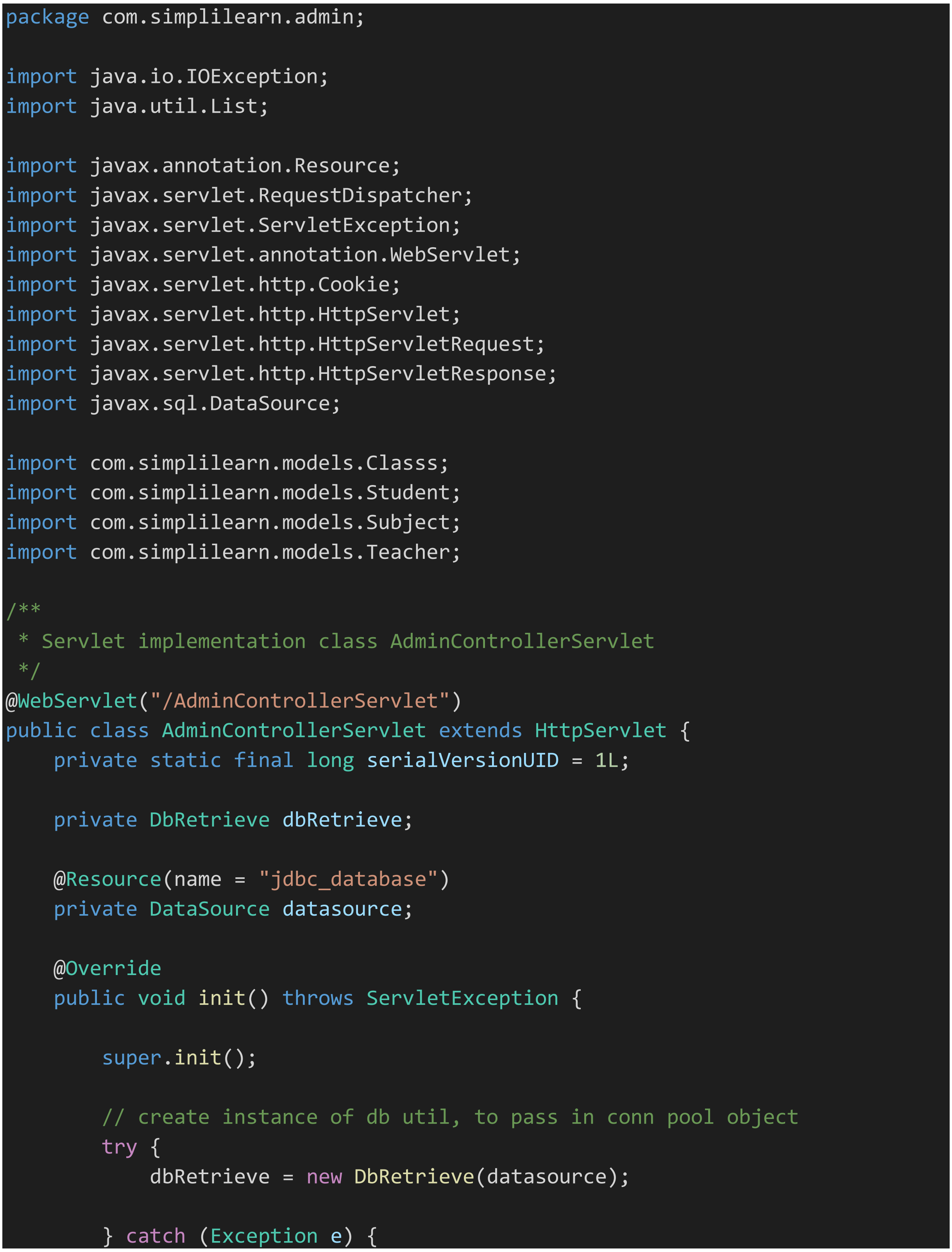
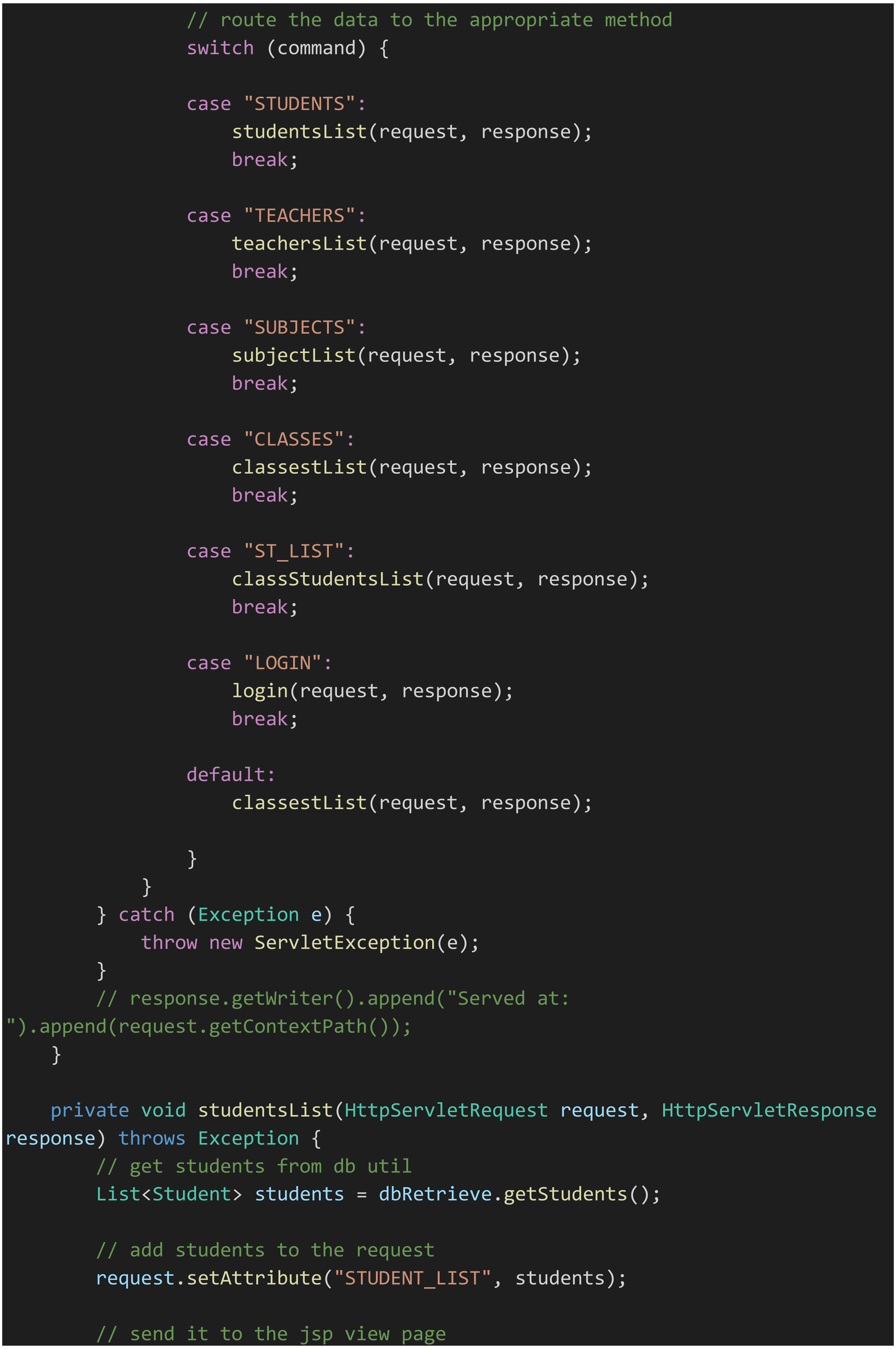
Source Code

