EXP NO: 8	**Client-Side Form Validation for a Library Management System Using JavaScript with Database Integration via Servlet/JSP**

AIM:

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.

CODE:

library_managemet_system.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;
 }

 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_books_79.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");
```

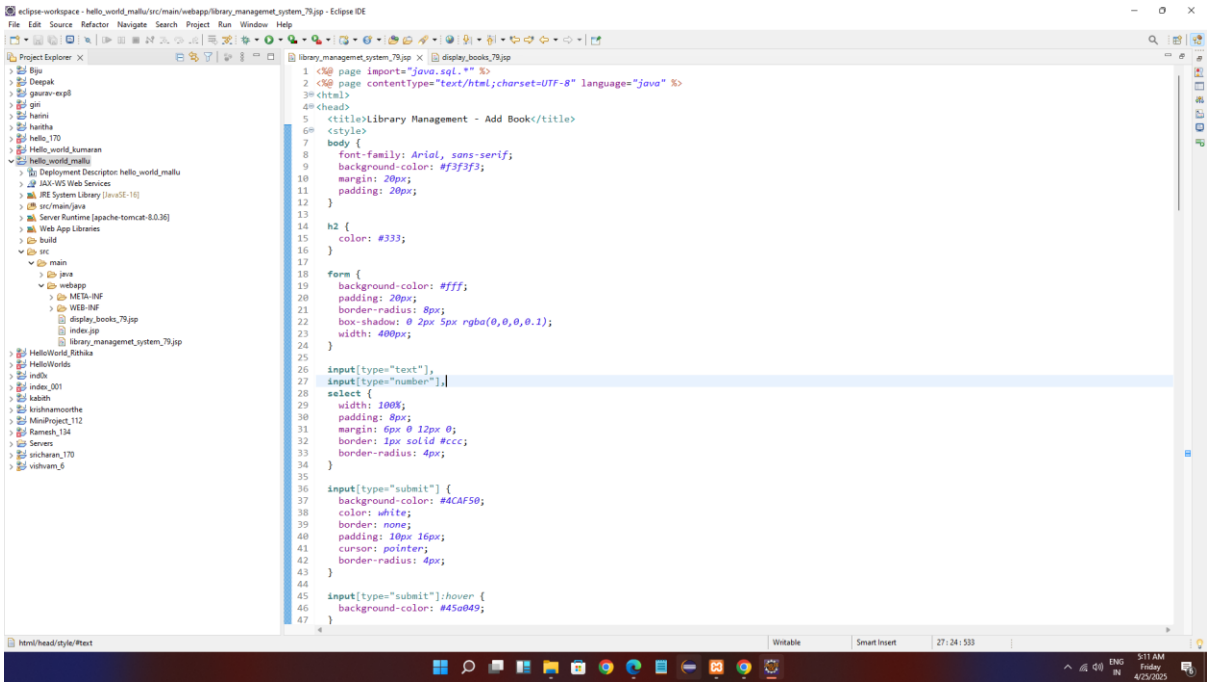
```
    String isbn = request.getParameter("isbn");
