Backend Admin for Learner's Academy: Source Code

(Phase 2 Project)

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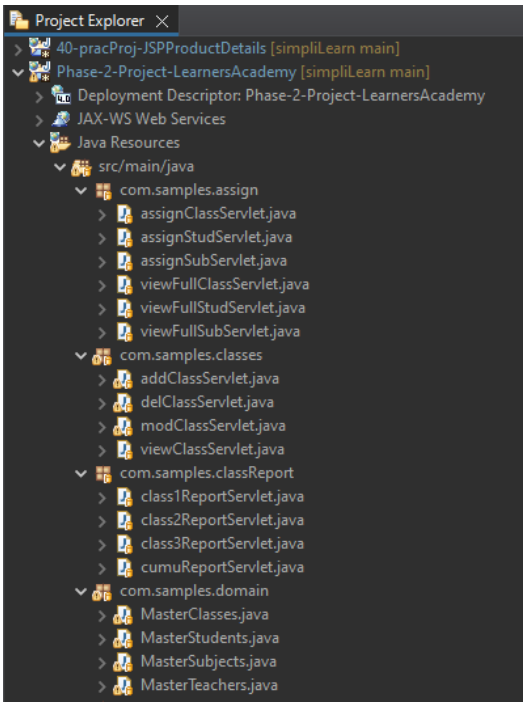
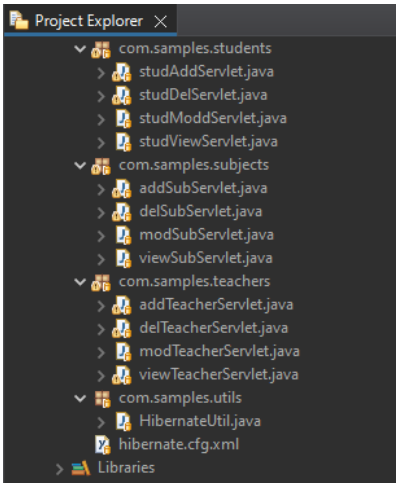
Git Link: simpliLearn/Phase-2/Phase-2-Project-LearnersAcademy at main · K-V-Sagar/simpliLearn (github.com)

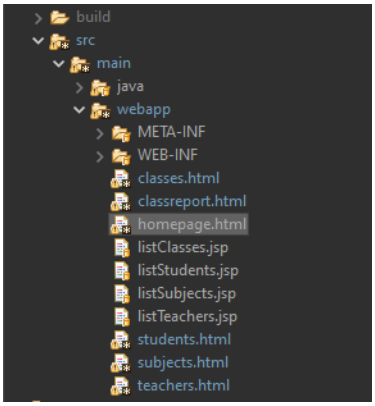
Project File Structure



1



2



3

Files under /webapp

homepage.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
```

```
<title>Learners Academy</title>
</head>
<body>

	<center>
		<h2>Welcome to Learners Academy</h2>
		<h5>Developed by K V Sagar</h5>
	</center>
	<ul>
		<li><a href="subjects.html">Manage Subjects</a></li>
		<li><a href="classes.html">Manage Classes</a></li>
		<li><a href="teachers.html">Manage Teachers</a></li>
		<li><a href="students.html">Manage Students</a></li>
		<li><a href="classreport.html">View Class Report</a></li>
	</ul>
</body>
</html>
```

subjects.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Manage Subjects</title>
</head>
<body>
	<center><h5>Developed by K V Sagar</h5></center>
	<h2>Manage subjects</h2>
	<ul>
		<li><a href="addSubServlet">Add Subject</a></li>
		<li><a href="modSubServlet">Modify Subject</a></li>
		<li><a href="delSubServlet">Delete Subject</a></li>
		<li><a href="viewSubServlet">View Subjects</a></li>
		<li><a href="assignSubServlet">Assign Classes for Subjects</a></li>
	</ul>
	<a href="homepage.html">Home</a>
</body>
</html>
```

classes.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
	<center><h5>Developed by K V Sagar</h5></center>
	<h2>Manage Classes</h2>
	<ul>
		<li><a href="addClassServlet">Add Class</a></li>
		<li><a href="modClassServlet">Modify Class</a></li>
		<li><a href="delClassServlet">Delete Class</a></li>
		<li><a href="viewClassServlet">View Class</a></li>
		<li><a href="assignClassServlet">Assign Teachers to a class</a></li>
	</ul>
	<a href="homepage.html">Home</a>
</body>
```

```
</html>
```

teachers.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
	<center><h5>Developed by K V Sagar</h5></center>
	<h2>Manage Teachers</h2>
	<ul>
		<li><a href="addTeacherServlet">Add Teacher</a></li>
		<li><a href="modTeacherServlet">Modify Teacher</a></li>
		<li><a href="delTeacherServlet">Delete Teacher</a></li>
		<li><a href="viewTeacherServlet">View Teachers</a></li>
	</ul>
	<a href="homepage.html">Home</a>
</body>
</html>
```

students.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
	<center><h5>Developed by K V Sagar</h5></center>
	<h2>Manage Students</h2>
	<ul>
		<li><a href="studAddServlet">Add Student</a></li>
		<li><a href="studModdServlet">Modify Student</a></li>
		<li><a href="studDelServlet">Delete Student</a></li>
		<li><a href="studViewServlet">View Students</a></li>
		<li><a href="assignStudServlet">Assign Students to Classes</a></li>
	</ul>
	<a href="homepage.html">Home</a>
</body>
</html>
```

classreport.html

```
<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>
	<center><h5>Developed by K V Sagar</h5></center>
	<h2>Class Report:</h2>
	<ul>
		<li><a href="class1ReportServlet">Class 1</a></li>
```

```
			<li><a href="class2ReportServlet">Class 2</a></li>
			<li><a href="class3ReportServlet">Class 3</a></li>
			<li><a href="cumuReportServlet">Cumulative Report</a></li>
		</ul>
		<a href="homepage.html">Home</a>


</body>
</html>
```

listClasses.jsp

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

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

		<h1>Operation Complete!</h1>
		<h2>The following entry is made...</h2>
		<h3>( Printing from the ArrayList "mcList" )</h3>
		<table>
			<tr>
				<th>Class ID</th>
				<th>Class Name</th>
			</tr>
			<c:forEach var="cl" items="${Classes_List}" >
			<tr>
				<td>${cl.classID}</td>
				<td>${cl.className}</td>
			</tr>
			</c:forEach>
		</table>

</body>
</html>
```

listStudents.jsp

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

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

		<h1>Operation Complete!</h1>
```

```
	<h2>The following entry is made...</h2>
	<h3>( Printing from the ArrayList "mstuList" )</h3>
	<table>
		<tr>
			<th>Student ID</th>
			<th>Student Name</th>
		</tr>
		<c:forEach var="stud" items="${Students_List}" >
		<tr>
			<td>${stud.studentID}</td>
			<td>${stud.studentName}</td>
		</tr>
		</c:forEach>
	</table>

</body>
</html>
```

listSubjects.jsp

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

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>

	<h1>Operation Complete!</h1>
	<h2>The following entry is made...</h2>
	<h3>( Printing from the ArrayList "msList" )</h3>
	<table>
		<tr>
			<th>Subject ID</th>
			<th>Subject Name</th>
		</tr>
		<c:forEach var="subj" items="${Subjects_List}" >
		<tr>
			<td>${subj.subjectID}</td>
			<td>${subj.subjectName}</td>
		</tr>
		</c:forEach>
	</table>

</body>
</html>
```

listTeachers.jsp

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

<%@ taglib prefix="c" uri="http://java.sun.com/jsp/jstl/core" %>

<!DOCTYPE html>
<html>
<head>
<meta charset="ISO-8859-1">
<title>Insert title here</title>
</head>
<body>


      <h1>Operation Complete!</h1>
      <h2>The following entry is made...</h2>
      <h3>( Printing from the ArrayList "mtList" )</h3>
      <table>
            <tr>
                  <th>Teacher ID</th>
                  <th>Teacher Name</th>
            </tr>
            <c:forEach var="teach" items="${Teachers_List}" >
            <tr>
                  <td>${teach.teacherID}</td>
                  <td>${teach.teacherName}</td>
            </tr>
            </c:forEach>
      </table>