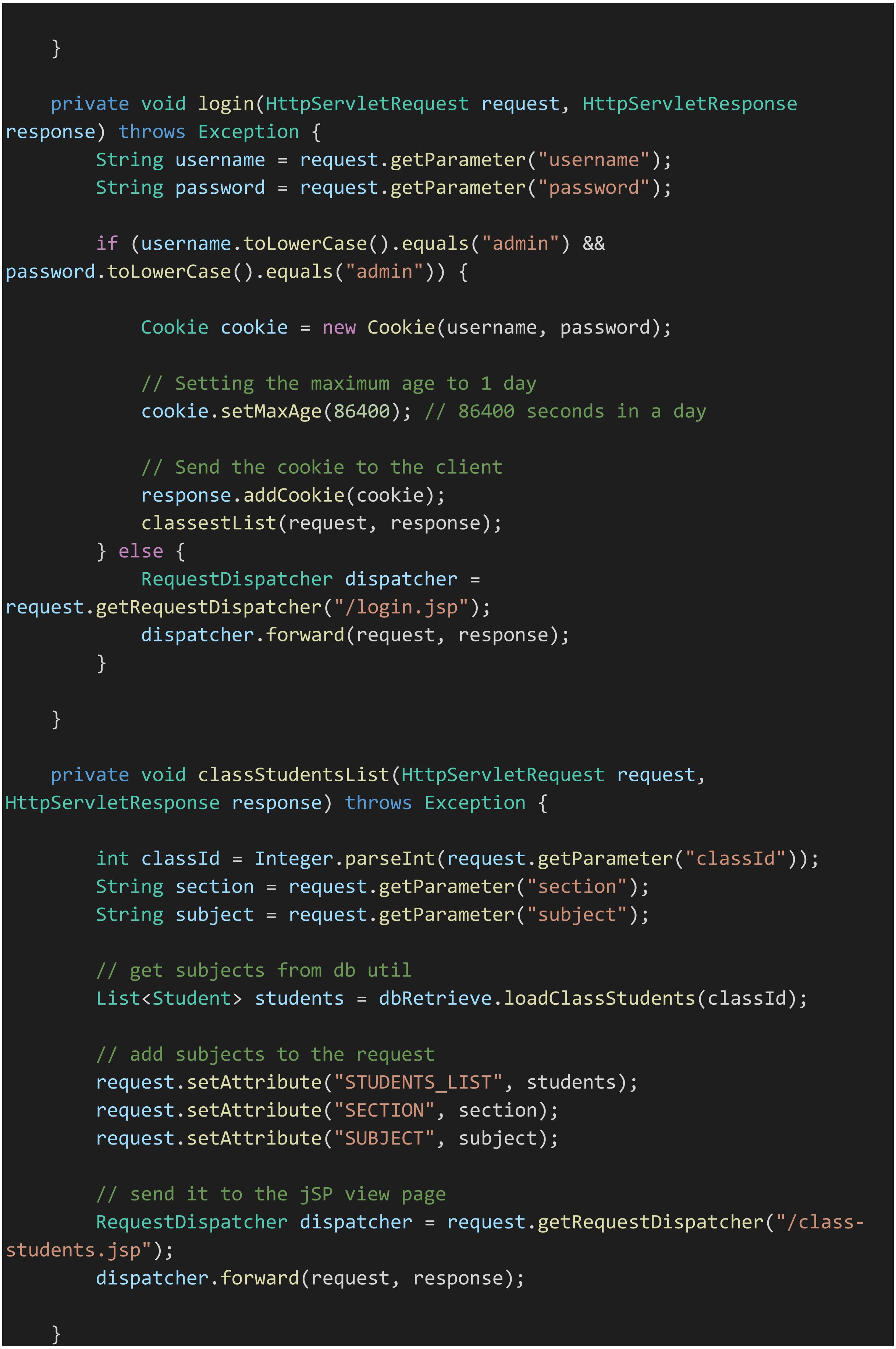
1. AdminControllerServlet Code



```java
package com.simplilearn.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.simplilearn.models.Classs;
import com.simplilearn.models.Student;
import com.simplilearn.models.Subject;
import com.simplilearn.models.Teacher;

/**
 * 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);
        }

    }

    /**
     * @see HttpServlet#HttpServlet()
     */
    public AdminControllerServlet() {
        super();
        // TODO Auto-generated constructor stub
    }

    @Override
    protected void doPost(HttpServletRequest req, HttpServletResponse resp)
throws ServletException, IOException {

        doGet(req, resp);
    }

    /**
     * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse
     *      response)
     */
    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("/learnerPrj/login.jsp");
            }

            else {

                // if there is no command, how to handle
```



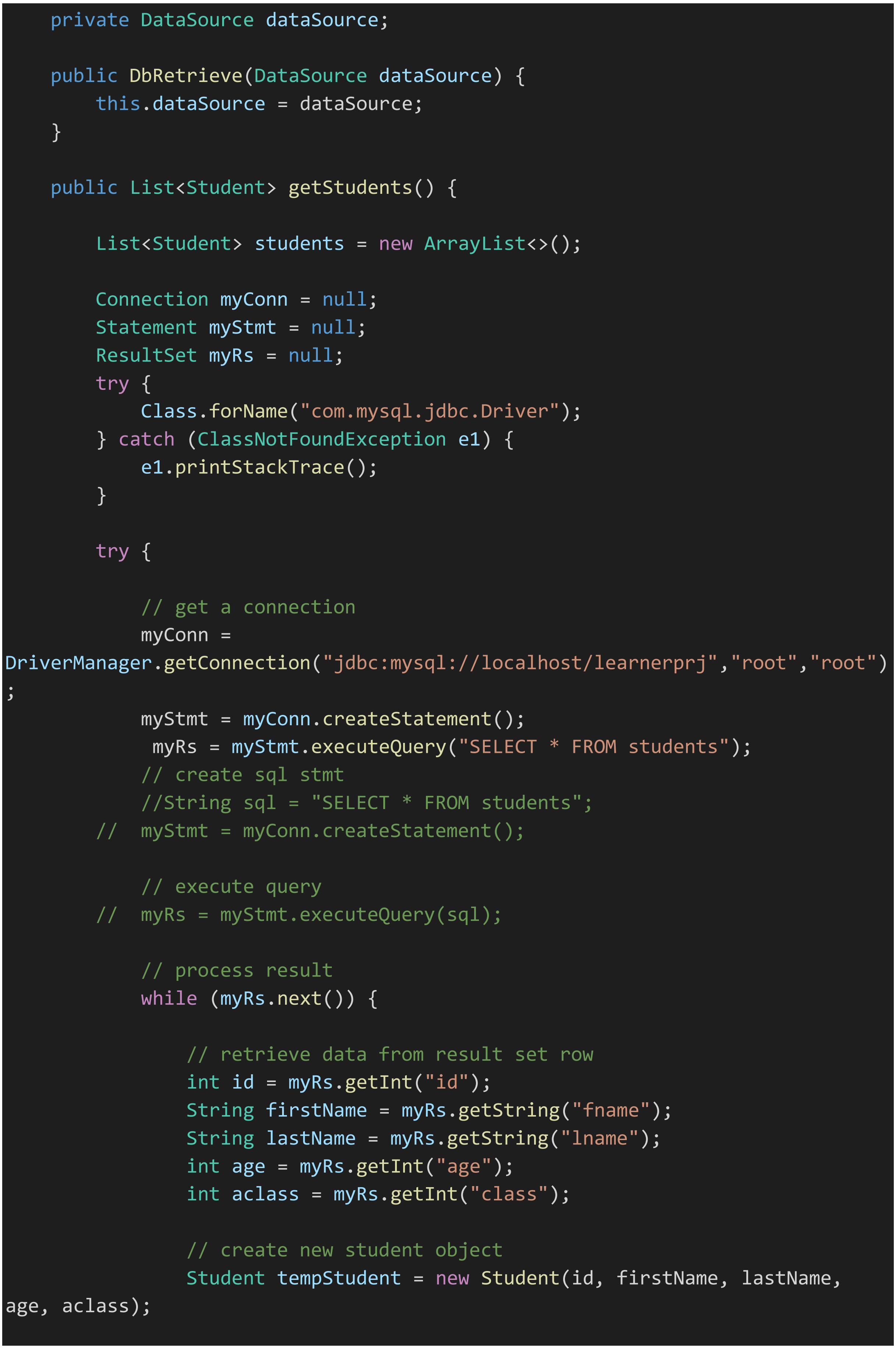
```
                // route the data to the appropriate method
                switch (command) {

                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<Classs> 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
        for (Cookie cookie : cookies) {

            if (cookie.getName().equals("admin") &&
cookie.getValue().equals("admin")) {
                check = true;
                break;
            }

        }


        return check;

    }

}
```

