**Developing a Backend Admin for Learner’s Academy**

**Code:**

AdminControllerServlet.java

**package** com.portal.admin;

**import** java.io.IOException;

**import** java.util.List;

**import** javax.annotation.Resource;

**import** javax.servlet.RequestDispatcher;

**import** javax.servlet.ServletException;

**import** javax.servlet.annotation.WebServlet;

**import** javax.servlet.http.Cookie;

**import** javax.servlet.http.HttpServlet;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

**import** javax.sql.DataSource;

**import** com.portal.classes.Student;

**import** com.portal.classes.Subject;

**import** com.portal.classes.Teacher;

**import** com.portal.classes.Class;

/\*\*

\* Servlet implementation class AdminControllerServlet

\*/

@WebServlet("/AdminControllerServlet")

**public** **class** AdminControllerServlet **extends** HttpServlet {

**private** **static** **final** **long** serialVersionUID = 1L;

**private** DbRetrieve dbRetrieve;

@Resource(name = "jdbc\_database")

**private** DataSource datasource;

@Override

**public** **void** init() **throws** ServletException {

**super**.init();

// create instance of db util, to pass in conn pool object

**try** {

dbRetrieve = **new** DbRetrieve(datasource);

} **catch** (Exception e) {

**throw** **new** ServletException(e);

}

}

**public** AdminControllerServlet() {

**super**();

// **TODO** Auto-generated constructor stub

}

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

// **TODO** Auto-generated method stub

**try** {

// read the "command" parameter

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

**if** (command == **null**) {

command = "CLASSES";

}

// if no cookeies

**if** (!getCookies(request, response) && (!command.equals("LOGIN"))) {

response.sendRedirect("/Admin-Portal/login.jsp");

}

**else** {

// if there is no command, how to handle

// route the data to the appropriate method

**switch** (command) {

**case** "STUDENTS":

studentsList(request, response);

**break**;

**case** "TEACHERS":

teachersList(request, response);

**break**;

**case** "SUBJECTS":

subjectList(request, response);

**break**;

**case** "CLASSES":

classestList(request, response);

**break**;

**case** "ST\_LIST":

classStudentsList(request, response);

**break**;

**case** "LOGIN":

login(request, response);

**break**;

**default**:

classestList(request, response);

}

}

} **catch** (Exception e) {

**throw** **new** ServletException(e);

}

// response.getWriter().append("Served at: ").append(request.getContextPath());

}

**private** **void** studentsList(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

// get students from db util

List<Student> students = dbRetrieve.getStudents();

// add students to the request

request.setAttribute("STUDENT\_LIST", students);

// send it to the jsp view page

RequestDispatcher dispatcher = request.getRequestDispatcher("/list-students.jsp");

dispatcher.forward(request, response);

}

**private** **void** teachersList(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

// get students from db util

List<Teacher> teachers = dbRetrieve.getTeachers();

// add students to the request

request.setAttribute("TEACHERS\_LIST", teachers);

// send it to the jSP view page

RequestDispatcher dispatcher = request.getRequestDispatcher("/teachers-list.jsp");

dispatcher.forward(request, response);

}

**private** **void** subjectList(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

// get subjects from db util

List<Subject> subjects = dbRetrieve.getSubjects();

// add subjects to the request

request.setAttribute("SUBJECTS\_LIST", subjects);

// send it to the jSP view page

RequestDispatcher dispatcher = request.getRequestDispatcher("/subjects-list.jsp");

dispatcher.forward(request, response);

}

**private** **void** classestList(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

// get subjects from db util

List<Class> classes = dbRetrieve.getClasses();

// add subjects to the request

request.setAttribute("CLASSES\_LIST", classes);

// send it to the jSP view page

RequestDispatcher dispatcher = request.getRequestDispatcher("/classes-list.jsp");

dispatcher.forward(request, response);

}

**private** **void** login(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

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

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

**if** (username.toLowerCase().equals("admin") && password.toLowerCase().equals("admin")) {

Cookie cookie = **new** Cookie(username, password);

// Setting the maximum age to 1 day

cookie.setMaxAge(86400); // 86400 seconds in a day

// Send the cookie to the client

response.addCookie(cookie);

classestList(request, response);

} **else** {

RequestDispatcher dispatcher = request.getRequestDispatcher("/login.jsp");

dispatcher.forward(request, response);

}

}

**private** **void** classStudentsList(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

**int** classId = Integer.parseInt(request.getParameter("classId"));

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

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

// get subjects from db util

List<Student> students = dbRetrieve.loadClassStudents(classId);