</body>
</html>
```

Files under /src/main/java/com/samples/assign

assignClassServlet.java

```
package com.samples.assign;

import java.io.IOException;

import java.util.ArrayList;

import java.util.List;

import javax.servlet.RequestDispatcher;

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 org.hibernate.Session;

import com.samples.domain.MasterClasses;

import com.samples.domain.MasterTeachers;
```

```
import com.samples.utils.HibernateUtil;

// ***************************

// Assign Teachers to a class

// One Teacher Many Classes

// ***************************

@WebServlet("/assignClassServlet")

public class assignClassServlet extends HttpServlet {

	private static final long serialVersionUID = 1L;

	List<MasterClasses> mcList = new ArrayList<>();

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

		Session session = HibernateUtil.getSessionFactory().openSession();

			MasterTeachers mt = new MasterTeachers("T01","Mark");

		MasterClasses mc1 = new MasterClasses("C01","Class 1", mt);

		MasterClasses mc2 = new MasterClasses("C02","Class 2", mt);


		MasterTeachers mt1 = new MasterTeachers("T02","Glen");

		MasterClasses mc3 = new MasterClasses("C03","Class 3", mt1);


		session.beginTransaction();

		session.update(mc1);

		session.update(mc2);

		session.update(mc3);

		session.getTransaction().commit();

		session.close();


		// saves data to the mtList

		mcList.add(mc1);

		mcList.add(mc2);

		mcList.add(mc3);

		//request.setAttribute("FullClasses_List", mcList);


		RequestDispatcher rd = request.getRequestDispatcher("/viewFullClassServlet");

		rd.forward(request, response);

	}


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

		Session session = HibernateUtil.getSessionFactory().openSession();
```

```
                MasterTeachers mt = new MasterTeachers("T01","Mark");
                MasterClasses mc1 = new MasterClasses("C01","Class 1", mt);
                MasterClasses mc2 = new MasterClasses("C02","Class 2", mt);

                MasterTeachers mt1 = new MasterTeachers("T02","Glen");
                MasterClasses mc3 = new MasterClasses("C03","Class 3", mt1);

                session.beginTransaction();
                session.update(mc1);
                session.update(mc2);
                session.update(mc3);
                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                mcList.add(mc1);
                mcList.add(mc2);
                mcList.add(mc3);
                request.setAttribute("Classes_List", mcList);

                RequestDispatcher rd = request.getRequestDispatcher("/viewFullClassServlet");
                rd.forward(request, response);
        }

}
```

assignStudServlet.java

```
package com.samples.assign;

import java.io.IOException;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;

import com.samples.domain.MasterClasses;
import com.samples.domain.MasterStudents;
import com.samples.utils.HibernateUtil;



//***************************
//Assign Students to Classes
//One Class Many Students
//***************************

@WebServlet("/assignStudServlet")
public class assignStudServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	List<MasterStudents> mstuList = new ArrayList<>();

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

		Session session = HibernateUtil.getSessionFactory().openSession();

		MasterClasses mc1 = new MasterClasses("C01","Class 1");
		MasterStudents mstu1 = new MasterStudents("ST01","Helen",mc1);

		MasterClasses mc2 = new MasterClasses("C02","Class 2");
		MasterStudents mstu2 = new MasterStudents("ST02","Iyan",mc2);
		MasterStudents mstu3 = new MasterStudents("ST03","Phineas",mc2);

		MasterClasses mc3 = new MasterClasses("C03","Class 3");
		MasterStudents mstu4 = new MasterStudents("ST04","Ferb",mc3);
		MasterStudents mstu5 = new MasterStudents("ST05","Rick",mc3);

		session.beginTransaction();
		session.update(mstu1);
```

```
                session.update(mstu2);
                session.update(mstu3);
                session.update(mstu4);
                session.update(mstu5);

                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                mstuList.add(mstu1);
                mstuList.add(mstu2);
                mstuList.add(mstu3);
                mstuList.add(mstu4);
                mstuList.add(mstu5);

                RequestDispatcher rd = request.getRequestDispatcher("/viewFullStudServlet");
                rd.forward(request, response);



        }


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


                Session session = HibernateUtil.getSessionFactory().openSession();

                MasterClasses mc1 = new MasterClasses("C01","Class 1");
                MasterStudents mstu1 = new MasterStudents("ST01","Helen",mc1);

                MasterClasses mc2 = new MasterClasses("C01","Class 2");
                MasterStudents mstu2 = new MasterStudents("ST02","Iyan",mc2);
                MasterStudents mstu3 = new MasterStudents("ST03","Phineas",mc2);

                MasterClasses mc3 = new MasterClasses("C01","Class 3");
                MasterStudents mstu4 = new MasterStudents("ST04","Ferb",mc3);
                MasterStudents mstu5 = new MasterStudents("ST05","Rick",mc3);
```

```
                session.beginTransaction();
                session.update(mstu1);
                session.update(mstu2);
                session.update(mstu3);
                session.update(mstu4);
                session.update(mstu5);

                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                mstuList.add(mstu1);
                mstuList.add(mstu2);
                mstuList.add(mstu3);
                mstuList.add(mstu4);
                mstuList.add(mstu5);

                RequestDispatcher rd = request.getRequestDispatcher("/viewFullStudServlet");
                rd.forward(request, response);


        }

}
```

assignSubServlet.java

```
package com.samples.assign;

import java.io.IOException;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;


import com.samples.domain.MasterClasses;

import com.samples.domain.MasterSubjects;

import com.samples.utils.HibernateUtil;




// ***************************

// Assign Classes for Subjects

// One Class Many Subjects

// ***************************


@WebServlet("/assignSubServlet")

public class assignSubServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;


        List<MasterSubjects> msList = new ArrayList<>();


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


                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterClasses mc1 = new MasterClasses("C01","Class 1");

                MasterSubjects ms1 = new MasterSubjects("S01","Mathematics", mc1);


                MasterClasses mc2 = new MasterClasses("C02","Class 2");

                MasterSubjects ms2 = new MasterSubjects("S03","English",mc2);

                MasterSubjects ms3 = new MasterSubjects("S04","II Language",mc2);

                MasterSubjects ms4 = new MasterSubjects("S06","Mathematics II",mc2);


                MasterClasses mc3 = new MasterClasses("C03","Class 3");

                MasterSubjects ms5 = new MasterSubjects("S02","EVS",mc3);

                MasterSubjects ms6 = new MasterSubjects("S05","III Language",mc3);

                MasterSubjects ms7 = new MasterSubjects("S07","Mathematics III",mc3);

                MasterSubjects ms8 = new MasterSubjects("S08","English II",mc3);


                session.beginTransaction();

                session.update(ms1);session.update(ms2);

                session.update(ms3);session.update(ms4);
```

```
                session.update(ms5);session.update(ms6);
                session.update(ms7);session.update(ms8);

                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                msList.add(ms1);msList.add(ms2);
                msList.add(ms3);msList.add(ms4);
                msList.add(ms5);msList.add(ms6);
                msList.add(ms7);msList.add(ms8);
                //request.setAttribute("Subjects_List", msList);

                RequestDispatcher rd = request.getRequestDispatcher("/viewFullSubServlet");
                rd.forward(request, response);

        }


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

                Session session = HibernateUtil.getSessionFactory().openSession();

                MasterClasses mc1 = new MasterClasses("C01","Class 1");
                MasterSubjects ms1 = new MasterSubjects("S01","Mathematics", mc1);

                MasterClasses mc2 = new MasterClasses("C02","Class 2");
                MasterSubjects ms2 = new MasterSubjects("S03","English",mc2);
                MasterSubjects ms3 = new MasterSubjects("S04","II Language",mc2);
                MasterSubjects ms4 = new MasterSubjects("S06","Mathematics II",mc2);