    String category = request.getParameter("category");
    String copies = request.getParameter("copies");

    try {
      Class.forName("com.mysql.cj.jdbc.Driver");
      Connection conn = DriverManager.getConnection(
        "jdbc:mysql://localhost:3306/library_management_karthick", "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>
```

display_books.jsp

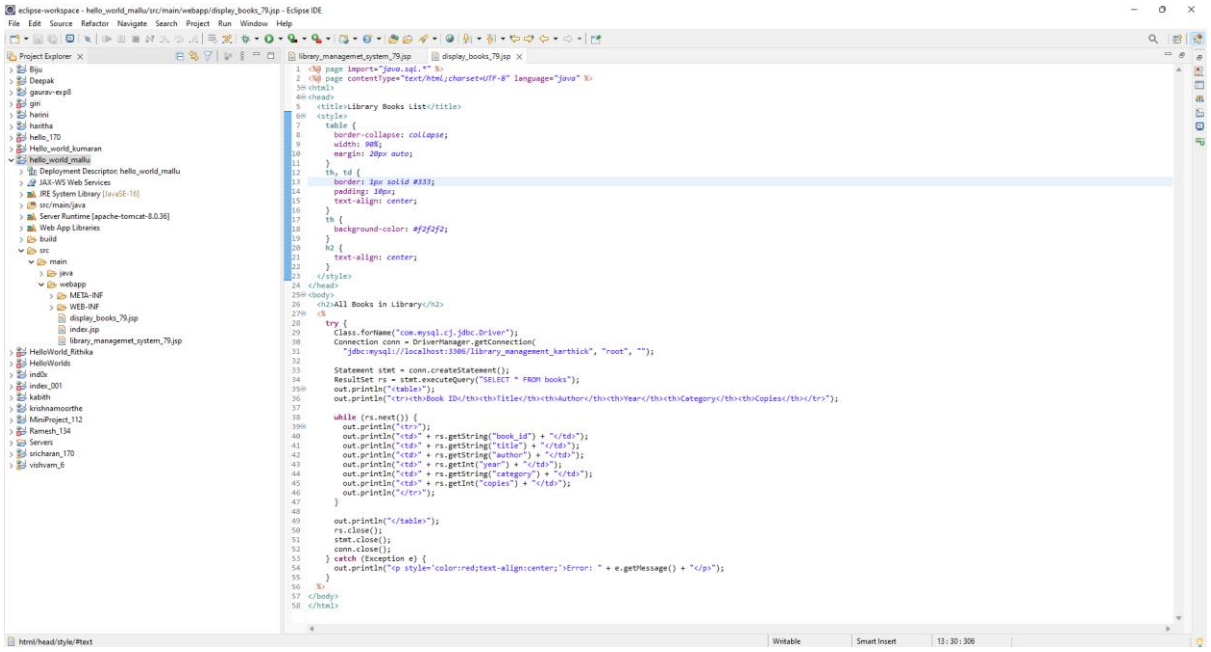
```
<%@ page import="java.sql.*" %>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
<head>
 <title>Library Books List</title>