// add subjects to the request

request.setAttribute("STUDENTS\_LIST", students);

request.setAttribute("SECTION", section);

request.setAttribute("SUBJECT", subject);

// send it to the jSP view page

RequestDispatcher dispatcher = request.getRequestDispatcher("/class-students.jsp");

dispatcher.forward(request, response);

}

**private** **boolean** getCookies(HttpServletRequest request, HttpServletResponse response) **throws** Exception {

**boolean** check = **false**;

Cookie[] cookies = request.getCookies();

// Find the cookie of interest in arrays of cookies

**if**(cookies!=**null**) {

**for** (Cookie cookie : cookies) {

**if** (cookie.getName().equals("admin") && cookie.getValue().equals("admin")) {

check = **true**;

**break**;

}

}

}

**return** check;

}

}

DbRetrieve.java

**package** com.portal.admin;

**import** java.sql.Connection;

**import** java.sql.ResultSet;

**import** java.sql.Statement;

**import** java.util.ArrayList;

**import** java.util.List;

**import** javax.sql.DataSource;

**import** com.portal.classes.Student;

**import** com.portal.classes.Subject;

**import** com.portal.classes.Teacher;

**import** com.portal.classes.Class;

**public** **class** DbRetrieve {

**private** DataSource dataSource;

**public** DbRetrieve(DataSource dataSource) {

**this**.dataSource = dataSource;

}

**public** List<Student> getStudents() {

List<Student> students = **new** ArrayList<>();

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM students";

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String firstName = myRs.getString("fname");

String lastName = myRs.getString("lname");

**int** age = myRs.getInt("age");

**int** aclass = myRs.getInt("class");

// create new student object

Student tempStudent = **new** Student(id, firstName, lastName, age, aclass);

// add it to the list of students

students.add(tempStudent);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** students;

}

**public** List<Teacher> getTeachers() {

List<Teacher> teachers = **new** ArrayList<>();

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM teachers";

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String firstName = myRs.getString("fname");

String lastName = myRs.getString("lname");

**int** age = myRs.getInt("age");

// create new student object

Teacher temp = **new** Teacher(id, firstName, lastName);

// add it to the list of students

teachers.add(temp);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** teachers;

}

**public** List<Subject> getSubjects() {

List<Subject> subjects = **new** ArrayList<>();

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM subjects";

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String name = myRs.getString("name");

String shortcut = myRs.getString("shortcut");

// create new student object

Subject temp = **new** Subject(id, name,shortcut);

// add it to the list of students

subjects.add(temp);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** subjects;

}

**public** List<Class> getClasses() {

List<Class> classes = **new** ArrayList<>();

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM classes";

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

**int** section = myRs.getInt("section");

**int** subject = myRs.getInt("subject");

**int** teacher = myRs.getInt("teacher");

String time = myRs.getString("time");

Teacher tempTeacher = loadTeacher(teacher);

Subject tempSubject = loadSubject(subject);

String teacher\_name = tempTeacher.getFname() + " " + tempTeacher.getLname();

// create new student object

Class temp = **new** Class(id, section, teacher\_name, tempSubject.getName());

// add it to the list of students

classes.add(temp);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** classes;

}

**public** Teacher loadTeacher(**int** teacherId) {

Teacher theTeacher = **null**;

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM teachers WHERE id = " + teacherId;

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String fname = myRs.getString("fname");

String lname = myRs.getString("lname");

**int** age = myRs.getInt("age");

theTeacher = **new** Teacher(id, fname, lname);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** theTeacher;

}

**public** Subject loadSubject(**int** subjectId) {

Subject theSubject = **null**;

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM subjects WHERE id = " + subjectId;

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String name = myRs.getString("name");

String shortcut = myRs.getString("shortcut");

theSubject = **new** Subject(id, name,shortcut);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** theSubject;

}

**public** Class loadClass(**int** classId) {

Class theClass = **null**;

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM clasess WHERE id = " + classId;

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

**int** section = myRs.getInt("section");

**int** subject = myRs.getInt("subject");

**int** teacher = myRs.getInt("teacher");

String time = myRs.getString("time");

Teacher tempTeacher = loadTeacher(teacher);

Subject tempSubject = loadSubject(subject);

String teacher\_name = tempTeacher.getFname() + " " + tempTeacher.getLname();

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** theClass;

}

**public** List<Student> loadClassStudents(**int** classId) {

List<Student> students = **new** ArrayList<>();

