**Practical No : 10**

**Date:** 23/09/2024

**Problem Statement:**

**Write an application to keep record and retrieve record of student. The record includes student id, enrollment number, semester, SPI. Use MVC arechitecture.**

**Code:**

**Student.java**

package com.student.model;

public class Student {

private int studentId;

private String enrollmentNumber;

private String semester;

private double spi;

// Getters and Setters

public int getStudentId() {

return studentId;

}

public void setStudentId(int studentId) {

this.studentId = studentId;

}

public String getEnrollmentNumber() {

return enrollmentNumber;

}

public void setEnrollmentNumber(String enrollmentNumber) {

this.enrollmentNumber = enrollmentNumber;

}

public String getSemester() {

return semester;

}

public void setSemester(String semester) {

this.semester = semester;

}

public double getSpi() {

return spi;

}

public void setSpi(double spi) {

this.spi = spi;

}

}

**StudentController.java**

package com.student.controller;

import com.student.db.DatabaseConnection;

import com.student.model.Student;

import java.sql.\*;

import java.util.ArrayList;

import java.util.List;

public class StudentController {

private Connection connection;

public StudentController() {

connection = DatabaseConnection.getConnection();

}

public void addStudent(Student student) {

String sql = "INSERT INTO students (enrollment\_number, semester, spi) VALUES (?, ?, ?)";

try (PreparedStatement pstmt = connection.prepareStatement(sql)) {

pstmt.setString(1, student.getEnrollmentNumber());

pstmt.setString(2, student.getSemester());

pstmt.setDouble(3, student.getSpi());

pstmt.executeUpdate();

} catch (SQLException e) {

e.printStackTrace();

} }

public List<Student> getAllStudents() {

List<Student> studentList = new ArrayList<>();

String sql = "SELECT \* FROM students";

try (Statement stmt = connection.createStatement(); ResultSet rs = stmt.executeQuery(sql)) {

while (rs.next()) {

Student student = new Student();

student.setStudentId(rs.getInt("student\_id"));

student.setEnrollmentNumber(rs.getString("enrollment\_number"));

student.setSemester(rs.getString("semester"));

student.setSpi(rs.getDouble("spi"));

studentList.add(student);

}

} catch (SQLException e) {

e.printStackTrace();

}

return studentList;

}

}

**index.jsp**

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

<%@ page import="com.student.controller.StudentController" %>

<%@ page import="com.student.model.Student" %>

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

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

<%

StudentController controller = new StudentController();

// Handle adding a new student

if (request.getMethod().equalsIgnoreCase("POST")) {

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

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

double spi = Double.parseDouble(request.getParameter("spi"));

Student newStudent = new Student();

newStudent.setEnrollmentNumber(enrollmentNumber);

newStudent.setSemester(semester);

newStudent.setSpi(spi);

controller.addStudent(newStudent);

}

// Retrieve all students

List<Student> studentList = controller.getAllStudents();

%>

<!DOCTYPE html>

<html>

<head>

<title>Student Records</title>

</head>

<body>

<h1>Student Records</h1>

<form method="post">

Enrollment Number: <input type="text" name="enrollmentNumber" required/><br>

Semester: <input type="text" name="semester" required/><br>

SPI: <input type="number" step="0.01" name="spi" required/><br>

<input type="submit" value="Add Student" />

</form>

<h2>Registered Students</h2>

<table border="1">

<tr>

<th>Student ID</th>

<th>Enrollment Number</th>

<th>Semester</th>

<th>SPI</th>

</tr>

<%

for (Student s : studentList) {

%>

<tr>

<td><%= s.getStudentId() %></td>

<td><%= s.getEnrollmentNumber() %></td>

<td><%= s.getSemester() %></td>

<td><%= s.getSpi() %></td>

</tr>

<%

}

%>

</table>

</body>

</html>

**DatabaseConnection.java**

package com.student.db;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DatabaseConnection {

private static final String URL = "jdbc:mysql://localhost:3306/student\_db";

private static final String USER = "root";

private static final String PASSWORD = "";

public static Connection getConnection() {

Connection conn = null;

try {

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

conn = DriverManager.getConnection(URL, USER, PASSWORD);

} catch (ClassNotFoundException | SQLException e) {

e.printStackTrace();

