LAB 6: JSP Basics

Lab Activities

You are required to extend the functionality of the the Music Library web application using Java Server Page (JSP). You need to implement JSP to display music records, handle form submissions and manage user sessions.

1. Implement the Music List and Login using JSP

Task 1 : Replace the `ListMusicServlet` with a JSP page.

a. Create a new JSP page named `list_music.jsp`.

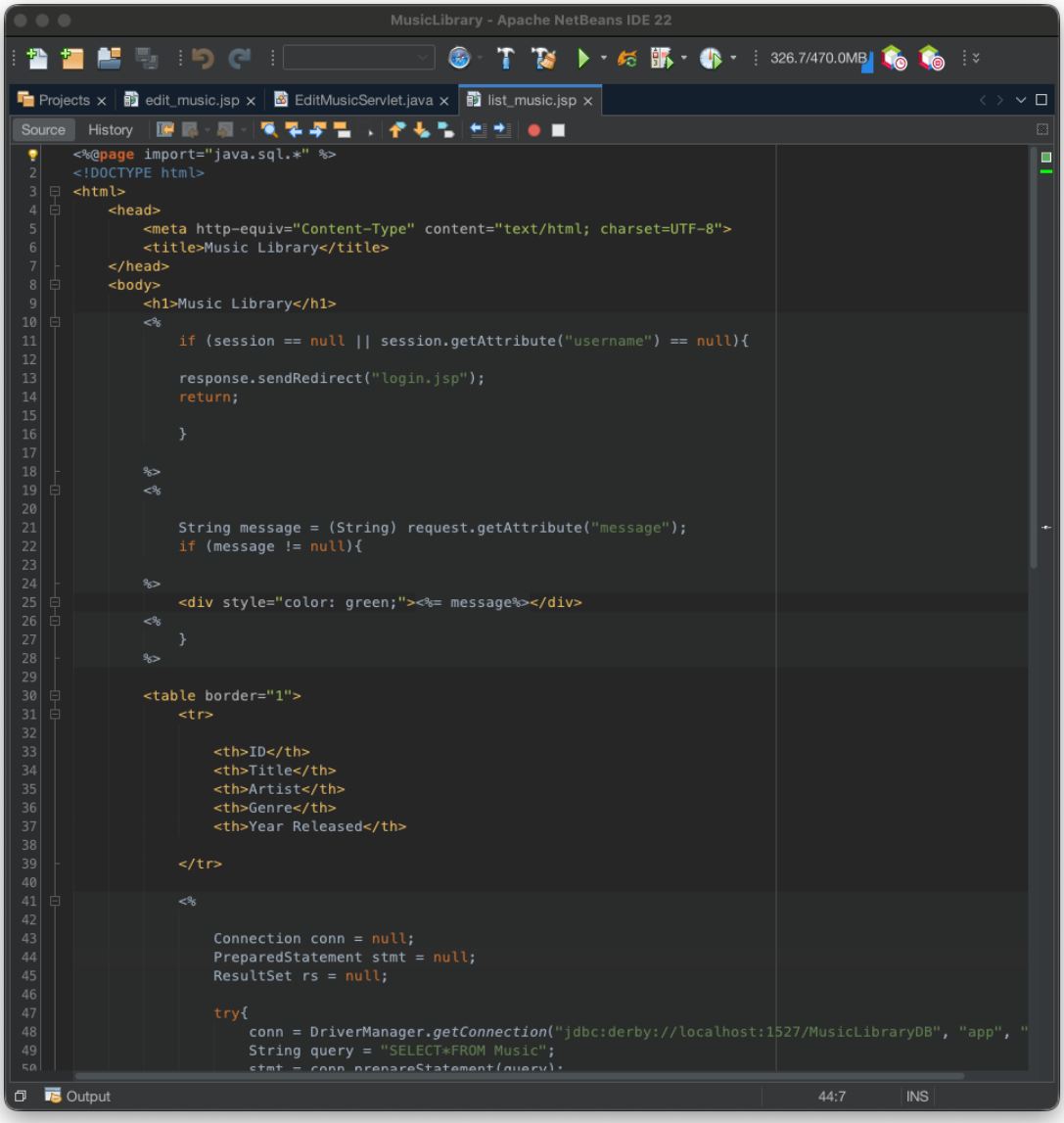
File name: list_music
Project : MusicLibrary
Location:Web Page