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

// get a connection

myConn = dataSource.getConnection();

// create sql stmt

String sql = "SELECT \* FROM students WHERE class = " + classId;

myStmt = myConn.createStatement();

// execute query

myRs = myStmt.executeQuery(sql);

// process result

**while** (myRs.next()) {

// retrieve data from result set row

**int** id = myRs.getInt("id");

String firstName = myRs.getString("fname");

String lastName = myRs.getString("lname");

**int** age = myRs.getInt("age");

**int** aclass = myRs.getInt("class");

// create new student object

Student tempStudent = **new** Student(id, firstName, lastName, age, aclass);

students.add(tempStudent);

}

} **catch** (Exception e) {

// **TODO**: handle exception

} **finally** {

// close JDBC objects

close(myConn, myStmt, myRs);

}

**return** students;

}

**private** **void** close(Connection myConn, Statement myStmt, ResultSet myRs) {

**try** {

**if** (myRs != **null**) {

myRs.close();

}

**if** (myStmt != **null**) {

myStmt.close();

}

**if** (myConn != **null**) {

myConn.close();

}

} **catch** (Exception e) {

e.printStackTrace();

}

}

}

TestServlet.java

**package** com.portal.admin;

**import** java.io.IOException;

**import** java.io.PrintWriter;

**import** java.sql.Connection;

**import** java.sql.ResultSet;

**import** java.sql.Statement;

**import** javax.annotation.Resource;

**import** javax.servlet.ServletException;

**import** javax.servlet.annotation.WebServlet;

**import** javax.servlet.http.HttpServlet;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

**import** javax.sql.DataSource;

/\*\*

\* Servlet implementation class TestServlet

\*/

@WebServlet("/TestServlet")

**public** **class** TestServlet **extends** HttpServlet {

**private** **static** **final** **long** serialVersionUID = 1L;

//Define datasource/connection pool for reference

@Resource(name="jdbc\_database")

**private** DataSource dataSource;

**public** TestServlet() {

**super**();

// **TODO** Auto-generated constructor stub

}

/\*\*

\* **@see** HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)

\*/

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

// **TODO** Auto-generated method stub

// Set the printwriter

PrintWriter out = response.getWriter();

response.setContentType("text/plain");

// establish connection to the DB

Connection myConn = **null**;

Statement myStmt = **null**;

ResultSet myRs = **null**;

**try** {

myConn = dataSource.getConnection();

//create a sql statement

String sql = "select \* from students";

myStmt = myConn.createStatement();

//execute the sql statement

myRs = myStmt.executeQuery(sql);

//process the resultset

**while**(myRs.next()) {

String fname = myRs.getString("fname");

out.println(fname);

}

}

**catch**(Exception e) {

e.printStackTrace();

}

}

}

Class.java

**package** com.portal.classes;

**public** **class** Class {

**private** **int** id;

**private** **int** section;

**private** String teacher;

**private** String subject;

**public** Class(**int** id, **int** section, String teacher, String subject) {

**super**();

**this**.id = id;

**this**.section = section;

**this**.teacher = teacher;

**this**.subject = subject;

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** **int** getSection() {

**return** section;

}

**public** **void** setSection(**int** section) {

**this**.section = section;

}

**public** String getTeacher() {

**return** teacher;

}

**public** **void** setTeacher(String teacher) {

**this**.teacher = teacher;

}

**public** String getSubject() {

**return** subject;

}

**public** **void** setSubject(String subject) {

**this**.subject = subject;

}

}

Student.java

**package** com.portal.classes;

**public** **class** Student {

**private** **int** id;

**private** String fname;

**private** String lname;

**private** **int** age;

**private** **int** aclass;

**public** Student(**int** id, String fname, String lname, **int** age, **int** aclass) {

**super**();

**this**.id = id;

**this**.fname = fname;

**this**.lname = lname;

**this**.age = age;

**this**.aclass = aclass;

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** String getFname() {

**return** fname;

}

**public** **void** setFname(String fname) {

**this**.fname = fname;

}

**public** String getLname() {

**return** lname;

}

**public** **void** setLname(String lname) {

**this**.lname = lname;

}

**public** **int** getAge() {

**return** age;

}

**public** **void** setAge(**int** age) {

**this**.age = age;

}

**public** **int** getAclass() {

**return** aclass;

}

**public** **void** setAclass(**int** aclass) {

**this**.aclass = aclass;

}

@Override

**public** String toString() {

**return** "Student [id=" + id + ", fname=" + fname + ", lname=" + lname + ", age=" + age + ", aclass=" + aclass

+ "]";