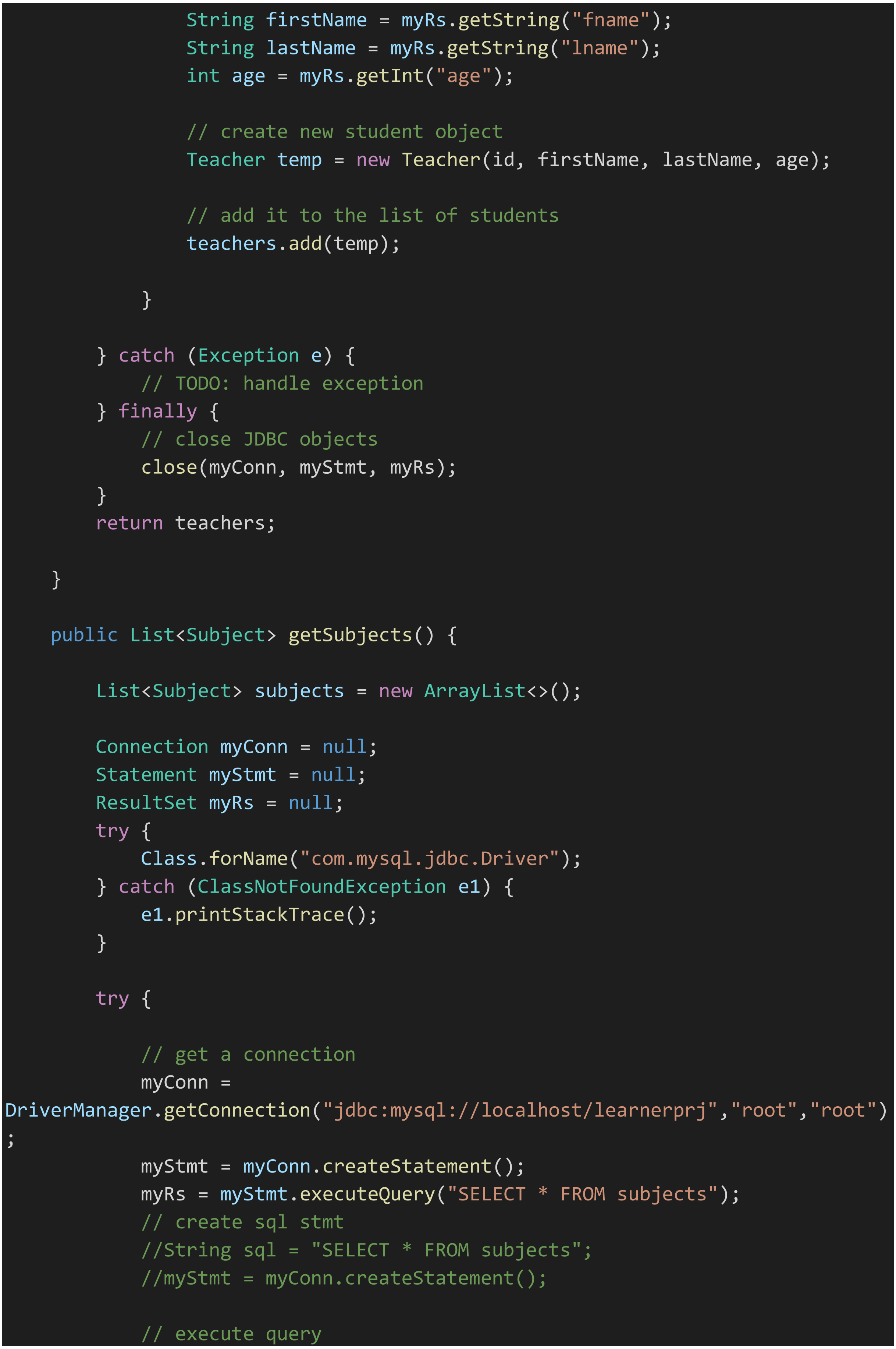
2. Database Connection and other DB operations code

```
package com.simplilearn.admin;

import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.Statement;
import java.util.ArrayList;
import java.util.List;

import javax.sql.DataSource;

import com.simplilearn.models.Student;
import com.simplilearn.models.Subject;
import com.simplilearn.models.Teacher;
import com.simplilearn.models.Classs;

public class DbRetrieve {
```

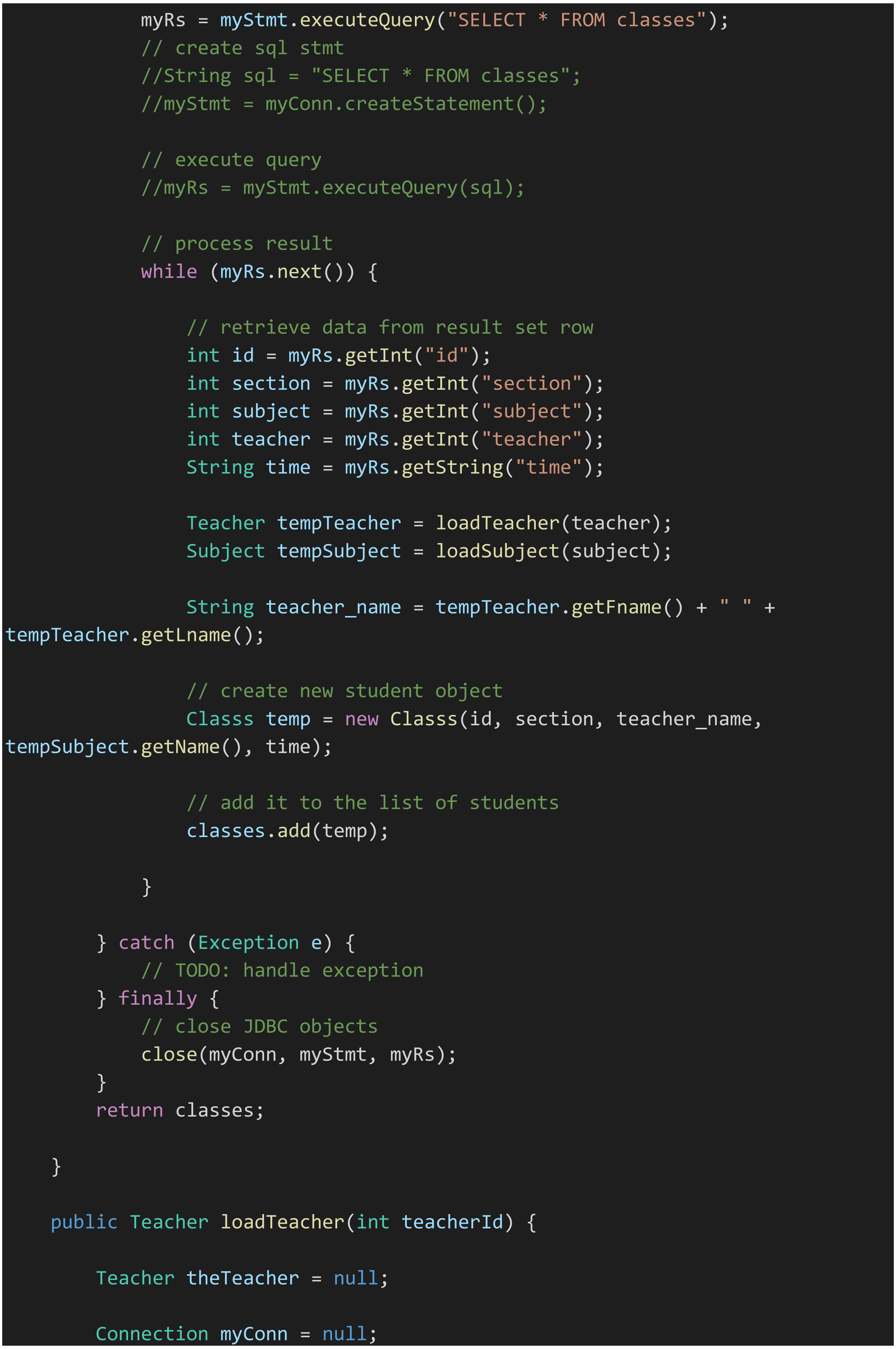


```
    private DataSource dataSource;

    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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn = 
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
             myRs = myStmt.executeQuery("SELECT * FROM students");
            // 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);
```