b. Add the following code to use JSP scriplets to query the database and retrieve the list of music records. The code also uses predefined variables to manage requests and sessions.

```
<%@ page import="java.sql.*" %>
<html>
<head>
    <title>Music Library</title>
</head>
<body>
    <h1>Music Library</h1>
    <%
        // Check if the user is logged in by verifying the session
        if (session == null || session.getAttribute("username") == null) {
         // No session, edirect to login
         response.sendRedirect("login.jsp");
          return;
        }
    %>
    <!-- Display a message if there was any (e.g., after adding new music) -->
    <%
        String message = (String) request.getAttribute("message");
        if (message != null) {
    %>
        <div style="color: green;"><%= message %></div>
    <%
        }
    %>
```

```
<table border="1">
    <tr>
        <th>ID</th>
        <th>Title</th>
        <th>Artist</th>
        <th>Genre</th>
        <th>Year Released</th>
    </tr>
    <%
        // Establish database connection
        Connection conn = null;
        PreparedStatement stmt = null;
        ResultSet rs = null;
        try {
            conn = DriverManager.getConnection("jdbc:derby://localhost:1527/MusicLibraryDB", "app", "app");
            String query = "SELECT * FROM Music";
            stmt = conn.prepareStatement(query);
            rs = stmt.executeQuery();
            // Iterate over the result set and display each record
            while (rs.next()) {
    %>
                <tr>
                    <td><%= rs.getInt("id") %></td>
                    <td><%= rs.getString("title") %></td>
                    <td><%= rs.getString("artist") %></td>
                    <td><%= rs.getString("genre") %></td>
                    <td><%= rs.getInt("yearReleased") %></td>
                </tr>
    <%
            }
        } catch (SQLException e) {
            out.println("Error retrieving music records: " + e.getMessage());
        } finally {
            if (rs != null) rs.close();
            if (stmt != null) stmt.close();
            if (conn != null) conn.close();
        }
    %>
</table>
<a href="add_music.jsp">Add New Music</a><br>

</body>
</html>
```


MusicLibrary - Apache NetBeans IDE 22
326.7/470.0MB
Projects
edit_music.jsp
EditMusicServlet.java
list_music.jsp
Source
History
<%@page import="java.sql.*" %>
<!DOCTYPE html>
<html>
<head>
<meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
<title>Music Library</title>
</head>
<body>
<h1>Music Library</h1>
<%
if (session == null || session.getAttribute("username") == null){
response.sendRedirect("login.jsp");
return;
}
%>
<%
String message = (String) request.getAttribute("message");
if (message != null){
%>
<%= message%>
<%
}
%>
<table border="1">
<tr>
<th>ID</th>
<th>Title</th>
<th>Artist</th>
<th>Genre</th>
<th>Year Released</th>
</tr>
<%
Connection conn = null;
PreparedStatement stmt = null;
ResultSet rs = null;
try{
conn = DriverManager.getConnection("jdbc:derby://localhost:1527/MusicLibraryDB", "app", "
String query = "SELECT*FROM Music";
Output
44:7
INS

Task 2: Replace login.html with login.jsp

a. Create a new JSP page named login.jsp.

File name: login
Project : MusicLibrary
Location:Web Page

b. Add the following code for handling user authentication using session in jsp.