}

}

Subjct.java

**package** com.portal.classes;

**public** **class** Subject {

**private** **int** id;

**private** String name;

**private** String shortcut;

**public** Subject(**int** id, String name, String shortcut ) {

**super**();

**this**.id = id;

**this**.name = name;

**this**.shortcut = shortcut;

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** String getShortcut() {

**return** shortcut;

}

**public** **void** setShortcut(String shortcut) {

**this**.shortcut = shortcut;

}

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

}

Teacher.java

**package** com.portal.classes;

**public** **class** Teacher {

**private** **int** id;

**private** String fname;

**private** String lname;

**public** Teacher(**int** id, String fname, String lname) {

**super**();

**this**.id = id;

**this**.fname = fname;

**this**.lname = lname;

}

**public** **int** getId() {

**return** id;

}

**public** **void** setId(**int** id) {

**this**.id = id;

}

**public** String getFname() {

**return** fname;

}

**public** **void** setFname(String fname) {

**this**.fname = fname;

}

**public** String getLname() {

**return** lname;

}

**public** **void** setLname(String lname) {

**this**.lname = lname;

}

}

classes-list.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Classes</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>Section</th>

<th>Subject</th>

<th>Teacher</th>

<th>List of Students</th>

</tr>

<c:forEach var=*"tempClass"* items="${CLASSES\_LIST }">

<tr>

<c:url var=*"tempLink"* value=*"AdminControllerServlet"*>

<c:param name=*"command"* value=*"ST\_LIST"* />

<c:param name=*"classId"* value=*"$[tempClass.id ]"* />

<c:param name=*"section"* value=*"$[tempClass.section ]"* />

<c:param name=*"subject"* value=*"$[tempClass.subject ]"* />

</c:url>

<td>$[tempClass.section]</td>

<td>$[tempClass.subject]</td>

<td>$[tempClass.teacher]</td>

<td><a href=*"$[tempLink ]"*>List</a></td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

class-students.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"* >

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Students of $[SUBJECT] class section $[SECTION] </h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[STUDENTS\_LIST]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

left-list.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Teachers</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[TEACHERS\_LIST ]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

list-students.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Teachers</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[TEACHERS\_LIST ]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

login.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Teachers</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[TEACHERS\_LIST ]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

subjects-list.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Teachers</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[TEACHERS\_LIST ]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

teachers-list.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=ISO-8859-1"*

pageEncoding=*"ISO-8859-1"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<div id=*"page"*>

<jsp:include page=*"left-list.jsp"* />

<div id=*"wrapper"*>

<div id=*"header"*>

<h3>Teachers</h3>

</div>

</div>

<div id=*"container"*>

<div id=*"content"*>

<table>

<tr>

<th>First Name</th>

<th>Last Name</th>

<th>age</th>

</tr>

<c:forEach var=*"tempStudent"* items=*"$[TEACHERS\_LIST ]"*>

<tr>

<td>$[tempStudent.fname]</td>

<td>$[tempStudent.lname]</td>

<td>$[tempStudent.age]</td>

</tr>

</c:forEach>

</table>

</div>

</div>

</div>

</body>

</html>

context.xml

<Context>

<Resource name=*"jdbc\_database"*

auth=*"Container"* type=*"javax.sql.DataSource"*

maxActive=*"20"* maxIdle=*"5"* maxWait=*"10000"*

username=*"Work"* password=*"Simplilearn@123"*

driverClassName=*"com.mysql.cj.jdbc.Driver"*

url=*"jdbc:mysql://localhost:3306/Work"*/>

</Context>

web.xml

<?xml version=*"1.0"* encoding=*"UTF-8"*?>

<web-app xmlns:xsi=*"http://www.w3.org/2001/XMLSchema-instance"* xmlns=*"http://java.sun.com/xml/ns/javaee"* xsi:schemaLocation=*"http://java.sun.com/xml/ns/javaee; http://java.sun.com/xml/ns/javaee/web-app\_3\_0.xsd"* id=*"WebApp\_ID"* version=*"3.0"*>

<display-name>Admin-Portal</display-name>

<welcome-file-list>

<welcome-file>AdminControllerServlet</welcome-file>

<welcome-file>index.jsp</welcome-file>

<welcome-file>index.html</welcome-file>

</welcome-file-list>

</web-app>