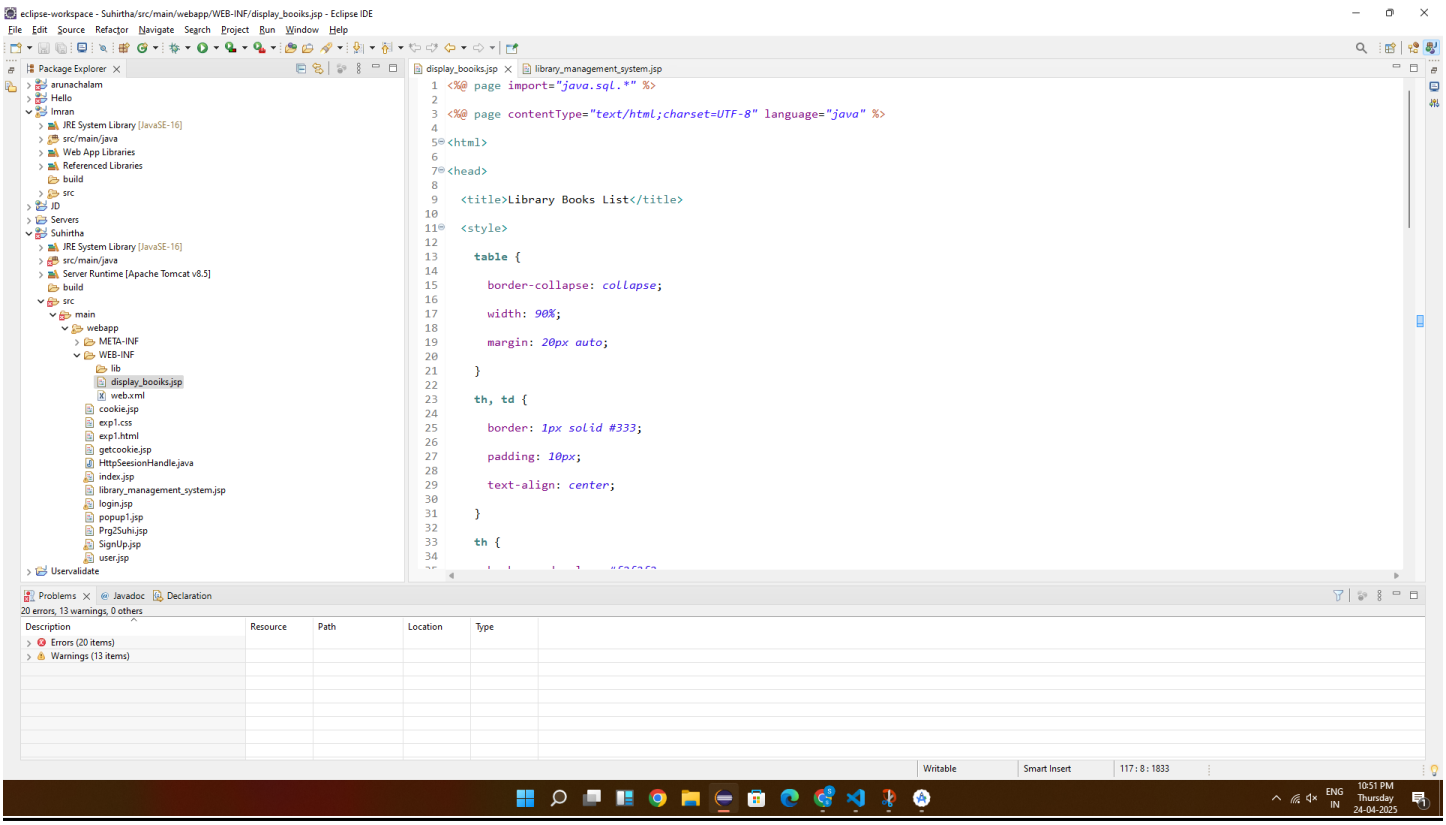
```
  input[type="text"],
  input[type="number"],
  select {
    width: 100%;
    padding: 8px;
    margin: 6px 0 12px 0;
    border: 1px solid #ccc;
    border-radius: 4px;
  }

  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("bookId").value.trim();
      const title = document.getElementById("title").value.trim();
      const author = document.getElementById("author").value.trim();
      const year = document.getElementById("year").value.trim();
      const category = document.getElementById("category").value;
      const copies = document.getElementById("copies").value.trim();
      const currentYear = new Date().getFullYear();
```

```
      if (!/^[a-zA-Z0-9]+$/.test(bookId)) {
        alert("Book ID must be alphanumeric.");
        return false;
      }
      if (!/^[A-Za-z ]+$/.test(title)) {