 <style>
  table {
   border-collapse: collapse;
   width: 90%;
   margin: 20px auto;
  }
  th, td {
```

```
      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_karthick", "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>
```

OUTPUT:



```
<%@ 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;
  }

  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;
  }
```



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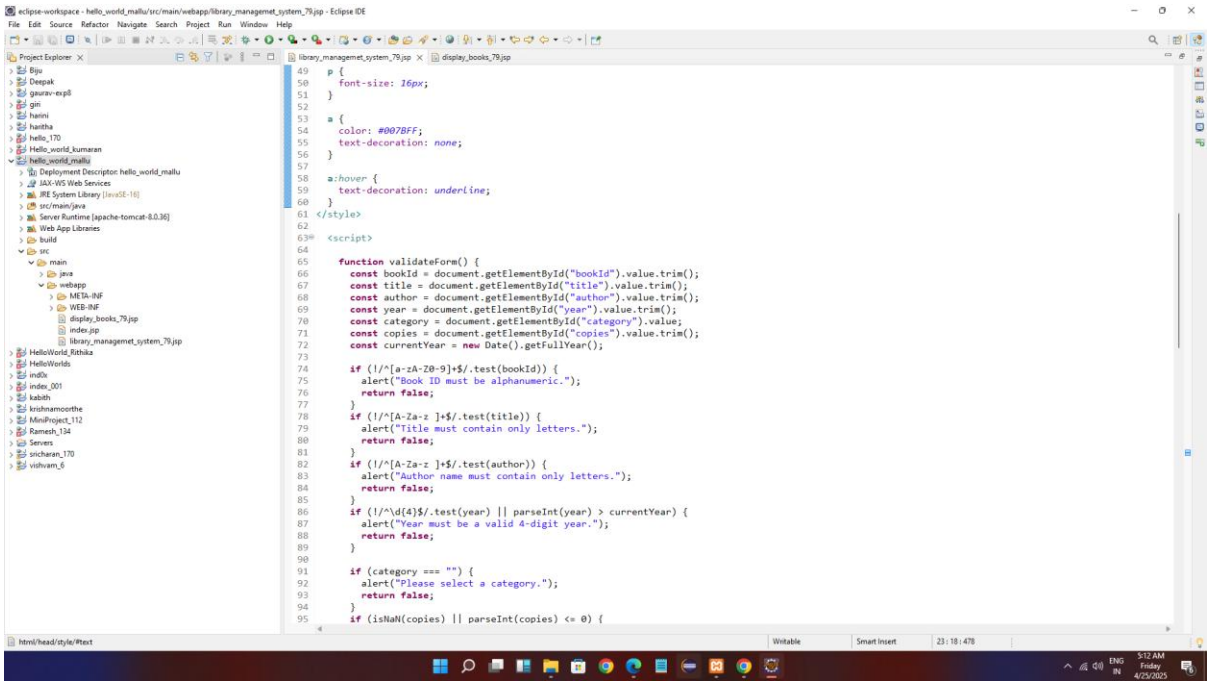
