***Question 10. Library Book Search System***

* ***JSP form to enter search criteria.***
* ***Servlet retrieves and displays matching books from DB.***

**Step1:**

**Create a new JSP file** searchBooks.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"* pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Library Book Search</title>

</head>

<body>

<h1>Search Library Books</h1>

<form action=*"BookSearchServlet"* method=*"get"*>

<label for=*"title"*>Title:</label>

<input type=*"text"* id=*"title"* name=*"title"*><br><br>

<label for=*"author"*>Author:</label>

<input type=*"text"* id=*"author"* name=*"author"*><br><br>

<label for=*"genre"*>Genre:</label>

<input type=*"text"* id=*"genre"* name=*"genre"*><br><br>

<label for=*"year"*>Year:</label>

<input type=*"text"* id=*"year"* name=*"year"*><br><br>

<button type=*"submit"*>Search</button>

</form>

</body>

</html>

**Step2:  
Create a new Servlet package name** library **class name** BookSearchServlet

package library;

import jakarta.servlet.\*;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.\*;

import java.io.\*;

import java.sql.\*;

import java.util.ArrayList;

import java.util.List;

*@WebServlet*("/BookSearchServlet")

public class BookSearchServlet extends HttpServlet {

protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

String title = request.getParameter("title");

String author = request.getParameter("author");

String genre = request.getParameter("genre");

String year = request.getParameter("year");

List<String[]> books = new ArrayList<>();

try {

Class.*forName*("com.mysql.cj.jdbc.Driver");

Connection connection = DriverManager.*getConnection*("jdbc:mysql://localhost:3306/LibraryDB", "root", "0000");

StringBuilder sql = new StringBuilder("SELECT \* FROM books WHERE 1=1");

if (title != null && !title.isEmpty()) {

sql.append(" AND title LIKE ?");

}

if (author != null && !author.isEmpty()) {

sql.append(" AND author LIKE ?");

}

if (genre != null && !genre.isEmpty()) {

sql.append(" AND genre LIKE ?");

}

if (year != null && !year.isEmpty()) {

sql.append(" AND year = ?");

}

PreparedStatement statement = connection.prepareStatement(sql.toString());

int index = 1;

if (title != null && !title.isEmpty()) {

statement.setString(index++, "%" + title + "%");

}

if (author != null && !author.isEmpty()) {

statement.setString(index++, "%" + author + "%");

}

if (genre != null && !genre.isEmpty()) {

statement.setString(index++, "%" + genre + "%");

}

if (year != null && !year.isEmpty()) {

statement.setInt(index++, Integer.*parseInt*(year));

}

ResultSet rs = statement.executeQuery();

while (rs.next()) {

books.add(new String[]{

rs.getString("title"),

rs.getString("author"),

rs.getString("genre"),

String.*valueOf*(rs.getInt("year"))

});

}

rs.close();

statement.close();

connection.close();

} catch (Exception e) {

e.printStackTrace();

}

request.setAttribute("books", books);

RequestDispatcher dispatcher = request.getRequestDispatcher("results.jsp");

dispatcher.forward(request, response);

}

}

**Step3:  
Create a new JSP file** results.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"* pageEncoding=*"UTF-8"*%>

<%@ page import=*"java.util.List"* %>

<%@ page import=*"java.util.ArrayList"* %>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Search Results</title>

</head>

<body>

<h1>Search Results</h1>

<%

List<String[]> books = (List<String[]>) request.getAttribute("books");

if (books == null || books.isEmpty()) {

%>

<p>No matching books found.</p>

<%

} else {

%>

<table border=*"1"*>

<tr>

<th>Title</th>

<th>Author</th>

<th>Genre</th>

<th>Year</th>

</tr>

<%

for (String[] book : books) {

%>

<tr>

<td><%= book[0] %></td>

<td><%= book[1] %></td>

<td><%= book[2] %></td>

<td><%= book[3] %></td>

</tr>

<%

}

%>

</table>

<%

}

%>

<p><a href=*"searchBooks.jsp"*>Back to Search</a></p>

</body>

</html>

**Step4:**

**Create database and table**

CREATE DATABASE IF NOT EXISTS LibraryDB;

USE LibraryDB;

CREATE TABLE IF NOT EXISTS books (

id INT AUTO\_INCREMENT PRIMARY KEY,

title VARCHAR(255) NOT NULL,

author VARCHAR(255) NOT NULL,

genre VARCHAR(100),

year INT

);

-- Sample Data

INSERT INTO books (title, author, genre, year) VALUES

('The Great Gatsby', 'F. Scott Fitzgerald', 'Fiction', 1925),

('To Kill a Mockingbird', 'Harper Lee', 'Fiction', 1960),

('1984', 'George Orwell', 'Dystopian', 1949),

('Pride and Prejudice', 'Jane Austen', 'Romance', 1813);

**Step5:Run searchBooks.jsp on server**