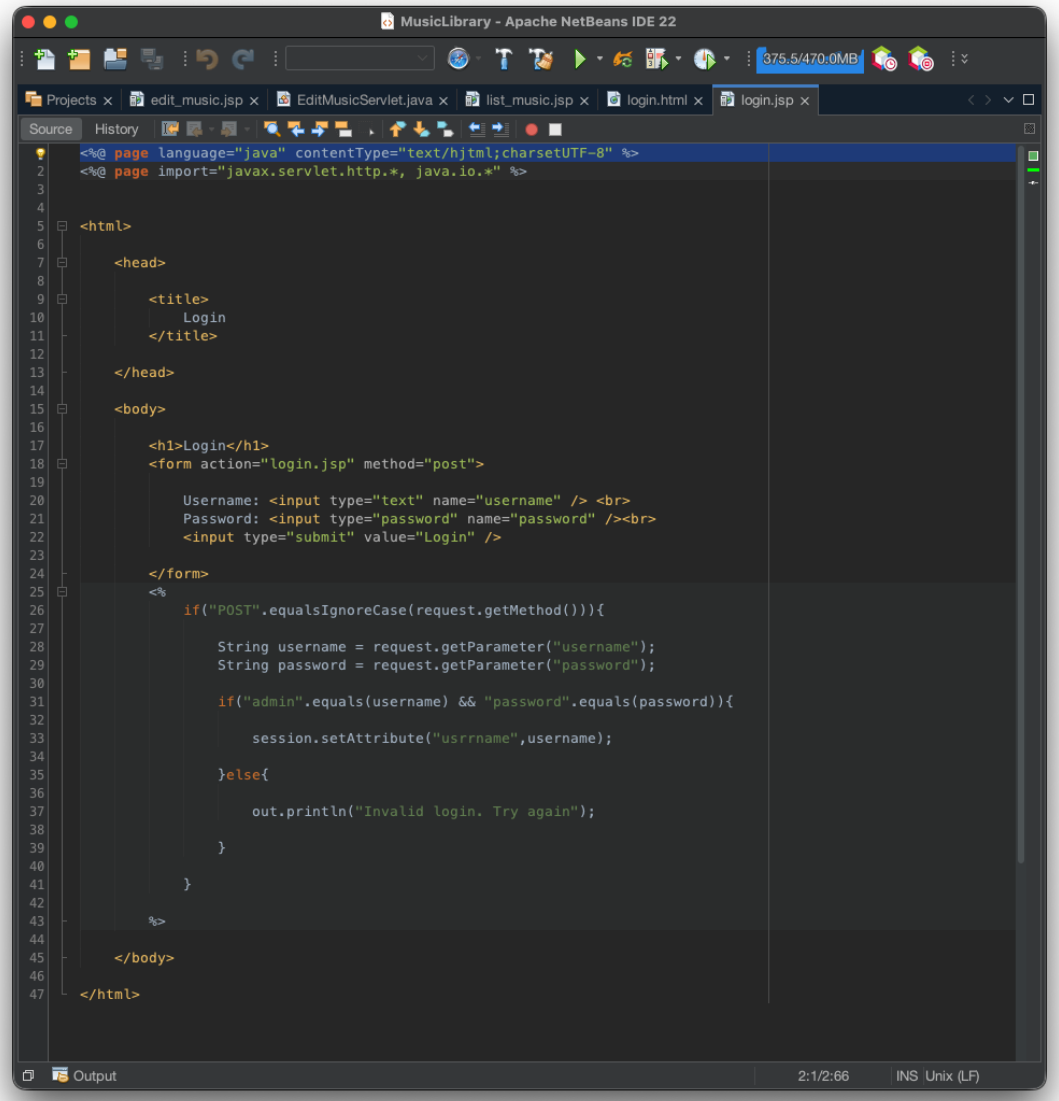
```
<html>
<head>
    <title>Login</title>
</head>
<body>
    <h1>Login</h1>
    <form action="login.jsp" method="post">
        Username: <input type="text" name="username" /><br>
        Password: <input type="password" name="password" /><br>
        <input type="submit" value="Login" />
    </form>
    <%
        if ("POST".equalsIgnoreCase(request.getMethod())) {
            String username = request.getParameter("username");
            String password = request.getParameter("password");

            if ("admin".equals(username) && "password".equals(password)) {
                session.setAttribute("username", username);
                response.sendRedirect("list_music.jsp");
            } else {
                out.println("Invalid login. Try again.");
            }
        }
    %>
</body>
</html>
```

Task 3: Update login.jsp with Page Directives

1. Add the following code in top line of login.jsp to ensure that JSP behave consistently and correctly for encoding and importing necessary classes.

```
<%@ page language="java" contentType="text/html;charset=UTF-8" %>
<%@ page import="javax.servlet.http.*, java.io.*" %>
```