<%@ page import="java.sql.*" %>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<html>
<head>
  <title>Library Books List</title>
  <style>
    table {
      border-collapse: collapse;
      width: 90%;
      margin: 20px auto;
    }
    th, td {
      border: 1px solid #333;
      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_karthick", "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>
```



```
p {
  font-size: 16px;
}

a {
  color: #007BFF;
  text-decoration: none;
}

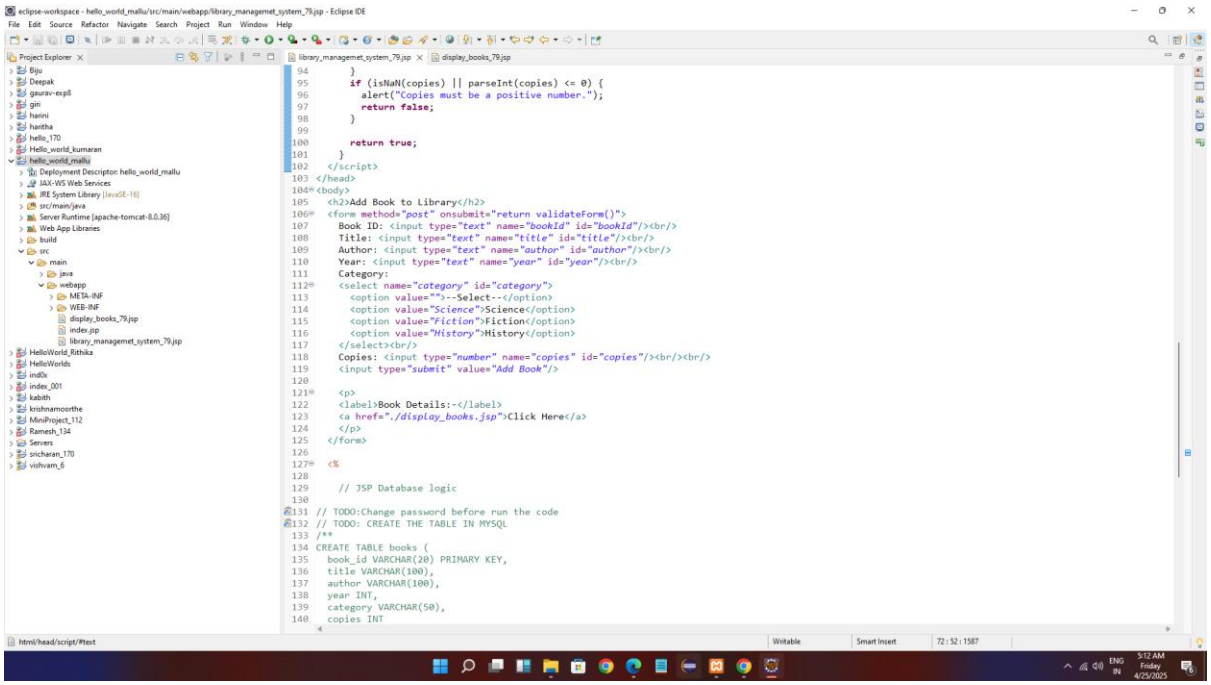