        alert("Title must contain only letters.");
        return false;
      }
      if (!/^[A-Za-z ]+$/.test(author)) {
        alert("Author name must contain only letters.");
        return false;
      }
      if (!/^\d{4}$/.test(year) || parseInt(year) > currentYear) {
        alert("Year must be a valid 4-digit year.");
        return false;
      }

      if (category === "") {
        alert("Please select a category.");
        return false;
      }
      if (isNaN(copies) || parseInt(copies) <= 0) {
        alert("Copies must be a positive number.");
        return false;
      }

      return true;
    }
  </script>
</head>
<body>
  <h2>Add Book to Library</h2>
  <form method="post" onsubmit="return validateForm()">
    Book ID: <input type="text" name="bookId" id="bookId"/><br/>
    Title: <input type="text" name="title" id="title"/><br/>
    Author: <input type="text" name="author" id="author"/><br/>
    Year: <input type="text" name="year" id="year"/><br/>
    Category:
    <select name="category" id="category">
      <option value="">--Select--</option>
      <option value="Science">Science</option>
      <option value="Fiction">Fiction</option>
      <option value="History">History</option>
    </select><br/>
    Copies: <input type="number" name="copies" id="copies"/><br/><br/>
    <input type="submit" value="Add Book"/>
```

```
    <p>
    <label>Book Details:-</label>
    <a href="./display_book.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("bookId");
    if (bookId != null) {
      String title = request.getParameter("title");
      String author = request.getParameter("author");
      String year = request.getParameter("year");