MusicLibrary - Apache NetBeans IDE 22
375.5/470.0MB
Projects
edit_music.jsp
EditMusicServlet.java
list_music.jsp
login.html
login.jsp
Source
History
<%@ page language="java" contentType="text/hjtml;charsetUTF-8" %>
<%@ page import="javax.servlet.http.*, java.io.*" %>
<html>
<head>
<title>
Login
</title>
</head>
<body>
<h1>Login</h1>
<form action="login.jsp" method="post">
Username: <input type="text" name="username" />
Password: <input type="password" name="password" />
<input type="submit" value="Login" />
</form>
<%
if("POST".equalsIgnoreCase(request.getMethod())){
String username = request.getParameter("username");
String password = request.getParameter("password");
if("admin".equals(username) && "password".equals(password)){
session.setAttribute("usrrname",username);
}else{
out.println("Invalid login. Try again");
}
}
%>
</body>
</html>
Output
2:1/2:66
INS Unix (LF)

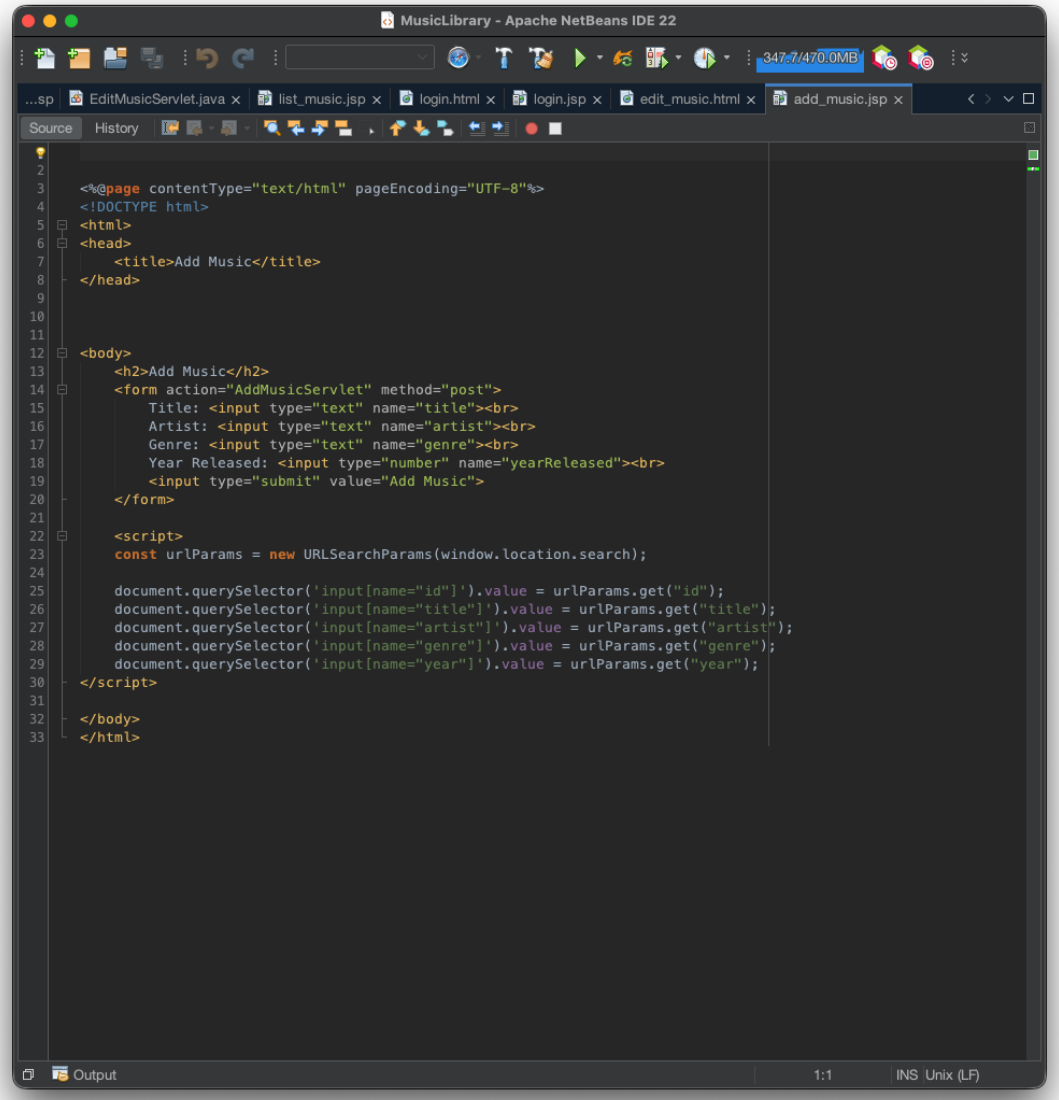
2. Implement Add Music using JSP

Task 1 : Replace the `add_music.html` with a JSP page.

a. Create a new JSP page named `add_music.jsp`.

File name: add_music
Project : MusicLibrary
Location:Web Page

b. Write similar code from add_music.html in the add_music.jsp.