                MasterClasses mc3 = new MasterClasses("C03","Class 3");
                MasterSubjects ms5 = new MasterSubjects("S02","EVS",mc3);
                MasterSubjects ms6 = new MasterSubjects("S05","III Language",mc3);
                MasterSubjects ms7 = new MasterSubjects("S07","Mathematics III",mc3);
                MasterSubjects ms8 = new MasterSubjects("S08","English II",mc3);

                session.beginTransaction();
                session.update(ms1);session.update(ms2);
                session.update(ms2);session.update(ms4);
```

```
                session.update(ms5);session.update(ms6);
                session.update(ms7);session.update(ms8);

                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                msList.add(ms1);msList.add(ms2);
                msList.add(ms3);msList.add(ms4);
                msList.add(ms5);msList.add(ms6);
                msList.add(ms7);msList.add(ms8);
                //request.setAttribute("Subjects_List", msList);

                RequestDispatcher rd = request.getRequestDispatcher("/viewFullSubServlet");
                rd.forward(request, response);
        }

}
```

viewFullClassServlet.java

```
package com.samples.assign;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;


@WebServlet("/viewFullClassServlet")
public class viewFullClassServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;
```

```
	Connection connection;


	@Override
	public void init() throws ServletException {


		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}


	}


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


		response.setContentType("text/html");


		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {


			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("select * from MasterClasses");
			PrintWriter out = response.getWriter();


			out.println("<h1>Teachers assinged...</h1>");
			out.println("<table>");
			out.println("<tr>");
			out.println("<th>Class ID</th>");
			out.println("<th>Class Name</th>");
			out.println("<th>Teacher ID</th>");
			out.println("</tr>");
			while (results.next()) {
				out.println("<tr>");
				out.println("<td>" + results.getString(1) + "</td>");
				out.println("<td>" + results.getString(2) + "</td>");
				out.println("<td>" + results.getString(3) + "</td>");
```

```
                                out.println("</tr>");
                        }
                        out.println("</table>");


                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }

        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }
}
```

viewFullStudServlet.java

```
package com.samples.assign;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;



@WebServlet("/viewFullStudServlet")
```

```
public class viewFullStudServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;



	Connection connection;


	@Override
	public void init() throws ServletException {


		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}


	}



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


		response.setContentType("text/html");


		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {


			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("select * from MasterStudents");
			PrintWriter out = response.getWriter();


			out.println("<h1>Students assinged...</h1>");
			out.println("<table>");
			out.println("<tr>");
			out.println("<th>Student ID</th>");
			out.println("<th>Student Name</th>");
			out.println("<th>Class ID</th>");
			out.println("</tr>");
```

```
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("<td>" + results.getString(3) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");


                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }

        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }


}
```

viewFullSubServlet.java

```
package com.samples.assign;


import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;
```

```
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;



@WebServlet("/viewFullSubServlet")
public class viewFullSubServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	Connection connection;

	@Override
	public void init() throws ServletException {

		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}

	}



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

		response.setContentType("text/html");

		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {

			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("select * from MasterSubjects");
```

```
                        PrintWriter out = response.getWriter();


                        out.println("<h1>Subjects assinged...</h1>");
                        out.println("<table>");
                        out.println("<tr>");
                        out.println("<th>Subject ID</th>");
                        out.println("<th>Subject Name</th>");
                        out.println("<th>Class ID</th>");
                        out.println("</tr>");
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("<td>" + results.getString(3) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");



                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }


        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }



}
```

Files under /src/main/java/com/samples/classes

addClassServlet.java

```
package com.samples.classes;


import java.io.IOException;

import java.io.PrintWriter;

import java.util.ArrayList;

import java.util.List;


import javax.servlet.RequestDispatcher;

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 org.hibernate.Session;

import org.hibernate.Transaction;


import com.samples.domain.MasterClasses;

import com.samples.domain.MasterTeachers;

import com.samples.utils.HibernateUtil;



@WebServlet("/addClassServlet")

public class addClassServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;


        List<MasterClasses> mcList = new ArrayList<>();


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

                Session session = HibernateUtil.getSessionFactory().openSession();


                Transaction txn = session.getTransaction();


                try {


                        txn.begin();
```

```
                MasterClasses mc = new MasterClasses("C04","Class 4");

                session.persist(mc);

                txn.commit();

                // saves data to the mtList
                mcList.add(mc);
                request.setAttribute("Classes_List", mcList);

                RequestDispatcher rd = request.getRequestDispatcher("/listClasses.jsp");
                rd.forward(request, response);

                PrintWriter out =response.getWriter();
                out.println("Operation Complete!");

        } catch (Exception ex) {
                if (txn != null) {
                        txn.rollback();
                }
                ex.printStackTrace();
        } finally {
                if (session != null) {
                        session.close();
                }
        }
    }


    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
        Session session = HibernateUtil.getSessionFactory().openSession();

        Transaction txn = session.getTransaction();

        try {

                txn.begin();

                MasterClasses mc = new MasterClasses("C04","Class 4");
```

```
                        session.persist(mc);

                        txn.commit();

                        // saves data to the mtList
                        mcList.add(mc);
                        request.setAttribute("Classes_List", mcList);

                        RequestDispatcher rd = request.getRequestDispatcher("/listClasses.jsp");
                        rd.forward(request, response);

                        PrintWriter out =response.getWriter();
                        out.println("Operation Complete!");

                } catch (Exception ex) {
                        if (txn != null) {
                                txn.rollback();
                        }
                        ex.printStackTrace();
                } finally {
                        if (session != null) {
                                session.close();
                        }
                }

        }

}
```

delClassServlet.java

```
package com.samples.classes;

import java.io.IOException;
import java.io.PrintWriter;

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 org.hibernate.Session;


import com.samples.domain.MasterClasses;

import com.samples.domain.MasterTeachers;

import com.samples.utils.HibernateUtil;



@WebServlet("/delClassServlet")

public class delClassServlet extends HttpServlet {

	private static final long serialVersionUID = 1L;



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



		Session session = HibernateUtil.getSessionFactory().openSession();


		MasterClasses mc = new MasterClasses("C04","Class IV");


		session.beginTransaction();

		session.delete(mc);

		session.getTransaction().commit();

		session.close();


		response.setContentType("text/html");

		PrintWriter out = response.getWriter();

		out.println("<h1>Deleted!</h1>");


	}



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

		Session session = HibernateUtil.getSessionFactory().openSession();


		MasterClasses mc = new MasterClasses("C04","Class IV");


		session.beginTransaction();

		session.delete(mc);
```

```
                session.getTransaction().commit();
                session.close();

                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");
        }

}
```

modClassServlet.java

```
package com.samples.classes;

import java.io.IOException;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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.transaction.Transactional;

import org.hibernate.Session;

import com.samples.domain.MasterClasses;
import com.samples.domain.MasterTeachers;
import com.samples.utils.HibernateUtil;



@WebServlet("/modClassServlet")
public class modClassServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;

        List<MasterClasses> mcList = new ArrayList<>();

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

```
		Session session = HibernateUtil.getSessionFactory().openSession();


		MasterClasses mc = new MasterClasses("C04","Class IV");


		session.beginTransaction();

		session.update(mc);

		session.getTransaction().commit();

		session.close();


		// saves data to the mtList

		mcList.add(mc);

		request.setAttribute("Classes_List", mcList);


		RequestDispatcher rd = request.getRequestDispatcher("/listClasses.jsp");

		rd.forward(request, response);

	}


	 @Transactional

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

		Session session = HibernateUtil.getSessionFactory().openSession();


		MasterClasses mc = new MasterClasses("C04","Class IV");


		session.beginTransaction();

		session.update(mc);

		session.getTransaction().commit();

		session.close();


		// saves data to the mtList

		mcList.add(mc);

		request.setAttribute("Classes_List", mcList);


		RequestDispatcher rd = request.getRequestDispatcher("/listClasses.jsp");

		rd.forward(request, response);

	}


}
```

viewClassServlet.java

```
package com.samples.classes;


import java.io.IOException;

import java.io.PrintWriter;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;


import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;




@WebServlet("/viewClassServlet")

public class viewClassServlet extends HttpServlet {

	private static final long serialVersionUID = 1L;


	Connection connection;


	@Override

	public void init() throws ServletException {


		try {

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

			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");

		} catch (ClassNotFoundException e) {
```

```
                e.printStackTrace();
            } catch (SQLException e) {
                e.printStackTrace();
            }

    }

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

            response.setContentType("text/html");

            System.out.println("doGet");
            try (Statement statement = connection.createStatement();) {

                // using ResultSet to store the result and then print using the results object
                ResultSet results = statement.executeQuery("select * from MasterClasses");
                PrintWriter out = response.getWriter();

                out.println("<h1>Master List of Classes:</h1>");
                out.println("<table>");
                out.println("<tr>");
                out.println("<th>Class ID</th>");
                out.println("<th>Class Name</th>");
                out.println("</tr>");
                while (results.next()) {
                    out.println("<tr>");
                    out.println("<td>" + results.getString(1) + "</td>");
                    out.println("<td>" + results.getString(2) + "</td>");
                    out.println("</tr>");
                }
                out.println("</table>");
```

```
                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }

        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }
}
```

