| Exp:08 | Consider a Library Management System. Develop a JavaScript program that will validate the controls in the forms you have created for the application. Note: Your application must access a database using Servlet/JSP. |
|--------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|

**Aim**

To design and implement a Library Management System using HTML, JSP, Servlet, JavaScript, and MySQL, where users can add, view, and delete books. The system includes form validation with JavaScript for user input, and communicates with a backend database using Servlets and JSP, offering a user-friendly, responsive interface.

**Algorithm**

1. **Start**
   • The user opens the home page (index.html) in a web browser.
2. **Display Options**
   • The home page displays three main buttons:
   – **Add Book**
   – **View Books**
   – **Delete Book**
   • Each button redirects to a specific HTML form or JSP page for the respective action. 3. **Add Book Form**
   • Loads bookform.html with the following fields:
   – Book ID
   – Book Name
   – Author
   – Price
   • Includes a submit button to send data to savebook.jsp.
4. **Apply JavaScript Validation**
   • On form submission, JavaScript validates the input:
      – Book ID must not be empty and must be unique.
      – Name and Author fields should contain only letters. – Price should be a valid decimal number.
   • If validation is successful, the form is submitted to the server.
5. **Save Data Using Servlet**
   • SaveBookServlet receives the data via JSP.
   • The servlet connects to the MySQL database.
   • It inserts the book record into the books table.
6. **View Books Page**
   • Loads viewbooks.jsp.
   • The JSP script fetches all book records from the database.
   • It displays the data in a structured and styled HTML table.
7. **Delete Book Page**
   • Loads deletebook.html.
   • The user is prompted to enter the Book ID they wish to delete.
   • The form sends the request to DeleteBookServlet.
   • The servlet deletes the corresponding record from the database.
   • A success or error message is shown based on the operation outcome. 8. **Apply CSS Styling**

- Inline or internal CSS is used to enhance the user interface: – Input fields and buttons are styled for readability.
  - – Forms are centered with background colors and shadows.
  - – Hover effects are added to interactive elements.
  - – Tables are styled for better visibility on the view page.

9. **End**

- The user can continue to add, view, or delete books using the menu.

## CODE:

### Index.html:

```html
<!DOCTYPE html>
<html>
<head>
  <title>Library Home</title>
  <style> body
    {
      font-family: Arial, sans-serif;
      background:        #f5f5f5;
      display: flex; flex-direction:
      column; align-items: center;
      margin-top: 80px;
    } h1
    {
      color: #333;
    }
    .button-group      {
      display: flex; gap:
      20px; margin-top:
      30px;
    } a button
    {
      padding:  15px  30px;
      font-size:         16px;
      background:
      #007BFF;        color:
      white;  border:  none;
      border-radius:      8px;
      cursor: pointer;
      transition: background 0.3s;
```

```html
        } a button:hover
        {
            background: #0056b3;
        }
    </style>
</head>
<body>
    <h1>Library Book Management</h1>
    <div class="button-group">
        <a href="bookform.html"><button>Add Book</button></a>
        <a href="ViewBookServlet"><button>View Books</button></a>
        <a    href="deletebook.html"><button>Delete    Book</button></a>
    </div>
</body>
</html>
```

**Bookform.html:**

```html
<!DOCTYPE html>
<html>
<head>
    <title>Add Book</title>
    <style> body
        {
            font-family:    Arial;
            background: #e9ecef;
            display:   flex;   flex-
            direction:     column;
            align-items:    center;
            margin-top: 60px;
        } form
        {
            background: #fff; padding:
            30px; border-radius: 10px;
            box-shadow: 0 0 10px #ccc;
        } input
        {
            display:        block;
            margin-bottom:
            15px; width: 250px;
            padding: 10px;
```

```
        } input[type="submit"] {
        background:   #28a745;
        color:   white;   border:
        none; cursor: pointer;
        } input[type="submit"]:hover
        {
            background: #218838;
        }
    </style>
</head>
<body>
    <h2>Add a New Book</h2>
    <form action="savebook.jsp" method="post">
        <input type="text" name="book_id" placeholder="Book ID" required />
        <input type="text" name="name" placeholder="Book Name" required />
        <input type="text" name="author" placeholder="Author" required />
        <input type="text" name="price" placeholder="Price" required />
        <input type="submit" value="Save Book" />
    </form>
</body>
</html>
```