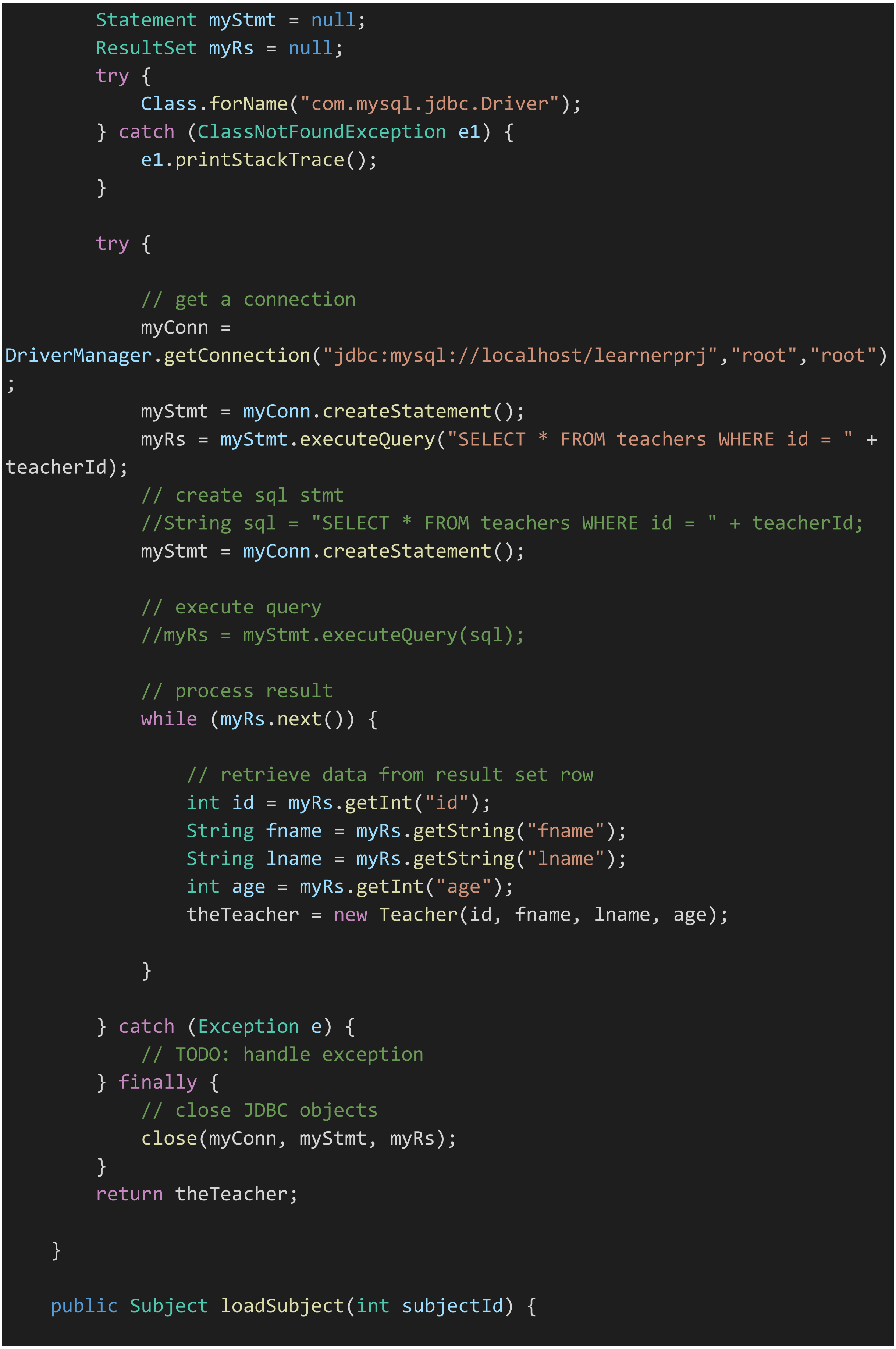
```
                // add it to the list of students
                students.add(tempStudent);

            }

        } 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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn =
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM teachers");
            // 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");
```



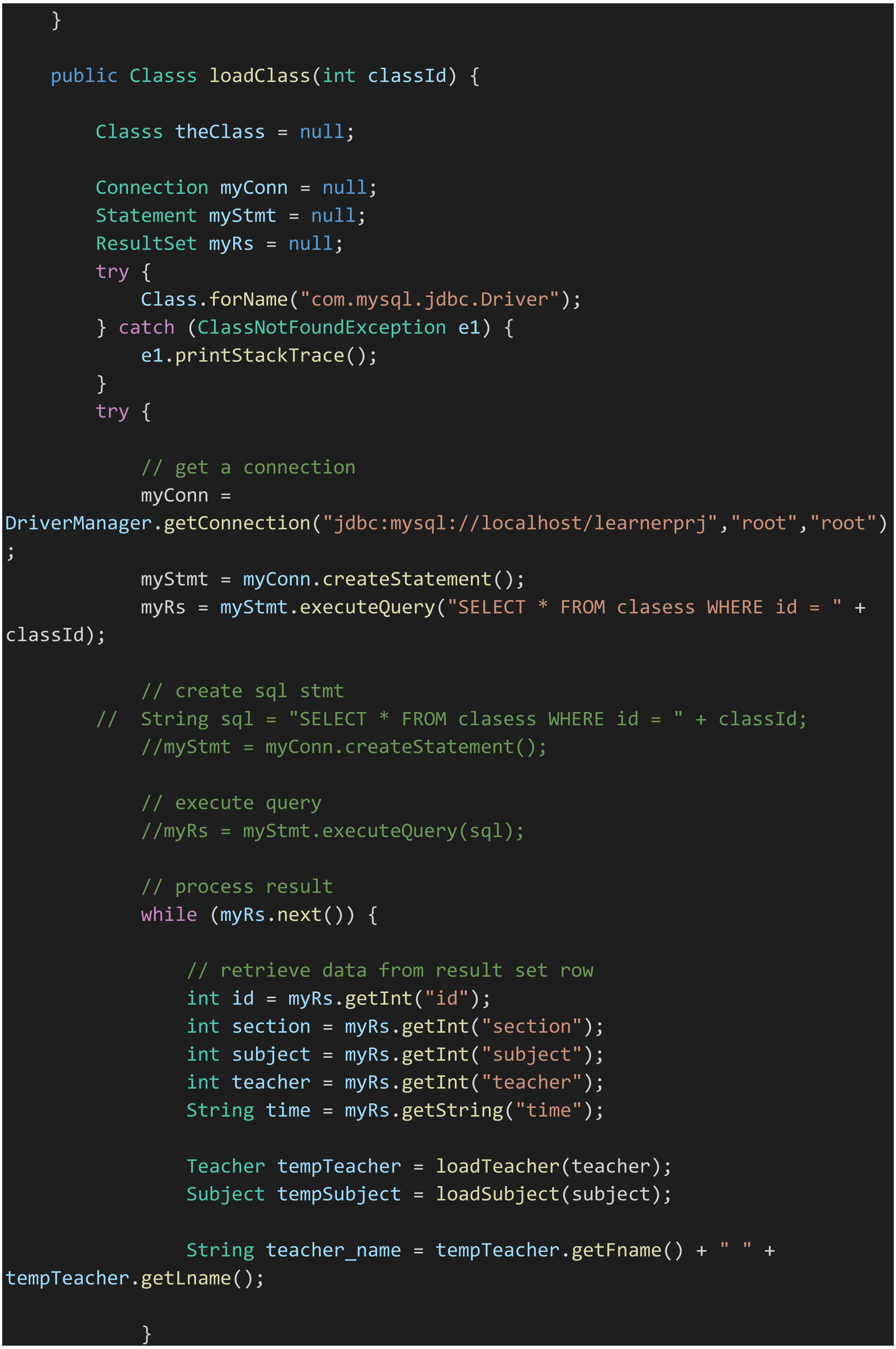
```
                String firstName = myRs.getString("fname");
                String lastName = myRs.getString("lname");
                int age = myRs.getInt("age");

                // create new student object
                Teacher temp = new Teacher(id, firstName, lastName, age);

                // 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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn =
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM subjects");
            // 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<Classs> getClasses() {

        List<Classs> classes = new ArrayList<>();

        Connection myConn = null;
        Statement myStmt = null;
        ResultSet myRs = null;
        try {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn = 
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
```