      String isbn = request.getParameter("isbn");
      String category = request.getParameter("category");
      String copies = request.getParameter("copies");

      try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection conn = DriverManager.getConnection(
          "jdbc:mysql://localhost:3306/library_management_muthulakshmi",
"root", "");
        PreparedStatement ps = conn.prepareStatement(
          "INSERT INTO books (book_id, title, author, year, category,
copies) VALUES (?, ?, ?, ?, ?, ?)");
        ps.setString(1, bookId);
        ps.setString(2, title);
        ps.setString(3, author);
        ps.setInt(4, Integer.parseInt(year));
        ps.setString(5, category);
        ps.setInt(6, Integer.parseInt(copies));

        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>");
            }

            ps.close();
            conn.close();
        } catch (Exception e) {
            out.println("<p style='color:red;'>Error: " + e.getMessage() + "</
p>");
        }
    }
   %>
</body>
</html>
```



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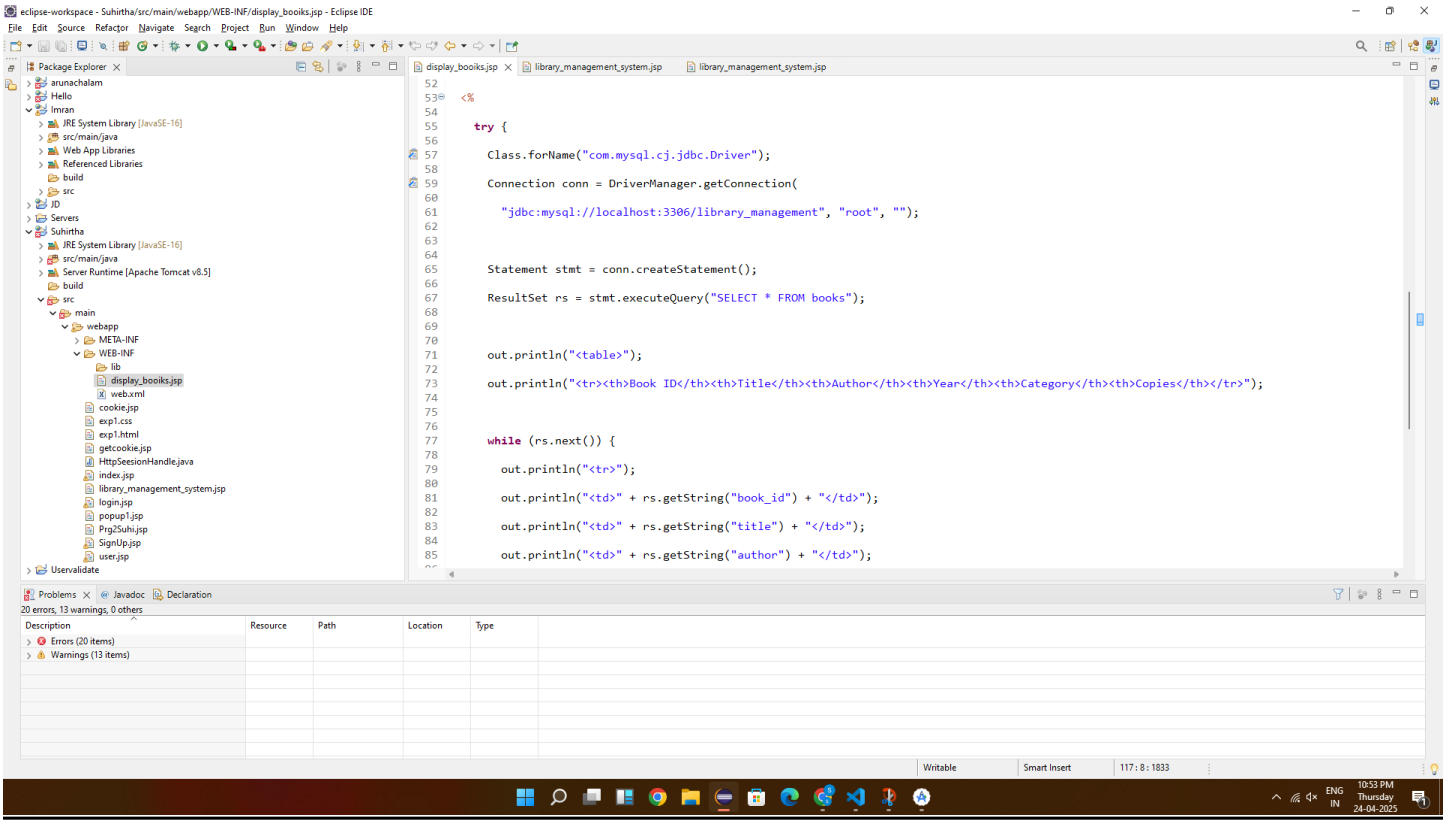

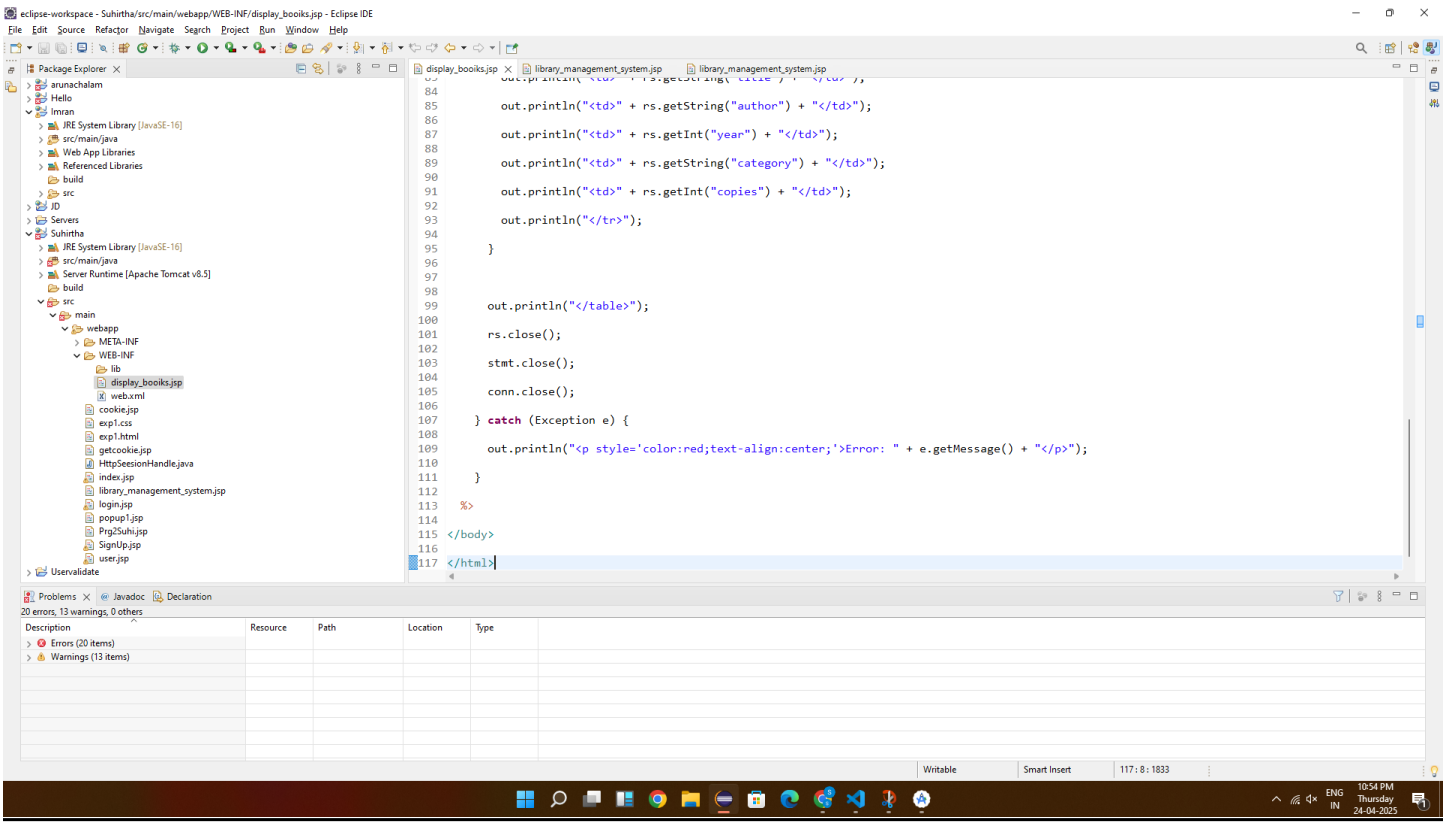

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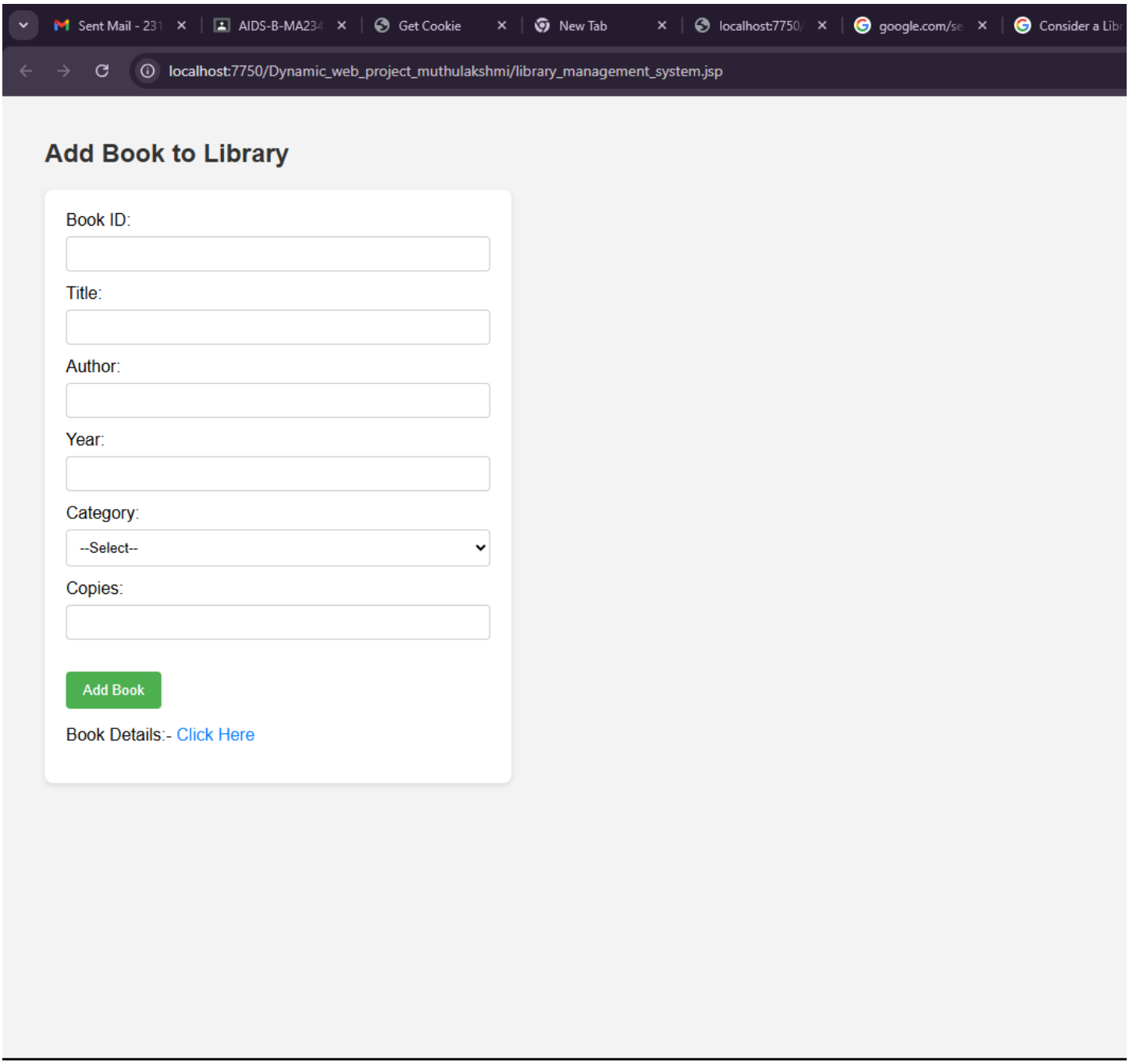
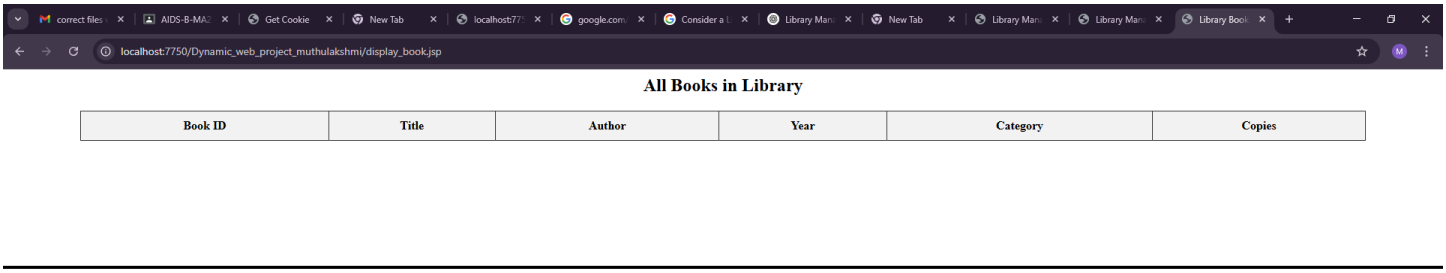
Output:


Sent Mail - 231
AIDS-B-MA234
Get Cookie
New Tab
localhost:7750/
google.com/se
Consider a Libr
localhost:7750/Dynamic_web_project_muthulakshmi/library_management_system.jsp
Add Book to Library
Book ID:
Title:
Author:
Year:
Category:
--Select--
Copies:
Add Book
Book Details:- Click Here



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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