**Deletebooks.html:**

```
<!DOCTYPE html>
<html>
<head>
    <title>Delete Book</title>
    <style> body
        {
            font-family:      Arial;
            background:    #f8f9fa;
            display:    flex;    flex-
            direction:      column;
            align-items:      center;
            margin-top: 60px;
        } form
        {
            background: #fff; padding:
            25px;  border-radius:  8px;
            box-shadow: 0 0 8px #ccc;
```

```css
        }
        input { padding: 10px;
            margin-bottom: 15px;
            width: 240px;
        } input[type="submit"] {
        background:    #dc3545;
        color:   white;   border:
        none;
        } input[type="submit"]:hover
        { background: #c82333;
        }
    </style>
</head>
<body>
    <h2>Delete Book</h2>
    <form action="DeleteBookServlet" method="post">
        <input type="text" name="book_id" placeholder="Enter Book ID to delete" required />
        <input type="submit" value="Delete Book" />
    </form>
</body>
</html>
```

**SaveBookServlet.java:**

```java
import    java.io.*;    import
java.sql.*;            import
jakarta.servlet.*;      import
jakarta.servlet.http.*;

public    class    SaveBookServlet    extends    HttpServlet    {    public    void
    doPost(HttpServletRequest request, HttpServletResponse response) throws
    ServletException, IOException {

        String book_id = request.getParameter("book_id");
        String name = request.getParameter("name");
        String author = request.getParameter("author");
        String price = request.getParameter("price");

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

```java
        Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/librarydb",          "root",
"Guna@2005");


        PreparedStatement ps = con.prepareStatement("INSERT INTO books VALUES (?, ?,
?,    ?)");          ps.setString(1,
    book_id);
    ps.setString(2,    name);
    ps.setString(3,    author);
    ps.setString(4, price);


    ps.executeUpdate();


    response.setContentType("text/html");        PrintWriter      out      =
    response.getWriter(); out.println("<h3 style='color:green;'>Book added
    successfully!</h3>");       out.println("<a    href='index.html'>Back    to
    Home</a>"); con.close();
    } catch (Exception e) {
    e.printStackTrace();
    }
  }
}
```

**ViewBookServlet.java:**

```java
import    java.io.*;    import
java.sql.*;              import
jakarta.servlet.*;       import
jakarta.servlet.http.*;


public    class    ViewBookServlet    extends    HttpServlet    {    public    void
  doGet(HttpServletRequest request, HttpServletResponse response) throws
  ServletException, IOException {


    response.setContentType("text/html");
    PrintWriter out = response.getWriter();


    try {
      Class.forName("com.mysql.cj.jdbc.Driver");
      Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/librarydb",          "root",
"Guna@2005");
```

```java
        Statement stmt = con.createStatement();
        ResultSet rs = stmt.executeQuery("SELECT * FROM books");

        out.println("<h2>Books          List</h2>");          out.println("<table          border='1'
        cellpadding='10'>");
        out.println("<tr><th>ID</th><th>Name</th><th>Author</th><th>Price</th></tr>
        ");

        while (rs.next()) { out.println("<tr><td>" + rs.getString("book_id")
            + "</td><td>" + rs.getString("name") + "</td><td>" +
            rs.getString("author") + "</td><td>" + rs.getString("price") +
            "</td></tr>");
        }
        out.println("</table>"); out.println("<br><a
        href='index.html'>Back to Home</a>"); con.close();
    } catch (Exception e) {
        e.printStackTrace();
    }
  }
}
```

**DeleteBookServlet.java:**