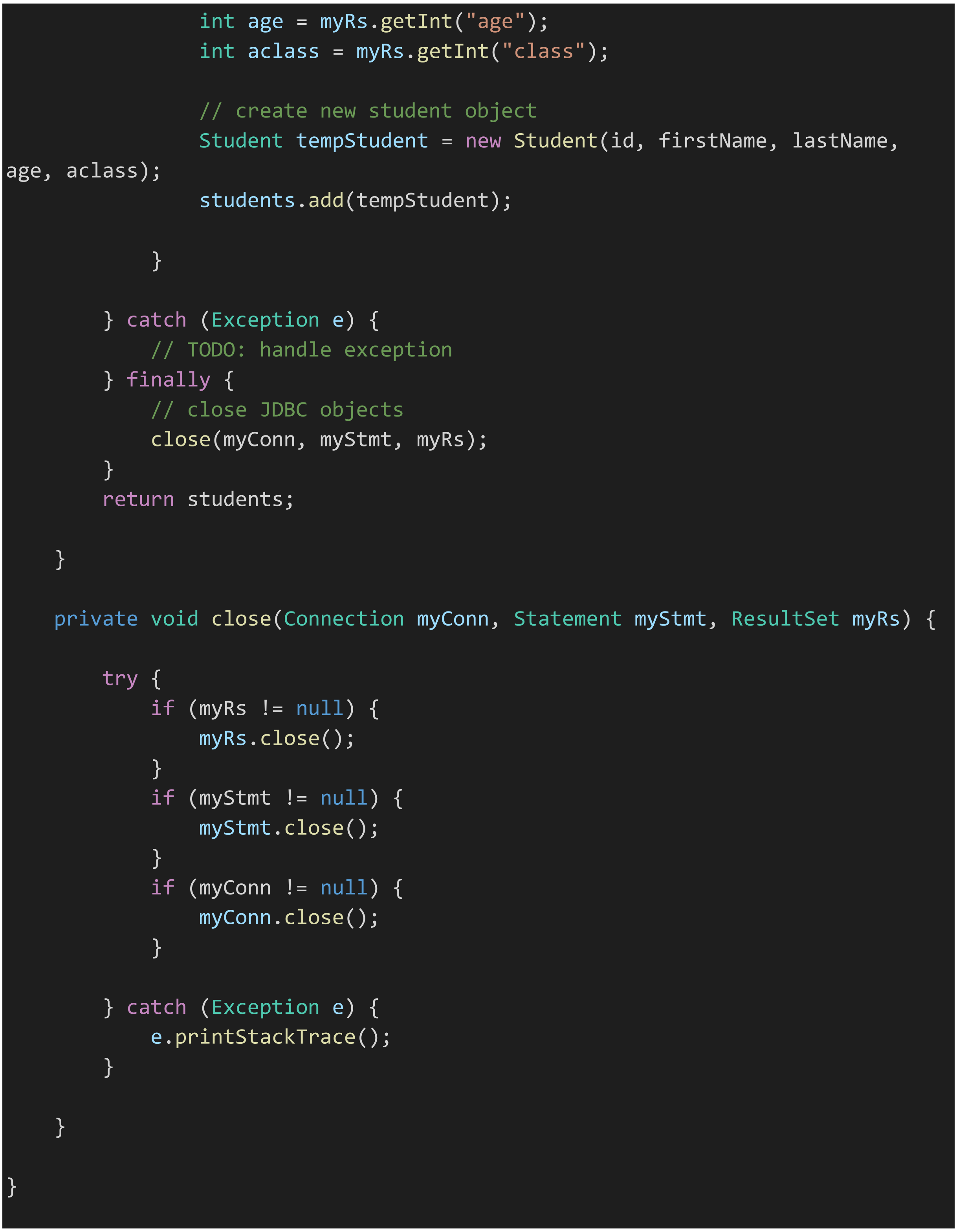
```
            myRs = myStmt.executeQuery("SELECT * FROM classes");
            // create sql stmt
            //String sql = "SELECT * FROM classes";
            //myStmt = myConn.createStatement();

            // 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
                Classs temp = new Classs(id, section, teacher_name,
tempSubject.getName(), time);

                // 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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn = 
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM teachers WHERE id = " + 
teacherId);
            // 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, age);

            }

        } 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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn = 
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM subjects WHERE id = " + 
subjectId);

            // 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 Classs loadClass(int classId) {

        Classs theClass = null;

        Connection myConn = null;
        Statement myStmt = null;
        ResultSet myRs = null;
        try {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }
        try {

            // get a connection
            myConn =
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM clasess WHERE id = " +
classId);

            // 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 {
            Class.forName("com.mysql.jdbc.Driver");
        } catch (ClassNotFoundException e1) {
            e1.printStackTrace();
        }

        try {

            // get a connection
            myConn =
DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root")
;
            myStmt = myConn.createStatement();
            myRs = myStmt.executeQuery("SELECT * FROM students WHERE class = "
+ classId);

            // 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();
        }

    }

}
```

3. A test servlet code to check db connectivity and operations are running fine

```java
package com.simplilearn.admin;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
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;




    /**
     * @see HttpServlet#doGet(HttpServletRequest request, HttpServletResponse response)
     */
    protected void doGet(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {


        // 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 = DriverManager.getConnection("jdbc:mysql://localhost/learnerprj","root","root");
        //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();
        }
















    }

}
```

4. Class model code

```
package com.simplilearn.models;

public class Classs {

    private int id;
    private int section;
    private String teacher;
    private String subject;
    private String time;



    public Classs(int id, int section, String teacher, String subject, String
time) {
        super();
        this.id = id;
        this.section = section;
        this.teacher = teacher;
        this.subject = subject;
        this.time = time;
    }


    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;
    }
    public String getTime() {
        return time;
    }
    public void setTime(String time) {
        this.time = time;
    }






}
```

5. Student Model Code

```
package com.simplilearn.models;

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
                + "]";
    }



}
```

6. Subject Model Code

```
package com.simplilearn.models;

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;
    }




}
```

7. Teacher Model Code

```
package com.simplilearn.models;

public class Teacher {
    private int id;
    private String fname;
    private String lname;
    private int age;

    public Teacher(int id, String fname, String lname, int age) {
        super();
        this.id = id;
        this.fname = fname;
        this.lname = lname;
        this.age = age;
    }

    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;
    }
}
```