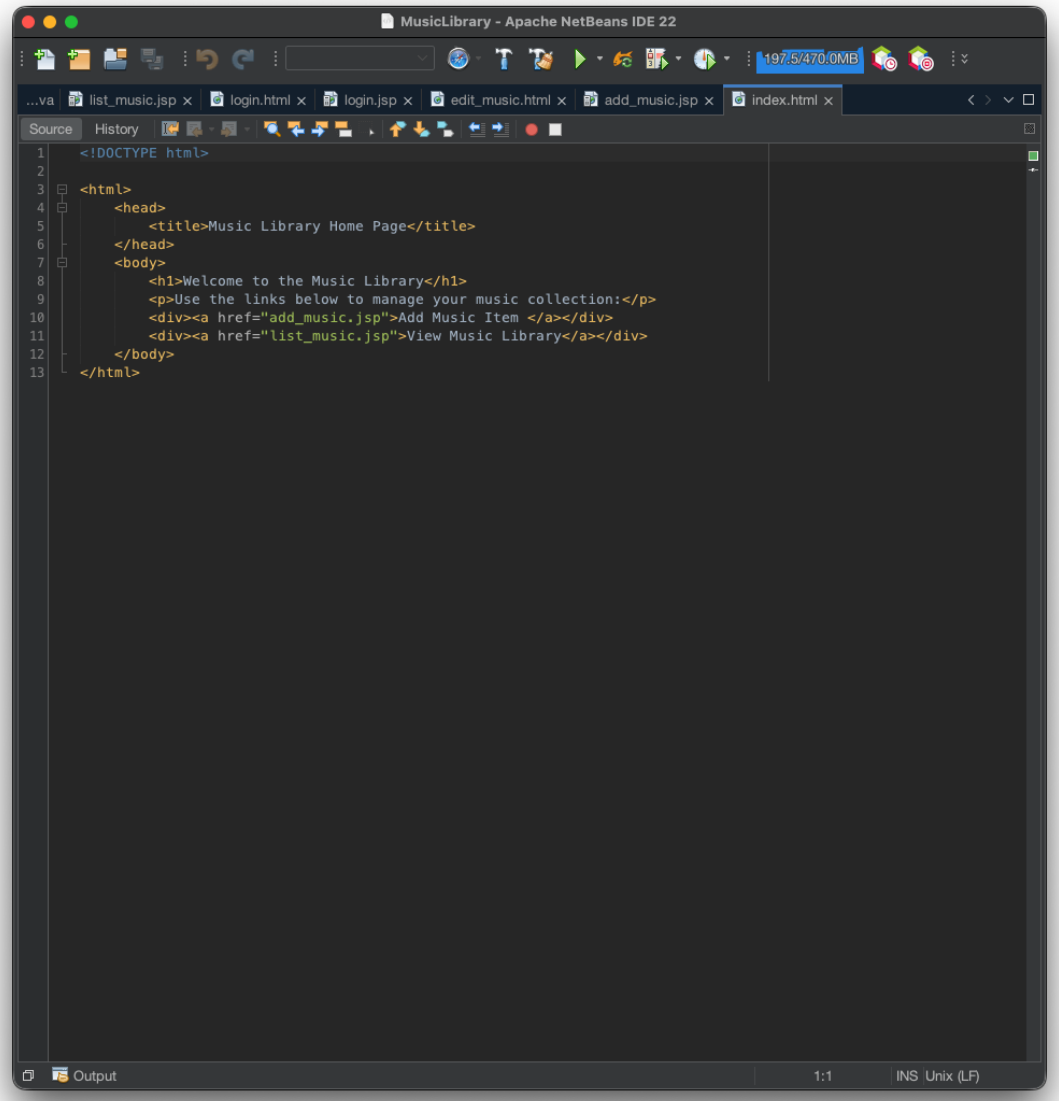


3. Modify Homepage

Task 1: Modify url link for add music and list music in index.html

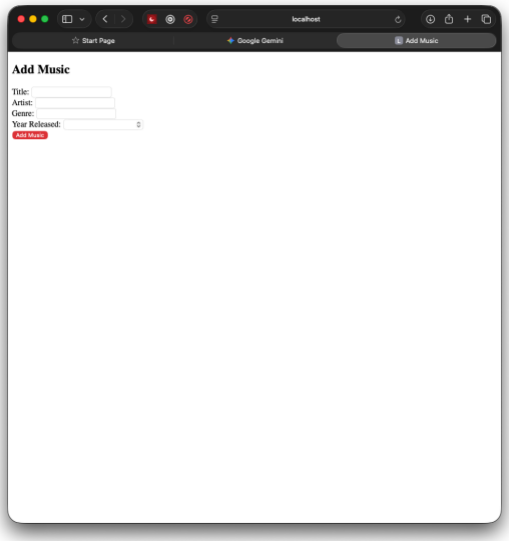
a. Edit the index.html file as follows.

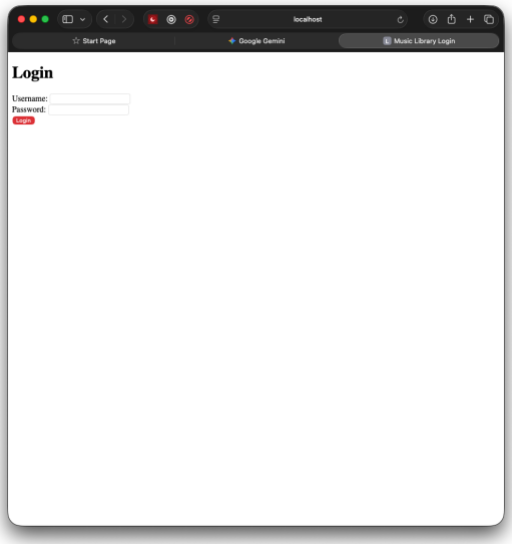
```
<div><a href="add_music.jsp">Add Music Item </a></div>
<div><a href="list_music.jsp">View Music Library</a></div>
```



Task 2: Deploy the web application

a. Build the MusicLibrary web application. Correct any errors you encounter
b. Deploy the MusicLibrary web Application
c. Run the web application project





Postlab Exercise

You need to implement the functionality to edit exisiting music records in a database using JSP. The user will be able to edit the details of a music record (title, artist, genre, and year released) in the database. Perform the following tasks:

1) Create a JSP (`edit_music.jsp`) that allows the user to edit the details of a selected music record. The form should include fields for the title, artist, genre, and year released, pre-filled with the current values of the selected record. When the user submits the form, it should send the data to the `EditMusicServlet` for processing.

edit_music.jsp

```
<%@page contentType="text/html;charset=UTF-8" language="java" %>
<!DOCTYPE html>
<html>
<head>
    <title>Edit Music</title>
</head>
<body>

<h1>Edit Music Record</h1>

<form action="EditMusicServlet" method="post">

    <input type="hidden" name="id" value="<%= request.getParameter("id") %>">

    Title:
    <input type="text" name="title" value="<%= request.getParameter("title")
%>"><br><br>

    Artist:
    <input type="text" name="artist" value="<%= request.getParameter("artist")
%>"><br><br>

    Genre:
    <input type="text" name="genre" value="<%= request.getParameter("genre")
%>"><br><br>

    Year Released:
    <input type="text" name="year" value="<%= request.getParameter("year")
%>"><br><br>

    <input type="submit" value="Update Music">

</form>

</body>
</html>
```

2) Edit the `EditMusicServlet` that performs the following tasks

   a) Redirect the user to the list of music records (`list_music.jsp`) after the update is successful.