```java
import java.io.*;    import
java.sql.*;          import
jakarta.servlet.*;      import
jakarta.servlet.http.*;

public class ViewBookServlet extends HttpServlet { public void
  doGet(HttpServletRequest request, HttpServletResponse response) throws
  ServletException, IOException {

    response.setContentType("text/html");
    PrintWriter out = response.getWriter();

    try {
        Class.forName("com.mysql.cj.jdbc.Driver");
        Connection con =
DriverManager.getConnection("jdbc:mysql://localhost:3306/librarydb",          "root",
"Guna@2005");
        Statement stmt = con.createStatement();
        ResultSet rs = stmt.executeQuery("SELECT * FROM books");
```

```java
        out.println("<h2>Books       List</h2>");       out.println("<table       border='1'
        cellpadding='10'>");
        out.println("<tr><th>ID</th><th>Name</th><th>Author</th><th>Price</th></tr>
        ");

        while (rs.next()) { out.println("<tr><td>" + rs.getString("book_id")
           + "</td><td>" + rs.getString("name") + "</td><td>" +
           rs.getString("author") + "</td><td>" + rs.getString("price") +
           "</td></tr>");
        }
        out.println("</table>"); out.println("<br><a
        href='index.html'>Back to Home</a>"); con.close();
     } catch (Exception e) {
        e.printStackTrace();
     }
   }
}
```

**Web.xml:**
```xml
<web-app xmlns="http://xmlns.jcp.org/xml/ns/javaee" version="3.1">
   <servlet>
      <servlet-name>SaveBookServlet</servlet-name>
      <servlet-class>SaveBookServlet</servlet-class>
   </servlet>
   <servlet-mapping>
      <servlet-name>SaveBookServlet</servlet-name>
      <url-pattern>/SaveBookServlet</url-pattern>
   </servlet-mapping>

   <servlet>
      <servlet-name>ViewBookServlet</servlet-name>
      <servlet-class>ViewBookServlet</servlet-class>
   </servlet>
   <servlet-mapping>
      <servlet-name>ViewBookServlet</servlet-name>
      <url-pattern>/ViewBookServlet</url-pattern>
   </servlet-mapping>