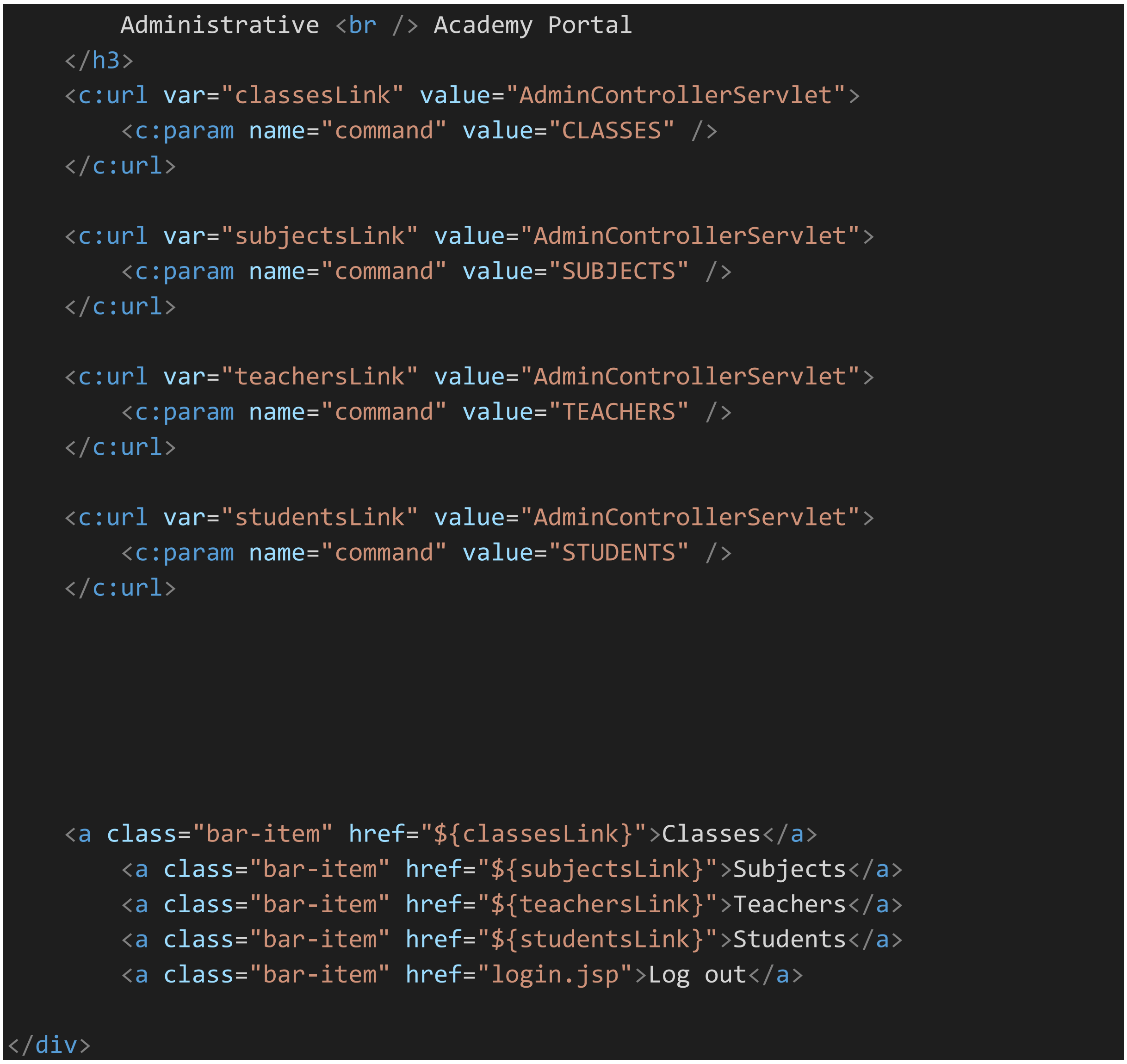
JSPs

1. Login.jsp code

```

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Login</title>
 <link type="text/css" rel="stylesheet" href="css/login.css">
</head>
<body style="background-image: url('css/background.jpg');">

  <center> <h1> Admin Login </h1> </center>
    <form action="AdminControllerServlet" method="POST">
        <div class="container">
            <input type="hidden" name="command" value="LOGIN" />
            <label>Username : </label>
            <br/>
            <input type="text" placeholder="Enter Username" name="username" required>
            <br/>
            <label>Password : </label>
            <br/>
            <input type="password" placeholder="Enter Password" name="password" required>
            <br/>
            <button type="submit">Login</button>
            <br/>
            <input type="checkbox" checked="checked"> Remember me

        </div>
    </form>

</body>
</html>
```

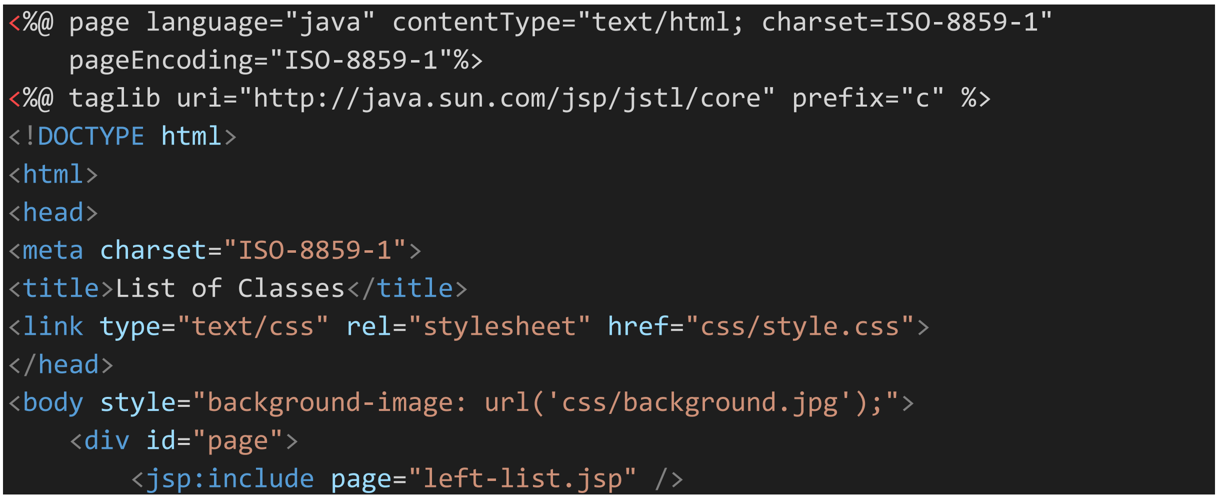
2. Dashboard/ left-list.jsp code

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<div class="sidenav">
    <h3 id="logo">
```



```
        Administrative <br /> Academy Portal
    </h3>
    <c:url var="classesLink" value="AdminControllerServlet">
        <c:param name="command" value="CLASSES" />
    </c:url>

    <c:url var="subjectsLink" value="AdminControllerServlet">
        <c:param name="command" value="SUBJECTS" />
    </c:url>

    <c:url var="teachersLink" value="AdminControllerServlet">
        <c:param name="command" value="TEACHERS" />
    </c:url>

    <c:url var="studentsLink" value="AdminControllerServlet">
        <c:param name="command" value="STUDENTS" />
    </c:url>







    <a class="bar-item" href="${classesLink}">Classes</a>
        <a class="bar-item" href="${subjectsLink}">Subjects</a>
        <a class="bar-item" href="${teachersLink}">Teachers</a>
        <a class="bar-item" href="${studentsLink}">Students</a>
        <a class="bar-item" href="login.jsp">Log out</a>

</div>
```

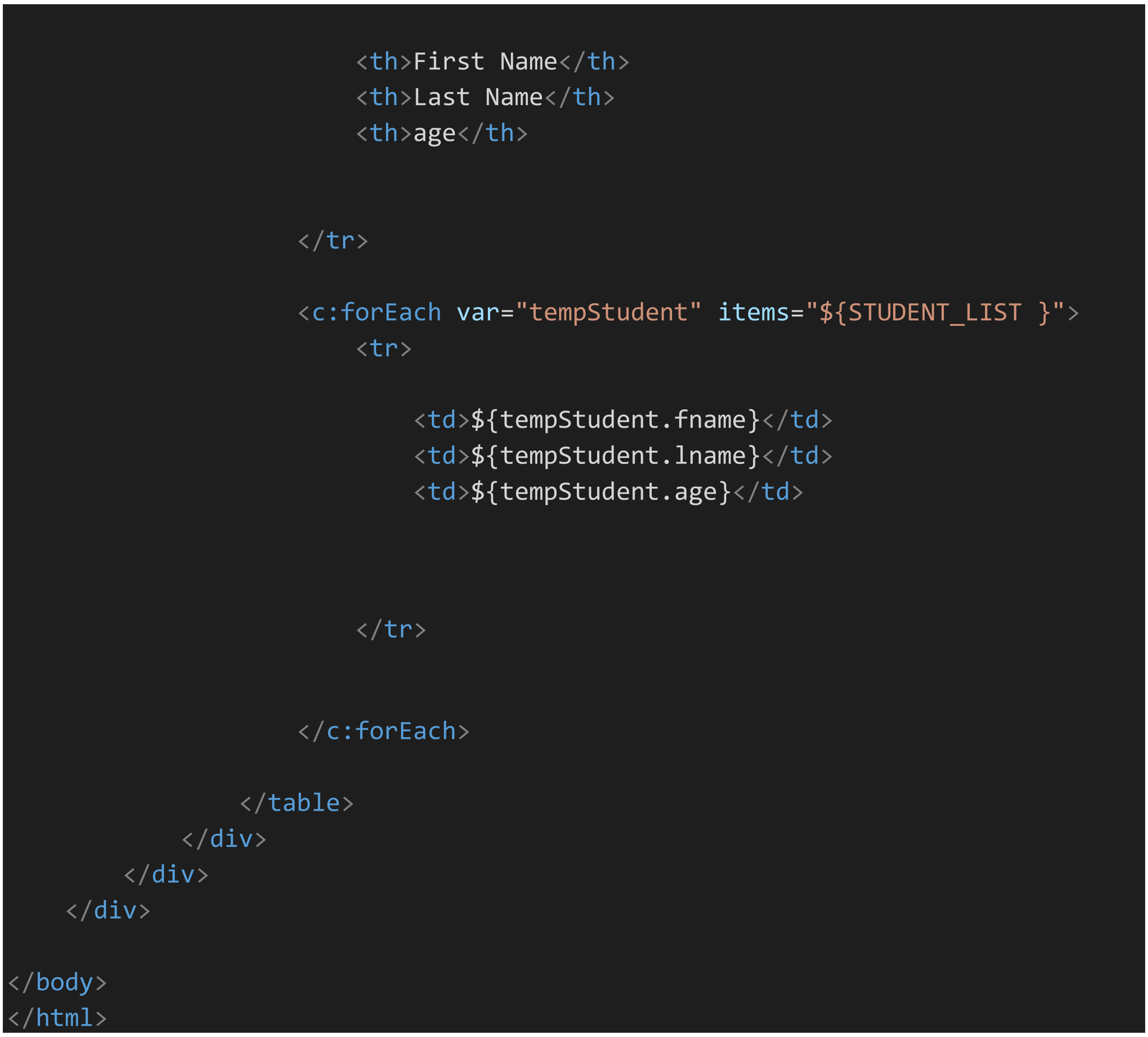
3. class-list.jsp code



```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>List of Classes</title>
<link type="text/css" rel="stylesheet" href="css/style.css">
</head>
<body style="background-image: url('css/background.jpg');">
    <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>Time</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>${tempClass.teacher}</td>
                            <td>${tempClass.time}</td>
                            <td><a href="${tempLink }">List</a></td>
                        </tr>