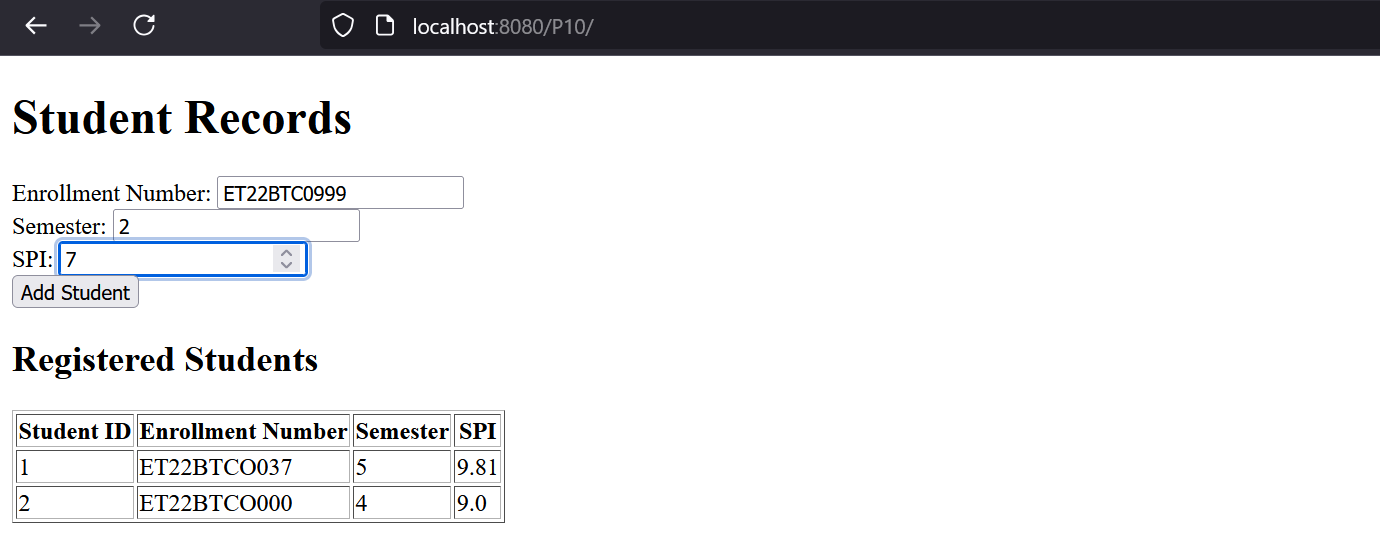
}

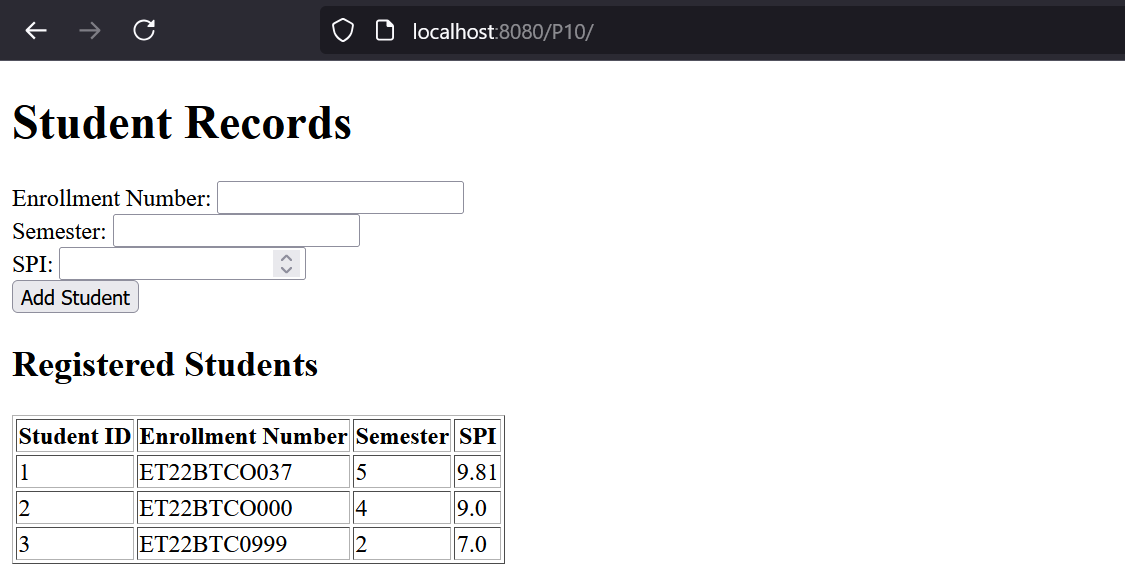
return conn;

}

}

**Output:**

****

****