EditMusicServlet.java

```
import java.io.IOException;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;
import javax.servlet.annotation.WebServlet;

@WebServlet("/EditMusicServlet")
public class EditMusicServlet extends HttpServlet {

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

        HttpSession session = request.getSession(false);
        if (session == null) {
            response.sendRedirect("login.jsp");
            return;
        }

        String id = request.getParameter("id");
        String title = request.getParameter("title");
        String artist = request.getParameter("artist");
        String genre = request.getParameter("genre");
        String year = request.getParameter("year");

        Connection conn = null;
        PreparedStatement stmt = null;

        try {
            Class.forName("org.apache.derby.jdbc.ClientDriver");
            conn = DriverManager.getConnection(
                    "jdbc:derby://localhost:1527/MusicLibraryDB", "app", "app");

            String sql = "UPDATE Music SET title=?, artist=?, genre=?,
yearReleased=? WHERE id=?";
            stmt = conn.prepareStatement(sql);
            stmt.setString(1, title);
            stmt.setString(2, artist);
            stmt.setString(3, genre);
            stmt.setString(4, year);
            stmt.setInt(5, Integer.parseInt(id));

            stmt.executeUpdate();

            response.sendRedirect("list_music.jsp");

        } catch (Exception e) {
            throw new ServletException(e);
        }
```

```
        }
    }
```

3) Modify the `list_music.jsp` to include an **"Edit"** link next to each music record. The **"Edit"** link should direct the user to the `edit_music.jsp` form, pre-filled with the current details of the selected music record.

list_music.jsp

```
<%@page import="java.sql.*" %>
<!DOCTYPE html>
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html; charset=UTF-8">
        <title>Music Library</title>
    </head>
    <body>
        <h1>Music Library</h1>
        <%
            if (session == null || session.getAttribute("username") == null){

            response.sendRedirect("login.jsp");
            return;

            }

        %>
        <%

            String message = (String) request.getAttribute("message");
            if (message != null){

        %>
            <div style="color: green;"><%= message%></div>
        <%
            }
        %>

        <table border="1">
            <tr>

                <th>ID</th>
                <th>Title</th>
                <th>Artist</th>
                <th>Genre</th>
                <th>Year Released</th>

            </tr>

            <%

                Connection conn = null;
                PreparedStatement stmt = null;
                ResultSet rs = null;

                try{
                    conn =
DriverManager.getConnection("jdbc:derby://localhost:1527/MusicLibraryDB","app", "app");
                    String query = "SELECT*FROM Music";
```

```
                    stmt = conn.prepareStatement(query);
                    rs = stmt.executeQuery();

                    while(rs.next()){

                %>
                        <tr>

                            <td><%= rs.getInt("id")    %></td>
                            <td><%= rs.getString("title") %></td>
                            <td><%= rs.getString("artist") %></td>
                            <td><%= rs.getString("genre") %></td>
                            <td><%= rs.getInt("yearReleased") %></td>
                            <td>
                                <a href="edit_music.jsp?id=<%= rs.getInt("id") %>
                                    &title=<%= rs.getString("title") %>
                                    &artist=<%= rs.getString("artist") %>
                                    &genre=<%= rs.getString("genre") %>
                                    &year=<%= rs.getInt("yearReleased") %>">
                                    Edit
                                </a>
                            </td>

                        </tr>
                <%
                    }

                } catch(SQLException e){
                    out.println("Error retrieving music records: " + e.getMessage());
                } finally{
                    if(rs != null) rs.close();
                    if (stmt != null) stmt.close();
                    if (conn != null) conn.close();
                }
                %>

        </table>
        <a href=""add_music.jsp"> Add New Music</a><br>

    </body>
</html>
```