                    </c:forEach>

                </table>
            </div>
        </div>
    </div>

</body>
</html>
```

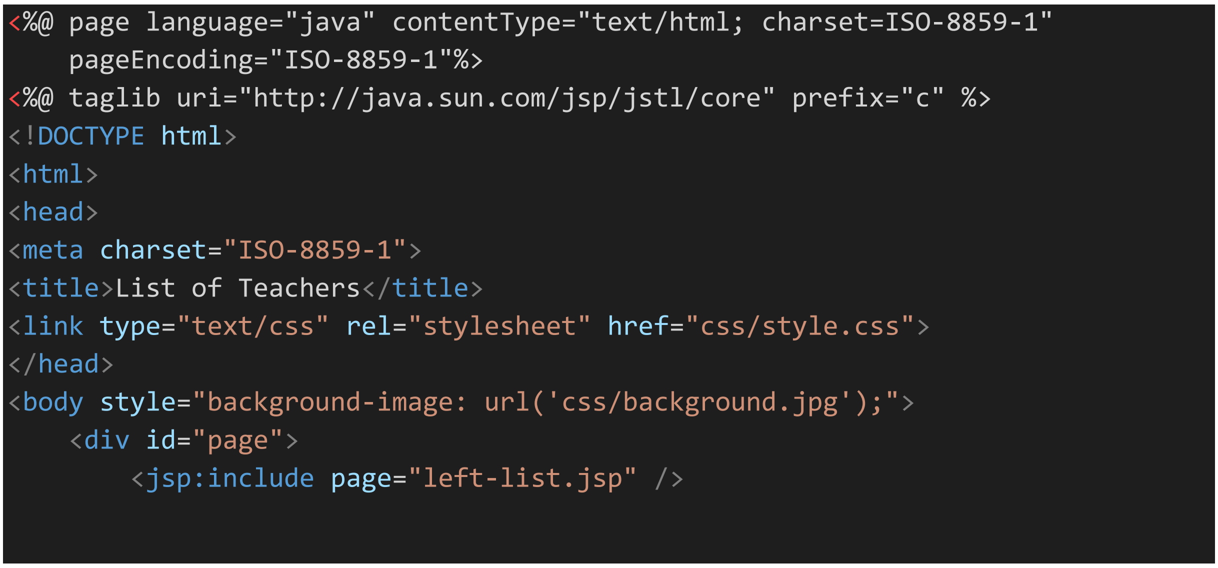
4. students-list.jsp code

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>List of Students</title>
<link type="text/css" rel="stylesheet" href="css/style.css">
</head>
<body style="background-image: url('css/background.jpg');">
<div id="page" >
    <jsp:include page="left-list.jsp" />


        <div id="wrapper">

            <div id="header">
                <h3>Students</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="${STUDENT_LIST }">
                        <tr>

                            <td>${tempStudent.fname}</td>
                            <td>${tempStudent.lname}</td>
                            <td>${tempStudent.age}</td>



                        </tr>


                    </c:forEach>

                </table>
            </div>
        </div>
    </div>

</body>
</html>
```

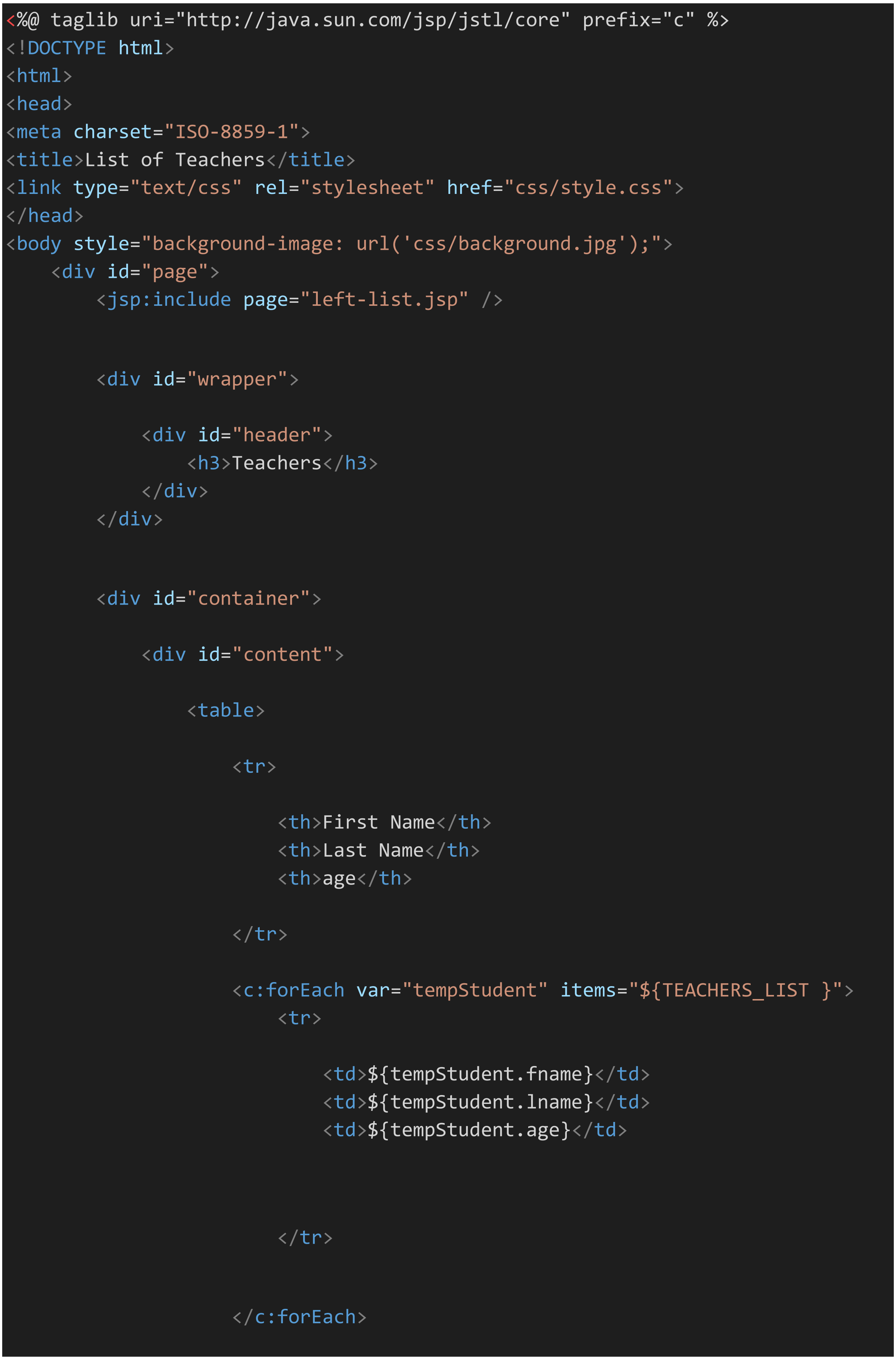
5. subjects-list.jsp code



```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>List of Teachers</title>
<link type="text/css" rel="stylesheet" href="css/style.css">
</head>
<body style="background-image: url('css/background.jpg');">
    <div id="page">
        <jsp:include page="left-list.jsp" />
        <div id="wrapper">

            <div id="header">
                <h3>Subjects</h3>
            </div>
        </div>


        <div id="container">

            <div id="content">

                <table>

                    <tr>

                        <th>Name</th>
                        <th>Shortcut</th>


                    </tr>

                    <c:forEach var="tempSubject" items="${SUBJECTS_LIST }">
                        <tr>

                            <td>${tempSubject.name}</td>
                            <td>${tempSubject.shortcut}</td>


                        </tr>


                    </c:forEach>

                </table>
            </div>
        </div>
    </div>

</body>
</html>
```