Files under /src/main/java/com/samples/classReport

class1ReportServlet.java

```
package com.samples.classReport;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
```

```
import javax.servlet.http.HttpServletResponse;



@WebServlet("/class1ReportServlet")
public class class1ReportServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;


	Connection connection;


	@Override
	public void init() throws ServletException {


		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}


	}



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


		response.setContentType("text/html");


		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {


			// Table 1
			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("SELECT b.classID, b.className,
d.subjectID,"
					+ " d.subjectName FROM masterclasses b JOIN mastersubjects d
ON b.classID = d.classID"
					+ " WHERE b.classID='C01' ORDER BY b.classID;");
			PrintWriter out = response.getWriter();
```

```
                        out.println("<h1>Class 1 Report:</h1>");
                        out.println("<h3>Class - Subject</h3>");
                        out.println("<table>");
                        out.println("<tr>");
                        out.println("<th>Class ID</th>");
                        out.println("<th>Class Name</th>");
                        out.println("<th>Subject ID</th>");
                        out.println("<th>Subject Name</th>");
                        out.println("</tr>");
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("<td>" + results.getString(3) + "</td>");
                                out.println("<td>" + results.getString(4) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");



                        // Table 2
                        // using ResultSet to store the result and then print using the results object
                        ResultSet results1 = statement.executeQuery("SELECT b.classID, b.className,
c.studentID,"
                                        + "c.studentName FROM masterclasses b JOIN masterstudents c
ON b.classID = c.classID "
                                        + "WHERE b.classID='C01' ORDER BY b.classID;");
                        PrintWriter out1 = response.getWriter();


                        out1.println("<h3>Class - Student</h3>");
                        out1.println("<table>");
                        out1.println("<tr>");
                        out1.println("<th>Class ID</th>");
                        out1.println("<th>Class Name</th>");
                        out1.println("<th>Student ID</th>");
                        out1.println("<th>Student Name</th>");
                        out1.println("</tr>");
                        while (results1.next()) {
                                out1.println("<tr>");
                                out1.println("<td>" + results1.getString(1) + "</td>");
```

```
                        out1.println("<td>" + results1.getString(2) + "</td>");
                        out1.println("<td>" + results1.getString(3) + "</td>");
                        out1.println("<td>" + results1.getString(4) + "</td>");
                        out1.println("</tr>");
                }
                out1.println("</table>");


                // Table 3
                // using ResultSet to store the result and then print using the results object
                ResultSet results2 = statement.executeQuery("SELECT b.classID, b.className,
a.teacherID,"
                                + " a.teacherName FROM masterclasses b JOIN masterteachers a
ON b.teacherID = a.teacherID"
                                + " WHERE b.classID='C01' ORDER BY b.classID;");
                PrintWriter out2 = response.getWriter();

                out2.println("<h3>Class - Teacher</h3>");
                out2.println("<table>");
                out2.println("<tr>");
                out2.println("<th>Class ID</th>");
                out2.println("<th>Class Name</th>");
                out2.println("<th>Teacher ID</th>");
                out2.println("<th>Teacher Name</th>");
                out2.println("</tr>");
                while (results2.next()) {
                        out2.println("<tr>");
                        out2.println("<td>" + results2.getString(1) + "</td>");
                        out2.println("<td>" + results2.getString(2) + "</td>");
                        out2.println("<td>" + results2.getString(3) + "</td>");
                        out2.println("<td>" + results2.getString(4) + "</td>");
                        out2.println("</tr>");
                }
                out2.println("</table>");



        }
        catch (SQLException e) {
                e.printStackTrace();
        }
```

```
	}

	@Override
	public void destroy() {
		try {
			connection.close();
		} catch (SQLException e) {
			e.printStackTrace();
		}
	}


}
```

class2ReportServlet.java

```
package com.samples.classReport;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;


@WebServlet("/class2ReportServlet")
public class class2ReportServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;


	Connection connection;

	@Override
```

```
	public void init() throws ServletException {


		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}


	}



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


		response.setContentType("text/html");


		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {


			// Table 1
			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("SELECT b.classID, b.className,
d.subjectID, "
					+ "d.subjectName FROM masterclasses b JOIN mastersubjects d
ON b.classID = d.classID "
					+ "WHERE b.classID='C02' ORDER BY b.classID;");
			PrintWriter out = response.getWriter();


			out.println("<h1>Class 2 Report:</h1>");
			out.println("<h3>Class - Subject</h3>");
			out.println("<table>");
			out.println("<tr>");
			out.println("<th>Class ID</th>");
			out.println("<th>Class Name</th>");
			out.println("<th>Subject ID</th>");
			out.println("<th>Subject Name</th>");
			out.println("</tr>");
			while (results.next()) {
```

```
                out.println("<tr>");
                out.println("<td>" + results.getString(1) + "</td>");
                out.println("<td>" + results.getString(2) + "</td>");
                out.println("<td>" + results.getString(3) + "</td>");
                out.println("<td>" + results.getString(4) + "</td>");
                out.println("</tr>");
            }
            out.println("</table>");



            // Table 2
            // using ResultSet to store the result and then print using the results object
            ResultSet results1 = statement.executeQuery("SELECT b.classID, b.className,
c.studentID,"
                    + "c.studentName FROM masterclasses b JOIN masterstudents c
ON b.classID = c.classID"
                    + " WHERE b.classID='C02' ORDER BY b.classID;");
            PrintWriter out1 = response.getWriter();

            out1.println("<h3>Class - Student</h3>");
            out1.println("<table>");
            out1.println("<tr>");
            out1.println("<th>Class ID</th>");
            out1.println("<th>Class Name</th>");
            out1.println("<th>Student ID</th>");
            out1.println("<th>Student Name</th>");
            out1.println("</tr>");
            while (results1.next()) {
                out1.println("<tr>");
                out1.println("<td>" + results1.getString(1) + "</td>");
                out1.println("<td>" + results1.getString(2) + "</td>");
                out1.println("<td>" + results1.getString(3) + "</td>");
                out1.println("<td>" + results1.getString(4) + "</td>");
                out1.println("</tr>");
            }
            out1.println("</table>");



            // Table 3
            // using ResultSet to store the result and then print using the results object
```

```
                        ResultSet results2 = statement.executeQuery("SELECT b.classID, b.className,
a.teacherID,"
                                        + " a.teacherName FROM masterclasses b JOIN masterteachers a
ON b.teacherID = a.teacherID"
                                        + " WHERE b.classID='C02' ORDER BY b.classID;");
                        PrintWriter out2 = response.getWriter();


                        out2.println("<h3>Class - Teacher</h3>");
                        out2.println("<table>");
                        out2.println("<tr>");
                        out2.println("<th>Class ID</th>");
                        out2.println("<th>Class Name</th>");
                        out2.println("<th>Teacher ID</th>");
                        out2.println("<th>Teacher Name</th>");
                        out2.println("</tr>");
                        while (results2.next()) {
                                out2.println("<tr>");
                                out2.println("<td>" + results2.getString(1) + "</td>");
                                out2.println("<td>" + results2.getString(2) + "</td>");
                                out2.println("<td>" + results2.getString(3) + "</td>");
                                out2.println("<td>" + results2.getString(4) + "</td>");
                                out2.println("</tr>");
                        }
                        out2.println("</table>");




                }
                catch (SQLException e) {
                        e.printStackTrace();
                }


        }


        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
```

```
	}

}
```