   <servlet>
      <servlet-name>DeleteBookServlet</servlet-name>
```
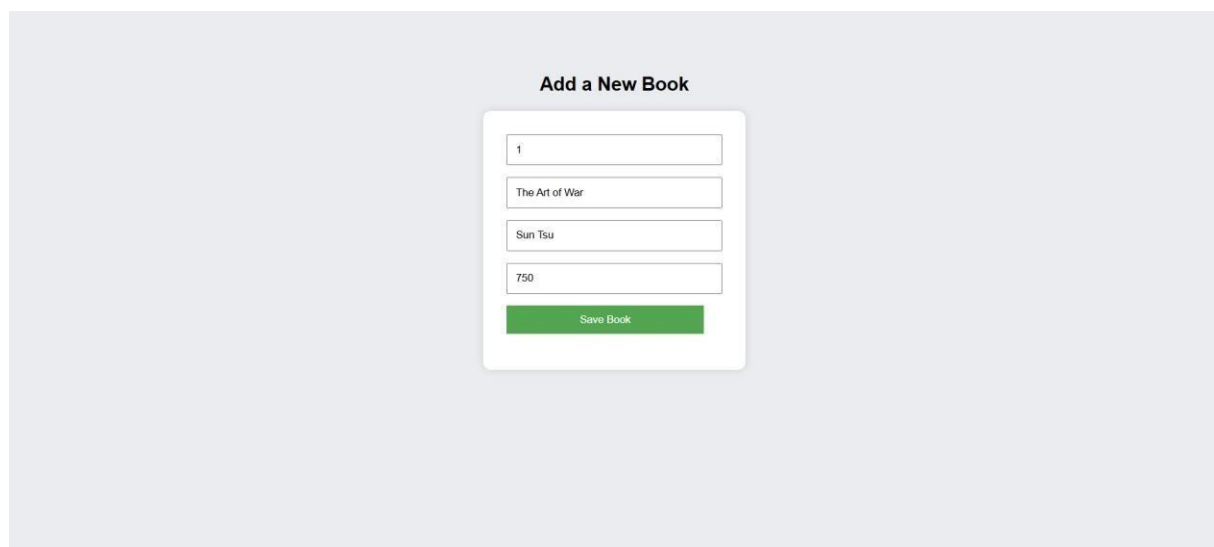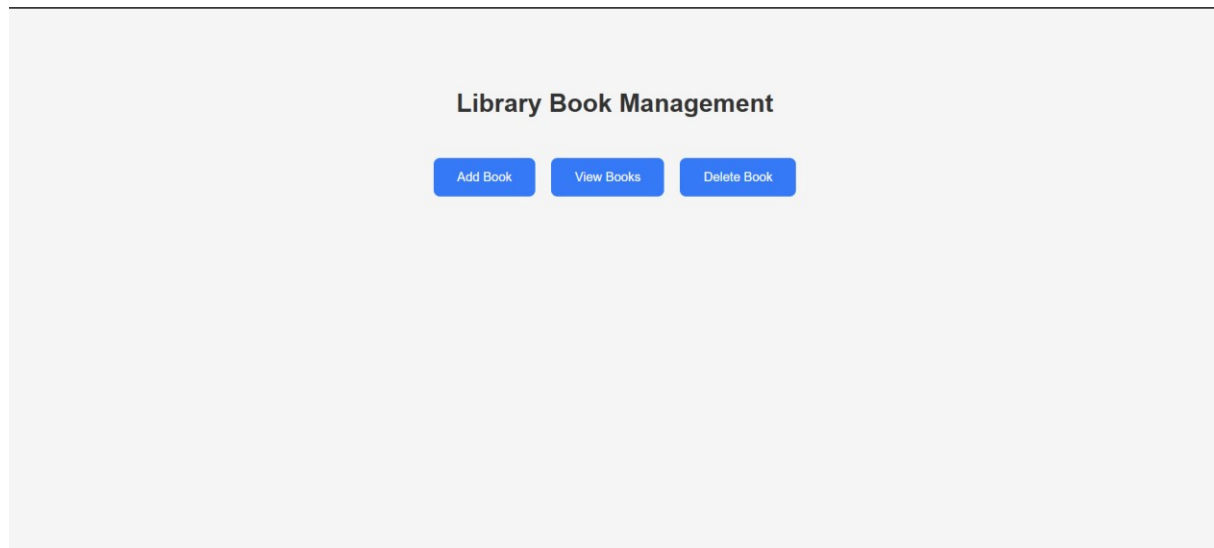
```
        <servlet-class>DeleteBookServlet</servlet-class>
    </servlet>
    <servlet-mapping>
        <servlet-name>DeleteBookServlet</servlet-name>
        <url-pattern>/DeleteBookServlet</url-pattern>
    </servlet-mapping>
</web-app>
```

**OUTPUT :**

**Library Book Management**

Add Book    View Books    Delete Book

**Add a New Book**

| 1 |
| The Art of War |
| Sun Tsu |
| 750 |
| Save Book |

# Books List

| ID | Name | Author | Price |
|----|------|--------|-------|
| 1 | The Art of War | Sun Tsu | 750.00 |
| 22 | Sherlock Holmes | Unknown | 1000.00 |
| 32 | Harry Potter | JK Rowling | 500.00 |

Back to Home

**Delete Book**

| 22 | Delete Book |

# Books List

| ID | Name | Author | Price |
|----|------|--------|-------|
| 1 | The Art of War | Sun Tsu | 750.00 |
| 32 | Harry Potter | JK Rowling | 500.00 |

[Back to Home](#)

**RESULT :**

    Thus the give program is executed successful