6. teachers-list.jsp code

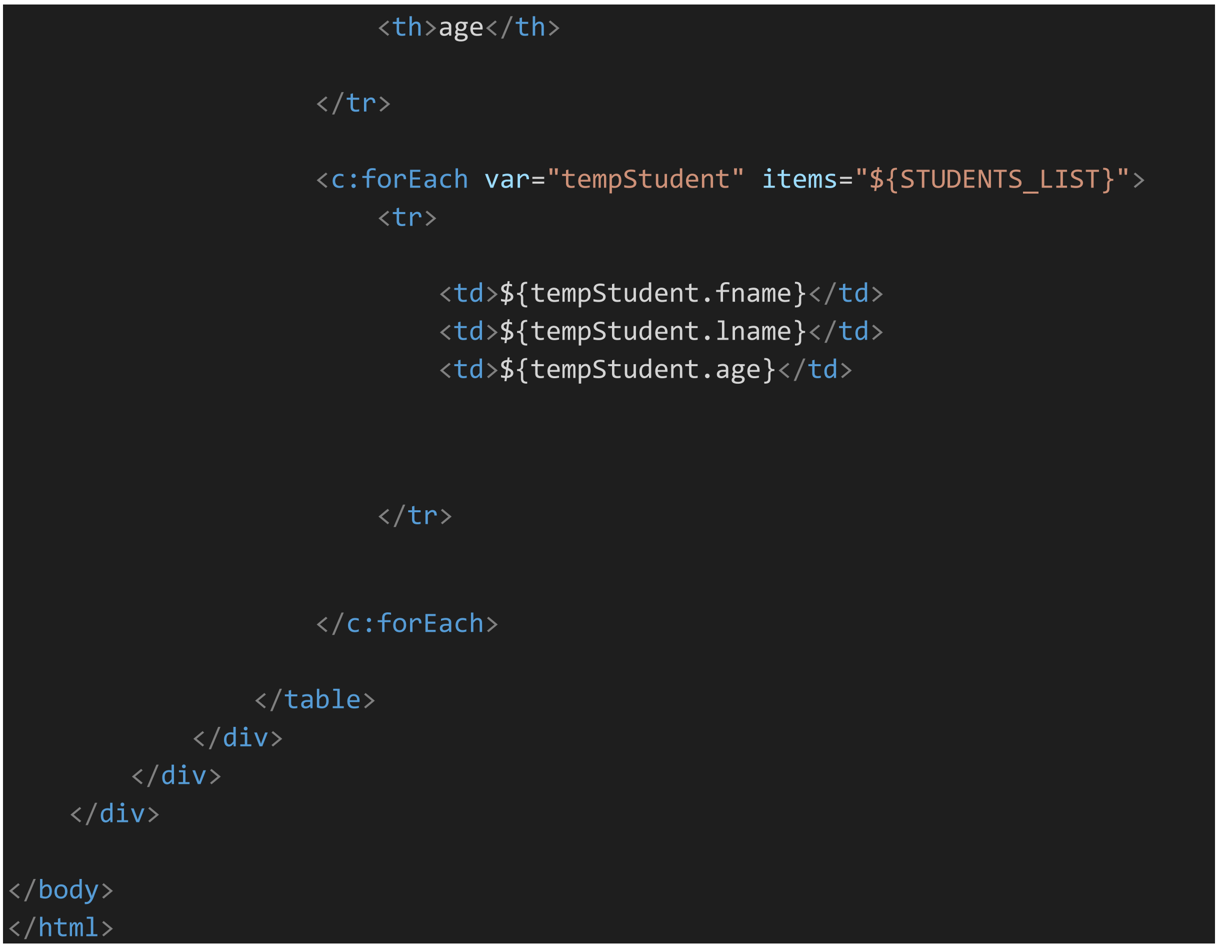
```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
```



```
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>List of Teachers</title>
<link type="text/css" rel="stylesheet" href="css/style.css">
</head>
<body style="background-image: url('css/background.jpg');">
    <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>
```

7. class report code/ class-students.jsp code

```
<%@ page language="java" contentType="text/html; charset=ISO-8859-1"
    pageEncoding="ISO-8859-1"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Students of a Class</title>
<link type="text/css" rel="stylesheet" href="css/style.css">
</head>
<body style="background-image: url('css/background.jpg');">
<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>
```

SQL Queries

```
--

-- Table structure for table `classes`

--


CREATE TABLE `classes` (

  `id` int NOT NULL,

  `section` int NOT NULL,

  `teacher` int NOT NULL,
  `subject` int NOT NULL,

  `time` varchar(25) NOT NULL

);


--

-- Dumping data for table `classes`

--


INSERT INTO `classes` (`id`, `section`, `teacher`, `subject`,
`time`) VALUES

(1, 1, 1, 1, '9:00'),

(2, 3, 2, 2, '11:30');


-- --------------------------------------------------------


--

-- Table structure for table `students`

--


CREATE TABLE `students` (

  `id` int NOT NULL,

  `fname` varchar(55) NOT NULL,
  `lname` varchar(55) NOT NULL,

  `age` int DEFAULT NULL,

  `class` int NOT NULL

) ;


--

-- Dumping data for table `students`

--


INSERT INTO `students` (`id`, `fname`, `lname`, `age`, `class`)
VALUES

(1, 'Alison', 'Cook', 21, 1),

(2, 'Tim', 'Morgan', 23, 2),

(4, 'Anne', 'Evans', 21, 1),

(5, 'Sam', 'Riddle', 18, 2),

(6, 'Will', 'Smith', 24, 1),

(7, 'Robert', 'Stone', 24, 2);

-- --------------------------------------------------------


--

-- Table structure for table `subjects`

--
```

```
CREATE TABLE `subjects` (
  `id` int NOT NULL,
  `name` varchar(55) NOT NULL,
  `shortcut` varchar(50) NOT NULL
);

--
-- Dumping data for table `subjects`
--

INSERT INTO `subjects` (`id`, `name`, `shortcut`) VALUES
(1, 'Operating System', 'OS'),
(2, 'Basic Electronics', 'BE');
-- --------------------------------------------------------

--
-- Table structure for table `teachers`
--

CREATE TABLE `teachers` (
  `id` int NOT NULL,
  `fname` varchar(55) NOT NULL,
  `lname` varchar(55) NOT NULL,
  `age` varchar(11) DEFAULT NULL
);

--
-- Dumping data for table `teachers`
--

INSERT INTO `teachers` (`id`, `fname`, `lname`, `age`) VALUES
(1, 'Frank', 'Reed', '55'),
(2, 'Brian', 'Weiss', '66');
--
-- Indexes for dumped tables
--

--
-- Indexes for table `classes`
--
ALTER TABLE `classes`
```

```
  ADD PRIMARY KEY (`id`),
  ADD KEY `subject_id` (`subject`),
  ADD KEY `teacher_id` (`teacher`);


--
-- Indexes for table `students`
--
ALTER TABLE `students`
  ADD PRIMARY KEY (`id`),
  ADD KEY `class_id` (`class`);


--
-- Indexes for table `subjects`
--
ALTER TABLE `subjects`
  ADD PRIMARY KEY (`id`);


--
-- Indexes for table `teachers`
--
ALTER TABLE `teachers`
```

```
  ADD PRIMARY KEY (`id`);

--
-- AUTO_INCREMENT for dumped tables
--

--
-- AUTO_INCREMENT for table `classes`
--
ALTER TABLE `classes`
  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;

--
-- AUTO_INCREMENT for table `students`
--
ALTER TABLE `students`
  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=8;

--
-- AUTO_INCREMENT for table `subjects`
```

```
--

ALTER TABLE `subjects`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;



--

-- AUTO_INCREMENT for table `teachers`

--

ALTER TABLE `teachers`

  MODIFY `id` int(11) NOT NULL AUTO_INCREMENT, AUTO_INCREMENT=3;



--

-- Constraints for dumped tables

--



--

-- Constraints for table `classes`

--

ALTER TABLE `classes`

  ADD CONSTRAINT `subject_id` FOREIGN KEY (`subject`) REFERENCES `subjects` (`id`),
  ADD CONSTRAINT `teacher_id` FOREIGN KEY (`teacher`) REFERENCES `teachers` (`id`);



--

-- Constraints for table `students`

--

ALTER TABLE `students`

  ADD CONSTRAINT `class_id` FOREIGN KEY (`class`) REFERENCES `classes` (`id`);

COMMIT;
```