class3ReportServlet.java

```
package com.samples.classReport;


import java.io.IOException;

import java.io.PrintWriter;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.ResultSet;

import java.sql.SQLException;

import java.sql.Statement;


import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;



@WebServlet("/class3ReportServlet")

public class class3ReportServlet extends HttpServlet {

	private static final long serialVersionUID = 1L;



	Connection connection;


	@Override

	public void init() throws ServletException {


		try {

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

			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");

		} catch (ClassNotFoundException e) {

			e.printStackTrace();

		} catch (SQLException e) {

			e.printStackTrace();

		}
```

```
	}


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


		response.setContentType("text/html");


		System.out.println("doGet");

		try (Statement statement = connection.createStatement();) {


			// Table 1

			// using ResultSet to store the result and then print using the results object

			ResultSet results = statement.executeQuery("SELECT b.classID, b.className,
d.subjectID,"

					+ " d.subjectName FROM masterclasses b JOIN mastersubjects d
ON b.classID = d.classID"

					+ " WHERE b.classID='C03' ORDER BY b.classID;");

			PrintWriter out = response.getWriter();


			out.println("<h1>Class 3 Report:</h1>");

			out.println("<h3>Class - Subject</h3>");

			out.println("<table>");

			out.println("<tr>");

			out.println("<th>Class ID</th>");

			out.println("<th>Class Name</th>");

			out.println("<th>Subject ID</th>");

			out.println("<th>Subject Name</th>");

			out.println("</tr>");

			while (results.next()) {

				out.println("<tr>");

				out.println("<td>" + results.getString(1) + "</td>");

				out.println("<td>" + results.getString(2) + "</td>");

				out.println("<td>" + results.getString(3) + "</td>");

				out.println("<td>" + results.getString(4) + "</td>");

				out.println("</tr>");

			}

			out.println("</table>");
```

```
                        // Table 2
                        // using ResultSet to store the result and then print using the results object
                        ResultSet results1 = statement.executeQuery("SELECT b.classID, b.className,
c.studentID,"
                                        + "c.studentName FROM masterclasses b JOIN masterstudents c
ON b.classID = c.classID "
                                        + "WHERE b.classID='C03' ORDER BY b.classID;");
                        PrintWriter out1 = response.getWriter();

                        out1.println("<h3>Class - Student</h3>");
                        out1.println("<table>");
                        out1.println("<tr>");
                        out1.println("<th>Class ID</th>");
                        out1.println("<th>Class Name</th>");
                        out1.println("<th>Student ID</th>");
                        out1.println("<th>Student Name</th>");
                        out1.println("</tr>");
                        while (results1.next()) {
                                out1.println("<tr>");
                                out1.println("<td>" + results1.getString(1) + "</td>");
                                out1.println("<td>" + results1.getString(2) + "</td>");
                                out1.println("<td>" + results1.getString(3) + "</td>");
                                out1.println("<td>" + results1.getString(4) + "</td>");
                                out1.println("</tr>");
                        }
                        out1.println("</table>");


                        // Table 3
                        // using ResultSet to store the result and then print using the results object
                        ResultSet results2 = statement.executeQuery("SELECT b.classID, b.className,
a.teacherID,"
                                        + " a.teacherName FROM masterclasses b JOIN masterteachers a
ON b.teacherID = a.teacherID"
                                        + " WHERE b.classID='C03' ORDER BY b.classID;");
                        PrintWriter out2 = response.getWriter();

                        out2.println("<h3>Class - Teacher</h3>");
                        out2.println("<table>");
                        out2.println("<tr>");
                        out2.println("<th>Class ID</th>");
                        out2.println("<th>Class Name</th>");
```

```
                        out2.println("<th>Teacher ID</th>");
                        out2.println("<th>Teacher Name</th>");
                        out2.println("</tr>");
                        while (results2.next()) {
                                out2.println("<tr>");
                                out2.println("<td>" + results2.getString(1) + "</td>");
                                out2.println("<td>" + results2.getString(2) + "</td>");
                                out2.println("<td>" + results2.getString(3) + "</td>");
                                out2.println("<td>" + results2.getString(4) + "</td>");
                                out2.println("</tr>");
                        }
                        out2.println("</table>");



                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }

        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }

}
```

cumuReportServlet.java

```
package com.samples.classReport;


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

```
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;



@WebServlet("/cumuReportServlet")
public class cumuReportServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	Connection connection;

	@Override
	public void init() throws ServletException {

		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}

	}



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

		response.setContentType("text/html");

		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {

			// Table 1
```

```
                        // using ResultSet to store the result and then print using the results object
                        ResultSet results = statement.executeQuery("SELECT b.classID, b.className,
a.teacherName, c.studentName, d.subjectName "
                                        + "FROM masterclasses b JOIN masterteachers a ON b.teacherID
= a.teacherID JOIN masterstudents c ON b.classID "
                                        + "= c.classID JOIN mastersubjects d ON b.classID = d.classID
ORDER BY b.classID;");
                        PrintWriter out = response.getWriter();


                        out.println("<h1>Cumulative Report:</h1>");
                        out.println("<table>");
                        out.println("<tr>");
                        out.println("<th>Class ID</th>");
                        out.println("<th>Class Name</th>");
                        out.println("<th>Teacher Name</th>");
                        out.println("<th>Student Name</th>");
                        out.println("<th>Subject Name</th>");
                        out.println("</tr>");
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("<td>" + results.getString(3) + "</td>");
                                out.println("<td>" + results.getString(4) + "</td>");
                                out.println("<td>" + results.getString(5) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");
                }
                catch (SQLException e) {
                        e.printStackTrace();
                }


        }


        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
```

```
	}


}
```

Files under /src/main/java/com/samples/domain

MasterClasses.java

```
package com.samples.domain;


import java.util.HashSet;
import java.util.Set;


import javax.persistence.CascadeType;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;
import javax.persistence.Table;
import javax.persistence.OneToMany;
import javax.persistence.ManyToMany;



@Entity
@Table(name="MasterClasses")
public class MasterClasses {


	@Id
	@Column(name="classID")
	private String classID;


	@Column(name="className")
	private String className;


	@ManyToOne(cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
	@JoinColumn(name="teacherID")
	private MasterTeachers masterteachers;
```

```
@OneToMany(mappedBy = "masterclasses", cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
private Set<MasterStudents> studentsSet = new HashSet<>();



@OneToMany(mappedBy = "masterclasses", cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
private Set<MasterSubjects> subjectsSet = new HashSet<>();


// ******************************


public MasterClasses(String classID, String className, MasterTeachers masterteachers) {
        super();
        this.classID = classID;
        this.className = className;
        this.masterteachers = masterteachers;

}

// for master list
public MasterClasses(String classID, String className) {
        super();
        this.classID = classID;
        this.className = className;

}

public MasterClasses() {
        super();
        // TODO Auto-generated constructor stub
}



public String getClassID() {
        return classID;
}
```

```
public void setClassID(String classID) {
        this.classID = classID;
}



public String getClassName() {
        return className;
}



public void setClassName(String className) {
        this.className = className;
}



public MasterTeachers getMasterteachers() {
        return masterteachers;
}



public void setMasterteachers(MasterTeachers masterteachers) {
        this.masterteachers = masterteachers;
}



public Set<MasterStudents> getStudentsSet() {
        return studentsSet;
}



public void setStudentsSet(Set<MasterStudents> studentsSet) {
        this.studentsSet = studentsSet;
}
```

```
	public Set<MasterSubjects> getSubjectsSet() {
		return subjectsSet;
	}



	public void setSubjectsSet(Set<MasterSubjects> subjectsSet) {
		this.subjectsSet = subjectsSet;
	}