a:hover {
  text-decoration: underline;
}
</style>

<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) {
```



```
    }
    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_books.jsp">Click Here</a>
    </p>
  </form>

  <%

    // JSP Database logic

// TODO:Change password before run the code
// TODO: CREATE THE TABLE IN MYSQL
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CREATE TABLE books (
  book_id VARCHAR(20) PRIMARY KEY,
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  copies INT
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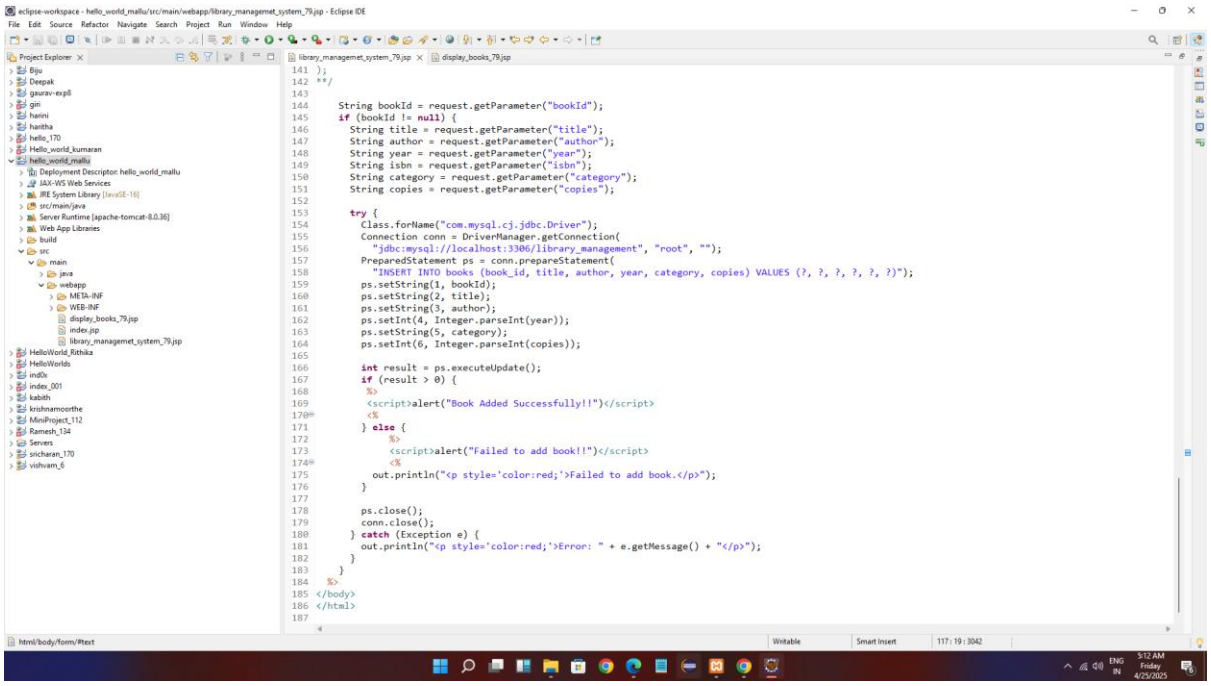
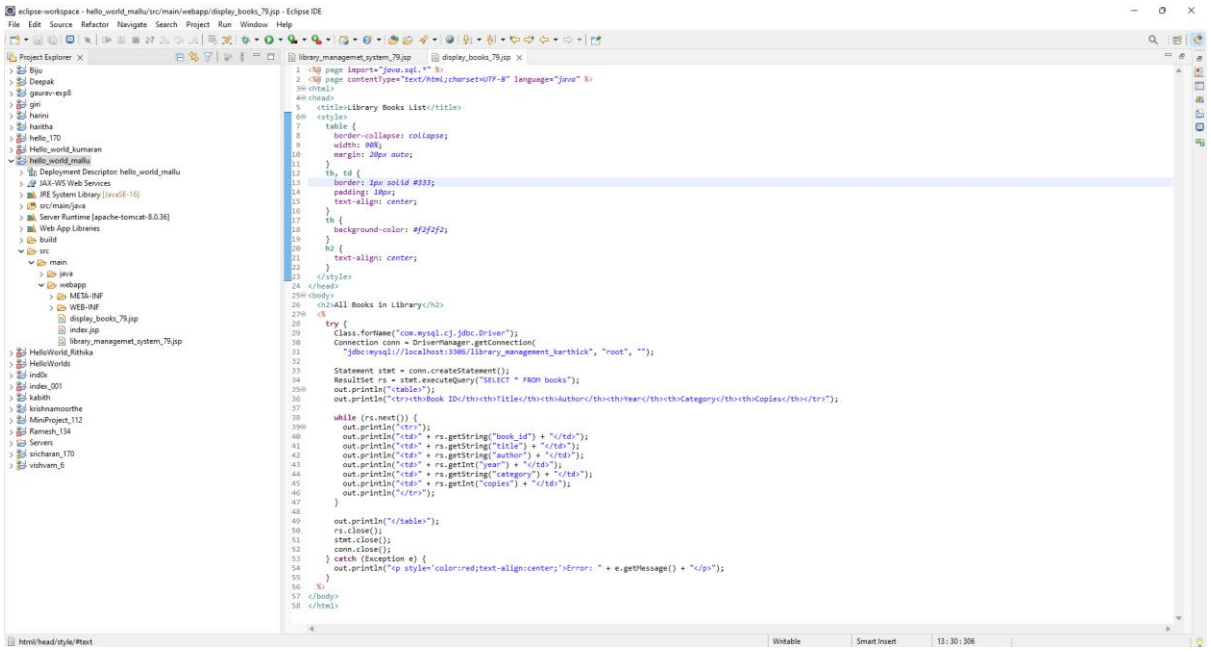
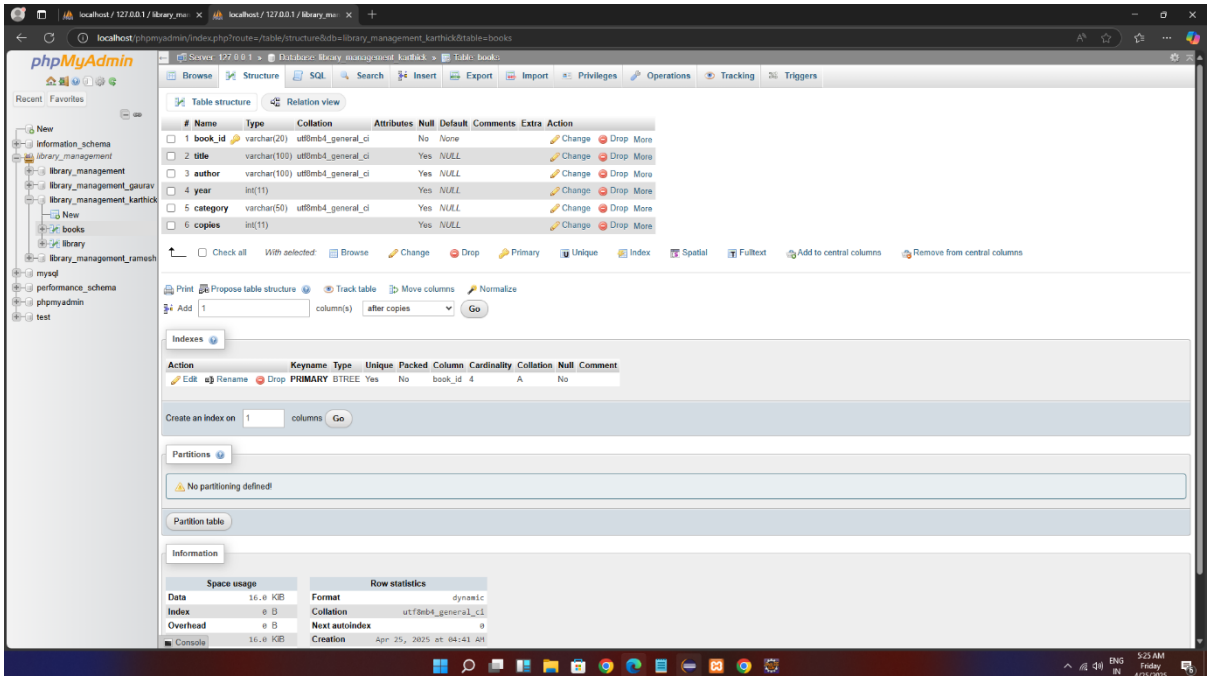
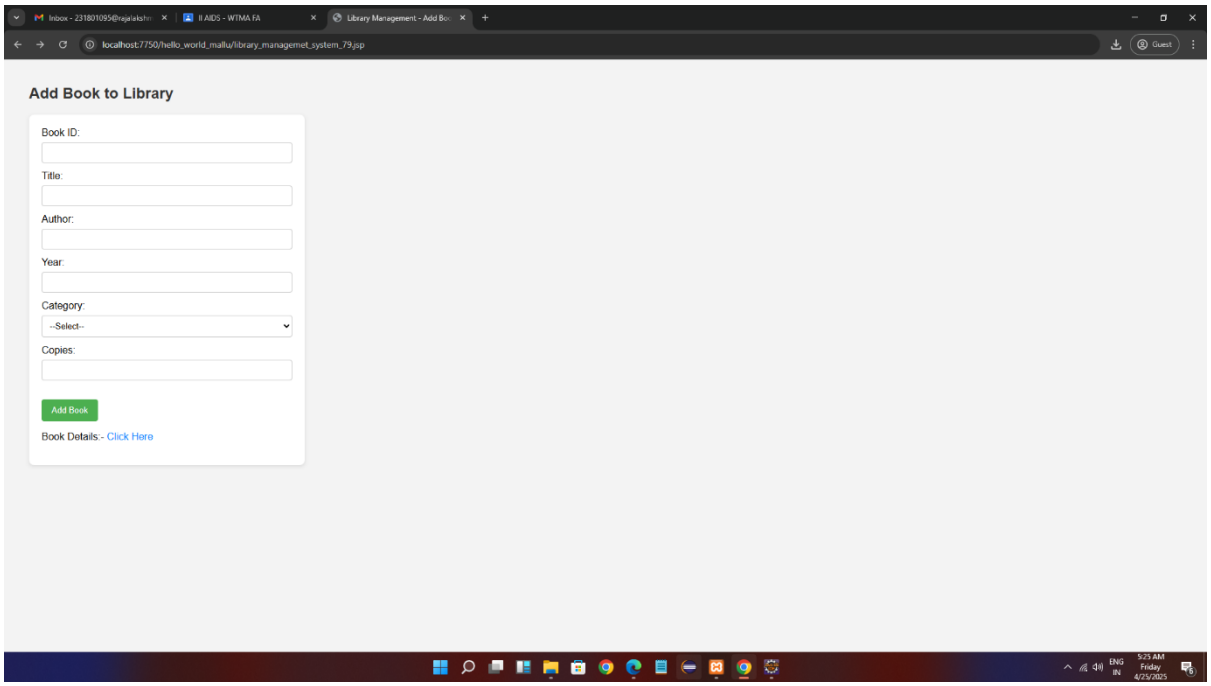


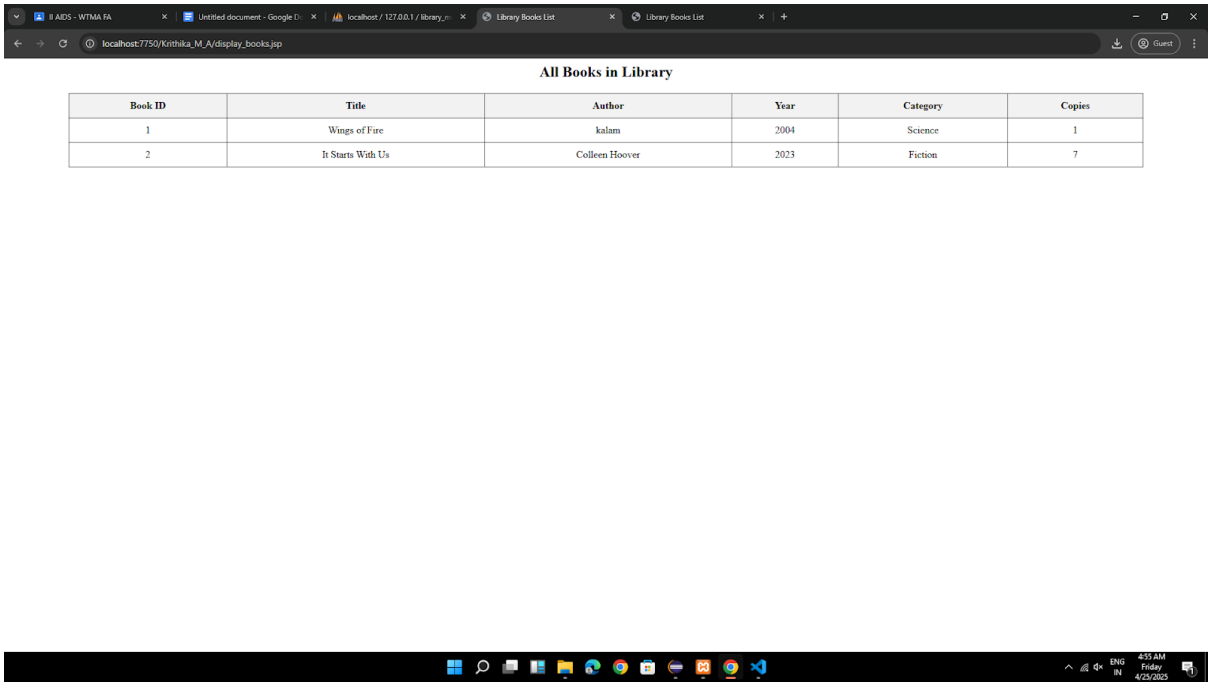
```
);
**/

    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", "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>
```



```
<%@ 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_karthick", "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>
```


phpMyAdmin
Browse
Structure
SQL
Search
Insert
Export
Import
Privileges
Operations
Tracking
Triggers
Table structure
Relation view
Indexes
Partitions
No partitioning defined!
Partition table
Information
Space usage
Row statistics


Add Book to Library
Book ID:
Title:
Author:
Year:
Category:
--Select--
Copies:
Add Book
Book Details:- Click Here



RESULT:

Thus, form validation using JavaScript and database access through JSP/Servlet was successfully demonstrated by creating a Library Management form.