}
```

MasterStudents.java

```
package com.samples.domain;

import java.util.HashSet;
import java.util.Set;

import javax.persistence.CascadeType;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;
import javax.persistence.Table;
import javax.persistence.OneToMany;
import javax.persistence.ManyToMany;


@Entity
@Table(name="MasterStudents")
public class MasterStudents {

	@Id
	@Column(name="studentID")
```

```
private String studentID;

@Column(name="studentName")
private String studentName;

@ManyToOne(cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
@JoinColumn(name="classID")
private MasterClasses masterclasses;

// ******************************


public MasterStudents(String studentID, String studentName, MasterClasses masterclasses) {
        super();
        this.studentID = studentID;
        this.studentName = studentName;
        this.masterclasses = masterclasses;
}

// for master list
public MasterStudents(String studentID, String studentName) {
        super();
        this.studentID = studentID;
        this.studentName = studentName;
}

public MasterStudents() {
        super();
        // TODO Auto-generated constructor stub
}



public String getStudentID() {
        return studentID;
}

public void setStudentID(String studentID) {
        this.studentID = studentID;
}
```

```
	public String getStudentName() {
		return studentName;
	}

	public void setStudentName(String studentName) {
		this.studentName = studentName;
	}

	public MasterClasses getMasterclasses() {
		return masterclasses;
	}

	public void setMasterclasses(MasterClasses masterclasses) {
		this.masterclasses = masterclasses;
	}



}
```

MasterSubjects.java

```
package com.samples.domain;

import java.util.HashSet;
import java.util.Set;

import javax.persistence.CascadeType;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;
import javax.persistence.Table;
import javax.persistence.OneToMany;
import javax.persistence.ManyToMany;



@Entity
```

```
@Table(name="MasterSubjects")
public class MasterSubjects {

	@Id
	@Column(name="subjectID")
	private String subjectID;

	@Column(name="subjectName")
	private String subjectName;

	@ManyToOne(cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
	@JoinColumn(name="classID")
	private MasterClasses masterclasses;

	// ******************************

	public MasterSubjects(String subjectID, String subjectName, MasterClasses masterclasses) {
		super();
		this.subjectID = subjectID;
		this.subjectName = subjectName;
		this.masterclasses = masterclasses;
	}

	// for master list
	public MasterSubjects(String subjectID, String subjectName) {
		super();
		this.subjectID = subjectID;
		this.subjectName = subjectName;
	}

	public MasterSubjects() {
		super();
		// TODO Auto-generated constructor stub
	}



	public String getSubjectID() {
		return subjectID;
	}
```

```
	public void setSubjectID(String subjectID) {
		this.subjectID = subjectID;
	}

	public String getSubjectName() {
		return subjectName;
	}

	public void setSubjectName(String subjectName) {
		this.subjectName = subjectName;
	}

	public MasterClasses getMasterclasses() {
		return masterclasses;
	}

	public void setMasterclasses(MasterClasses masterclasses) {
		this.masterclasses = masterclasses;
	}



}
```

MasterTeachers.java

```
package com.samples.domain;

import java.util.HashSet;
import java.util.Set;

import javax.persistence.CascadeType;
import javax.persistence.Column;
import javax.persistence.Entity;
import javax.persistence.GeneratedValue;
import javax.persistence.GenerationType;
import javax.persistence.Id;
import javax.persistence.JoinColumn;
import javax.persistence.ManyToOne;
import javax.persistence.Table;
import javax.persistence.OneToMany;
```

```
@Entity
@Table(name="MasterTeachers")
public class MasterTeachers {

	@Id
	@Column(name="teacherID")
	private String teacherID;

	@Column(name="teacherName")
	private String teacherName;

	@OneToMany(mappedBy = "masterteachers", cascade= {CascadeType.PERSIST, CascadeType.REMOVE})
	private Set<MasterClasses> classesSetFromTeachers = new HashSet<>();

	// ******************************



	public MasterTeachers(String teacherID, String teacherName) {
		super();
		this.teacherID = teacherID;
		this.teacherName = teacherName;
	}

	public MasterTeachers() {
		super();
		// TODO Auto-generated constructor stub
	}

	public String getTeacherID() {
		return teacherID;
	}

	public void setTeacherID(String teacherID) {
		this.teacherID = teacherID;
	}

	public String getTeacherName() {
```

```
		return teacherName;
	}

	public void setTeacherName(String teacherName) {
		this.teacherName = teacherName;
	}

	public Set<MasterClasses> getClasses() {
		return classesSetFromTeachers;
	}

	public void setClasses(Set<MasterClasses> classes) {
		this.classesSetFromTeachers = classes;
	}


}
```

Files under /src/main/java/com/samples/students

studAddServlet.java

```
package com.samples.students;

import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;
import org.hibernate.Transaction;

import com.samples.domain.MasterStudents;
import com.samples.domain.MasterSubjects;
import com.samples.utils.HibernateUtil;
```

```
@WebServlet("/studAddServlet")
public class studAddServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	List<MasterStudents> mstuList = new ArrayList<>();

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

		Session session = HibernateUtil.getSessionFactory().openSession();

		Transaction txn = session.getTransaction();

		try {

			txn.begin();

			MasterStudents mstu = new MasterStudents("ST06","Morty");

			session.persist(mstu);

			txn.commit();

			// saves data to the mtList
			mstuList.add(mstu);
			request.setAttribute("Students_List", mstuList);

			RequestDispatcher rd = request.getRequestDispatcher("/listStudents.jsp");
			rd.forward(request, response);

			PrintWriter out =response.getWriter();
			out.println("Operation Complete!");

		} catch (Exception ex) {
			if (txn != null) {
				txn.rollback();
			}
			ex.printStackTrace();
```

```
		} finally {
			if (session != null) {
				session.close();
			}
		}
	}


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

		Session session = HibernateUtil.getSessionFactory().openSession();

		Transaction txn = session.getTransaction();

		try {

			txn.begin();

			MasterStudents mstu = new MasterStudents("ST06","Morty");

			session.persist(mstu);

			txn.commit();

			// saves data to the mtList
			mstuList.add(mstu);
			request.setAttribute("Students_List", mstuList);

			RequestDispatcher rd = request.getRequestDispatcher("/listStudents.jsp");
			rd.forward(request, response);

			PrintWriter out =response.getWriter();
			out.println("Operation Complete!");

		} catch (Exception ex) {
			if (txn != null) {
				txn.rollback();
			}
			ex.printStackTrace();
		} finally {
```

```
                        if (session != null) {
                                session.close();
                        }
                }
        }

}
```

studDelServlet.java

```
package com.samples.students;

import java.io.IOException;
import java.io.PrintWriter;

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 org.hibernate.Session;

import com.samples.domain.MasterStudents;
import com.samples.domain.MasterSubjects;
import com.samples.utils.HibernateUtil;



@WebServlet("/studDelServlet")
public class studDelServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;



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

                Session session = HibernateUtil.getSessionFactory().openSession();

                MasterStudents mstu = new MasterStudents("ST06","Candance");

                session.beginTransaction();
                session.delete(mstu);
```

```
                session.getTransaction().commit();
                session.close();

                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");
        }

        protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
                Session session = HibernateUtil.getSessionFactory().openSession();

                MasterStudents mstu = new MasterStudents("ST06","Candance");

                session.beginTransaction();
                session.delete(mstu);
                session.getTransaction().commit();
                session.close();

                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");
        }

}
```

studModdServlet.java

```
package com.samples.students;

import java.io.IOException;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;
```

```
import com.samples.domain.MasterStudents;
import com.samples.utils.HibernateUtil;



@WebServlet("/studModdServlet")
public class studModdServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	List<MasterStudents> mstuList = new ArrayList<>();

	protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
		Session session = HibernateUtil.getSessionFactory().openSession();

		MasterStudents mstu = new MasterStudents("ST06","Candance");

		session.beginTransaction();
		session.update(mstu);
		session.getTransaction().commit();
		session.close();

		// saves data to the mtList
		mstuList.add(mstu);
		request.setAttribute("Students_List", mstuList);

		RequestDispatcher rd = request.getRequestDispatcher("/listStudents.jsp");
		rd.forward(request, response);
	}



	protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
		Session session = HibernateUtil.getSessionFactory().openSession();

		MasterStudents mstu = new MasterStudents("ST06","Candance");

		session.beginTransaction();
		session.update(mstu);
		session.getTransaction().commit();
		session.close();
```

```
                // saves data to the mtList
                mstuList.add(mstu);
                request.setAttribute("Students_List", mstuList);

                RequestDispatcher rd = request.getRequestDispatcher("/listStudents.jsp");
                rd.forward(request, response);
        }

}
```

studViewServlet.java

```
package com.samples.students;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;



@WebServlet("/studViewServlet")
public class studViewServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;



        Connection connection;

        @Override
        public void init() throws ServletException {

                try {
                        Class.forName("com.mysql.jdbc.Driver");
```

```
                        connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
                } catch (ClassNotFoundException e) {
                        e.printStackTrace();
                } catch (SQLException e) {
                        e.printStackTrace();
                }

        }

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

                response.setContentType("text/html");

                System.out.println("doGet");
                try (Statement statement = connection.createStatement();) {

                        // using ResultSet to store the result and then print using the results object
                        ResultSet results = statement.executeQuery("select * from MasterStudents");
                        PrintWriter out = response.getWriter();

                        out.println("<h1>Master List of Students:</h1>");
                        out.println("<table>");
                        out.println("<tr>");
                        out.println("<th>Student ID</th>");
                        out.println("<th>Student Name</th>");
                        out.println("</tr>");
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");

                }
                catch (SQLException e) {
                        e.printStackTrace();
```

```
                }

        }

        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }

}
```

Files under /src/main/java/com/samples/subjects

addSubServlet.java

```
package com.samples.subjects;

import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;
import org.hibernate.Transaction;

import com.samples.domain.MasterClasses;
import com.samples.domain.MasterSubjects;
import com.samples.utils.HibernateUtil;

@WebServlet("/addSubServlet")
public class addSubServlet extends HttpServlet {
```

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


	List<MasterSubjects> msList = new ArrayList<>();


	protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
		Session session = HibernateUtil.getSessionFactory().openSession();


		Transaction txn = session.getTransaction();


		try {


			txn.begin();


			MasterSubjects ms = new MasterSubjects("S09","History");


			session.persist(ms);


			txn.commit();


			// saves data to the mtList
			msList.add(ms);
			request.setAttribute("Subjects_List", msList);


			RequestDispatcher rd = request.getRequestDispatcher("/listSubjects.jsp");
			rd.forward(request, response);


			PrintWriter out =response.getWriter();
			out.println("Operation Complete!");


		} catch (Exception ex) {
			if (txn != null) {
				txn.rollback();
			}
			ex.printStackTrace();
		} finally {
			if (session != null) {
				session.close();
			}
		}
	}
```

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

                Session session = HibernateUtil.getSessionFactory().openSession();

                Transaction txn = session.getTransaction();

                try {

                        txn.begin();

                        MasterSubjects ms = new MasterSubjects("S09","History");

                        session.persist(ms);

                        txn.commit();

                        // saves data to the mtList
                        msList.add(ms);
                        request.setAttribute("Subjects_List", msList);

                        RequestDispatcher rd = request.getRequestDispatcher("/listSubjects.jsp");
                        rd.forward(request, response);

                        PrintWriter out =response.getWriter();
                        out.println("Operation Complete!");

                } catch (Exception ex) {
                        if (txn != null) {
                                txn.rollback();
                        }
                        ex.printStackTrace();
                } finally {
                        if (session != null) {
                                session.close();
                        }
                }

        }
```

```
}
```

delSubServlet.java

```
package com.samples.subjects;


import java.io.IOException;

import java.io.PrintWriter;


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 org.hibernate.Session;


import com.samples.domain.MasterClasses;

import com.samples.domain.MasterSubjects;

import com.samples.utils.HibernateUtil;



@WebServlet("/delSubServlet")

public class delSubServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;



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

                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterSubjects ms = new MasterSubjects("S09","GK");


                session.beginTransaction();

                session.delete(ms);

                session.getTransaction().commit();

                session.close();


                response.setContentType("text/html");

                PrintWriter out = response.getWriter();
```

```
                out.println("<h1>Deleted!</h1>");
        }


        protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterSubjects ms = new MasterSubjects("S09","GK");


                session.beginTransaction();
                session.delete(ms);
                session.getTransaction().commit();
                session.close();


                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");
        }


}
```

modSubServlet.java

```
package com.samples.subjects;


import java.io.IOException;
import java.util.ArrayList;
import java.util.List;


import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;


import com.samples.domain.MasterSubjects;
import com.samples.utils.HibernateUtil;
```

```
@WebServlet("/modSubServlet")
public class modSubServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

	List<MasterSubjects> msList = new ArrayList<>();

	protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
		Session session = HibernateUtil.getSessionFactory().openSession();

		MasterSubjects ms = new MasterSubjects("S09","GK");

		session.beginTransaction();
		session.update(ms);
		session.getTransaction().commit();
		session.close();

		// saves data to the mtList
		msList.add(ms);
		request.setAttribute("Subjects_List", msList);

		RequestDispatcher rd = request.getRequestDispatcher("/listSubjects.jsp");
		rd.forward(request, response);
	}

	protected void doPost(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
		Session session = HibernateUtil.getSessionFactory().openSession();

		MasterSubjects ms = new MasterSubjects("S09","GK");

		session.beginTransaction();
		session.update(ms);
		session.getTransaction().commit();
		session.close();

		// saves data to the mtList
		msList.add(ms);
		request.setAttribute("Subjects_List", msList);
```

```
                RequestDispatcher rd = request.getRequestDispatcher("/listSubjects.jsp");
                rd.forward(request, response);
        }

}
```

viewSubServlet.java

```
package com.samples.subjects;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;



@WebServlet("/viewSubServlet")
public class viewSubServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;

Connection connection;

        @Override
        public void init() throws ServletException {

                try {
                        Class.forName("com.mysql.jdbc.Driver");
                        connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
                } catch (ClassNotFoundException e) {
                        e.printStackTrace();
                } catch (SQLException e) {
```

```
                        e.printStackTrace();
                }

        }

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

                response.setContentType("text/html");

                System.out.println("doGet");
                try (Statement statement = connection.createStatement();) {

                        // using ResultSet to store the result and then print using the results object
                        ResultSet results = statement.executeQuery("select * from MasterSubjects");
                        PrintWriter out = response.getWriter();

                        out.println("<h1>Master List of Subjects:</h1>");
                        out.println("<table>");
                        out.println("<tr>");
                        out.println("<th>Subject ID</th>");
                        out.println("<th>Subject Name</th>");
                        out.println("</tr>");
                        while (results.next()) {
                                out.println("<tr>");
                                out.println("<td>" + results.getString(1) + "</td>");
                                out.println("<td>" + results.getString(2) + "</td>");
                                out.println("</tr>");
                        }
                        out.println("</table>");


                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }

        @Override
        public void destroy() {
```

```
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }
}
```

Files under /src/main/java/com/samples/teachers

addTeacherServlet.java

```
package com.samples.teachers;

import java.io.IOException;
import java.io.PrintWriter;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;
import org.hibernate.Transaction;

import com.samples.domain.MasterClasses;
import com.samples.domain.MasterSubjects;
import com.samples.domain.MasterTeachers;
import com.samples.utils.HibernateUtil;

@WebServlet("/addTeacherServlet")
public class addTeacherServlet extends HttpServlet {
        private static final long serialVersionUID = 1L;

        List<MasterTeachers> mtList = new ArrayList<>();
```

```
        protected void doGet(HttpServletRequest request, HttpServletResponse response) throws
ServletException, IOException {
                Session session = HibernateUtil.getSessionFactory().openSession();


                Transaction txn = session.getTransaction();


                try {


                        txn.begin();


                        MasterTeachers mt = new MasterTeachers("T03","Paul");


                        session.persist(mt);


                        txn.commit();


                        // saves data to the mtList
                        mtList.add(mt);
                        request.setAttribute("Teachers_List", mtList);


                        RequestDispatcher rd = request.getRequestDispatcher("/listTeachers.jsp");
                        rd.forward(request, response);


                        PrintWriter out =response.getWriter();
                        out.println("Operation Complete!");


                } catch (Exception ex) {
                        if (txn != null) {
                                txn.rollback();
                        }
                        ex.printStackTrace();
                } finally {
                        if (session != null) {
                                session.close();
                        }
                }
        }



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

```
		Session session = HibernateUtil.getSessionFactory().openSession();

		Transaction txn = session.getTransaction();

		try {

			txn.begin();

			MasterTeachers mt = new MasterTeachers("T03","Paul");

			session.persist(mt);

			txn.commit();

			// saves data to the mtList
			mtList.add(mt);
			request.setAttribute("Teachers_List", mtList);

			RequestDispatcher rd = request.getRequestDispatcher("/listTeachers.jsp");
			rd.forward(request, response);

			PrintWriter out =response.getWriter();
			out.println("Operation Complete!");

		} catch (Exception ex) {
			if (txn != null) {
				txn.rollback();
			}
			ex.printStackTrace();
		} finally {
			if (session != null) {
				session.close();
			}
		}
	}

}
```

delTeacherServlet.java

```
package com.samples.teachers;


import java.io.IOException;

import java.io.PrintWriter;

import java.util.ArrayList;

import java.util.List;


import javax.servlet.RequestDispatcher;

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 org.hibernate.Session;


import com.samples.domain.MasterTeachers;

import com.samples.utils.HibernateUtil;



@WebServlet("/delTeacherServlet")

public class delTeacherServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;



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


                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterTeachers mt = new MasterTeachers("T03","Solomon");


                session.beginTransaction();

                session.delete(mt);

                session.getTransaction().commit();

                session.close();


                response.setContentType("text/html");
```

```
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");

        }

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

                Session session = HibernateUtil.getSessionFactory().openSession();

                MasterTeachers mt = new MasterTeachers("T03","Solomon");

                session.beginTransaction();
                session.delete(mt);
                session.getTransaction().commit();
                session.close();

                response.setContentType("text/html");
                PrintWriter out = response.getWriter();
                out.println("<h1>Deleted!</h1>");

        }

}
```

modTeacherServlet.java

```
package com.samples.teachers;

import java.io.IOException;
import java.util.ArrayList;
import java.util.List;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;


import com.samples.domain.MasterTeachers;

import com.samples.utils.HibernateUtil;


@WebServlet("/modTeacherServlet")

public class modTeacherServlet extends HttpServlet {

        private static final long serialVersionUID = 1L;


        List<MasterTeachers> mtList = new ArrayList<>();


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


                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterTeachers mt = new MasterTeachers("T03","Solomon");


                session.beginTransaction();

                session.update(mt);

                session.getTransaction().commit();

                session.close();


                // saves data to the mtList

                mtList.add(mt);

                request.setAttribute("Teachers_List", mtList);


                RequestDispatcher rd = request.getRequestDispatcher("/listTeachers.jsp");

                rd.forward(request, response);


        }


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


                Session session = HibernateUtil.getSessionFactory().openSession();


                MasterTeachers mt = new MasterTeachers("T03","Solomon");


                session.beginTransaction();

                session.update(mt);
```

```
                session.getTransaction().commit();
                session.close();

                // saves data to the mtList
                mtList.add(mt);
                request.setAttribute("Teachers_List", mtList);

                RequestDispatcher rd = request.getRequestDispatcher("/listTeachers.jsp");
                rd.forward(request, response);

        }

}
```

viewTeacherServlet.java

```
package com.samples.teachers;

import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.ResultSet;
import java.sql.SQLException;
import java.sql.Statement;

import javax.servlet.RequestDispatcher;
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 org.hibernate.Session;
import org.hibernate.Transaction;

import com.samples.domain.MasterClasses;
import com.samples.domain.MasterSubjects;
import com.samples.domain.MasterTeachers;
import com.samples.utils.HibernateUtil;

@WebServlet("/viewTeacherServlet")
```

```
public class viewTeacherServlet extends HttpServlet {
	private static final long serialVersionUID = 1L;

Connection connection;

	@Override
	public void init() throws ServletException {

		try {
			Class.forName("com.mysql.jdbc.Driver");
			connection =
DriverManager.getConnection("jdbc:mysql://localhost/learnersacademy", "root", "admin");
		} catch (ClassNotFoundException e) {
			e.printStackTrace();
		} catch (SQLException e) {
			e.printStackTrace();
		}

	}

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

		response.setContentType("text/html");

		System.out.println("doGet");
		try (Statement statement = connection.createStatement();) {

			// using ResultSet to store the result and then print using the results object
			ResultSet results = statement.executeQuery("select * from MasterTeachers");
			PrintWriter out = response.getWriter();

			out.println("<h1>Master List of Teachers:</h1>");
			out.println("<table>");
			out.println("<tr>");
			out.println("<th>Teacher ID</th>");
			out.println("<th>Teacher Name</th>");
			out.println("</tr>");
			while (results.next()) {
				out.println("<tr>");
				out.println("<td>" + results.getString(1) + "</td>");
```

```
                        out.println("<td>" + results.getString(2) + "</td>");
                        out.println("</tr>");
                    }
                    out.println("</table>");


                }
                catch (SQLException e) {
                        e.printStackTrace();
                }

        }


        @Override
        public void destroy() {
                try {
                        connection.close();
                } catch (SQLException e) {
                        e.printStackTrace();
                }
        }


}
```

Files under /src/main/java/com/samples/utils

HibernateUtil.java

```
package com.samples.utils;

import org.hibernate.SessionFactory;
import org.hibernate.boot.Metadata;
import org.hibernate.boot.MetadataSources;
import org.hibernate.boot.registry.StandardServiceRegistry;
import org.hibernate.boot.registry.StandardServiceRegistryBuilder;

public class  HibernateUtil{

        private static final SessionFactory sessionFactory = buildSessionFactory();
```

```
	private static SessionFactory buildSessionFactory() {
		try {
			StandardServiceRegistry serviceRegistry = new StandardServiceRegistryBuilder()
					.configure("hibernate.cfg.xml").build();
			Metadata metadata = new
MetadataSources(serviceRegistry).getMetadataBuilder().build();
			return metadata.getSessionFactoryBuilder().build();
		} catch (Exception ex) {
			System.out.println("SessionFactory creation failed.." + ex);
			throw ex;
		}
	}

	public static SessionFactory getSessionFactory() {
		return sessionFactory;
	}

}
```

Files under /src/main/java

hibernate.cfg.xml

```
<?xml version='1.0' encoding='utf-8'?>
<!DOCTYPE hibernate-configuration PUBLIC
 "-//Hibernate/Hibernate Configuration DTD 3.0//EN"
 "http://www.hibernate.org/dtd/hibernate-configuration-3.0.dtd">

<hibernate-configuration>
	<session-factory>
		<!-- Database connection settings -->
		<property
name="connection.driver_class">com.mysql.jdbc.Driver</property>
		<property
name="connection.url">jdbc:mysql://localhost:3306/learnersacademy</property>
		<property name="connection.username">root</property>
		<property name="connection.password">admin</property>
		<!-- SQL dialect -->
		<property
name="dialect">org.hibernate.dialect.MySQL8Dialect</property>

		<!-- Echo all executed SQL to stdout -->
		<property name="show_sql">true</property>

		<property name="hbm2ddl.auto">update</property>

		<!--  Use annotation basaed mapping metadata -->
		<mapping class="com.samples.domain.MasterClasses"/>
		<mapping class="com.samples.domain.MasterStudents"/>
		<mapping class="com.samples.domain.MasterSubjects"/>
		<mapping class="com.samples.domain.MasterTeachers"/>
```

```
        </session-factory>
    </hibernate-configuration>
```